FEDERAL OPERATING PERMIT

A FEDERAL OPERATING PERMIT IS HEREBY ISSUED TO
Bayport Polymers LLC

AUTHORIZING THE OPERATION OF
Ethane Cracker
Petrochemical Manufacturing

LOCATED AT
Jefferson County, Texas
Latitude 29° 57' 47" Longitude 93° 53' 25"
Regulated Entity Number: RN109845768

This permit is issued in accordance with and subject to the Texas Clean Air Act (TCAA), Chapter 382 of the Texas Health and Safety Code and Title 30 Texas Administrative Code Chapter 122 (30 TAC Chapter 122), Federal Operating Permits. Under 30 TAC Chapter 122, this permit constitutes the permit holder's authority to operate the site and emission units listed in this permit. Operations of the site and emission units listed in this permit are subject to all additional rules or amended rules and orders of the Commission pursuant to the TCAA.

This permit does not relieve the permit holder from the responsibility of obtaining New Source Review authorization for new, modified, or existing facilities in accordance with 30 TAC Chapter 116, Control of Air Pollution by Permits for New Construction or Modification.

The site and emission units authorized by this permit shall be operated in accordance with 30 TAC Chapter 122, the general terms and conditions, special terms and conditions, and attachments contained herein.

This permit shall expire five years from the date of issuance. The renewal requirements specified in 30 TAC § 122.241 must be satisfied in order to renew the authorization to operate the site and emission units.

Permit No: O4161 Issuance Date: _____

_____
For the Commission

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General Terms and Conditions

The permit holder shall comply with all terms and conditions contained in 30 TAC § 122.143 (General Terms and Conditions), 30 TAC § 122.144 (Recordkeeping Terms and Conditions), 30 TAC § 122.145 (Reporting Terms and Conditions), and 30 TAC § 122.146 (Compliance Certification Terms and Conditions).

In accordance with 30 TAC § 122.144(1), records of required monitoring data and support information required by this permit, or any applicable requirement codified in this permit, are required to be maintained for a period of five years from the date of the monitoring report, sample, or application unless a longer data retention period is specified in an applicable requirement. The five year record retention period supersedes any less stringent retention requirement that may be specified in a condition of a permit identified in the New Source Review Authorization attachment.

If the permit holder chooses to demonstrate that this permit is no longer required, a written request to void this permit shall be submitted to the Texas Commission on Environmental Quality (TCEQ) by the Responsible Official in accordance with 30 TAC § 122.161(e). The permit holder shall comply with the permit's requirements, including compliance certification and deviation reporting, until notified by the TCEQ that this permit is voided.

The permit holder shall comply with 30 TAC Chapter 116 by obtaining a New Source Review authorization prior to new construction or modification of emission units located in the area covered by this permit.

All reports required by this permit must include in the submittal a cover letter which identifies the following information: company name, TCEQ regulated entity number, air account number (if assigned), site name, area name (if applicable), and Air Permits Division permit number(s).

Special Terms and Conditions:

Emission Limitations and Standards, Monitoring and Testing, and Recordkeeping and Reporting

1. Permit holder shall comply with the following requirements:

    A. Emission units (including groups and processes) in the Applicable Requirements Summary attachment shall meet the limitations, standards, equipment specifications, monitoring, recordkeeping, reporting, testing, and other requirements listed in the Applicable Requirements Summary attachment to assure compliance with the permit.

    B. The textual description in the column titled "Textual Description" in the Applicable Requirements Summary attachment is not enforceable and is not deemed as a substitute for the actual regulatory language. The Textual Description is provided for information purposes only.

    C. A citation listed on the Applicable Requirements Summary attachment, which has a notation [G] listed before it, shall include the referenced section and subsection for all commission rules, or paragraphs for all federal and state regulations and all subordinate paragraphs, subparagraphs and clauses, subclauses, and items contained within the referenced citation as applicable requirements.

    D. When a grouped citation, notated with a [G] in the Applicable Requirements Summary, contains multiple compliance options, the permit holder must keep records of when each compliance option was used.

    E. Emission units subject to 40 CFR Part 63, Subparts A, YY, and ZZZZ as identified in the attached Applicable Requirements Summary table are subject to 30 TAC Chapter 113,

Subchapter C, §§ 113.100, 113.560, and 113.1090, respectively, which incorporates the 40 CFR Part 63 Subpart by reference.

2. The permit holder shall comply with the following sections of 30 TAC Chapter 101 (General Air Quality Rules):

   A. Title 30 TAC § 101.1 (relating to Definitions), insofar as the terms defined in this section are used to define the terms used in other applicable requirements

   B. Title 30 TAC § 101.3 (relating to Circumvention)

   C. Title 30 TAC § 101.8 (relating to Sampling), if such action has been requested by the TCEQ

   D. Title 30 TAC § 101.9 (relating to Sampling Ports), if such action has been requested by the TCEQ

   E. Title 30 TAC § 101.10 (relating to Emissions Inventory Requirements)

   F. Title 30 TAC § 101.201 (relating to Emission Event Reporting and Recordkeeping Requirements)

   G. Title 30 TAC § 101.211 (relating to Scheduled Maintenance, Start-up, and Shutdown Reporting and Recordkeeping Requirements)

   H. Title 30 TAC § 101.221 (relating to Operational Requirements)

   I. Title 30 TAC § 101.222 (relating to Demonstrations)

   J. Title 30 TAC § 101.223 (relating to Actions to Reduce Excessive Emissions)

3. Permit holder shall comply with the following requirements of 30 TAC Chapter 111:

   A. Visible emissions from stationary vents with a flow rate of less than 100,000 actual cubic feet per minute and constructed after January 31, 1972 that are not listed in the Applicable Requirements Summary attachment for 30 TAC Chapter 111, Subchapter A, Division 1, shall not exceed 20% opacity averaged over a six-minute period. The permit holder shall comply with the following requirements for stationary vents at the site subject to this standard:

      (i) Title 30 TAC § 111.111(a)(1)(B) (relating to Requirements for Specified Sources)

      (ii) Title 30 TAC § 111.111(a)(1)(E)

      (iii) Title 30 TAC § 111.111(a)(1)(F)(i), (ii), (iii), or (iv)

      (iv) For emission units with vent emissions subject to 30 TAC § 111.111(a)(1)(B), complying with 30 TAC § 111.111(a)(1)(F)(ii), (iii), or (iv), and capable of producing visible emissions from, but not limited to, particulate matter, acid gases and NO_x, the permit holder shall also comply with the following periodic monitoring requirements for the purpose of annual compliance certification under 30 TAC § 122.146. These periodic monitoring requirements do not apply to vents that are not capable of producing visible emissions such as vents that emit only colorless VOCs; vents from non-fuming liquids; vents that provide passive ventilation, such as plumbing vents; or vent emissions from any other source that

does not obstruct the transmission of light. Vents, as specified in the "Applicable Requirements Summary" attachment, that are subject to the emission limitation of 30 TAC § 111.111(a)(1)(B) are not subject to the following periodic monitoring requirements:

(1) An observation of stationary vents from emission units in operation shall be conducted at least once during each calendar quarter unless the emission unit is not operating for the entire quarter.

(2) For stationary vents from a combustion source, if an alternative to the normally fired fuel is fired for a period greater than or equal to 24 consecutive hours, the permit holder shall conduct an observation of the stationary vent for each such period to determine if visible emissions are present. If such period is greater than 3 months, observations shall be conducted once during each quarter. Supplementing the normally fired fuel with natural gas or fuel gas to increase the net heating value to the minimum required value does not constitute creation of an alternative fuel.

(3) Records of all observations shall be maintained.

(4) Visible emissions observations of emission units operated during daylight hours shall be conducted no earlier than one hour after sunrise and no later than one hour before sunset. Visible emissions observations of emission units operated only at night must be made with additional lighting and the temporary installation of contrasting backgrounds. Visible emissions observations shall be made during times when the activities described in 30 TAC § 111.111(a)(1)(E) are not taking place. Visible emissions shall be determined with each stationary vent in clear view of the observer. The observer shall be at least 15 feet, but not more than 0.25 mile, away from each stationary vent during the observation. For outdoor locations, the observer shall select a position where the sun is not directly in the observer's eyes. When condensed water vapor is present within the plume, as it emerges from the emissions outlet, observations must be made beyond the point in the plume at which condensed water vapor is no longer visible. When water vapor within the plume condenses and becomes visible at a distance from the emissions outlet, the observation shall be evaluated at the outlet prior to condensation of water vapor. A certified opacity reader is not required for visible emissions observations.

(5) Compliance Certification:

(a) If visible emissions are not present during the observation, the RO may certify that the source is in compliance with the applicable opacity requirement in 30 TAC § 111.111(a)(1) and (a)(1)(B).

(b) However, if visible emissions are present during the observation, the permit holder shall either list this occurrence as a deviation on the next deviation report as required under 30 TAC § 122.145(2) or conduct the appropriate opacity test specified in 30 TAC § 111.111(a)(1)(F) as soon as practicable, but no later than 24 hours after observing visible emissions to determine if the source is in compliance with the opacity requirements. If an opacity test is performed and the source is

determined to be in compliance, the RO may certify that the source is in compliance with the applicable opacity requirement. However, if an opacity test is performed and the source is determined to be out of compliance, the permit holder shall list this occurrence as a deviation on the next deviation report as required under 30 TAC § 122.145(2). The opacity test must be performed by a certified opacity reader.

(c) Some vents may be subject to multiple visible emission or monitoring requirements. All credible data must be considered when certifying compliance with this requirement even if the observation or monitoring was performed to demonstrate compliance with a different requirement.

B. Certification of opacity readers determining opacities under Method 9 (as outlined in 40 CFR Part 60, Appendix A) to comply with opacity monitoring requirements shall be accomplished by completing the Visible Emissions Evaluators Course, or approved agency equivalent, no more than 180 days before the opacity reading.

C. For emission units with contributions from uncombined water, the permit holder shall comply with the requirements of 30 TAC § 111.111(b).

D. Emission limits on nonagricultural processes, except for the steam generators specified in 30 TAC § 111.153, shall comply with the following requirements:

(i) Emissions of PM from any source may not exceed the allowable rates as required in 30 TAC § 111.151(a) (relating to Allowable Emissions Limits)

(ii) Sources with an effective stack height (h_e) less than the standard effective stack height (H_e), must reduce the allowable emission level by multiplying it by $[h_e/H_e]^2$ as required in 30 TAC § 111.151(b)

(iii) Effective stack height shall be calculated by the equation specified in 30 TAC § 111.151(c)

E. Outdoor burning, as stated in 30 TAC § 111.201, shall not be authorized unless the following requirements are satisfied:

(i) Title 30 TAC § 111.205 (relating to Exception for Fire Training)

(ii) Title 30 TAC § 111.207 (relating to Exception for Recreation, Ceremony, Cooking, and Warmth)

(iii) Title 30 TAC § 111.219 (relating to General Requirements for Allowable Outdoor Burning)

(iv) Title 30 TAC § 111.221 (relating to Responsibility for Consequences of Outdoor Burning)

F. Title 30 TAC § 115.142(1)(E) and (F) (relating to Control Requirements)

G. Title 30 TAC § 115.146 (relating to Recordkeeping Requirements)

4. The permit holder shall comply with the following 30 TAC Chapter 115, Subchapter F requirements (relating to Cutback Asphalt Requirements):

A. Title 30 TAC § 115.512(1) (relating to Control Requirements)

B. Title 30 TAC § 115.512(2) (relating to Control Requirements)

C. Title 30 TAC § 115.512(3) (relating to Control Requirements)

D. Title 30 TAC § 115.515 (relating to Testing Requirements)

5. The permit holder shall comply with the following requirements for units subject to any subpart of 40 CFR Part 60, unless otherwise stated in the applicable subpart:

A. Title 40 CFR § 60.7 (relating to Notification and Recordkeeping)

B. Title 40 CFR § 60.8 (relating to Performance Tests)

C. Title 40 CFR § 60.11 (relating to Compliance with Standards and Maintenance Requirements)

D. Title 40 CFR § 60.12 (relating to Circumvention)

E. Title 40 CFR § 60.13 (relating to Monitoring Requirements)

F. Title 40 CFR § 60.14 (relating to Modification)

G. Title 40 CFR § 60.15 (relating to Reconstruction)

H. Title 40 CFR § 60.19 (relating to General Notification and Reporting Requirements)

6. The permit holder shall comply with the following requirements for units subject to any subpart of 40 CFR Part 61, unless otherwise stated in the applicable subpart:

A. Title 40 CFR § 61.05 (relating to Prohibited Activities)

B. Title 40 CFR § 61.07 (relating to Application for Approval of Construction or Modification)

C. Title 40 CFR § 61.09 (relating to Notification of Start-up)

D. Title 40 CFR § 61.10 (relating to Source Reporting and Request Waiver)

E. Title 40 CFR § 61.12 (relating to Compliance with Standards and Maintenance Requirements)

F. Title 40 CFR § 61.13 (relating to Emissions Tests and Waiver of Emission Tests)

G. Title 40 CFR § 61.14 (relating to Monitoring Requirements)

H. Title 40 CFR § 61.15 (relating to Modification)

I. Title 40 CFR § 61.19 (relating to Circumvention)

7. For facilities where total annual benzene quantity from waste is greater than or equal to 1 megagram per year and less than 10 megagrams per year and subject to emission standards in 40 CFR Part 61, Subpart FF, the permit holder shall comply with the following requirements:

A. Title 40 CFR § 61.355(a)(1)(iii), (a)(2), (a)(4)(i) - (ii), (a)(6), (b), and (c)(1) - (3) (relating to Test Methods, Procedures, and Compliance Provisions), for calculation procedures

B. Title 40 CFR § 61.356(a) (relating to Recordkeeping Requirements)

C. Title 40 CFR § 61.356(b), and (b)(1) (relating to Recordkeeping Requirements)

D. Title 40 CFR § 61.357(a), and (c) (relating to Reporting Requirements)

8. The permit holder shall comply with the requirements of 30 TAC Chapter 113, Subchapter C, § 113.100 for units subject to any subpart of 40 CFR Part 63, unless otherwise stated in the applicable subpart.

9. For transfer of waste from ethylene production facilities subject to 40 CFR Part 63, Subpart YY the permit holder shall comply with the following requirements (Title 30 TAC Chapter 113, Subchapter C, § 113.560 incorporated by reference):

A. Title 40 CFR § 63.1096(a) - (d) (Title 30 TAC Chapter 113, Subchapter C, § 113.550 incorporated by reference)

B. Title 40 CFR § 63.1109(a) and (c)

Additional Monitoring Requirements

10. Unless otherwise specified, the permit holder shall comply with the compliance assurance monitoring requirements as specified in the attached “CAM Summary” upon issuance of the permit. In addition, the permit holder shall comply with the following:

A. The permit holder shall comply with the terms and conditions contained in 30 TAC § 122.147 (General Terms and Conditions for Compliance Assurance Monitoring).

B. The permit holder shall report, consistent with the averaging time identified in the “CAM Summary,” deviations as defined by the deviation limit in the “CAM Summary.” Any monitoring data below a minimum limit or above a maximum limit, that is collected in accordance with the requirements specified in 40 CFR § 64.7(c), shall be reported as a deviation. Deviations shall be reported according to 30 TAC § 122.145 (Reporting Terms and Conditions).

C. The permit holder may elect to collect monitoring data on a more frequent basis and average the data, consistent with the averaging time or minimum frequency specified in the “CAM Summary,” for purposes of determining whether a deviation has occurred. However, the additional data points must be collected on a regular basis. In no event shall data be collected and used in particular instances in order to avoid reporting deviations. All monitoring data shall be collected in accordance with the requirements specified in 40 CFR § 64.7(c).

D. The permit holder shall operate the monitoring, identified in the attached “CAM Summary,” in accordance with the provisions of 40 CFR § 64.7.

E. The permit holder shall comply with the requirements of 40 CFR § 70.6(a)(3)(ii)(A) and 30 TAC § 122.144(1)(A)-(F) for documentation of all required inspections.

11. The permit holder shall comply with the periodic monitoring requirements as specified in the attached “Periodic Monitoring Summary” upon issuance of the permit. Except for, as applicable,

monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), the permit holder shall conduct all monitoring in continuous operation (or shall collect data at all required intervals) at all times that the pollutant-specific emissions unit is operating. The permit holder may elect to collect monitoring data on a more frequent basis and average the data, consistent with the averaging time or minimum frequency specified in the "Periodic Monitoring Summary," for purposes of determining whether a deviation has occurred. However, the additional data points must be collected on a regular basis. In no event shall data be collected and used in particular instances to avoid reporting deviations. Deviations shall be reported according to 30 TAC § 122.145 (Reporting Terms and Conditions).

New Source Review Authorization Requirements

12. Permit holder shall comply with the requirements of New Source Review authorizations issued or claimed by the permit holder for the permitted area, including permits, permits by rule, standard permits, flexible permits, special permits, permits for existing facilities including Voluntary Emissions Reduction Permits and Electric Generating Facility Permits issued under 30 TAC Chapter 116, Subchapter I, or special exemptions referenced in the New Source Review Authorization References attachment. These requirements:

    A. Are incorporated by reference into this permit as applicable requirements

    B. Shall be located with this operating permit

    C. Are not eligible for a permit shield

13. The permit holder shall comply with the general requirements of 30 TAC Chapter 106, Subchapter A or the general requirements, if any, in effect at the time of the claim of any PBR.

14. The permit holder shall maintain records to demonstrate compliance with any emission limitation or standard that is specified in a permit by rule (PBR) or Standard Permit listed in the New Source Review Authorizations attachment. The records shall yield reliable data from the relevant time period that are representative of the emission unit's compliance with the PBR or Standard Permit. These records may include, but are not limited to, production capacity and throughput, hours of operation, safety data sheets (SDS), chemical composition of raw materials, speciation of air contaminant data, engineering calculations, maintenance records, fugitive data, performance tests, capture/control device efficiencies, direct pollutant monitoring (CEMS, COMS, or PEMS), or control device parametric monitoring. These records shall be made readily accessible and available as required by 30 TAC § 122.144. Any monitoring or recordkeeping data indicating noncompliance with the PBR or Standard Permit shall be considered and reported as a deviation according to 30 TAC § 122.145 (Reporting Terms and Conditions).

Compliance Requirements

15. The permit holder shall certify compliance in accordance with 30 TAC § 122.146. The permit holder shall comply with 30 TAC § 122.146 using at a minimum, but not limited to, the continuous or intermittent compliance method data from monitoring, recordkeeping, reporting, or testing required by the permit and any other credible evidence or information. The certification period may not exceed 12 months and the certification must be submitted within 30 days after the end of the period being certified.

16. Permit holder shall comply with the following 30 TAC Chapter 117 requirements:

A. The permit holder shall comply with the compliance schedules and submit written notification to the TCEQ Executive Director as required in 30 TAC Chapter 117, Subchapter H, Division 1:

(i) For sources in the Beaumont-Port Arthur Nonattainment area, 30 TAC § 117.9000

17. Use of Emission Credits to comply with applicable requirements:

A. Unless otherwise prohibited, the permit holder may use emission credits to comply with the following applicable requirements listed elsewhere in this permit:

(i) Title 30 TAC Chapter 115

(ii) Title 30 TAC Chapter 117

(iii) Offsets for Title 30 TAC Chapter 116

B. The permit holder shall comply with the following requirements in order to use the emission credits to comply with the applicable requirements:

(i) The permit holder must notify the TCEQ according to 30 TAC § 101.306(c)-(d)

(ii) The emission credits to be used must meet all the geographic, timeliness, applicable pollutant type, and availability requirements listed in 30 TAC Chapter 101, Subchapter H, Division 1

(iii) The executive director has approved the use of the credit according to 30 TAC § 101.306(c)-(d)

(iv) The permit holder keeps records of the use of credits towards compliance with the applicable requirements in accordance with 30 TAC § 101.302(g) and 30 TAC Chapter 122

(v) Title 30 TAC § 101.305 (relating to Emission Reductions Achieved Outside the United States)

18. Use of Discrete Emission Credits to comply with the applicable requirements:

A. Unless otherwise prohibited, the permit holder may use discrete emission credits to comply with the following applicable requirements listed elsewhere in this permit:

(i) Title 30 TAC Chapter 115

(ii) Title 30 TAC Chapter 117

(iii) If applicable, offsets for Title 30 TAC Chapter 116

(iv) Temporarily exceed state NSR permit allowables

B. The permit holder shall comply with the following requirements in order to use the credit to comply with the applicable requirements:

(i) The permit holder must notify the TCEQ according to 30 TAC § 101.376(d)

(ii) The discrete emission credits to be used must meet all the geographic, timeliness, applicable pollutant type, and availability requirements listed in 30 TAC Chapter 101, Subchapter H, Division 4

(iii) The executive director has approved the use of the discrete emission credits according to 30 TAC § 101.376(d)(1)(A)

(iv) The permit holder keeps records of the use of credits towards compliance with the applicable requirements in accordance with 30 TAC § 101.372(h) and 30 TAC Chapter 122

(v) Title 30 TAC § 101.375 (relating to Emission Reductions Achieved Outside the United States)

Risk Management Plan

19. For processes subject to 40 CFR Part 68 and specified in 40 CFR § 68.10, the permit holder shall comply with the requirements of the Accidental Release Prevention Provisions in 40 CFR Part 68. The permit holder shall submit to the appropriate agency either a compliance schedule for meeting the requirements of 40 CFR Part 68 by the date provided in 40 CFR § 68.10(a), or as part of the compliance certification submitted under this permit, a certification statement that the source is in compliance with all requirements of 40 CFR Part 68, including the registration and submission of a risk management plan.

Protection of Stratospheric Ozone

20. Permit holders at a site subject to Title VI of the FCAA Amendments shall meet the following requirements for protection of stratospheric ozone:

A. Any on site servicing, maintenance, and repair on refrigeration and nonmotor vehicle air-conditioning appliances using ozone-depleting refrigerants or non-exempt substitutes shall be conducted in accordance with 40 CFR Part 82, Subpart F. Permit holders shall ensure that repairs on or refrigerant removal from refrigeration and nonmotor vehicle air-conditioning appliances using ozone-depleting refrigerants are performed only by properly certified technicians using certified equipment. Records shall be maintained as required by 40 CFR Part 82, Subpart F.

Alternative Requirements

21. The permit holder shall comply with the approved alternative means of control (AMOC); alternative monitoring, recordkeeping, or reporting requirements; or requirements determined to be equivalent to an otherwise applicable requirement contained in the Alternative Requirements attachment of this permit. Units complying with an approved alternative requirement have reference to the approval in the Applicable Requirements summary listing for the unit. The permit holder shall maintain the original documentation, from the EPA Administrator and TCEQ Executive Director, demonstrating the method or limitation utilized. Documentation shall be maintained and made available in accordance with 30 TAC § 122.144.

Permit Location

22. The permit holder shall maintain a copy of this permit and records related to requirements listed in this permit on site.

Permit Shield (30 TAC § 122.148)

23. A permit shield is granted for the emission units, groups, or processes specified in the attached "Permit Shield." Compliance with the conditions of the permit shall be deemed compliance with the specified potentially applicable requirements or specified potentially applicable state-only requirements listed in the attachment "Permit Shield." Permit shield provisions shall not be modified by the executive director until notification is provided to the permit holder. No later than 90 days after notification of a change in a determination made by the executive director, the permit holder shall apply for the appropriate permit revision to reflect the new determination. Provisional terms are not eligible for this permit shield. Any term or condition, under a permit shield, shall not be protected by the permit shield if it is replaced by a provisional term or condition or the basis of the term and condition changes.

Attachments

Applicable Requirements Summary

Additional Monitoring Requirements

Permit Shield

New Source Review Authorization References

Alternative Requirement

Applicable Requirements Summary

Note: A “none” entry may be noted for some emission sources in this permit’s “Applicable Requirements Summary” under the heading of “Monitoring and Testing Requirements” and/or “Recordkeeping Requirements” and/or “Reporting Requirements.” Such a notation indicates that there are no requirements for the indicated emission source as identified under the respective column heading(s) for the stated portion of the regulation when the emission source is operating under the conditions of the specified SOP Index Number. However, other relevant requirements pursuant to 30 TAC Chapter 122 including Recordkeeping Terms and Conditions (30 TAC § 122.144), Reporting Terms and Conditions (30 TAC § 122.145), and Compliance Certification Terms and Conditions (30 TAC § 122.146) continue to apply.

Unit Summary

Unit/Group/ Process ID No.	Unit Type	Group/Inclusive Units	SOP Index No.	Regulation	Requirement Driver
EMERGEN	SRIC ENGINES	N/A	60IIII-1	40 CFR Part 60, Subpart IIII	No changing attributes.
EMERGEN	SRIC ENGINES	N/A	63ZZZZ-1	40 CFR Part 63, Subpart ZZZZ	No changing attributes.
GENERATOR	SRIC ENGINES	N/A	60IIII-1	40 CFR Part 60, Subpart IIII	No changing attributes.
GENERATOR	SRIC ENGINES	N/A	63ZZZZ-1	40 CFR Part 63, Subpart ZZZZ	No changing attributes.
GRP-FURNCAP	EMISSION POINTS/STATIONARY VENTS/PROCESS VENTS	H-1101, H-1102, H-1103, H-1104, H-1105, H-1106, H-1107	R1111-2	30 TAC Chapter 111, Visible Emissions	No changing attributes.
GRP-FURNCAP	EMISSION POINTS/STATIONARY VENTS/PROCESS VENTS	H-1101, H-1102, H-1103, H-1104, H-1105, H-1106, H-1107	63YY	40 CFR Part 63, Subpart YY	No changing attributes.
LOAD	LOADING/UNLOADING OPERATIONS	N/A	R5211-2	30 TAC Chapter 115, Loading and Unloading of VOC	Daily Throughput = Loading less than 20,000 gallons per day.
LOAD	LOADING/UNLOADING OPERATIONS	N/A	R5211-3	30 TAC Chapter 115, Loading and Unloading of VOC	Daily Throughput = Daily throughput not determined since 30 TAC § 115.217(a)(2)(A) or 30 TAC § 115.217(b)(3)(A) exemption is not utilized., Chapter 115 Control Device Type = Vapor control system with a carbon adsorption system., Control Options = Vapor control system that maintains a control efficiency of at least 90%., Vapor Tight = Not all liquid and vapor lines are equipped with fittings which make vapor-tight connections that close automatically when

Unit Summary

Unit/Group/ Process ID No.	Unit Type	Group/Inclusive Units	SOP Index No.	Regulation	Requirement Driver
					disconnected.
LOAD	LOADING/UNLOADING OPERATIONS	N/A	R5211-4	30 TAC Chapter 115, Loading and Unloading of VOC	Daily Throughput = Daily throughput not determined since 30 TAC § 115.217(a)(2)(A) or 30 TAC § 115.217(b)(3)(A) exemption is not utilized., Chapter 115 Control Device Type = Control device other than a flare, vapor combustor, catalytic incinerator, direct flame incinerator, chiller, or carbon adsorption system., Control Options = Vapor control system that maintains a control efficiency of at least 90%., Vapor Tight = Not all liquid and vapor lines are equipped with fittings which make vapor-tight connections that close automatically when disconnected.
PROPROCESS	CHEMICAL MANUFACTURING PROCESS	N/A	63YY	40 CFR Part 63, Subpart YY	No changing attributes.
SCFUG	FUGITIVE EMISSION UNITS	N/A	60VVA-ALL	40 CFR Part 60, Subpart VVa	No changing attributes.
SCFUG	FUGITIVE EMISSION UNITS	N/A	63YY	40 CFR Part 63, Subpart YY	No changing attributes.
T-1202	STORAGE TANKS/VESSELS	N/A	R5112-2	30 TAC Chapter 115, Storage of VOCs	No changing attributes.
T-1202	STORAGE TANKS/VESSELS	N/A	60Kb-1	40 CFR Part 60, Subpart Kb	No changing attributes.
T-1210	STORAGE TANKS/VESSELS	N/A	R5112-4	30 TAC Chapter 115, Storage of VOCs	No changing attributes.

Unit Summary

Unit/Group/ Process ID No.	Unit Type	Group/Inclusive Units	SOP Index No.	Regulation	Requirement Driver
T-1221A	STORAGE TANKS/VESSELS	N/A	R5112-2	30 TAC Chapter 115, Storage of VOCs	No changing attributes.
T-1221B	STORAGE TANKS/VESSELS	N/A	R5112-2	30 TAC Chapter 115, Storage of VOCs	No changing attributes.
T-5655	STORAGE TANKS/VESSELS	N/A	R5112-2	30 TAC Chapter 115, Storage of VOCs	No changing attributes.
T-5660	STORAGE TANKS/VESSELS	N/A	R5112-3	30 TAC Chapter 115, Storage of VOCs	No changing attributes.
T-5672	STORAGE TANKS/VESSELS	N/A	R5112-5	30 TAC Chapter 115, Storage of VOCs	No changing attributes.
T-5672	STORAGE TANKS/VESSELS	N/A	63YY	40 CFR Part 63, Subpart YY	No changing attributes.
UNLOAD	LOADING/UNLOADING OPERATIONS	N/A	R5211-1	30 TAC Chapter 115, Loading and Unloading of VOC	No changing attributes.
V-1290	STORAGE TANKS/VESSELS	N/A	R5112-4	30 TAC Chapter 115, Storage of VOCs	No changing attributes.
V-1291	STORAGE TANKS/VESSELS	N/A	R5112-4	30 TAC Chapter 115, Storage of VOCs	No changing attributes.
V-5651	STORAGE TANKS/VESSELS	N/A	R5112-4	30 TAC Chapter 115, Storage of VOCs	No changing attributes.
V-5652	STORAGE TANKS/VESSELS	N/A	R5112-4	30 TAC Chapter 115, Storage of VOCs	No changing attributes.
X3800VENT	EMISSION POINTS/STATIONARY VENTS/PROCESS VENTS	N/A	R5121-2	30 TAC Chapter 115, Vent Gas Controls	No changing attributes.
X3800VENT	EMISSION POINTS/STATIONARY VENTS/PROCESS VENTS	N/A	63YY	40 CFR Part 63, Subpart YY	No changing attributes.

Unit Summary

Unit/Group/ Process ID No.	Unit Type	Group/Inclusive Units	SOP Index No.	Regulation	Requirement Driver
XF-4601	FLARES	N/A	R1111-1	30 TAC Chapter 111, Visible Emissions	No changing attributes.
XF-4601	FLARES	N/A	60A-01	40 CFR Part 60, Subpart A	Flare Exit Velocity = Flare exit velocity is less than 60 ft/s (18.3 m/sec)
XF-4601	FLARES	N/A	60A-02	40 CFR Part 60, Subpart A	Flare Exit Velocity = Flare exit velocity is greater than or equal to 60 ft/s (18.3 m/sec) but less than 400 ft/s (122 m/sec)., Heating Value of Gas = Heating value is less than or equal to 1000 Btu/scf (37.3 MJ/scm).
XF-4601	FLARES	N/A	60A-03	40 CFR Part 60, Subpart A	Flare Exit Velocity = Flare exit velocity is greater than or equal to 60 ft/s (18.3 m/sec) but less than 400 ft/s (122 m/sec)., Heating Value of Gas = Heating value is greater than 1000 Btu/scf (37.3 MJ/scm)
XF-4601	FLARES	N/A	63A-01	40 CFR Part 63, Subpart A	Flare Exit Velocity = Flare exit velocity is less than 60 ft/s (18.3 m/sec)
XF-4601	FLARES	N/A	63A-02	40 CFR Part 63, Subpart A	Flare Exit Velocity = Flare exit velocity is greater than or equal to 60 ft/s (18.3 m/sec) but less than 400 ft/s (122 m/sec)., Heating Value of Gas = Heating value is less than or equal to 1000 Btu/scf (37.3 MJ/scm).
XF-4601	FLARES	N/A	63A-03	40 CFR Part 63, Subpart A	Flare Exit Velocity = Flare exit velocity is greater than or equal to 60 ft/s (18.3 m/sec) but less than 400 ft/s (122 m/sec)., Heating Value

Unit Summary

Unit/Group/ Process ID No.	Unit Type	Group/Inclusive Units	SOP Index No.	Regulation	Requirement Driver
					of Gas = Heating value is greater than 1000 Btu/scf (37.3 MJ/scm).
XF4601VENT	EMISSION POINTS/STATIONARY VENTS/PROCESS VENTS	N/A	R5121-1	30 TAC Chapter 115, Vent Gas Controls	No changing attributes.
XF4601VENT	EMISSION POINTS/STATIONARY VENTS/PROCESS VENTS	N/A	63YY	40 CFR Part 63, Subpart YY	No changing attributes.
XT-5672	VOLATILE ORGANIC COMPOUND WATER SEPARATORS	N/A	R5131-1	30 TAC Chapter 115, Water Separation	No changing attributes.
Z-5671	VOLATILE ORGANIC COMPOUND WATER SEPARATORS	N/A	R5131-1	30 TAC Chapter 115, Water Separation	No changing attributes.

Applicable Requirements Summary

Unit Group Process ID No.	Unit Group Process Type	SOP Index No.	Pollutant	State Rule or Federal Regulation Name	Emission Limitation, Standard or Equipment Specification Citation	Textual Description (See Special Term and Condition 1.B.)	Monitoring And Testing Requirements	Recordkeeping Requirements (30 TAC § 122.144)	Reporting Requirements (30 TAC § 122.145)
EMERGEN	EU	60IIII-1	CO	40 CFR Part 60, Subpart IIII	§ 60.4205(b) § 60.4202(a)(2) § 60.4206 § 60.4207(b) § 60.4211(c) [G]§ 60.4211(f) § 60.4211(g) § 60.4211(g)(2) § 60.4218 § 89.112(a)	Owners and operators of emergency stationary CI ICE, that are not fire pump engines, with a maximum engine power greater than or equal to 130 KW and less than or equal to 2237 KW and a displacement of less than 10 liters per cylinder and is a 2007 model year and later must comply with a CO emission limit of 3.5 g/KW-hr, as stated in 40 CFR 60.4202(a)(2) and 40 CFR 89.112(a).	§ 60.4211(g)(2) [G]§ 60.4212	§ 60.4211(g)(2)	[G]§ 60.4214(d)
EMERGEN	EU	60IIII-1	NMHC and NO_X	40 CFR Part 60, Subpart IIII	§ 60.4205(b) § 60.4202(a)(2) § 60.4206 § 60.4207(b) § 60.4211(c) [G]§ 60.4211(f) § 60.4211(g) § 60.4211(g)(2) § 60.4218 § 89.112(a)	Owners and operators of emergency stationary CI ICE, that are not fire pump engines, with a maximum engine power greater than or equal to 75 KW and less than or equal to 560 KW and a displacement of less than 10 liters per cylinder and is a 2007 model year and later must comply with an NMHC+NOx emission limit of 4.0 g/KW-hr, as stated in 40 CFR 60.4202(a)(2) and 40 CFR 89.112(a).	§ 60.4211(g)(2) [G]§ 60.4212	§ 60.4211(g)(2)	[G]§ 60.4214(d)
EMERGEN	EU	60IIII-1	PM	40 CFR Part 60, Subpart IIII	§ 60.4205(b) § 60.4202(a)(2) § 60.4206 § 60.4207(b) § 60.4211(c) [G]§ 60.4211(f) § 60.4211(g)	Owners and operators of emergency stationary CI ICE, that are not fire pump engines, with a maximum engine power greater than or equal to 130 KW and less than or equal to 2237 KW	§ 60.4211(g)(2) [G]§ 60.4212	§ 60.4211(g)(2)	[G]§ 60.4214(d)

Applicable Requirements Summary

Unit Group Process ID No.	Unit Group Process Type	SOP Index No.	Pollutant	State Rule or Federal Regulation Name	Emission Limitation, Standard or Equipment Specification Citation	Textual Description (See Special Term and Condition 1.B.)	Monitoring And Testing Requirements	Recordkeeping Requirements (30 TAC § 122.144)	Reporting Requirements (30 TAC § 122.145)
					§ 60.4211(g)(2) § 60.4218 § 89.112(a)	and a displacement of less than 10 liters per cylinder and is a 2007 model year and later must comply with a PM emission limit of 0.20 g/KW-hr, as stated in 40 CFR 60.4202(a)(2) and 40 CFR 89.112(a).			
EMERGEN	EU	63ZZZZ-1	112(B) HAPS	40 CFR Part 63, Subpart ZZZZ	§ 63.6590(b)(1) § 63.6595(c) § 63.6640(f)(1) § 63.6640(f)(2) § 63.6640(f)(2)(i) § 63.6640(f)(3)	An affected source which meets either of the criteria in paragraphs §63.6590(b)(1)(i)-(ii) of this section does not have to meet the requirements of this subpart and of subpart A of this part except for the initial notification requirements of §63.6645(f).	None	None	§ 63.6645(f)
GENERATOR	EU	60IIII-1	CO	40 CFR Part 60, Subpart IIII	§ 60.4205(b) § 60.4202(a)(2) § 60.4206 § 60.4207(b) § 60.4211(c) [G]§ 60.4211(f) § 60.4211(g) § 60.4211(g)(2) § 60.4218 § 89.112(a)	Owners and operators of emergency stationary CI ICE, that are not fire pump engines, with a maximum engine power greater than or equal to 130 KW and less than or equal to 2237 KW and a displacement of less than 10 liters per cylinder and is a 2007 model year and later must comply with a CO emission limit of 3.5 g/KW-hr, as stated in 40 CFR 60.4202(a)(2) and 40 CFR 89.112(a).	§ 60.4211(g)(2) [G]§ 60.4212	§ 60.4211(g)(2)	[G]§ 60.4214(d)
GENERATOR	EU	60IIII-1	NMHC and NO_X	40 CFR Part 60, Subpart IIII	§ 60.4205(b) § 60.4202(a)(2) § 60.4206 § 60.4207(b)	Owners and operators of emergency stationary CI ICE, that are not fire pump engines, with a maximum	§ 60.4211(g)(2) [G]§ 60.4212	§ 60.4211(g)(2)	[G]§ 60.4214(d)

Applicable Requirements Summary

Unit Group Process ID No.	Unit Group Process Type	SOP Index No.	Pollutant	State Rule or Federal Regulation Name	Emission Limitation, Standard or Equipment Specification Citation	Textual Description (See Special Term and Condition 1.B.)	Monitoring And Testing Requirements	Recordkeeping Requirements (30 TAC § 122.144)	Reporting Requirements (30 TAC § 122.145)
					§ 60.4211(c) [G]§ 60.4211(f) § 60.4211(g) § 60.4211(g)(2) § 60.4218 § 89.112(a)	engine power greater than or equal to 75 KW and less than or equal to 560 KW and a displacement of less than 10 liters per cylinder and is a 2007 model year and later must comply with an NMHC+NOx emission limit of 4.0 g/KW-hr, as stated in 40 CFR 60.4202(a)(2) and 40 CFR 89.112(a).			
GENERATOR	EU	60IIII-1	PM	40 CFR Part 60, Subpart IIII	§ 60.4205(b) § 60.4202(a)(2) § 60.4206 § 60.4207(b) § 60.4211(c) [G]§ 60.4211(f) § 60.4211(g) § 60.4211(g)(2) § 60.4218 § 89.112(a)	Owners and operators of emergency stationary CI ICE, that are not fire pump engines, with a maximum engine power greater than or equal to 130 KW and less than or equal to 2237 KW and a displacement of less than 10 liters per cylinder and is a 2007 model year and later must comply with a PM emission limit of 0.20 g/KW-hr, as stated in 40 CFR 60.4202(a)(2) and 40 CFR 89.112(a).	§ 60.4211(g)(2) [G]§ 60.4212	§ 60.4211(g)(2)	[G]§ 60.4214(d)
GENERATOR	EU	63ZZZZ-1	112(B) HAPS	40 CFR Part 63, Subpart ZZZZ	§ 63.6590(b)(1) § 63.6595(c) § 63.6640(f)(1) § 63.6640(f)(2) § 63.6640(f)(2)(i) § 63.6640(f)(3)	An affected source which meets either of the criteria in paragraphs §63.6590(b)(1)(i)-(ii) of this section does not have to meet the requirements of this subpart and of subpart A of this part except for the initial notification requirements of §63.6645(f).	None	None	§ 63.6645(f)

Applicable Requirements Summary

Unit Group Process ID No.	Unit Group Process Type	SOP Index No.	Pollutant	State Rule or Federal Regulation Name	Emission Limitation, Standard or Equipment Specification Citation	Textual Description (See Special Term and Condition 1.B.)	Monitoring And Testing Requirements	Recordkeeping Requirements (30 TAC § 122.144)	Reporting Requirements (30 TAC § 122.145)
GRP-FURNCAP	EP	R1111-2	Opacity	30 TAC Chapter 111, Visible Emissions	§ 111.111(a)(1)(C) § 111.111(a)(1)(E)	Visible emissions from any stationary vent shall not exceed an opacity of 15% averaged over a six minute period for any source with a total flow rate of at least 100,000 acfm unless a CEMS is installed.	[G]§ 111.111(a)(1)(F) ** See Periodic Monitoring Summary	None	None
GRP-FURNCAP	EU	63YY	112(B) HAPS	40 CFR Part 63, Subpart YY	§ 63.1103 The permit holder shall comply with the applicable limitation, standard and/or equipment specification requirements of 40 CFR Part 63, Subpart YY	The permit holder shall comply with the applicable requirements of 40 CFR Part 63, Subpart YY	The permit holder shall comply with the applicable monitoring and testing requirements of 40 CFR Part 63, Subpart YY	The permit holder shall comply with the applicable recordkeeping requirements of 40 CFR Part 63, Subpart YY	The permit holder shall comply with the applicable reporting requirements of 40 CFR Part 63, Subpart YY
LOAD	EU	R5211-2	VOC	30 TAC Chapter 115, Loading and Unloading of VOC	§ 115.217(a)(2)(A) [G]§ 115.212(a)(7) § 115.214(a)(1)(B) § 115.214(a)(1)(D) § 115.214(a)(1)(D)(i)	Any plant, excluding gasoline bulk plants, which loads less than 20,000 gpd of VOC with a true vapor pressure of 0.5 psia or greater is exempt from the requirements of this division, except for the specified requirements.	§ 115.214(a)(1)(A) § 115.214(a)(1)(A)(i) § 115.215 § 115.215(4)	§ 115.216 § 115.216(2) § 115.216(3)(B) § 115.216(3)(D)	None
LOAD	EU	R5211-3	VOC	30 TAC Chapter 115, Loading and Unloading of VOC	§ 115.212(a)(1) § 115.212(a)(1)(A) § 115.212(a)(3)(A) § 115.212(a)(3)(A)(ii) § 115.212(a)(3)(B) [G]§ 115.212(a)(3)(C) § 115.212(a)(3)(E) § 115.214(a)(1)(B) § 115.214(a)(1)(C)	At operations other than gasoline terminals, gasoline bulk plants, and marine terminals, vapors from loading VOC with a true vapor pressure of 0.5 psia or greater must be controlled by one of the methods specified in § 115.212(a)(1)(A)-(C).	§ 115.212(a)(3)(B) § 115.214(a)(1)(A) § 115.214(a)(1)(A)(i) § 115.214(a)(1)(A)(ii) § 115.214(a)(1)(A)(iii) § 115.215 § 115.215(1) § 115.215(10)	§ 115.216 § 115.216(1) § 115.216(1)(A) § 115.216(1)(A)(iii) § 115.216(2) § 115.216(3)(A) § 115.216(3)(A)(i) § 115.216(3)(A)(ii) § 115.216(3)(A)(iii) § 115.216(3)(B)	None

Applicable Requirements Summary

Unit Group Process ID No.	Unit Group Process Type	SOP Index No.	Pollutant	State Rule or Federal Regulation Name	Emission Limitation, Standard or Equipment Specification Citation	Textual Description (See Special Term and Condition 1.B.)	Monitoring And Testing Requirements	Recordkeeping Requirements (30 TAC § 122.144)	Reporting Requirements (30 TAC § 122.145)
							[G]§ 115.215(2) § 115.215(4) § 115.215(9) § 115.216(1) § 115.216(1)(A) § 115.216(1)(A)(iii)		
LOAD	EU	R5211-4	VOC	30 TAC Chapter 115, Loading and Unloading of VOC	§ 115.212(a)(1) § 115.212(a)(1)(A) § 115.212(a)(3)(A) § 115.212(a)(3)(A)(ii) § 115.212(a)(3)(B) [G]§ 115.212(a)(3)(C) § 115.212(a)(3)(E) § 115.214(a)(1)(B) § 115.214(a)(1)(C)	At operations other than gasoline terminals, gasoline bulk plants, and marine terminals, vapors from loading VOC with a true vapor pressure of 0.5 psia or greater must be controlled by one of the methods specified in § 115.212(a)(1)(A)-(C).	§ 115.212(a)(3)(B) § 115.214(a)(1)(A) § 115.214(a)(1)(A)(i) § 115.214(a)(1)(A)(ii) § 115.214(a)(1)(A)(iii) § 115.215 § 115.215(1) § 115.215(10) [G]§ 115.215(2) § 115.215(4) § 115.215(9)	§ 115.216 § 115.216(1) § 115.216(1)(C) § 115.216(2) § 115.216(3)(A) § 115.216(3)(A)(i) § 115.216(3)(A)(ii) § 115.216(3)(A)(iii) § 115.216(3)(B)	None
PROPROCESS	EU	63YY	112(B) HAPS	40 CFR Part 63, Subpart YY	§ 63.1100 The permit holder shall comply with the applicable limitation, standard and/or equipment specification requirements of 40 CFR Part 63, Subpart YY	The permit holder shall comply with the applicable requirements of 40 CFR Part 63, Subpart YY	** See Alternative Requirements	None	None
SCFUG	EU	60VVA-ALL	VOC	40 CFR Part 60, Subpart VVa	§ 60.482-1a(d) § 60.482-1a(a) § 60.482-1a(b) § 60.485a(b) § 60.486a(a)(1) § 60.486a(a)(2) § 60.486a(k)	Equipment that is in vacuum service is excluded from the requirements of §60.482-2a to §60.482-10a, if it is identified as required in §60.486a(e)(5).	[G]§ 60.485a(b)(1) § 60.485a(b)(2)	§ 60.485a(b)(2) § 60.486a(e) § 60.486a(e)(1) § 60.486a(e)(5)	None

Applicable Requirements Summary

Unit Group Process ID No.	Unit Group Process Type	SOP Index No.	Pollutant	State Rule or Federal Regulation Name	Emission Limitation, Standard or Equipment Specification Citation	Textual Description (See Special Term and Condition 1.B.)	Monitoring And Testing Requirements	Recordkeeping Requirements (30 TAC § 122.144)	Reporting Requirements (30 TAC § 122.145)
SCFUG	EU	60VVA-ALL	VOC	40 CFR Part 60, Subpart VVa	[G]§ 60.482-1a(e) § 60.482-1a(a) § 60.482-1a(b) § 60.485a(b) § 60.486a(a)(1) § 60.486a(a)(2) § 60.486a(k)	Equipment that an owner or operator designates as being in VOC service less than 300 hours (hr)/yr is excluded from the requirements of §§ 60.482-2a through 60.482-11a if it is identified as required in §60.486a(e)(6) and it meets any of the conditions specified in paragraphs (e)(1) through (3) of this section. §60.482-1a(e)(1)-(3)	[G]§ 60.485a(b)(1) § 60.485a(b)(2)	§ 60.485a(b)(2) § 60.486a(e) § 60.486a(e)(1) § 60.486a(e)(6)	None
SCFUG	EU	60VVA-ALL	VOC	40 CFR Part 60, Subpart VVa	[G]§ 60.482-2a(b)(1) § 60.482-1a(a) § 60.482-1a(b) § 60.482-1a(g) § 60.482-2a(b)(2) § 60.482-2a(b)(2)(ii) § 60.482-2a(c)(1) [G]§ 60.482-2a(c)(2) § 60.482-2a(d) [G]§ 60.482-2a(d)(1) § 60.482-2a(d)(2) § 60.482-2a(d)(3) [G]§ 60.482-2a(d)(6) [G]§ 60.482-2a(e) § 60.482-2a(f) [G]§ 60.482-2a(g) § 60.482-2a(h) § 60.482-9a(a) § 60.482-9a(b) [G]§ 60.482-9a(d)	The instrument reading that defines a leak in a pump in light liquid service is 5,000 parts per million (ppm) or greater for pumps handling polymerizing monomers or 2,000 ppm or greater for all other pumps, as specified in paragraphs (b)(1)(i) and (ii) of this section. §60.482-2a(b)(1)(i)-(ii)	§ 60.482-1a(f)(1) § 60.482-1a(f)(2) [G]§ 60.482-1a(f)(3) § 60.482-1a(g) § 60.482-2a(a)(1) § 60.482-2a(a)(2) § 60.482-2a(b)(2)(i) [G]§ 60.482-2a(d)(4) [G]§ 60.482-2a(d)(5) § 60.482-9a(a) § 60.485a(a) [G]§ 60.485a(b)(1) § 60.485a(b)(2) § 60.485a(c)(2) [G]§ 60.485a(d) [G]§ 60.485a(e)	§ 60.482-1a(g) § 60.485a(b)(2) [G]§ 60.486a(a)(3) [G]§ 60.486a(b) [G]§ 60.486a(c) § 60.486a(e) § 60.486a(e)(1) [G]§ 60.486a(e)(2) [G]§ 60.486a(e)(4) § 60.486a(e)(7) [G]§ 60.486a(e)(8) § 60.486a(f) § 60.486a(f)(1) [G]§ 60.486a(h)	§ 60.487a(a) § 60.487a(b) § 60.487a(b)(1) § 60.487a(b)(3) § 60.487a(c) § 60.487a(c)(1) § 60.487a(c)(2) § 60.487a(c)(2)(iii) § 60.487a(c)(2)(iv) § 60.487a(c)(2)(ix) § 60.487a(c)(3) § 60.487a(c)(4) § 60.487a(e)

Applicable Requirements Summary

Unit Group Process ID No.	Unit Group Process Type	SOP Index No.	Pollutant	State Rule or Federal Regulation Name	Emission Limitation, Standard or Equipment Specification Citation	Textual Description (See Special Term and Condition 1.B.)	Monitoring And Testing Requirements	Recordkeeping Requirements (30 TAC § 122.144)	Reporting Requirements (30 TAC § 122.145)
					§ 60.482-9a(f) § 60.485a(b) § 60.485a(c) § 60.485a(c)(1) § 60.485a(f) § 60.486a(a)(1) § 60.486a(a)(2) § 60.486a(k)				
SCFUG	EU	60VVA-ALL	VOC	40 CFR Part 60, Subpart VVa	§ 60.482-3a(a) § 60.482-1a(a) § 60.482-1a(b) § 60.482-1a(g) [G]§ 60.482-3a(b) § 60.482-3a(c) § 60.482-3a(d) § 60.482-3a(e)(2) § 60.482-3a(f) [G]§ 60.482-3a(g) § 60.482-3a(h) [G]§ 60.482-3a(i) § 60.482-3a(j) § 60.482-9a(a) § 60.482-9a(b) § 60.485a(b) § 60.485a(c) § 60.485a(c)(1) § 60.485a(f) § 60.486a(a)(1) § 60.486a(a)(2) § 60.486a(k)	Each compressor shall be equipped with a seal system that includes a barrier fluid system and that prevents leakage of VOC to the atmosphere, except as provided in §60.482-3a(c) and paragraphs (h), (i), and (j) of this section.	§ 60.482-1a(g) § 60.482-3a(e)(1) § 60.482-9a(a) § 60.485a(a) [G]§ 60.485a(b)(1) § 60.485a(b)(2) § 60.485a(c)(2) [G]§ 60.485a(d)	§ 60.482-1a(g) § 60.485a(b)(2) [G]§ 60.486a(a)(3) [G]§ 60.486a(b) [G]§ 60.486a(c) § 60.486a(e) § 60.486a(e)(1) [G]§ 60.486a(e)(2) [G]§ 60.486a(e)(4) [G]§ 60.486a(e)(8) [G]§ 60.486a(h)	§ 60.487a(a) § 60.487a(b) § 60.487a(b)(1) § 60.487a(b)(4) § 60.487a(c) § 60.487a(c)(1) § 60.487a(c)(2) § 60.487a(c)(2)(ix) § 60.487a(c)(2)(v) § 60.487a(c)(2)(vi) § 60.487a(c)(3) § 60.487a(c)(4) § 60.487a(e)
SCFUG	EU	60VVA-ALL	VOC	40 CFR Part 60, Subpart VVa	§ 60.482-4a(a) § 60.482-1a(a) § 60.482-1a(b) § 60.482-1a(g) § 60.482-4a(b)(1) § 60.482-4a(b)(2) § 60.482-4a(c) § 60.482-4a(d)(1)	Except during pressure releases, each pressure relief device in gas/vapor service shall be operated with no detectable emissions, as indicated by an instrument reading of less than 500 ppm above	§ 60.482-1a(g) § 60.482-4a(b)(2) § 60.482-9a(a) § 60.485a(a) [G]§ 60.485a(b)(1) § 60.485a(b)(2) § 60.485a(c)(2) [G]§ 60.485a(d)	§ 60.482-1a(g) § 60.485a(b)(2) § 60.486a(e) § 60.486a(e)(1) § 60.486a(e)(10) § 60.486a(e)(3) [G]§ 60.486a(e)(4) [G]§ 60.486a(e)(8)	§ 60.487a(a) § 60.487a(b) § 60.487a(b)(1) § 60.487a(c) § 60.487a(c)(1) § 60.487a(c)(2) § 60.487a(c)(2)(ix) § 60.487a(c)(3)

Applicable Requirements Summary

Unit Group Process ID No.	Unit Group Process Type	SOP Index No.	Pollutant	State Rule or Federal Regulation Name	Emission Limitation, Standard or Equipment Specification Citation	Textual Description (See Special Term and Condition 1.B.)	Monitoring And Testing Requirements	Recordkeeping Requirements (30 TAC § 122.144)	Reporting Requirements (30 TAC § 122.145)
					§ 60.482-4a(d)(2) § 60.482-9a(a) § 60.482-9a(b) § 60.485a(b) § 60.485a(c) § 60.485a(c)(1) § 60.485a(f) § 60.486a(a)(1) § 60.486a(a)(2) § 60.486a(k)	background, as determined by the methods specified in §60.485a(c).			§ 60.487a(c)(4) § 60.487a(e)
SCFUG	EU	60VVA-ALL	VOC	40 CFR Part 60, Subpart VVa	§ 60.482-5a(a) § 60.482-1a(a) § 60.482-1a(b) § 60.482-1a(g) [G]§ 60.482-5a(b) § 60.482-5a(c) § 60.485a(b) § 60.485a(f) § 60.486a(a)(1) § 60.486a(a)(2) § 60.486a(k)	Each sampling connection system shall be equipped with a closed-purge, closed-loop, or closed-vent system, except as provided in §60.482-1a(c) and paragraph (c) of this section.	§ 60.482-1a(g) § 60.485a(a) [G]§ 60.485a(b)(1) § 60.485a(b)(2) [G]§ 60.485a(d)	§ 60.482-1a(g) § 60.485a(b)(2) § 60.486a(e) § 60.486a(e)(1) [G]§ 60.486a(e)(8)	§ 60.487a(a) § 60.487a(b) § 60.487a(b)(1) § 60.487a(c) § 60.487a(c)(1) § 60.487a(c)(2) § 60.487a(c)(2)(ix) § 60.487a(c)(3) § 60.487a(c)(4) § 60.487a(e)
SCFUG	EU	60VVA-ALL	VOC	40 CFR Part 60, Subpart VVa	§ 60.482-6a(a)(1) § 60.482-1a(a) § 60.482-1a(b) § 60.482-1a(g) § 60.482-6a(a)(2) § 60.482-6a(b) § 60.482-6a(c) § 60.482-6a(d) § 60.482-6a(e) § 60.485a(b) § 60.485a(f) § 60.486a(a)(1) § 60.486a(a)(2) § 60.486a(k)	Each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve, except as provided in §60.482-1a(c) and paragraphs (d) and (e) of this section.	§ 60.482-1a(g) § 60.485a(a) [G]§ 60.485a(b)(1) § 60.485a(b)(2) [G]§ 60.485a(d)	§ 60.482-1a(g) § 60.485a(b)(2) § 60.486a(e) § 60.486a(e)(1) [G]§ 60.486a(e)(8)	§ 60.487a(a) § 60.487a(b) § 60.487a(b)(1) § 60.487a(c) § 60.487a(c)(1) § 60.487a(c)(2) § 60.487a(c)(2)(ix) § 60.487a(c)(3) § 60.487a(c)(4) § 60.487a(e)
SCFUG	EU	60VVA-ALL	VOC	40 CFR Part 60, Subpart VVa	§ 60.482-7a(b) § 60.482-1a(a) § 60.482-1a(b)	At a valve in gas vapor service if an instrument reading of 500 ppm or	§ 60.482-1a(f)(1) § 60.482-1a(f)(2) [G]§ 60.482-1a(f)(3)	§ 60.482-1a(g) § 60.485a(b)(2) [G]§ 60.486a(a)(3)	§ 60.487a(a) § 60.487a(b) § 60.487a(b)(1)

Applicable Requirements Summary

Unit Group Process ID No.	Unit Group Process Type	SOP Index No.	Pollutant	State Rule or Federal Regulation Name	Emission Limitation, Standard or Equipment Specification Citation	Textual Description (See Special Term and Condition 1.B.)	Monitoring And Testing Requirements	Recordkeeping Requirements (30 TAC § 122.144)	Reporting Requirements (30 TAC § 122.145)
					§ 60.482-1a(g) § 60.482-7a(a)(1) [G]§ 60.482-7a(d) [G]§ 60.482-7a(e) [G]§ 60.482-7a(f) [G]§ 60.482-7a(g) [G]§ 60.482-7a(h) § 60.485a(b) § 60.485a(c) § 60.485a(c)(1) § 60.485a(f) § 60.486a(a)(1) § 60.486a(a)(2) § 60.486a(k)	greater is measured, a leak is detected.	§ 60.482-1a(g) § 60.482-7a(a)(1) [G]§ 60.482-7a(a)(2) [G]§ 60.482-7a(c) § 60.485a(a) [G]§ 60.485a(b)(1) § 60.485a(b)(2) § 60.485a(c)(2) [G]§ 60.485a(d) [G]§ 60.485a(e)	[G]§ 60.486a(b) [G]§ 60.486a(c) § 60.486a(e) § 60.486a(e)(1) [G]§ 60.486a(e)(2) [G]§ 60.486a(e)(4) [G]§ 60.486a(e)(8) § 60.486a(f) § 60.486a(f)(1) § 60.486a(f)(2)	§ 60.487a(b)(2) § 60.487a(c) § 60.487a(c)(1) § 60.487a(c)(2) § 60.487a(c)(2)(i) § 60.487a(c)(2)(ii) § 60.487a(c)(2)(ix) § 60.487a(c)(3) § 60.487a(c)(4) § 60.487a(e)
SCFUG	EU	60VVA-ALL	VOC	40 CFR Part 60, Subpart VVa	§ 60.482-8a(b) § 60.482-1a(a) § 60.482-1a(b) § 60.482-1a(g) [G]§ 60.482-2a(c)(2) [G]§ 60.482-7a(e) § 60.482-8a(a) § 60.482-8a(a)(2) [G]§ 60.482-8a(c) § 60.482-8a(d) § 60.482-9a(a) § 60.482-9a(b) [G]§ 60.482-9a(d) § 60.482-9a(f) § 60.485a(b) § 60.485a(f) § 60.486a(a)(1) § 60.486a(a)(2) § 60.486a(k)	At a pump in heavy liquid service, if an instrument reading of 10,000 ppm or greater is measured, a leak is detected.	§ 60.482-1a(g) § 60.482-8a(a)(1) § 60.482-9a(a) § 60.485a(a) [G]§ 60.485a(b)(1) § 60.485a(b)(2) [G]§ 60.485a(d)	§ 60.482-1a(g) § 60.485a(b)(2) [G]§ 60.486a(a)(3) [G]§ 60.486a(b) [G]§ 60.486a(c) § 60.486a(e) § 60.486a(e)(1) [G]§ 60.486a(e)(8)	§ 60.487a(a) § 60.487a(b) § 60.487a(b)(1) § 60.487a(c) § 60.487a(c)(1) § 60.487a(c)(2) § 60.487a(c)(2)(ix) § 60.487a(c)(3) § 60.487a(c)(4) § 60.487a(e)
SCFUG	EU	60VVA-ALL	VOC	40 CFR Part 60, Subpart VVa	§ 60.482-8a(b) § 60.482-1a(a) § 60.482-1a(b) § 60.482-1a(g)	At a valve in heavy liquid service, if an instrument reading of 10,000 ppm or greater is measured, a leak	§ 60.482-1a(g) § 60.482-8a(a)(1) § 60.482-9a(a) § 60.485a(a)	§ 60.482-1a(g) § 60.485a(b)(2) [G]§ 60.486a(a)(3) [G]§ 60.486a(b)	§ 60.487a(a) § 60.487a(b) § 60.487a(b)(1) § 60.487a(c)

Applicable Requirements Summary

Unit Group Process ID No.	Unit Group Process Type	SOP Index No.	Pollutant	State Rule or Federal Regulation Name	Emission Limitation, Standard or Equipment Specification Citation	Textual Description (See Special Term and Condition 1.B.)	Monitoring And Testing Requirements	Recordkeeping Requirements (30 TAC § 122.144)	Reporting Requirements (30 TAC § 122.145)
					[G]§ 60.482-2a(c)(2) [G]§ 60.482-7a(e) § 60.482-8a(a) § 60.482-8a(a)(2) [G]§ 60.482-8a(c) § 60.482-8a(d) § 60.482-9a(a) § 60.482-9a(b) § 60.482-9a(c) § 60.482-9a(c)(1) § 60.482-9a(e) § 60.482-9a(f) § 60.485a(b) § 60.485a(f) § 60.486a(a)(1) § 60.486a(a)(2) § 60.486a(k)	is detected.	[G]§ 60.485a(b)(1) § 60.485a(b)(2) [G]§ 60.485a(d)	[G]§ 60.486a(c) § 60.486a(e) § 60.486a(e)(1) [G]§ 60.486a(e)(8)	§ 60.487a(c)(1) § 60.487a(c)(2) § 60.487a(c)(2)(ix) § 60.487a(c)(3) § 60.487a(c)(4) § 60.487a(e)
SCFUG	EU	60VVA-ALL	VOC	40 CFR Part 60, Subpart VVa	§ 60.482-8a(b) § 60.482-1a(a) § 60.482-1a(b) § 60.482-1a(g) [G]§ 60.482-2a(c)(2) [G]§ 60.482-7a(e) § 60.482-8a(a) § 60.482-8a(a)(2) [G]§ 60.482-8a(c) § 60.482-8a(d) § 60.482-9a(a) § 60.482-9a(b) § 60.485a(b) § 60.485a(f) § 60.486a(a)(1) § 60.486a(a)(2) § 60.486a(k)	At a pressure relief device in light liquid or heavy liquid service, if an instrument reading of 10,000 ppm or greater is measured, a leak is detected.	§ 60.482-1a(g) § 60.482-8a(a)(1) § 60.482-9a(a) § 60.485a(a) [G]§ 60.485a(b)(1) § 60.485a(b)(2) [G]§ 60.485a(d) [G]§ 60.485a(e)	§ 60.482-1a(g) § 60.485a(b)(2) [G]§ 60.486a(a)(3) [G]§ 60.486a(b) [G]§ 60.486a(c) § 60.486a(e) § 60.486a(e)(1) [G]§ 60.486a(e)(8)	§ 60.487a(a) § 60.487a(b) § 60.487a(b)(1) § 60.487a(c) § 60.487a(c)(1) § 60.487a(c)(2) § 60.487a(c)(2)(ix) § 60.487a(c)(3) § 60.487a(c)(4) § 60.487a(e)
SCFUG	EU	60VVA-ALL	VOC	40 CFR Part 60, Subpart VVa	§ 60.482-8a(b) § 60.482-1a(a)	At a connector in heavy liquid service, if an	§ 60.482-1a(g) § 60.482-8a(a)(1)	§ 60.482-1a(g) § 60.485a(b)(2)	§ 60.487a(a) § 60.487a(b)

Applicable Requirements Summary

Unit Group Process ID No.	Unit Group Process Type	SOP Index No.	Pollutant	State Rule or Federal Regulation Name	Emission Limitation, Standard or Equipment Specification Citation	Textual Description (See Special Term and Condition 1.B.)	Monitoring And Testing Requirements	Recordkeeping Requirements (30 TAC § 122.144)	Reporting Requirements (30 TAC § 122.145)
					§ 60.482-1a(b) § 60.482-1a(g) [G]§ 60.482-2a(c)(2) [G]§ 60.482-7a(e) § 60.482-8a(a) § 60.482-8a(a)(2) [G]§ 60.482-8a(c) § 60.482-8a(d) § 60.482-9a(a) § 60.482-9a(b) § 60.482-9a(c) § 60.482-9a(c)(1) § 60.482-9a(c)(2) § 60.482-9a(f) § 60.485a(b) § 60.485a(f) § 60.486a(a)(1) § 60.486a(a)(2) § 60.486a(k)	instrument reading of 10,000 ppm or greater is measured, a leak is detected.	§ 60.482-9a(a) § 60.485a(a) [G]§ 60.485a(b)(1) § 60.485a(b)(2) [G]§ 60.485a(d)	[G]§ 60.486a(a)(3) [G]§ 60.486a(b) [G]§ 60.486a(c) § 60.486a(e) § 60.486a(e)(1) [G]§ 60.486a(e)(8)	§ 60.487a(b)(1) § 60.487a(c) § 60.487a(c)(1) § 60.487a(c)(2) § 60.487a(c)(2)(ix) § 60.487a(c)(3) § 60.487a(c)(4) § 60.487a(e)
SCFUG	EU	60VVA-ALL	VOC	40 CFR Part 60, Subpart VVa	§ 60.482-11a(b)(2) § 60.482-11a(b)(3) § 60.482-11a(b)(3)(i) § 60.482-11a(d) [G]§ 60.482-11a(e) [G]§ 60.482-11a(f)(1) § 60.482-11a(f)(2) § 60.482-11a(g) § 60.485a(b) § 60.486a(a)(1) § 60.486a(a)(2) § 60.486a(k)	If an instrument reading greater than or equal to 500 ppm is measured in connectors in gas and vapor and light liquid service, a leak is detected.	§ 60.482-11a(a) § 60.482-11a(b) § 60.482-11a(b)(1) § 60.482-11a(b)(3) § 60.482-11a(b)(3)(ii) [G]§ 60.482-11a(b)(3)(iii) § 60.482-11a(b)(3)(iv) § 60.482-11a(c) § 60.485a(a) [G]§ 60.485a(b)(1) § 60.485a(b)(2) [G]§ 60.485a(e)	§ 60.482-11a(b)(3)(v) § 60.485a(b)(2) [G]§ 60.486a(a)(3) [G]§ 60.486a(b) [G]§ 60.486a(c) § 60.486a(e) § 60.486a(e)(1) [G]§ 60.486a(e)(8) § 60.486a(e)(9) § 60.486a(f) § 60.486a(f)(1)	§ 60.487a(b) § 60.487a(b)(1) § 60.487a(b)(5) § 60.487a(c) § 60.487a(c)(1) § 60.487a(c)(2) § 60.487a(c)(2)(i) § 60.487a(c)(2)(ix) § 60.487a(c)(2)(vii) § 60.487a(c)(2)(viii) § 60.487a(c)(3) § 60.487a(c)(4) § 60.487a(e)
SCFUG	EU	63YY	112(B) HAPS	40 CFR Part 63, Subpart YY	§ 63.1103 The permit holder shall comply with	The permit holder shall comply with the applicable requirements of 40 CFR	The permit holder shall comply with the applicable	The permit holder shall comply with the applicable	The permit holder shall comply with the applicable reporting

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Unit Group Process ID No.	Unit Group Process Type	SOP Index No.	Pollutant	State Rule or Federal Regulation Name	Emission Limitation, Standard or Equipment Specification Citation	Textual Description (See Special Term and Condition 1.B.)	Monitoring And Testing Requirements	Recordkeeping Requirements (30 TAC § 122.144)	Reporting Requirements (30 TAC § 122.145)
					the applicable limitation, standard and/or equipment specification requirements of 40 CFR Part 63, Subpart YY	Part 63, Subpart YY	monitoring and testing requirements of 40 CFR Part 63, Subpart YY	recordkeeping requirements of 40 CFR Part 63, Subpart YY	requirements of 40 CFR Part 63, Subpart YY
T-1202	EU	R5112-2	VOC	30 TAC Chapter 115, Storage of VOCs	§ 115.111(a)(1)	Except as provided in § 115.118, a storage tank storing VOC with a true vapor pressure less than 1.5 psia is exempt from the requirements of this division.	[G]§ 115.117	§ 115.118(a)(1) § 115.118(a)(5) § 115.118(a)(7)	None
T-1202	EU	60Kb-1	VOC	40 CFR Part 60, Subpart Kb	§ 60.110b(a)	Except for §60.110b(b), this subpart applies to vessels with a capacity greater than or equal to 75 cubic meters (19,800 gal) used to store VOLs for which construction/reconstruction/ modification began after 7/23/84.	§ 60.116b(a) § 60.116b(b) § 60.116b(c) § 60.116b(d) § 60.116b(e) § 60.116b(e)(1) [G]§ 60.116b(e)(3)	§ 60.116b(a) § 60.116b(b) § 60.116b(c)	§ 60.116b(d)
T-1210	EU	R5112-4	VOC	30 TAC Chapter 115, Storage of VOCs	§ 115.111(a)(1)	Except as provided in § 115.118, a storage tank storing VOC with a true vapor pressure less than 1.5 psia is exempt from the requirements of this division.	[G]§ 115.117	§ 115.118(a)(1) § 115.118(a)(5) § 115.118(a)(7)	None
T-1221A	EU	R5112-2	VOC	30 TAC Chapter 115, Storage of VOCs	§ 115.111(a)(1)	Except as provided in § 115.118, a storage tank storing VOC with a true vapor pressure less than 1.5 psia is exempt from the requirements of this division.	[G]§ 115.117	§ 115.118(a)(1) § 115.118(a)(5) § 115.118(a)(7)	None

Applicable Requirements Summary

Unit Group Process ID No.	Unit Group Process Type	SOP Index No.	Pollutant	State Rule or Federal Regulation Name	Emission Limitation, Standard or Equipment Specification Citation	Textual Description (See Special Term and Condition 1.B.)	Monitoring And Testing Requirements	Recordkeeping Requirements (30 TAC § 122.144)	Reporting Requirements (30 TAC § 122.145)
T-1221B	EU	R5112-2	VOC	30 TAC Chapter 115, Storage of VOCs	§ 115.111(a)(1)	Except as provided in § 115.118, a storage tank storing VOC with a true vapor pressure less than 1.5 psia is exempt from the requirements of this division.	[G]§ 115.117	§ 115.118(a)(1) § 115.118(a)(5) § 115.118(a)(7)	None
T-5655	EU	R5112-2	VOC	30 TAC Chapter 115, Storage of VOCs	§ 115.111(a)(1)	Except as provided in § 115.118, a storage tank storing VOC with a true vapor pressure less than 1.5 psia is exempt from the requirements of this division.	[G]§ 115.117	§ 115.118(a)(1) § 115.118(a)(5) § 115.118(a)(7)	None
T-5660	EU	R5112-3	VOC	30 TAC Chapter 115, Storage of VOCs	§ 115.111(a)(1)	Except as provided in § 115.118, a storage tank storing VOC with a true vapor pressure less than 1.5 psia is exempt from the requirements of this division.	[G]§ 115.117	§ 115.118(a)(1) § 115.118(a)(5) § 115.118(a)(7)	None
T-5672	EU	R5112-5	VOC	30 TAC Chapter 115, Storage of VOCs	§ 115.112(a)(1) § 115.112(a)(3)	Tanks shall not store VOC unless the required pressure is maintained, or they are equipped with the appropriate control device specified in Table I(a) or Table II(a).	§ 115.115(a) § 115.115(a)(6) § 115.116(a)(1) [G]§ 115.117	§ 115.118(a)(4) § 115.118(a)(4)(F) § 115.118(a)(5) § 115.118(a)(7)	None
T-5672	EU	63YY	112(B) HAPS	40 CFR Part 63, Subpart YY	§ 63.1103 The permit holder shall comply with the applicable limitation, standard and/or equipment specification requirements of 40 CFR Part 63,	The permit holder shall comply with the applicable requirements of 40 CFR Part 63, Subpart YY	The permit holder shall comply with the applicable monitoring and testing requirements of 40 CFR Part 63, Subpart YY	The permit holder shall comply with the applicable recordkeeping requirements of 40 CFR Part 63, Subpart YY	The permit holder shall comply with the applicable reporting requirements of 40 CFR Part 63, Subpart YY

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Unit Group Process ID No.	Unit Group Process Type	SOP Index No.	Pollutant	State Rule or Federal Regulation Name	Emission Limitation, Standard or Equipment Specification Citation	Textual Description (See Special Term and Condition 1.B.)	Monitoring And Testing Requirements	Recordkeeping Requirements (30 TAC § 122.144)	Reporting Requirements (30 TAC § 122.145)
					Subpart YY				
UNLOAD	EU	R5211-1	VOC	30 TAC Chapter 115, Loading and Unloading of VOC	§ 115.217(a)(1) § 115.212(a)(2) § 115.214(a)(1)(B) § 115.214(a)(1)(D) § 115.214(a)(1)(D)(i)	Vapor pressure (at land-based operations). All land-based loading and unloading of VOC with a true vapor pressure less than 0.5 psia is exempt from the requirements of this division, except as specified.	§ 115.214(a)(1)(A) § 115.214(a)(1)(A)(i) § 115.215 § 115.215(4)	§ 115.216 § 115.216(2) § 115.216(3)(B)	None
V-1290	EU	R5112-4	VOC	30 TAC Chapter 115, Storage of VOCs	§ 115.111(a)(1)	Except as provided in § 115.118, a storage tank storing VOC with a true vapor pressure less than 1.5 psia is exempt from the requirements of this division.	[G]§ 115.117	§ 115.118(a)(1) § 115.118(a)(5) § 115.118(a)(7)	None
V-1291	EU	R5112-4	VOC	30 TAC Chapter 115, Storage of VOCs	§ 115.111(a)(1)	Except as provided in § 115.118, a storage tank storing VOC with a true vapor pressure less than 1.5 psia is exempt from the requirements of this division.	[G]§ 115.117	§ 115.118(a)(1) § 115.118(a)(5) § 115.118(a)(7)	None
V-5651	EU	R5112-4	VOC	30 TAC Chapter 115, Storage of VOCs	§ 115.111(a)(1)	Except as provided in § 115.118, a storage tank storing VOC with a true vapor pressure less than 1.5 psia is exempt from the requirements of this division.	[G]§ 115.117	§ 115.118(a)(1) § 115.118(a)(5) § 115.118(a)(7)	None
V-5652	EU	R5112-4	VOC	30 TAC Chapter 115, Storage of VOCs	§ 115.111(a)(1)	Except as provided in § 115.118, a storage tank storing VOC with a true vapor pressure less than 1.5 psia is exempt from the	[G]§ 115.117	§ 115.118(a)(1) § 115.118(a)(5) § 115.118(a)(7)	None

Applicable Requirements Summary

Unit Group Process ID No.	Unit Group Process Type	SOP Index No.	Pollutant	State Rule or Federal Regulation Name	Emission Limitation, Standard or Equipment Specification Citation	Textual Description (See Special Term and Condition 1.B.)	Monitoring And Testing Requirements	Recordkeeping Requirements (30 TAC § 122.144)	Reporting Requirements (30 TAC § 122.145)
						requirements of this division.			
X3800VENT	EP	R5121-2	VOC	30 TAC Chapter 115, Vent Gas Controls	§ 115.122(a)(1) § 115.121(a)(1) § 115.122(a)(1)(C)	Vent gas streams affected by §115.121(a)(1) must be controlled properly with a control efficiency of at least 90% or to a volatile organic compound (VOC) concentration of no more than 20 parts per million (ppmv) (on a dry basis corrected to 3.0% oxygen for combustion devices).	[G]§ 115.125 § 115.126(1) § 115.126(1)(C) § 115.126(2) ** See CAM Summary	§ 115.126 § 115.126(1) § 115.126(1)(C) § 115.126(2)	None
X3800VENT	EU	63YY	112(B) HAPS	40 CFR Part 63, Subpart YY	§ 63.1103 The permit holder shall comply with the applicable limitation, standard and/or equipment specification requirements of 40 CFR Part 63, Subpart YY	The permit holder shall comply with the applicable requirements of 40 CFR Part 63, Subpart YY	The permit holder shall comply with the applicable monitoring and testing requirements of 40 CFR Part 63, Subpart YY	The permit holder shall comply with the applicable recordkeeping requirements of 40 CFR Part 63, Subpart YY	The permit holder shall comply with the applicable reporting requirements of 40 CFR Part 63, Subpart YY
XF-4601	CD	R1111-1	Opacity	30 TAC Chapter 111, Visible Emissions	§ 111.111(a)(4)(A)	Visible emissions from a process gas flare shall not be permitted for more than five minutes in any two-hour period, except for upset emissions as provided in §101.222(b).	§ 111.111(a)(4)(A)(i) § 111.111(a)(4)(A)(ii)	§ 111.111(a)(4)(A)(ii)	None
XF-4601	CD	60A-01	Opacity	40 CFR Part 60, Subpart A	§ 60.18(b) § 60.18(c)(1) § 60.18(c)(2) § 60.18(c)(3)(ii) § 60.18(c)(4)(i) § 60.18(c)(6) § 60.18(e)	Flares shall comply with paragraphs (c)-(f) of § 60.18.	§ 60.18(d) § 60.18(f)(1) § 60.18(f)(2) § 60.18(f)(3) § 60.18(f)(4) ** See Alternative Requirements	None	None

Applicable Requirements Summary

Unit Group Process ID No.	Unit Group Process Type	SOP Index No.	Pollutant	State Rule or Federal Regulation Name	Emission Limitation, Standard or Equipment Specification Citation	Textual Description (See Special Term and Condition 1.B.)	Monitoring And Testing Requirements	Recordkeeping Requirements (30 TAC § 122.144)	Reporting Requirements (30 TAC § 122.145)
XF-4601	CD	60A-02	Opacity	40 CFR Part 60, Subpart A	§ 60.18(b) § 60.18(c)(1) § 60.18(c)(2) § 60.18(c)(3)(ii) § 60.18(c)(4)(iii) § 60.18(c)(6) § 60.18(e)	Flares shall comply with paragraphs (c)-(f) of § 60.18.	§ 60.18(d) § 60.18(f)(1) § 60.18(f)(2) § 60.18(f)(3) § 60.18(f)(4) § 60.18(f)(5) ** See Alternative Requirements	None	None
XF-4601	CD	60A-03	Opacity	40 CFR Part 60, Subpart A	§ 60.18(b) § 60.18(c)(1) § 60.18(c)(2) § 60.18(c)(3)(ii) § 60.18(c)(4)(ii) § 60.18(c)(6) § 60.18(e)	Flares shall comply with paragraphs (c)-(f) of § 60.18.	§ 60.18(d) § 60.18(f)(1) § 60.18(f)(2) § 60.18(f)(3) § 60.18(f)(4) ** See Alternative Requirements	None	None
XF-4601	CD	63A-01	Opacity	40 CFR Part 63, Subpart A	§ 63.11(b)(4) § 63.11(b)(1) § 63.11(b)(2) § 63.11(b)(3) § 63.11(b)(5) § 63.11(b)(6)(ii) § 63.11(b)(7)(i)	Flares shall be designed and operated with no visible emissions, except for periods of a total of 5 minutes or less during any 2 consecutive hrs. Test Method 22 in App. A of part 60 of this chapter shall be used.	§ 63.11(b)(4) § 63.11(b)(5) § 63.11(b)(7)(i) ** See Alternative Requirements	None	None
XF-4601	CD	63A-02	Opacity	40 CFR Part 63, Subpart A	§ 63.11(b)(4) § 63.11(b)(1) § 63.11(b)(2) § 63.11(b)(3) § 63.11(b)(5) § 63.11(b)(6)(ii) § 63.11(b)(7)(iii)	Flares shall be designed and operated with no visible emissions, except for periods of a total of 5 minutes or less during any 2 consecutive hrs. Test Method 22 in App. A of part 60 of this chapter shall be used.	§ 63.11(b)(4) § 63.11(b)(5) § 63.11(b)(7)(i) ** See Alternative Requirements	None	None
XF-4601	CD	63A-03	Opacity	40 CFR Part 63, Subpart A	§ 63.11(b)(4) § 63.11(b)(1) § 63.11(b)(2)	Flares shall be designed and operated with no visible emissions, except for	§ 63.11(b)(4) § 63.11(b)(5) § 63.11(b)(7)(i)	None	None

Applicable Requirements Summary

Unit Group Process ID No.	Unit Group Process Type	SOP Index No.	Pollutant	State Rule or Federal Regulation Name	Emission Limitation, Standard or Equipment Specification Citation	Textual Description (See Special Term and Condition 1.B.)	Monitoring And Testing Requirements	Recordkeeping Requirements (30 TAC § 122.144)	Reporting Requirements (30 TAC § 122.145)
					§ 63.11(b)(3) § 63.11(b)(5) § 63.11(b)(6)(ii) § 63.11(b)(7)(ii)	periods of a total of 5 minutes or less during any 2 consecutive hrs. Test Method 22 in App. A of part 60 of this chapter shall be used.	** See Alternative Requirements		
XF4601VENT	EP	R5121-1	VOC	30 TAC Chapter 115, Vent Gas Controls	§ 115.123(a)(1) § 115.910	Alternate methods of demonstrating and documenting continuous compliance with the applicable control requirements or exemption criteria in this division may be approved by the Executive Director in accordance with §115.910 of this title if emission reduction are demonstrated to be substantially equivalent.	[G]§ 115.125 § 115.126(2) ** See CAM Summary ** See Alternative Requirements	§ 115.126 § 115.126(2)	None
XF4601VENT	EU	63YY	112(B) HAPS	40 CFR Part 63, Subpart YY	§ 63.1103 The permit holder shall comply with the applicable limitation, standard and/or equipment specification requirements of 40 CFR Part 63, Subpart YY	The permit holder shall comply with the applicable requirements of 40 CFR Part 63, Subpart YY	** See Alternative Requirements	None	None
XT-5672	EU	R5131-1	VOC	30 TAC Chapter 115, Water Separation	§ 115.132(a)(3) § 115.131(a)	VOC water separator compartments must be equipped with a vapor recovery system which satisfies the provisions of §115.131(a) of this title.	[G]§ 115.135(a) § 115.136(a)(2) § 115.136(a)(3) § 115.136(a)(4)	§ 115.136(a)(2) § 115.136(a)(3) § 115.136(a)(4)	None
Z-5671	EU	R5131-1	VOC	30 TAC Chapter	§ 115.132(a)(3)	VOC water separator	[G]§ 115.135(a)	§ 115.136(a)(2)	None

Applicable Requirements Summary

Unit Group Process ID No.	Unit Group Process Type	SOP Index No.	Pollutant	State Rule or Federal Regulation Name	Emission Limitation, Standard or Equipment Specification Citation	Textual Description (See Special Term and Condition 1.B.)	Monitoring And Testing Requirements	Recordkeeping Requirements (30 TAC § 122.144)	Reporting Requirements (30 TAC § 122.145)
				115, Water Separation	§ 115.131(a)	compartments must be equipped with a vapor recovery system which satisfies the provisions of §115.131(a) of this title.	§ 115.136(a)(2) § 115.136(a)(3) § 115.136(a)(4)	§ 115.136(a)(3) § 115.136(a)(4)	

Additional Monitoring Requirements

CAM Summary

Unit/Group/Process Information	
ID No.: X3800VENT	
Control Device ID No.: X3800	Control Device Type: Thermal Incinerator (Direct Flame Incinerator/Regenerative Thermal Oxidizer)
Applicable Regulatory Requirement	
Name: 30 TAC Chapter 115, Vent Gas Controls	SOP Index No.: R5121-2
Pollutant: VOC	Main Standard: § 115.122(a)(1)
Monitoring Information	
Indicator: Fire Box Combustion Temperature	
Minimum Frequency: four times per hour	
Averaging Period: one hour	
Deviation Limit: A minimum fire box temperature shall be maintained above 1,400 °F as designed. The final fire box temperature shall be established during last performance test while waste gas being fed to the unit excluding periods of startup and shutdown.	
CAM Text: each monitoring device shall be accurate to within manufacturer's recommendations. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications or other written procedures that provide an adequate assurance that the device is calibrated accurately, or at least annually, whichever is more frequent. Maintain records of when temperature is not maintained and duration of events. The combustion temperature/exhaust temperature shall not be less than the temperature established during the performance testing to demonstrate necessary destruction efficiency of VOCs except during startup and shutdown. Maintain records when condition is not met.	

CAM Summary

Unit/Group/Process Information	
ID No.: XF4601VENT	
Control Device ID No.: XF-4601	Control Device Type: Flare
Applicable Regulatory Requirement	
Name: 30 TAC Chapter 115, Vent Gas Controls	SOP Index No.: R5121-1
Pollutant: VOC	Main Standard: § 115.123(a)(1)
Monitoring Information	
Indicator: Pilot Flame	
Minimum Frequency: Continuous	
Averaging Period: n/a	
Deviation Limit: Each of the eleven stages shall have two pilots and that at least one pilot shall be lit at all times.	
CAM Text: Monitor the presence of a flare pilot flame using a thermocouple or other equivalent device to detect the presence of a flame or suing an alarm that uses a thermocouple or other equivalent device to detect the absence of a flame. Maintain records of events when pilot flame is absent and duration of events. Each monitoring device shall be accurate to within manufacture recommendation. Each monitoring device shall be calibrated at a frequency in accordance with the manufacture's specification or other written procedure that provide an adequate assurance that device is calibrated accurately.	

Periodic Monitoring Summary

Unit/Group/Process Information	
ID No.: GRP-FURNCAP	
Control Device ID No.: N/A	Control Device Type: N/A
Applicable Regulatory Requirement	
Name: 30 TAC Chapter 111, Visible Emissions	SOP Index No.: R1111-2
Pollutant: Opacity	Main Standard: § 111.111(a)(1)(C)
Monitoring Information	
Indicator: Visible Emissions	
Minimum Frequency: once per week	
Averaging Period: n/a	
Deviation Limit: There shall be no visible emissions. If visible emissions are observed, the permit holder shall report a deviation or perform Test Method 9 and opacity shall not exceed 15%.	
Periodic Monitoring Text: Visible emissions observations shall be made and recorded. Note that to properly determine the presence of visible emissions, all sources must be in clear view of the observer. The observer shall be at least 15 feet, but not more than 0.25 miles, away from the emission source during the observation. The observer shall select a position where the sun is not directly in the observer's eyes. If the observations cannot be conducted due to weather conditions, the date, time, and specific weather conditions shall be recorded. When condensed water vapor is present within the plume, as it emerges from the emissions outlet, observations must be made beyond the point in the plume at which condensed water vapor is no longer visible. When water vapor within the plume condenses and becomes visible at a distance from the emissions outlet, the observation shall be evaluated at the outlet prior to condensation of water vapor. If visible emissions are observed, the permit holder shall report a deviation. As an alternative, the permit holder may determine the opacity consistent with Test Method 9, as soon as practicable, but no later than 24 hours after observing visible emissions. If the result of the Test Method 9 is opacity above the opacity limit in the applicable requirement, the permit holder shall report a deviation.	

Permit Shield

Permit Shield

The Executive Director of the TCEQ has determined that the permit holder is not required to comply with the specific regulation(s) identified for each emission unit, group, or process in this table.

Unit/Group/Process		Regulation	Basis of Determination
ID No.	Group/Inclusive Units		
EMERGEN	N/A	30 TAC Chapter 117, Subchapter B	The diesel engine is a new unit placed into service after November 15, 1992 and is not considered a functionally identical replacement.
GENERATOR	N/A	30 TAC Chapter 117, Subchapter B	The diesel engine is a new unit placed into service after November 15, 1992 and is not considered a functionally identical replacement
GRP-FURNCAP	H-1101, H-1102, H-1103, H-1104, H-1105, H-1106, H-1107	30 TAC Chapter 117, Subchapter B	The heaters are new units placed into service after November 15, 1992 and is not considered a functionally identical replacement.
GRP-FURNCAP	H-1101, H-1102, H-1103, H-1104, H-1105, H-1106, H-1107	40 CFR Part 63, Subpart DDDDD	Ethylene cracking furnace covered by 40 CFR Part 63, Subpart YY is not subject to MACT DDDDD.
SCFUG	N/A	40 CFR Part 61, Subpart J	Equipment subject to NESHAPS J and MACT YY is required to comply only with MACT YY.
SCFUG	N/A	40 CFR Part 61, Subpart V	Equipment subject to NESHAPS V and MACT YY is required to comply only with MACT YY.
T-1202	N/A	40 CFR Part 63, Subpart YY	The maximum true vapor pressure of total organic HAP stored is less than 3.4 kilopascals (kPa).
T-1210	N/A	40 CFR Part 60, Subpart Kb	Storage vessel storing a volatile liquid with a true vapor pressure less than 3.5 kilopascals (kPa).
T-1210	N/A	40 CFR Part 63, Subpart YY	The maximum true vapor pressure of total

Permit Shield

The Executive Director of the TCEQ has determined that the permit holder is not required to comply with the specific regulation(s) identified for each emission unit, group, or process in this table.

Unit/Group/Process		Regulation	Basis of Determination
ID No.	Group/Inclusive Units		
			organic HAP stored is less than 3.4 kilopascals (kPa).
T-1221A	N/A	40 CFR Part 60, Subpart Kb	Storage vessel storing a volatile liquid with a true vapor pressure less than 3.5 kilopascals (kPa).
T-1221A	N/A	40 CFR Part 63, Subpart YY	The maximum true vapor pressure of total organic HAP stored is less than 3.4 kilopascals (kPa).
T-1221B	N/A	40 CFR Part 60, Subpart Kb	Storage vessel storing a volatile liquid with a true vapor pressure less than 3.5 kilopascals (kPa).
T-1221B	N/A	40 CFR Part 63, Subpart YY	The maximum true vapor pressure of total organic HAP stored is less than 3.4 kilopascals (kPa).
T-5655	N/A	40 CFR Part 60, Subpart Kb	Storage vessel storing a volatile liquid with a true vapor pressure less than 3.5 kilopascals (kPa).
T-5655	N/A	40 CFR Part 63, Subpart YY	The maximum true vapor pressure of total organic HAP stored is less than 3.4 kilopascals (kPa).
T-5660	N/A	40 CFR Part 60, Subpart Kb	Storage vessel storing a volatile liquid with a true vapor pressure less than 3.5 kilopascals (kPa).
T-5660	N/A	40 CFR Part 63, Subpart YY	The maximum true vapor pressure of total organic HAP stored is less than 3.4 kilopascals ((kPa).

Permit Shield

The Executive Director of the TCEQ has determined that the permit holder is not required to comply with the specific regulation(s) identified for each emission unit, group, or process in this table.

Unit/Group/Process		Regulation	Basis of Determination
ID No.	Group/Inclusive Units		
T-5672	N/A	40 CFR Part 60, Subpart Kb	Storage vessel storing a volatile liquid with a true vapor pressure less than 3.5 kilopascals (kPa).
V-1290	N/A	40 CFR Part 60, Subpart Kb	Storage vessel has a capacity less than 19,800 gallons.
V-1290	N/A	40 CFR Part 63, Subpart YY	Storage vessel does not store an organic HAP as listed in the Table 1 to MACT XX.
V-1291	N/A	40 CFR Part 63, Subpart YY	Storage vessel does not store an organic HAP as listed in the Table 1 to MACT XX.
V-5651	N/A	40 CFR Part 60, Subpart Kb	Storage vessel storing a volatile liquid with a true vapor pressure less than 3.5 kilopascals (kPa).
V-5651	N/A	40 CFR Part 63, Subpart YY	The maximum true vapor pressure of total organic HAP stored is less than 3.4 kilopascals (kPa).
V-5652	N/A	40 CFR Part 60, Subpart Kb	Storage vessel has a capacity less than 19,800 gallons.
V-5652	N/A	40 CFR Part 63, Subpart YY	The maximum true vapor pressure of total organic HAP stored is less than 3.4 kilopascals (kPa).
X3401	N/A	40 CFR Part 63, Subpart Q	Cooling tower does not use any chromium based water treatment chemicals.
X-3800	N/A	30 TAC Chapter 117, Subchapter B	The vapor combustor is a new unit placed into service after November 15, 1992 and is not considered a functionally identical replacement.

Permit Shield

The Executive Director of the TCEQ has determined that the permit holder is not required to comply with the specific regulation(s) identified for each emission unit, group, or process in this table.

Unit/Group/Process		Regulation	Basis of Determination
ID No.	Group/Inclusive Units		
X3800VENT	N/A	40 CFR Part 60, Subpart NNN	Process vents from distillation units subject to 40 CFR Part 60 Subpart NNN and 40 CFR Part 63 Subpart YY are required to comply only with the requirements of MACT YY.
X3800VENT	N/A	40 CFR Part 60, Subpart RRR	Process vents from distillation units subject to 40 CFR Part 60 Subpart RRR and 40 CFR Part 63 Subpart YY are required to comply only with the requirements of MACT YY.
XF4601VENT	N/A	40 CFR Part 60, Subpart NNN	Process vents from distillation units subject to 40 CFR Part 60 Subpart NNN and 40 CFR Part 63 Subpart YY are required to comply only with the requirements of MACT YY.
XF4601VENT	N/A	40 CFR Part 60, Subpart RRR	Process vents from distillation units subject to 40 CFR Part 60 Subpart RRR and 40 CFR Part 63 Subpart YY are required to comply only with the requirements of MACT YY.

New Source Review Authorization References

New Source Review Authorization References

The New Source Review authorizations listed in the table below are applicable requirements under 30 TAC Chapter 122 and enforceable under this operating permit.

Prevention of Significant Deterioration (PSD) Permits	
PSD Permit No.: GHGPSDTX114	Issuance Date: 10/09/2019
PSD Permit No.: PSDTX1426	Issuance Date: 10/09/2019
Title 30 TAC Chapter 116 Permits, Special Permits, and Other Authorizations (Other Than Permits By Rule, PSD Permits, or NA Permits) for the Application Area.	
Authorization No.: 122353	Issuance Date: 10/09/2019
Permits By Rule (30 TAC Chapter 106) for the Application Area	
Number: 106.261	Version No./Date: 11/01/2003
Number: 106.262	Version No./Date: 11/01/2003
Number: 106.263	Version No./Date: 11/01/2003
Number: 106.264	Version No./Date: 09/04/2000
Number: 106.373	Version No./Date: 09/04/2000
Number: 106.472	Version No./Date: 09/04/2000
Number: 106.473	Version No./Date: 09/04/2000
Number: 106.476	Version No./Date: 09/04/2000
Number: 106.478	Version No./Date: 09/04/2000
Number: 106.511	Version No./Date: 09/04/2000
Number: 106.352	Version No./Date: 11/22/2012
Number: 106.492	Version No./Date: 09/04/2000

New Source Review Authorization References by Emissions Unit

The following is a list of New Source Review (NSR) authorizations for emission units listed elsewhere in this operating permit. The NSR authorizations are applicable requirements under 30 TAC Chapter 122 and enforceable under this operating permit.

Unit/Group/Process ID No.	Emission Unit Name/Description	New Source Review Authorization
EMERGEN	EMERGENCY GENERATOR	122353, GHGPSDTX114, PSDTX1426
GENERATOR	EMERGENCY GENERATOR	106.511/09/04/2000
H-1101	CRACKING HEATER H-1101	122353, GHGPSDTX114, PSDTX1426
H-1102	CRACKING HEATER H-1102	122353, GHGPSDTX114, PSDTX1426
H-1103	CRACKING HEATER H-1103	122353, GHGPSDTX114, PSDTX1426
H-1104	CRACKING HEATER H-1104	122353, GHGPSDTX114, PSDTX1426
H-1105	CRACKING HEATER H-1105	122353, GHGPSDTX114, PSDTX1426
H-1106	CRACKING HEATER H-1106	122353, GHGPSDTX114, PSDTX1426
H-1107	CRACKING HEATER H-1107	122353, GHGPSDTX114, PSDTX1426
LOAD	SITE LOADING OPERATIONS	122353, 106.472/09/04/2000, 106.473/09/04/2000
PROPROCESS	PROCESS UNIT	122353
SCFUG	EQUIPMENT LEAK FUGITIVES	122353, GHGPSDTX114, PSDTX1426
T-1202	CRACKER BOTTOM PRODUCT TANK	122353
T-1210	WASH OIL STORAGE TANK	122353
T-1221A	SPENT CAUSTIC STORAGE TANK	122353
T-1221B	SPENT CAUSTIC STORAGE TANK	122353
T-5655	PROCESS WASTE EQUALIZATION TANK	122353
T-5660	BENZENE WASTE WATER TANK	122353
T-5672	INDUCED GAS FLOTATION TANK	122353
UNLOAD	SITE UNLOADING OPERATIONS	122353, 106.472/09/04/2000, 106.473/09/04/2000
V-1290	METHANOL STORAGE DRUM	122353

New Source Review Authorization References by Emissions Unit

The following is a list of New Source Review (NSR) authorizations for emission units listed elsewhere in this operating permit. The NSR authorizations are applicable requirements under 30 TAC Chapter 122 and enforceable under this operating permit.

Unit/Group/Process ID No.	Emission Unit Name/Description	New Source Review Authorization
V-1291	DMDS STORAGE DRUM	122353
V-5651	WET SLOP OIL/FROTH HOLDING VESSEL	122353
V-5652	OILY SLUDGE STORAGE TANK	122353
X3401	COOLING TOWER	122353, GHGPSDTX114, PSDTX1426
X-3800	THERMAL OXIDIZER	122353, GHGPSDTX114, PSDTX1426
X3800VENT	THERMAL OXIDIZER PROCESS VENTS	122353
XF-4601	GROUND FLARE	122353, GHGPSDTX114, PSDTX1426
XF4601VENT	GROUND FLARE PROCESS VENTS	122353
XT-5672	IGF SEPARATOR	122353
Z-5671	CPI SEPARATOR	122353

Alternative Requirement

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

9489 0090 0027 6002 5171 60

June 21, 2019

RETURN RECEIPT REQUESTED ####

MRS DIANE CHAMBERLAIN
PRESIDENT MANAGING DIRECTOR
BAYPORT POLYMERS LLC
PO BOX 5010
LA PORTE TX 77572-5010

Re: Alternative Method of Control (AMOC) No. 113
Port Arthur Refinery Ethane Cracker
Multipoint Ground Flare
Regulated Entity Number: RN109845768
Customer Reference Number: CN605458397
Associated Permit Numbers: 122353, GHGPSDTX114, and PSDTX1426

Dear Mrs. Chamberlain:

This correspondence is in response to Bayport Polymers LLC's (Baystar's) December 3, 2018 request for a multipoint ground flare (MPGF) system at the Port Arthur Refinery site, Ethane Cracker project and use an AMOC to comply with applicable requirements of 30 Texas Administrative Code Chapter 115 (see Attachment A).

We understand the MPGF (EPN: XF-4601) is designed to provide safe control of gases vented from normal operations, planned maintenance, startup and shutdowns (MSS), and upsets. We also understand the high-pressure operations of the MPGF will not meet the tip velocity requirements of 40 CFR §60.18 at all times. Based on the review of the information submitted, performance testing demonstrates proper flare operation, cross-lighting, flame stability, smokeless operation, and greater than 98% destruction rate effectiveness (DRE) is expected for the high-pressure stages of the MPGF.

The Texas Commission on Environmental Quality (TCEQ) Executive Director has made a final decision to approve your AMOC request. The conditions upon which the MPGF is approved are attached to this correspondence. Please maintain these conditions along with all related records.

The TCEQ has been delegated authority to enforce the above cited standards and is authorized to approve this AMOC. You are reminded that approval of any AMOC shall not abrogate the Executive Director or Administrator's authority under the Act or in any way prohibit later canceling the AMOC. By copy of this letter we are informing the Environmental Protection Agency, Region 6, of this decision as required by TCEQ's delegation of authority.

This AMOC approval may supersede certain requirements or representations in Permit Nos. 122353, GHGPSDTX114, and PSDTX1426. To ensure effective and consistent enforceability, we request that Baystar incorporate this AMOC into the permits through submittal of alterations no later than 90 days after this approval.

Re: Permit Numbers: 122353, GHGPSDTX114, and PSDTX1426

If you need further information or have any questions, please contact Ms. Anne Inman, P.E. at (512) 239-1276 or write to the Texas Commission on Environmental Quality, Office of Air, Air Permits Division, MC-163, P.O. Box 13087, Austin, Texas 78711-3087.

Sincerely,

Michael Wilson, P.E., Director
Air Permits Division
Office of Air
Texas Commission on Environmental Quality

Enclosures

cc: Mr. Don Clauson, Environmental Coordinator, Bayport Polymers
Air Section Manager, Region 10 - Beaumont
Rebecca Partee, Manager, Chemical New Source Review Permits Section, Air Permits Division, OA: MC-163

Project Number: 294330

Re: Permit Numbers: 122353, GHGPSDTX114, and PSDTX1426

Attachment A: Potential State and Federal Applicability

30 Texas Administrative Code (TAC) Chapter 115

- Subchapter B: General Volatile Organic Compound Sources
  - Division 2: Vent Gas Control, 115.122
  - Division 3: Water Separation
  - Division 4: Industrial Wastewater
- Subchapter C: Volatile Organic Compound Transfer Operations
  - Division 1: Loading and Unloading Of Volatile Organic Compounds
- Subchapter D: Petroleum Refining, Natural Gas Processing, and Petrochemical Processes.
  - Division 1: Process Unit Turnaround and Vacuum-Producing Systems in Petroleum Refineries
  - Division 3: Fugitive Emission Control in Petroleum Refining, Natural Gas/Gasoline Processing, And Petrochemical Processes in Ozone Nonattainment Areas
- Subchapter F: Miscellaneous Industrial Sources
  - Division 3: Degassing of Storage Tanks, Transport Vessels And Marine Vessels

Standards of Performance for New Stationary Sources (NSPS), 40 Code of Federal Regulations (CFR) Part 60:

- Subpart A, General Provisions.
- Subpart Kb, Volatile Organic Liquid Storage Vessels.
- Subpart VVa, Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry (SOCMI).
- Subpart NNN, VOC Emissions from SOCMI Distillation Operations.
- Subpart RRR, VOC Emissions from SOCME Reactor Processes.

National Emission Standards for Hazardous Air Pollutants (NESHAPs) in 40 CFR Part 61:

- Subpart A, General Provisions.
- Subpart J, Equipment Leaks of Benzene.
- Subpart V, Equipment Leaks.
- Subpart FF, Benzene Waste Operations.

Maximum Achievable Emission Limits (MACT) for NESHAP Sources in 40 CFR Part 63:

- Subpart A, General Provisions.
- Subpart UU, Equipment Leaks – Control Level 2 Standards.
- Subpart XX, Ethylene Manufacturing Process Units: Heat Exchange Systems and Waste Operations.
- Subpart YY, General Maximum Achievable Control Technology (MACT) Standards.
- Subpart EEEE, Organic Liquids Distribution (Non-Gasoline).

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Alternative Method of Control (AMOC) Plan
Bayport Polymers, LLC (Baystar)
AMOC No.: AMOC-113
Port Arthur Refinery Ethane Cracker
Multi-Point Ground Flare (MPGF) System
Port Arthur, Jefferson County, Regulated Entity Number: RN109845768

A. This AMOC Plan Authorization shall apply at the Bayport Polymers, LLC (Baystar), Port Arthur Refinery located in Port Arthur, Jefferson County. This site is identified by Regulated Entity Number RN109845768. Under Title 30 Texas Administrative Code (TAC) Section 115.910 (§115.910) this plan authorizes a multi-point ground flare (MPGF) system identified as EPN XF-4601. The flare system will be used during emission events such as planned maintenance, start-ups, and shutdowns (MSS), and unplanned emergency and upset situations.

B. A copy of the AMOC application and the AMOC Plan provisions must be kept on-site or at a centralized location and made available at the request of personnel from the TCEQ or any pollution control agency with jurisdiction. The AMOC application is defined by the application received 5/15/2018 and subsequent supporting documents dated through June 14, 2019.

C. This authorization is granted under § 115.910 for emissions sources regulated by 30 TAC Chapter 115:

Subchapter B: General Volatile Organic Compound Sources
- Division 2: Vent Gas Control
- Division 3: Water Separation
- Division 4: Industrial Wastewater

Subchapter C: Volatile Organic Compound Transfer Operations
- Division 1: Loading and Unloading Of Volatile Organic Compounds

Subchapter D: Petroleum Refining, Natural Gas Processing, and Petrochemical Processes
- Division 1: Process Unit Turnaround and Vacuum-Producing Systems in Petroleum Refineries
- Division 3: Fugitive Emission Control in Petroleum Refining, Natural Gas/Gasoline Processing, And Petrochemical Processes in Ozone Nonattainment Areas

Subchapter F: Miscellaneous Industrial Sources
- Division 3: Degassing of Storage Tanks, Transport Vessels And Marine Vessels

Subchapter H: Highly-Reactive Volatile Organic Compounds
- Division 1: Vent Gas Control
- Division 2: Cooling Tower Heat Exchange Systems
- Division 3: Fugitive Emissions

This AMOC shall apply in lieu of the requirements §§ 115.122(a)(1)-(2), as applicable. Compliance with this AMOC is independent of Baystar's obligation to comply with all other applicable requirements of 30 TAC Chapter 115, TCEQ permits, and applicable state and federal law. The monitoring and testing requirements of 30 TAC Chapter 115 shall continue to apply.

Compliance with the requirements of this plan does not assure compliance with requirements of an applicable New Source Performance Standard, applicable National Emission Standard for Hazardous Air Pollutants, or an Alternative Means of Emission Limitation (AMEL) and does not constitute approval of alternative standards for these regulations.

If an AMEL is granted by the U.S. Environmental Protection Agency (EPA) or federal authorization is provided in regulations, the company shall incorporate AMEL conditions into this AMOC by revision within 90 days if any changes are needed for consistency.

D. In accordance with § 115.913(c), all representations submitted for this plan, as well as the provisions listed here, become conditions upon which this AMOC Plan is issued. It is unlawful to vary from the emission limits, control requirements, monitoring, testing, reporting or recordkeeping requirements of this Plan.

E. The flare system EPN XF-4601is authorized under Permits No. 122353, PSDTX1426, GHGPSDTX114 and subject to this AMOC plan. The flare system uses Zeeco MJ-4 burners controlling MSS and upset activities. When the High Pressure (HP) Vent Header sends waste gas to the MPGF, the burners will exceed the tip velocity portions of §60.18, §63.11, and 30 TAC Chapter 115. In these instances, the Zeeco MJ-4 burners and stages will meet the requirements in paragraph F.

The MPGF system will be 11 stages of burners and a spare stage of burners for a total of 304 burners and 62 spare burners. Operations of the MPGF burners will achieve a reduction in emissions at least equivalent to the reduction in emissions being controlled by a steam-assisted, air-assisted, or non-assisted flare complying with the requirements of §§ 115.122(a)(1)-(2) or 40 CFR 60.18(b).

F. When the burners exceed the tip velocity requirements of §60.18, §63.11, and 30 TAC Chapter 115, the burners must be operated such that the following are met:

1. **Operating Requirements**: The net heating value of the flare vent gas combustion zone (*NHVcz*) is greater than or equal to 800 British thermal units per standard cubic foot (Btu/scf); or the combustion zone gas lower flammability limit (*LFLcz*) is less than or equal to 6.5 percent by volume.

   The owner or operator must demonstrate compliance with the *NHVcz* or *LFLcz* metric by continuously complying with a 15-minute block average. The operator must calculate and monitor for the *NHVcz* or *LFLcz* according to the following:

   a. **Calculation of *NHVcz***

      i. If any owner or operator elects to use a monitoring system capable of continuously measuring, calculating, and recording the individual component concentrations present in the flare gas, the net heating value shall be determined using the following equation:

$$NHV_{vg} = \sum_{i=1}^{n} x_i \, NHV_i$$

      Where: *NHVvg* = Net heating value of flare vent gas, British thermal units per standard cubic foot (Btu/scf). *Flare vent gas* means all gas found just prior to the MPGFs. This gas includes all flare waste gas (*i.e.*, gas from facility operations that is directed to a flare for the purpose of disposing of the gas), flare sweep gas, flare purge gas and flare supplemental gas, but does not include pilot gas.

i = Individual component in flare vent gas.

n = Number of components in flare vent gas.

x_i = Concentration of component i in flare vent gas, volume percent (vol %).

NHV_i = Net heating value of component i determined as the heat of combustion where the net enthalpy per mole of offgas is based on combustion at 25 degrees Celsius (°C) and 1 atmosphere (or constant pressure) with water in the gaseous state from values published in the literature, and then the values converted to a volumetric basis using 20 °C for "standard temperature." Table 1 summarizes component properties including net heating values.

(ii) If the owner or operator uses a continuous net heating value monitor, the owner or operator may, at their discretion, install, operate, calibrate, and maintain a monitoring system capable of continuously measuring, calculating, and recording the hydrogen concentration in the flare vent gas. The owner or operator shall use the following equation to determine NHVvg for each sample measured via the net heating value monitoring system.

$$NHV_{vg} = NHV_{measured} + 938\ x_{H2}$$

Where:

NHV_{vg} = Net heating value of flare vent gas, BTU/scf.

$NHV_{measured}$ = Net heating value of flare vent gas stream as measured by the continuous net heating value monitoring system, BTU/scf.

x_{H2} = Concentration of hydrogen in flare vent gas at the time the sample was input into the net heating value monitoring system, volume fraction.

938 = Net correction for the measured heating value of hydrogen 1,212-274 BTU/scf.

(iii) (A) For non-assisted flare burners, NHVvg = NHVcz.

(B) For air-assisted burners, NHVcz should be calculated using the following equation:

$$NHV_{cz} = (Q_{vg} * NHV_{vg} + Q_{ag} * NHV_{ag}) / (Q_{vg} + Q_{ag})$$

Where:

NHVcz = Net heating value of combustion zone gas, BTU/scf.

NHVvg = Net heating value of flare vent gas for the 15-minute block period as determined according to (1)(a)(i), BTU/scf.

Qvg = Cumulative volumetric flow of flare vent gas during the 15-minute block period, scf.

Qag = Cumulative volumetric flow of assist gas during the 15-minute block period, standard cubic feet flow rate, scf.

NHVag = Net heating value of assist gas, BTU/scf; this is zero for air or for steam.

(C) For steam-assisted burners, NHVcz should be calculated using the following equation:

$$NHV_{cz} = (Q_{vg} * NHV_{vg}) / (Q_{vg} + Q_{s})$$

Where:

NHVcz = Net heating value of combustion zone gas, BTU/scf.

NHVvg = Net heating value of flare vent gas for the 15-minute block period as determined according to (1)(a)(i), BTU/scf.

Qvg = Cumulative volumetric flow of flare vent gas during the 15-minute block period, scf.

Qs = Cumulative volumetric flow of total assist steam during the 15-minute block period, standard cubic feet flow rate, scf.

b. **Calculation of *LFLcz***

(i) The owner or operator shall determine *LFLcz* from compositional analysis data by using the following equation:

$$LFL_{vg} = \frac{1}{\sum_{i=1}^{n}\left[\frac{\chi_i}{LFL_i}\right]} * 100\ \%$$

Where:

LFLvg = Lower flammability limit of flare vent gas, volume percent (vol %)

n = Number of components in the vent gas.

i = Individual component in the vent gas.

χi = Concentration of component i in the vent gas, vol %.

LFLi = Lower flammability limit of component *i* as determined using values published by the U.S. Bureau of Mines (Zabetakis, 1965), vol %. All inerts, including nitrogen, are assumed to have an infinite LFL (*e.g.*, *LFLN2* = ∞, so that $xN2/LFLN2 = 0$). LFL values for common flare vent gas components are provided in Table 1.

(ii) (A) For non-assisted flare burners, LFLvg = LFLcz.

(B) For steam assisted burners, LFLcz shall be calculated using the following:

$$LFLcz = \frac{LFLvg\ x\ (Qvg + Qs)}{Qvg}$$

Where:

LFLcz = Lower flammability limit of combustion zone gas (vol %).

LFLvg = Lower flammability limit of flare vent gas (vol %)

Q_{vg} = Cumulative volumetric flow of flare gas vent in scf during the 15-minute block period.

Q_s = Cumulative volumetric flow of total assist steam in scf during the 15-minute block period.

c. Calculation of Vtip is not applicable to this MPGF.

d. The operator shall install, operate, calibrate and maintain a monitoring system capable of continuously measuring flare vent gas volumetric flow rate (Q_{vg}) the total assist steam volumetric

flow rate (Q_s), the volumetric flow rate of total assist air (Q_a), and the volumetric flow rate of total assist gas (Q_{ag}), as applicable.

i. The flow rate monitoring system must be able to correct for the temperature and pressure of the system and output parameters in standard conditions (i.e., a temperature of 20 degrees C (68 ° F) and a pressure of 1 atmosphere).

ii. Mass flow monitors may be used for determining volumetric flow rate of flare vent gas provided the molecular weight of the flare vent gas is determined using compositional analysis so that the mass flow rate can be converted to volumetric flow at standard conditions using the following equation:

$$Qvol = \frac{Qmass\ x\ 385.3}{MWt}$$

Where:

Qvol = volumetric flow rate in scf per second (scf/s).

Qmass = mass flow rate in pounds per second (lb/s)

385.3 = conversion factor scf per pound-mole

MW_t = molecular weight of the gas at the flow monitoring location, pounds per pound-mole

e. The operator shall install, operate, calibrate and maintain a monitoring system capable of continuously measuring (i.e., at least once every 15-minutes) temperature consistent with the applicable requirements in 30 TAC Chapter 115 for purposes of correcting flow rate to standard conditions. The monitor must meet the accuracy and calibration specifications annually.

For each measurement produced by monitoring systems, the operator shall determine the 15-minute block average as the arithmetic average of all measurements made by the monitoring system within the 15-minute period.

f. The operator must follow the calibration and maintenance procedures according to Table 2.

Monitor downtime associated with maintenance periods, instrument adjustments or checks to maintain precision and accuracy and zero and span adjustments may not exceed 5 percent of the time the flare is receiving regulated material. Calibration and maintenance procedures conducted when the flare is not receiving regulated material are excluded from the monitor downtime calculation.

2. Pilot Flame Requirements:

a. The MPGF systems shall be operated with a flame present at all times when in use.

b. Each stage of MPGF burners must have at least two pilots with at least one continuously lit pilot flame.

c. Each pilot flame must be continuously monitored by a thermocouple or any other equivalent device (such as the video camera required for visible emission monitoring as outlined in 3 below), used to detect the presence of a flame.

d. The time, date and duration of any complete loss of pilot flame on any stage of burners must be recorded.

e. Each monitoring device must be maintained or replaced at a frequency in accordance with the manufacturer's specifications.

f. Flares at refineries must meet the requirements in the Petroleum Refinery MACT (§63.670(b)) in addition to the requirements in this subsection, including:

i. Each 15-minute block during which there is at least one minute where no pilot flame is present when regulated material is routed to the flare is a deviation of the standard.

ii. Deviations in different 15-minute blocks from the same event are considered separate deviations.

3. **Visible Emission Requirements**:

a. When the flare is receiving regulated material, the flare system shall be operated with no visible emissions except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.

b. A video camera that is capable of continuously recording (*i.e.*, at least one frame every 15 seconds with time and date stamps) images of the flare flame and a reasonable distance above the flare flame at an angle suitable for visible emissions observations must be used to demonstrate compliance with this requirement.

c. The owner or operator must provide real-time video surveillance camera output to the control room or other continuously manned location where the video camera images may be viewed at any time.

Video camera downtime associated with maintenance periods and camera adjustments may not exceed 5 percent of the time the flare is receiving regulated material. Maintenance and adjustment procedures conducted when the flare is not receiving regulated material are excluded from the video camera downtime calculation.

d. Flares at refineries shall comply with the requirements of 40 CFR 63.670(h):

i. The owner or operator shall conduct an initial visible emissions demonstration using an observation period of 2 hours using Method 22 at 40 CFR part 60, appendix A-7. The initial visible emissions demonstration should be conducted the first time regulated materials are routed to the flare.

ii. Subsequent visible emissions observations must be conducted using either the methods in paragraph (h)(1) of this section or, alternatively, the methods in paragraph (h)(2) of this section. The owner or operator must record and report any instances where visible emissions are observed for more than 5 minutes during any 2 consecutive hours as specified in §63.655(g)(11)(ii).

iii. Requirements of (h)(1) - At least once per day for each day regulated material is routed to the flare, conduct visible emissions observations using an observation period of 5 minutes using Method 22 at 40 CFR part 60, appendix A-7. If at any time the owner or operator sees visible emissions while regulated material is routed to the flare, even if the minimum required daily visible emission monitoring has already been performed, the owner or operator shall immediately begin an observation period of 5 minutes using Method 22 at 40 CFR part 60,

appendix A-7. If visible emissions are observed for more than one continuous minute during any 5-minute observation period, the observation period using Method 22 at 40 CFR part 60, appendix A-7 must be extended to 2 hours or until 5-minutes of visible emissions are observed. Daily 5-minute Method 22 observations are not required to be conducted for days the flare does not receive any regulated material.

iv. Requirements of (h)(2) - Use a video surveillance camera to continuously record (at least one frame every 15 seconds with time and date stamps) images of the flare flame and a reasonable distance above the flare flame at an angle suitable for visual emissions observations. The owner or operator must provide real-time video surveillance camera output to the control room or other continuously manned location where the camera images may be viewed at any time.

4. **Pressure Monitor Requirements**:

   a. The operator of the flare system shall install and operate pressure monitor(s) on the main flare header, and

   b. a valve position indicator monitoring systems for each staging valve to ensure that the flare system operates within the range of tested conditions or within the range of the manufacturer's specifications.

   c. The pressure monitor shall meet the requirements in Table 2.

   d. Monitor downtime associated with maintenance periods, instrument adjustments or checks to maintain precision and accuracy and zero and span adjustments may not exceed 5 percent of the time the flare is receiving regulated material. Calibration and maintenance procedures conducted when the flare is not receiving regulated material are excluded from the monitor downtime calculation.

5. **Recordkeeping Requirements**: All data must be recorded and maintained for a minimum of five years or for as long as applicable rule subpart(s) specify flare records should be kept, whichever is longer. Records must be maintained onsite and made available upon request by authorized representatives of the executive director, U.S. EPA, and any local air pollution control agency with jurisdiction.

6. **Reporting Requirements**

   a. The information specified in (b) and (c) below should be reported in the timeline specified by the applicable rules for which the flare system will control emissions.

   b. Owners or operators should include the final operating requirements for each flare in their initial Notification of Compliance (NOC) status report (including but not limited to the items listed in F.6.c.

   c. The owner or operator shall notify the Administrator of periods of excess emissions in their Periodic Reports.

   d. All MPGF shall include the following in their NOC, reports, and records:

      i. Each 15-minute block during which there was at least one minute when regulated material was routed to the MPGFs and a complete loss of pilot flame on any stage or any individual burner(s) occurred.

ii. Periods of visible emissions events (including time and date stamp) that exceed more than 5 minutes in any 2 hour consecutive period.

iii. Each 15-minute block period for which an applicable combustion zone operating limit (*i.e.*, *NHVcz* or *LFLcz*) is not met for the flare system when regulated material is being combusted in the flare. Indicate the date and time for each period, the *NHVcz* and/or *LFLcz* operating parameter for the period, the type of monitoring system used to determine compliance with the operating parameters (*e.g.*, gas chromatograph or calorimeter), and the flare stages which were in use.

iv. Periods when the pressure monitor(s) on the main flare header show the flare burners are operating outside the range of tested conditions or outside the range of the manufacturer's specifications. Indicate the date and time for each period, the pressure measurement, the stage(s) and number of flare burners affected and the range of tested conditions or manufacturer's specifications.

v. Periods when the staging valve position indicator monitoring system indicates a stage of the flare system should not be in operation, but is; or when a stage of the MPGF should be in operation, but is not. Indicate the date and time for each period, whether the stage was supposed to be open but was closed or vice versa and the stage(s) and number of flare burners affected.

vi. Flare systems at refineries shall meet the following additional requirements of §63.655(g)(11)(i)-(iii): Record the 15-minute block periods for which the applicable operating limits specified in F.(1) of this Plan are not met. Indicate the date and time for the period, the net heating value operating parameter(s) determined following the methods in §63.670(k) through (n) as applicable.

vii. Flare systems at refineries shall include the following records for flaring events meeting the criteria of §63.670(o)(3): the start and stop time and date of the flaring event; the length of time for which emissions were visible from the flare during the event; the periods of time that the flare tip velocity exceeds the maximum flare tip velocity determined using the methods in §63.670(d)(2) and the maximum 15-minute block average flare tip velocity recorded during the event; and results of the root cause and corrective actions analysis completed during the reporting period, including the corrective actions implemented during the reporting period and, if applicable, the implementation schedule for planned corrective actions to be implemented subsequent to the reporting period.

Table 1 — Individual Component Properties

Component	Molecular Formula	MWI (lb/ lb mol)	NHVI (Btu/scf)	LFLI (volume %)
Acetylene	C2H2	26.04	1,404	2.5
Benzene	C6H6	78.11	3,591	1.3
1,2- Butadiene	C4H6	54.09	2,794	2.0
1,3- Butadiene	C4H6	54.09	2,690	2.0
Iso-Butane	C4H10	58.12	2,957	1.8
n-Butane	C4H10	58.12	2,968	1.8
cis-Butene	C4H8	56.11	2,830	1.6
Iso-Butene	C4H8	56.11	2,928	1.8
trans-Butene	C4H8	56.11	2,826	1.7
Carbon Dioxide	CO2	44.01	0	∞
Carbon Monoxide	CO	28.01	316	12.5
Cyclopropane	C3H6	42.08	2,185	2.4
Ethane	C2H6	30.07	1,595	3.0
Ethylene	C2H4	28.05	1,477	2.7
Hydrogen	H2	2.02	1,212[*]	4.0
Hydrogen Sulfide	H2S	34.08	587	4.0
Methane	CH4	16.04	896	5.0
MethylAcetylene	C3H4	40.06	2,088	1.7
Nitrogen	N2	28.01	0	∞
Oxygen	O2	32.00	0	∞
Pentane+ (C5+)	C5H12	72.15	3,655	1.4
Propadiene	C3H4	40.06	2,066	2.16
Propane	C3H8	44.10	2,281	2.1
Propylene	C3H6	42.08	2,150	2.4
Water	H2O	18.02	0	∞

** The theoretical net heating value for hydrogen is 274 BTU/scf, but for the purposes of the flare requirement, a net heating value of 1,212 BTU/scf shall be used.*

Table 2 — Accuracy and Calibration Requirements

Parameter	Accuracy requirements	Calibration requirements
Flare Vent Gas Flow Rate	±20 percent of flow rate at velocities ranging from 0.1 to 1 feet per second. ±5 percent of flow rate at velocities greater than 1 foot per second.	Performance evaluation biennially (every two years) and following any period of more than 24 hours throughout which the flow rate exceeded the maximum rated flow rate of the sensor, or the data recorder was off scale. Conduct monthly AVO fugitive emission monitoring on each connection point. Visual inspections and checks of system operation every 3 months, unless the system has a redundant flow sensor. Select a representative measurement location where swirling flow or abnormal velocity distributions due to upstream and downstream disturbances at the point of measurement are minimized.
Flow Rate for All Flows Other Than Flare Vent Gas	± 5% over normal range of flow measured or 0.5 gal/min whichever greater for liquid flow. ± 5% over normal range of flow measured 10 ft3/min, whichever greater for gas flow. ± 5% over normal range measured for mass flow	Conduct a flow sensor calibration check at least biennially (every 2 years); conduct a calibration check following any period of more than 24 hours throughout which the flow rate exceeded the manufacturer's specified maximum rated flow rate or install a new flow sensor. At least quarterly, inspect all components for leakage, unless the continuous parameter monitoring system (CPMS) has a redundant flow sensor. Record the results of each calibration check and inspection. Locate the flow sensor(s) and other necessary equipment (such as straightening vanes) in a position that provides representative flow; reduce swirling flow or abnormal velocity distributions due to upstream and downstream disturbances.
Pressure	±5 percent over the normal range measured or 0.12 kilopascals (0.5 inches of water column), whichever is greater.	Review pressure sensor readings at least once a week for straight-line (unchanging) pressure and perform corrective action to ensure proper pressure sensor operation if blockage is indicated. Performance evaluation annually and following any period of more than 24 hours throughout which the pressure exceeded the maximum rated pressure of the sensor, or the data recorder was off scale. Checks of all mechanical connections for leakage monthly. Visual inspection of all components for integrity, oxidation, and galvanic corrosion every 3 months, unless the system has a redundant pressure sensor. Select a representative measurement location that minimizes or eliminates pulsating pressure, vibration, and internal and external corrosion.
Net Heating Value by Calorimeter	±2 percent of span	Calibration requirements should follow manufacturer's recommendations at a minimum. Temperature control (heated and/or cooled as necessary) the sampling system to ensure proper year-round operation. Where feasible, select a sampling location at least two equivalent diameters downstream from and 0.5 equivalent diameters upstream from the nearest disturbance. Select the sampling location at least two equivalent duct diameters from the nearest control device, point of pollutant generation, air in-leakages, or other point at which a change in the pollutant concentration or emission rate occurs.
Net Heating Value by Gas Chromatograph	As specified in Performance Specification 9 of 40 CFR part 60 Appendix B.	Follow the procedure in Performance Specification 9 of 40 CFR Part 60 Appendix B, except that a single daily mid-level calibration check can be used, a triplicate mid-level check weekly, and the multi-point calibration can be conducted quarterly (rather than monthly), and the sampling line temperature must be maintained at a minimum temperature of 60 °C (rather than 120 °C).
Hydrogen Analyzer	± 2% over concentration measured or 0.1 vol% whichever is greater	Specify calibration requirements in your site specific CPMS monitoring plan. Calibration requirements should follow manufacturer's recommendations at a minimum. Specify the sampling location at least 2 equivalent duct diameters from the nearest control device, point of pollutant generation, air in-leakages, or other point at which a change in the pollutant concentration occurs.
ADDITIONAL REQUIREMENTS FOR FLARES AT REFINERIES		
Temperature	±1 percent over the normal range of temperature measured, expressed in degrees Celsius (C), or 2.8 degrees C, whichever is greater	Locate the temperature sensor in a position that provides a representative temperature; shield the temperature sensor system from electromagnetic interference and chemical contaminants. Conduct calibration checks at least annually; conduct calibration checks following any period of more than 24 hours throughout which the temperature exceeded the manufacturer's specified maximum rated temperature or install a new temperature sensor. At least quarterly, inspect all components for integrity and all electrical connections for continuity, oxidation, and galvanic corrosion, unless the CPMS has a redundant temperature sensor. Record the results of each calibration check and inspection.
Pressure	Same as above	Same as above with the following additional requirements: Use an instrument recommended by the sensor's manufacturer for calibration checks. Alternative option for calibration check after period of exceeding specified maximum rated pressure, may install new pressure sensor.
Net Heating Value by Calorimeter	Same as above	Same as above with the following additional requirements: Specify calibration requirements in your site specific CPMS monitoring plan.

Appendix A

Acronym List

The following abbreviations or acronyms may be used in this permit:

ACFM ..... actual cubic feet per minute
AMOC ..... alternate means of control
ARP ..... Acid Rain Program
ASTM ..... American Society of Testing and Materials
B/PA ..... Beaumont/Port Arthur (nonattainment area)
CAM ..... Compliance Assurance Monitoring
CD ..... control device
CEMS ..... continuous emissions monitoring system
CFR ..... Code of Federal Regulations
COMS ..... continuous opacity monitoring system
CVS ..... closed vent system
D/FW ..... Dallas/Fort Worth (nonattainment area)
EP ..... emission point
EPA ..... U.S. Environmental Protection Agency
EU ..... emission unit
FCAA Amendments ..... Federal Clean Air Act Amendments
FOP ..... federal operating permit
gr/100 scf ..... grains per 100 standard cubic feet
HAP ..... hazardous air pollutant
H/G/B ..... Houston/Galveston/Brazoria (nonattainment area)
H_2S ..... hydrogen sulfide
ID No. ..... identification number
lb/hr ..... pound(s) per hour
MACT ..... Maximum Achievable Control Technology (40 CFR Part 63)
MMBtu/hr ..... Million British thermal units per hour
NA ..... nonattainment
N/A ..... not applicable
NADB ..... National Allowance Data Base
NESHAP ..... National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
NO_x ..... nitrogen oxides
NSPS ..... New Source Performance Standard (40 CFR Part 60)
NSR ..... New Source Review
ORIS ..... Office of Regulatory Information Systems
Pb ..... lead
PBR ..... Permit By Rule
PEMS ..... predictive emissions monitoring system
PM ..... particulate matter
ppmv ..... parts per million by volume
PRO ..... process unit
PSD ..... prevention of significant deterioration
psia ..... pounds per square inch absolute
SIP ..... state implementation plan
SO_2 ..... sulfur dioxide
TCEQ ..... Texas Commission on Environmental Quality
TSP ..... total suspended particulate
TVP ..... true vapor pressure
U.S.C. ..... United States Code
VOC ..... volatile organic compound

Appendix B

Major NSR Summary Table

Permit Numbers: 122353 and PSDTX1426					Issuance Date:10/09/2019		
Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates		Monitoring and Testing Requirements	Recordkeeping Requirements	Reporting Requirements
			lbs/hour	TPY (4)	Special Conditions/ Application Information	Special Conditions/ Application Information	Special Conditions/ Application Information
FURNCAP (6)	Pyrolysis Furnace Block Emission Cap (H-1101 through H-1107)	NO_x	28.17	123.38	5, 7, 8, 9, 11, 12, 29	5, 7, 8, 9, 11, 12, 29, 31	5, 9, 11, 12, 29
		NO_x (MSS) (8)	76.96				
		CO	95.47	461.71			
		VOC	5.11	24.68			
		SO_2	1.96	7.00			
		SO_2 (MSS) (8)	1.96				
		PM	6.44	30.84			
		PM_{10}	6.44	30.84			
		$PM_{2.5}$	6.44	30.84			
		H_2SO_4	0.11	0.54			
		NH_3	11.61	56.14			
H-1101, H-1102, H-1103, H-1104, H-1105, H-1106, and H-1107 (7)	Pyrolysis Furnaces (H-1101 through H-1107)	NO_x	6.04	--	5, 7, 8, 9, 11, 12, 29	5, 7, 8, 9, 11, 12, 29, 31	5, 8, 9, 11, 12, 29
		CO	15.06	--			
		VOC	0.80	--			

Major NSR Summary Table

Permit Numbers: 122353 and PSDTX1426					Issuance Date:10/09/2019		
Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates		Monitoring and Testing Requirements	Recordkeeping Requirements	Reporting Requirements
			lbs/hour	TPY (4)	Special Conditions/ Application Information	Special Conditions/ Application Information	Special Conditions/ Application Information
		SO_2	0.23	--			
		PM	1.01	--			
		PM_{10}	1.01	--			
		$PM_{2.5}$	1.01	--			
		H_2SO_4	0.02	--			
		NH_3	1.83	--			
HDECOKE1	Decoke Cyclone 1	CO	280.00	76.23	13	13, 31	
		PM	1.91	0.98			
		PM_{10}	1.91	0.98			
		$PM_{2.5}$	1.91	0.98			
HDECOKE2	Decoke Cyclone 2	CO	280.00	76.23	13	13, 31	
		PM	1.91	0.98			
		PM_{10}	1.91	0.98			
		$PM_{2.5}$	1.91	0.98			
XF-4601	Multi-Point Ground	NO_x	8.29	35.86	3, 5, 7, 14, 32	3, 5, 7, 14, 31	3, 5, 14

Major NSR Summary Table

Permit Numbers: 122353 and PSDTX1426					Issuance Date:10/09/2019		
Emission Point No. (1)	**Source Name (2)**	**Air Contaminant Name (3)**	**Emission Rates**		**Monitoring and Testing Requirements**	**Recordkeeping Requirements**	**Reporting Requirements**
			lbs/hour	**TPY (4)**	**Special Conditions/ Application Information**	**Special Conditions/ Application Information**	**Special Conditions/ Application Information**
	Flare - Normal	CO	33.03	142.82			
		VOC	13.86	59.93			
		SO_2	0.34	1.48			
	Multi-Point Ground Flare - MSS	NO_x	919.05	58.41			
		CO	3,660.23	232.64			
		VOC	2,077.69	98.16			
		SO_2	0.02	0.10			
X-3800	Thermal Oxidizer	NO_x	0.69	3.03			
		CO	0.44	1.91			
		VOC	0.69	0.13			
		SO_2	0.02	0.11	5, 7, 15, 29	5, 7, 15, 29, 31	5, 15, 29
		PM	0.04	0.17			
		PM_{10}	0.04	0.17			
		$PM_{2.5}$	0.04	0.17			
X-3401	Cooling Tower	VOC	6.30	27.59	5, 17	5, 17, 31	5, 17

Major NSR Summary Table

Permit Numbers: 122353 and PSDTX1426					Issuance Date:10/09/2019		
Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates		Monitoring and Testing Requirements	Recordkeeping Requirements	Reporting Requirements
			lbs/hour	TPY (4)	Special Conditions/ Application Information	Special Conditions/ Application Information	Special Conditions/ Application Information
		PM	0.92	4.03			
		PM_{10}	0.71	3.11			
		$PM_{2.5}$	0.01	0.01			
SCFUG (5)	Equipment Leak Fugitives	VOC	3.92	17.17	3, 5, 18, 19	3, 5, 18, 19, 31	3, 5, 18
		NH_3	0.18	0.80			
EMERGEN	Emergency Generator	NO_x	1.46	0.07	5, 7, 20	5, 7, 20, 31	5
		CO	7.61	0.38			
		VOC	0.55	0.03			
		SO_2	0.02	0.01			
		PM	0.07	0.01			
		PM_{10}	0.07	0.01			
		$PM_{2.5}$	0.07	0.01			
SCMSS	Planned MSS Activities	NO_x	0.01	0.01	21, 22, 25, 26, 27, 28	21, 22, 25, 26, 27, 28, 31	
		CO	0.01	0.01			
		VOC	42.18	4.78			

Major NSR Summary Table

Permit Numbers: 122353 and PSDTX1426					Issuance Date:10/09/2019		
Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates		Monitoring and Testing Requirements	Recordkeeping Requirements	Reporting Requirements
			lbs/hour	TPY (4)	Special Conditions/ Application Information	Special Conditions/ Application Information	Special Conditions/ Application Information
		PM	0.09	0.04			
		PM_{10}	0.03	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
NH_3 - ammonia
H_2SO_4 - sulfuric acid
(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 EPN FURNCAP is a short-term and annual cap of emissions from all furnaces, EPNs H-1101, H-1102, H-1103, H-1104, H-1105, H-1106 and H-1107.
(7) These are the short-term emission rates of each furnace, EPNs H-1101, H-1102, H-1103, H-1104, H-1105, H-1106 and H-1107.
(8) These emission rates apply across all furnaces in the cap when any one furnace is in one of the planned maintenance, startup and shutdown scenarios defined in the Special Conditions.

Major NSR Summary Table

Permit Number: GHGPSDTX114				Issuance Date:10/09/2019		
Emission Point No. (1)	**Source Name (2)**	**Air Contaminant Name (3)**	**Emission Rates**	**Monitoring and Testing Requirements**	**Recordkeeping Requirements**	**Reporting Requirements**
			TPY (4)	**Special Conditions/ Application Information**	**Special Conditions/ Application Information**	**Special Conditions/ Application Information**
FURNCAP (7)	Pyrolysis Furnace Block (H-1101 through H-1107)	CO_2 (5)	1,346,793	3	3, 19, 21, 22, 23	3, 4
		CH_4 (5)	21.0			
		N_2O (5)	2.7			
		CO_2e	1,348,172			
SCFUG	Process Fugitive Emissions (6)	CO_2 (5)	3.5	14	14, 19, 21, 22, 23	14
		CH_4 (5)	60.0			
		CO_2e	1,503			
XF-4601	Multi-Point Ground Flare	CO_2 (5)	34,244	8, 9, 11	8, 9, 11, 19, 21, 22, 23	11
		CH_4 (5)	66.0			
		N_2O (5)	0.43			
		CO_2e	36,022			
X-3800	Thermal Oxidizer	CO_2 (5)	10,169	10, 11	10, 11, 19, 21, 22, 23	10
		CH_4 (5)	0.06			
		N_2O (5)	0.03			
		CO_2e	10,180			
X-3401	Cooling Tower	CH_4 (5)	1.7	13	13, 19, 21, 22, 23	
		CO_2e	42			

Major NSR Summary Table

Permit Number: GHGPSDTX114				Issuance Date:10/09/2019		
Emission Point No. (1)	**Source Name (2)**	**Air Contaminant Name (3)**	**Emission Rates**	**Monitoring and Testing Requirements**	**Recordkeeping Requirements**	**Reporting Requirements**
			TPY (4)	**Special Conditions/ Application Information**	**Special Conditions/ Application Information**	**Special Conditions/ Application Information**
EMERGEN	Emergency Generator	CO_2 (5)	75.42	12	12, 19, 21, 22, 23	12
		CH_4 (5)	<0.01			
		N_2O (5)	<0.01			
		CO_2e	75.68			
HDECOKE1	Decoke Cyclone 1	CO_2 (5)	240.69	7	7, 19, 21, 22, 23	
		CO_2e	240.69			
HDECOKE2	Decoke Cyclone 2	CO_2 (5)	240.69	7	7, 19, 21, 22, 23	
		CO_2e	240.69			

(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
CO_2e - carbon dioxide equivalents based on the following Global Warming Potentials (1/2015):
CO_2 (1), N_2O (298), CH_4 (25)
(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) Emission rate is an estimate and is enforceable through compliance with the special conditions.
(7) The EPN FURNCAP is a cap of annual emissions from Furnaces H-1101, H-1102, H-1103, H-1104, H-1105, H-1106 and H-1107.

Texas Commission on Environmental Quality
Air Quality Permit

A Permit Is Hereby Issued To
Bayport Polymers LLC
Authorizing the Construction and Operation of
Total Petro Chemicals & Refining USA Port Arthur Refinery
Located at **Port Arthur, Jefferson County, Texas**
Latitude 29° 57′ 47″ Longitude −93° 53′ 25″

Permit: 122353 and PSDTX1426

Revision Date: October 9, 2019

Expiration Date: January 17, 2027

For the Commission

1. **Facilities** covered by this permit shall be constructed and operated as specified in the application for the permit. All representations regarding construction plans and operation procedures contained in the permit application shall be conditions upon which the permit is issued. Variations from these representations shall be unlawful unless the permit holder first makes application to the Texas Commission on Environmental Quality (commission) Executive Director to amend this permit in that regard and such amendment is approved. [Title 30 Texas Administrative Code (TAC) Section 116.116 (30 TAC § 116.116)] [1]
2. **Voiding of Permit**. A permit or permit amendment is automatically void if the holder fails to begin construction within 18 months of the date of issuance, discontinues construction for more than 18 months prior to completion, or fails to complete construction within a reasonable time. Upon request, the executive director may grant an 18-month extension. Before the extension is granted the permit may be subject to revision based on best available control technology, lowest achievable emission rate, and netting or offsets as applicable. One additional extension of up to 18 months may be granted if the permit holder demonstrates that emissions from the facility will comply with all rules and regulations of the commission, the intent of the Texas Clean Air Act (TCAA), including protection of the public's health and physical property; and (b)(1)the permit holder is a party to litigation not of the permit holder's initiation regarding the issuance of the permit; or (b)(2) the permit holder has spent, or committed to spend, at least 10 percent of the estimated total cost of the project up to a maximum of $5 million. A permit holder granted an extension under subsection (b)(1) of this section may receive one subsequent extension if the permit holder meets the conditions of subsection (b)(2) of this section. [30 TAC § 116.120]
3. **Construction Progress**. Start of construction, construction interruptions exceeding 45 days, and completion of construction shall be reported to the appropriate regional office of the commission not later than 15 working days after occurrence of the event. [30 TAC § 116.115(b)(2)(A)]
4. **Start-up Notification**. The appropriate air program regional office shall be notified prior to the commencement of operations of the facilities authorized by the permit in such a manner that a representative of the commission may be present. The permit holder shall provide a separate notification for the commencement of operations for each unit of phased construction, which may involve a series of units commencing operations at different times. Prior to operation of the facilities authorized by the permit, the permit holder shall identify the source or sources of allowances to be utilized for compliance with Chapter 101, Subchapter H, Division 3 of this title (relating to Mass Emissions Cap and Trade Program). [30 TAC § 116.115(b)(2)(B)]
5. **Sampling Requirements**. If sampling is required, the permit holder shall contact the commission's Office of Compliance and Enforcement prior to sampling to obtain the proper data forms and procedures. All sampling and testing procedures must be approved by the executive director and coordinated with the regional representatives of the commission. The permit holder is also responsible for providing sampling facilities and conducting the sampling operations or contracting with an independent sampling consultant. [30 TAC § 116.115(b)(2)(C)]
6. **Equivalency of Methods.** The permit holder must demonstrate or otherwise justify the equivalency of emission control methods, sampling or other emission testing methods, and monitoring methods proposed as alternatives to methods indicated in the conditions of the permit. Alternative methods shall be applied for in writing and must be reviewed and approved by the executive director prior to their use in fulfilling any requirements of the permit. [30 TAC § 116.115(b)(2)(D)]
7. **Recordkeeping.** The permit holder shall maintain a copy of the permit along with records containing the information and data sufficient to demonstrate compliance with the permit, including production records and

operating hours; keep all required records in a file at the plant site. If, however, the facility normally operates unattended, records shall be maintained at the nearest staffed location within Texas specified in the application; make the records available at the request of personnel from the commission or any air pollution control program having jurisdiction in a timely manner; comply with any additional recordkeeping requirements specified in special conditions in the permit; and retain information in the file for at least two years following the date that the information or data is obtained. [30 TAC § 116.115(b)(2)(E)]

8. **Maximum Allowable Emission Rates**. The total emissions of air contaminants from any of the sources of emissions must not exceed the values stated on the table attached to the permit entitled "Emission Sources--Maximum Allowable Emission Rates." [30 TAC § 116.115(b)(2)(F)] [1]
9. **Maintenance of Emission Control**. The permitted facilities shall not be operated unless all air pollution emission capture and abatement equipment is maintained in good working order and operating properly during normal facility operations. The permit holder shall provide notification in accordance with 30 TAC §101.201, 101.211, and 101.221 of this title (relating to Emissions Event Reporting and Recordkeeping Requirements; Scheduled Maintenance, Startup, and Shutdown Reporting and Recordkeeping Requirements; and Operational Requirements). [30 TAC§ 116.115(b)(2)(G)]
10. **Compliance with Rules**. Acceptance of a permit by an applicant constitutes an acknowledgment and agreement that the permit holder will comply with all rules and orders of the commission issued in conformity with the TCAA and the conditions precedent to the granting of the permit. If more than one state or federal rule or regulation or permit condition is applicable, the most stringent limit or condition shall govern and be the standard by which compliance shall be demonstrated. Acceptance includes consent to the entrance of commission employees and agents into the permitted premises at reasonable times to investigate conditions relating to the emission or concentration of air contaminants, including compliance with the permit. [30 TAC § 116.115(b)(2)(H)]
11. **This** permit may not be transferred, assigned, or conveyed by the holder except as provided by rule. [30 TAC § 116.110(e)]
12. **There** may be additional special conditions attached to a permit upon issuance or modification of the permit. Such conditions in a permit may be more restrictive than the requirements of Title 30 of the Texas Administrative Code. [30 TAC § 116.115(c)]
13. **Emissions** from this facility must not cause or contribute to "air pollution" as defined in Texas Health and Safety Code (THSC) §382.003(3) or violate THSC § 382.085. If the executive director determines that such a condition or violation occurs, the holder shall implement additional abatement measures as necessary to control or prevent the condition or violation.
14. **The** permit holder shall comply with all the requirements of this permit. Emissions that exceed the limits of this permit are not authorized and are violations of this permit. [1]

[1] Please be advised that the requirements of this provision of the general conditions may not be applicable to greenhouse gas emissions.

Common Acronyms in Air Permits

°C = Temperature in degrees Celsius
°F = Temperature in degrees Fahrenheit
°K = Temperature in degrees Kelvin
µg = microgram
$\mu g/m^3$ = microgram per cubic meter
acfm = actual cubic feet per minute
AMOC = alternate means of control
AOS = alternative operating scenario
AP-42 = Air Pollutant Emission Factors, 5th edition
APD = Air Permits Division
API = American Petroleum Institute
APWL = air pollutant watch list
BPA = Beaumont/ Port Arthur
BACT = best available control technology
BAE = baseline actual emissions
bbl = barrel
bbl/day = barrel per day
bhp = brake horsepower
BMP = best management practices
Btu = British thermal unit
Btu/scf = British thermal unit per standard cubic foot or feet
CAA = Clean Air Act
CAM = compliance-assurance monitoring
CEMS = continuous emissions monitoring systems
cfm = cubic feet (per) minute
CFR = Code of Federal Regulations
CN = customer ID number
CNG = compressed natural gas
CO = carbon monoxide
COMS = continuous opacity monitoring system
CPMS = continuous parametric monitoring system
DFW = Dallas/ Fort Worth (Metroplex)
DE = destruction efficiency
DRE = destruction and removal efficiency
dscf = dry standard cubic foot or feet
dscfm = dry standard cubic foot or feet per minute
ED = (TCEQ) Executive Director
EF = emissions factor
EFR = external floating roof tank
EGU = electric generating unit
EI = Emissions Inventory
ELP = El Paso
EPA = (United States) Environmental Protection Agency
EPN = emission point number
ESL = effects screening level
ESP = electrostatic precipitator
FCAA = Federal Clean Air Act
FCCU = fluid catalytic cracking unit
FID = flame ionization detector
FIN = facility identification number
ft = foot or feet
ft/sec = foot or feet per second
g = gram
gal/wk = gallon per week
gal/yr = gallon per year
GLC = ground level concentration
GLC_{max} = maximum (predicted) ground-level concentration
gpm = gallon per minute
gr/1000scf = grain per 1000 standard cubic feet
gr/dscf = grain per dry standard cubic feet
H_2CO = formaldehyde
H_2S = hydrogen sulfide
H_2SO_4 = sulfuric acid
HAP = hazardous air pollutant as listed in § 112(b) of the Federal Clean Air Act or Title 40 Code of Federal Regulations Part 63, Subpart C
HC = hydrocarbons
HCl = hydrochloric acid, hydrogen chloride
Hg = mercury
HGB = Houston/Galveston/Brazoria
hp = horsepower
hr = hour
IFR = internal floating roof tank
in H_2O = inches of water
in Hg = inches of mercury
IR = infrared
ISC3 = Industrial Source Complex, a dispersion model
ISCST3 = Industrial Source Complex Short-Term, a dispersion model
K = Kelvin; extension of the degree Celsius scaled-down to absolute zero
LACT = lease automatic custody transfer
LAER = lowest achievable emission rate
lb = pound
hp = horsepower
hr = hour lb/day = pound per day
lb/hr = pound per hour
lb/MMBtu = pound per million British thermal units
LDAR = Leak Detection and Repair (Requirements)
LNG = liquefied natural gas
LPG = liquefied petroleum gas
LT/D = long ton per day
m = meter
m^3 = cubic meter
m/sec = meters per second
MACT = maximum achievable control technology
MAERT = Maximum Allowable Emission Rate Table
MERA = Modeling and Effects Review Applicability
mg = milligram
mg/g = milligram per gram
mL = milliliter
MMBtu = million British thermal units
MMBtu/hr = million British thermal units per hour
MSDS = material safety data sheet
MSS = maintenance, startup, and shutdown
MW = megawatt
NAAQS = National Ambient Air Quality Standards
NESHAP = National Emission Standards for Hazardous Air Pollutants
NGL = natural gas liquids
NNSR = nonattainment new source review
NO_x = total oxides of nitrogen

NSPS = New Source Performance Standards
PAL = plant-wide applicability limit
PBR = Permit(s) by Rule
PCP = pollution control project
PEMS = predictive emission monitoring system
PID = photo ionization detector
PM = periodic monitoring
PM = total particulate matter, suspended in the atmosphere, including PM_{10} and $PM_{2.5}$, as represented
$PM_{2.5}$ = particulate matter equal to or less than 2.5 microns in diameter
PM_{10} = total particulate matter equal to or less than 10 microns in diameter, including $PM_{2.5}$, as represented
POC = products of combustion
ppb = parts per billion
ppm = parts per million
ppmv = parts per million (by) volume
psia = pounds (per) square inch, absolute
psig = pounds (per) square inch, gage
PTE = potential to emit
RA = relative accuracy
RATA = relative accuracy test audit
RM = reference method
RVP = Reid vapor pressure
scf = standard cubic foot or feet
scfm = standard cubic foot or feet (per) minute
SCR = selective catalytic reduction
SIL = significant impact levels
SNCR = selective non-catalytic reduction
SO_2 = sulfur dioxide
SOCMI = synthetic organic chemical manufacturing industry
SRU = sulfur recovery unit
TAC = Texas Administrative Code
TCAA = Texas Clean Air Act
TCEQ = Texas Commission on Environmental Quality
TD = Toxicology Division
TLV = threshold limit value
TMDL = total maximum daily load
tpd = tons per day
tpy = tons per year
TVP = true vapor pressure
VOC = volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1
VRU = vapor recovery unit or system

Special Conditions

Permit Numbers 122353 and PSDTX1426

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 maximum allowable emission rate 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. 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 VVa, Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry (SOCMI).

   D. Subpart NNN, VOC Emissions from SOCMI Distillation Operations.

   E. Subpart RRR, VOC Emissions from SOCMI Reactor Processes.

   F. Subpart IIII, Stationary Compression Ignition Internal Combustion Engines.

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 (NESHAPs) in 40 CFR Part 61:

   A. Subpart A, General Provisions.

   B. Subpart J, Equipment Leaks of Benzene.

   C. Subpart V, Equipment Leaks.

   D. Subpart FF, Benzene Waste Operations.

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

   A. Subpart A, General Provisions.

   B. Subpart Subpart UU, Equipment Leaks – Control Level 2 Standards.

   C. Subpart XX, Ethylene Manufacturing Process Units: Heat Exchange Systems and Waste Operations.

   D. Subpart YY, General Maximum Achievable Control Technology (MACT) Standards.

   E. Subpart EEEE, Organic Liquids Distribution (Non-Gasoline).

F. Subpart ZZZZ, Stationary Reciprocating Internal Combustion Engines.

Emission Standards and Operational Specifications

6. Unless specified in the special conditions of this permit, fired sources shall be fueled with pipeline quality natural gas containing no more than 5 grains of sulfur per dry standard cubic foot (scf) and/or plant produced high hydrogen fuel gas (process gas).

7. The natural gas shall be sampled every 6 months to determine total sulfur and net heating value. Test results from the fuel supplier may be used to satisfy this requirement.

Pyrolysis Furnaces (EPNs H-1101 through H-1107)

8. Except as specified in Special Condition No. 28, emissions from each pyrolysis furnace shall not exceed the following emission limits:

Pollutant	24-hour average	12-month rolling average
Nitrogen Oxides (NO_X)	0.015 lb/MMBtu	0.010 lb/MMBtu
Carbon Monoxide (CO)	50 ppmvd (3% oxygen)	50 ppmvd (3% oxygen)
Ammonia (NH_3)	10 ppmvd (3% oxygen)	10 ppmvd (3% oxygen)

9. 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, CO and oxygen (O_2) from the pyrolysis furnaces. The in-stack concentration of ammonia will be measured and recorded according to the requirements of Special Condition 12.

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, § 5.2.3 and any CEMS downtime, except for zero and span checks, shall be reported to the appropriate TCEQ Regional Manager semiannually, 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. The 24-hour span drift limit for ammonia is 20 ppmv at 3% oxygen. 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, § 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.

An initial RATA is required for each CEMS subject to the quality assurance requirements of paragraph (2) of this Special Condition.

All CGA exceedances of $\pm$15 percent accuracy indicate that the CEMS is out of control. If the CEMS is out of control the permit holder shall take corrective action and conduct an additional CGA. In lieu of conducting a CGA, a RATA may be conducted to verify that the CEMS is back in control. During the period the CEMS is out of control, the CEMS data may not be used in calculating emission compliance.

C. The monitoring data shall be reduced to hourly emission rates at least once every day, using a minimum of four equally-spaced data points from each one-hour period. The measured concentrations shall be reduced to units of pounds per hour (lb/hr), ppmv and lb/MMBtu at least once every week as follows:

For concentration limits in units of ppmv, the measured concentration from the CEMS shall be averaged, using a minimum of four equally-spaced data points from each one-hour period.

For hourly mass emission rate limits, the measured concentration from the CEMS shall be multiplied by the stack flow rate. The stack flow rate is calculated using the total fuel gas firing rate (natural gas and recovered process gas) measured by the continuous fuel monitoring system required by Special Condition 11, the excess oxygen measured in the stack, the ppmv rates measured by the CEMS, as well as the average F_d Factor for natural gas, propane, and butane published in EPA Reference Method 19, Equation 19-13. This measured concentration shall be averaged using a minimum of four equally spaced data points from each one-hour period. **(04/19)**

For concentration limits in units of lb/MMBtu, the mass emissions rate in lb/hr shall be divided by the total fuel gas firing rate (natural gas and recovered process gas) for the corresponding monitoring period to determine the emission rate for that monitoring period. The monitoring period must have a duration of 15-minutes or less. The calculated emission rates shall be reduced to an hourly average emission rate by averaging each of the calculated emission rates over the one hour period. **(04/19)**

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 21 days prior to any required RATA in order to provide them the opportunity to observe the testing.

F. Quality-assured (or valid) data must be generated when the pyrolysis furnaces are operating except during the performance of a daily zero and span check. Loss of valid data due to periods of monitor break down, (including loss of connectivity to data storage system), 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 pyrolysis furnaces are 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.

10. If any emission monitor fails to meet specified performance, it shall be repaired or replaced as soon as reasonably possible.

11. The holder of this permit shall additionally install, calibrate, maintain, and operate continuous monitoring systems to monitor and record the average hourly natural gas and process gas fuel consumption of pyrolysis furnaces. The monitored data shall be reduced to an hourly average flow rate at least once per day, using a minimum of four equally-spaced data points from each one-hour period. The systems shall be accurate to ± 5.0 percent of the unit's maximum flow. The flow meters shall be maintained such that accurate monitoring data are provided at least 95 percent of the time that the pyrolysis furnaces are operating. **(04/19)**

12. The NH_3 concentration in the pyrolysis furnace stacks shall be monitored, tested or calculated according to one of the methods listed below and shall be monitored, tested or calculated according to the one of the frequencies listed below. Determination of NH_3 slip is only required when the SCR unit is in operation.

    A block-one-hour average concentration shall be used to demonstrate compliance with the requirements of Special Condition 8, if the in-stack NH_3 concentration is monitored according to the procedures identified in paragraphs B or C below.

    If a method of continuous monitoring is implemented in accordance with paragraphs A, D, or E below, the monitor shall be subject to the accuracy tests, data completeness requirements, and averaging times located in Special Condition No. 9.

    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 and recorded in accordance with Special Condition No. 8.

    B. As an approved alternative, the NH_3 slip may be measured using a sorbent or stain tube device specific for NH_3, capable of measuring in the 5 to 10 parts per million (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 amount 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. The NH_3 concentration shall be recorded after each measurement in compliance with Special Condition No. 8.

    C. If the sorbent or stain tube testing indicates an ammonia slip concentration which exceeds 5 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 after each measurement in compliance with Special Condition No. 8.

D. 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 upstream of the SCR and 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. The calculated emissions shall be recorded and used to determine compliance with Special Condition No. 8.

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 No. 8.

F. Any other method used for measuring NH_3 slip shall require prior approval from the TCEQ Air Permits Division in Austin.

Decoke Cyclones (EPNs HDECOKE1 and HDECOKE2)

13. The decoking cyclones shall be installed and operated in accordance with the following requirements:

A. Opacity of emissions from the furnace decoking cyclones shall not exceed 15 percent, averaged over a six-minute period as determined using U.S. Environmental Protection Agency (EPA) Test Method 9.

Visible emissions shall be evaluated daily according to EPA Test Method 22. If visible emissions are detected during the daily EPA Method Test 22, then EPA Method 9 shall be conducted to determine if the opacity of emissions from the decoking cyclones are greater than 15 percent averaged over a six-minute period.

B. Decoking for all seven furnaces shall only be performed as needed and shall be limited to 2,058 hours per rolling 12-month period.

Records of decoking occurrences and decoke cyclone hours of operation shall be maintained.

Multi-Point Ground Flare (EPN XF-4601)

14. The multi-point ground flare (EPN: XF-4601) shall be designed and operated in accordance with the following requirements: **(10/19)**

A. The flare system shall be designed such that it meets one of the following:

(1) The 40 CFR § 60.18 specifications of minimum heating value and maximum tip velocity under normal, upset, 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.

(2) The conditions of Alternative Means of Control (AMOC) No. 113 (Attachment D) authorized by TCEQ on June 21, 2019, and any Alternative Means of Emission Limitation (AMEL) authorized by EPA issued in accordance with Special Condition No. 32 of this permit. The Multi-Point Ground Flare (MPGF) system, EPN XF-4601, shall meet the design, operating, monitoring, recordkeeping, and reporting requirements of AMOC No. 113 (Attachment D). **(10/19)**

B. The following requirements apply to the capture system of EPN XF-4601:

(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.

(3) The control device shall not have a 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.

(4) 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.

Thermal Oxidizer (EPN X-3800)

15. The thermal oxidizer shall maintain the VOC or other contaminant 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.

A. The thermal oxidizer firebox exit temperature shall be maintained at a minimum of 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. 29.

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

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.

C. The oxygen analyzer used to satisfy paragraph A 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. All observed deviations, as well as actions taken to correct them shall be reported to the appropriate TCEQ Regional Director on a quarterly basis. The quarterly reports are not necessary if no deviations are observed. 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.

Storage Tanks

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

A. The tank emissions must be routed to a thermal oxidizer meeting the requirements of Special Condition No. 15 above.

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 or unpainted aluminum. Storage tanks must be equipped with permanent submerged fill pipes.

C. 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, 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 permit application, PI-1 dated July 29, 2014. Sample calculations from the application shall be attached to a copy of this permit at the plant site.

Cooling Tower (EPN X-3401)

17. The cooling tower shall be operated and monitored in accordance with the following:

A. 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 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 2 VOC monitored results

B. Cooling towers shall each be equipped with drift eliminators having manufacturer's design assurance of 0.001% drift or less. If a cooling tower cell is removed from service due to low cooling water demand or unit shutdown, the cell's drift eliminators shall be inspected and repaired if damage is found. Periods of low cooling water demand include partial process unit shutdowns and/or cold weather events. A cooling tower cell is considered removed from service when power to the cooling water cell's fan is isolated and entry into the cooling tower plenum can be performed safely. During each low demand period, the permit holder will determine the number of cells that can be removed from service and still meet process unit needs. The permit holder shall stagger the shutdown of the cooling tower cells during each cell shutdown to maximize the number of cells inspected during subsequent shutdowns. The permit holder shall maintain records of all inspections and repairs.

C. Total dissolved solids (TDS) shall not exceed 1,225 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.

D. 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.

E. 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.

F. 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.

G. The actual cooling water circulation rate shall be measured at least hourly. Measurements shall be reduced to an hourly average and recorded for use in emission calculation. The maximum design cooling water circulation rate can be used to estimate emissions when the measured circulation rate is not available.

Fugitives (EPN SCFUG) – Piping, Valves, Connectors, Pumps, Agitators, and Compressors - 28VHP

18. 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 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.

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.

Fugitives (EPN SCFUG) – Piping, Valves, Pumps, and Compressors NH_3 in Service

19. The following requirements apply to the above-referenced equipment:

A. Audio, olfactory, and visual (AVO) checks for leaks within the operating area shall be made at least once per 12-hours. AVO checks once per 12-hour shift performed by operator walk-through may be conducted to satisfy the requirements of this condition.

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.

Emergency Generator (EPN EMERGEN)

20. The following requirements apply to the emergency generator:

A. The diesel engine shall not exceed 100 hours of non-emergency operation per year, on a rolling 12-month basis. The diesel engine must be equipped with a non-resettable runtime meter.

B. Diesel fuel fired in the engine authorized in this permit shall contain no more than 15 parts per million sulfur by weight.

Upon request by the Executive Director of the Texas Commission on Environmental Quality (TCEQ) or any local air pollution control program having jurisdiction, the holder of this permit shall provide a sample and/or an analysis of the fuel or shall allow air pollution control agency representatives to obtain a sample for analysis

Planned Maintenance, Startup and Shutdown

21. This permit authorizes the emissions from the planned MSS activities summarized in the MSS Activity Summary (Attachment C) attached to this permit.

A. 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.

B. 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.

C. In lieu of using the emission rates identified in the permit application for inherently low emitting MSS activities identified in Attachment A and routine maintenance activities identified on Attachment B to calculate and record emissions from MSS activities, the permit holder may record all information identified in parts D(1) through D(5) below.

D. The performance of each planned MSS activity not calculated using the procedures identified in paragraphs A and B above and the emissions associated with it shall be recorded and include at least the following information:

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

(2) the type of planned MSS activity and the reason for the planned activity;

(3) the common name and the facility identification number, if applicable, of the facilities at which the MSS activity and emissions occurred;

(4) the date and time of the MSS activity and its duration;

(5) 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.

22. Process units and facilities, with the exception of those identified in Special Conditions 24 (Fixed Roof Tanks), 26 (Frac Tanks and Temporary Vessels), and Attachment A 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 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 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], piping and instrumentation diagrams [P&IDs], or Turnaround and Inspection Plans [T&I Plans] 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 VOC

concentration less than 10,000 ppmv or 10% LEL prior to uncontrolled venting. The VOC sampling and analysis shall be performed using an instrument meeting the requirements of Special Condition 23. 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 22.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 B.

23. 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. 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 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.

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

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

(1) The air contaminant concentration measured 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 ppmv)*mole fraction of the total air contaminants present that can be detected by the tube.

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

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

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

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

(2) A functionality test shall be performed on each detector daily with a certified gas standard at 25% of the LEL for pentane. 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.

24. This permit authorizes emissions from EPN SCMSS for the storage tanks identified in the attached facility list during planned maintenance, startup and shutdown (MSS) activities. Fixed roof tanks shall only be opened for tank inspection/maintenance as identified in the permit application. These emissions are subject to the maximum allowable emission rates indicated on the MAERT. The following requirements apply to tank MSS:

A. After liquid has been drained to the maximum extent practicable using hard pipes, the storage tanks shall not be opened or ventilated without control except as allowed by the procedure in paragraph (1) below, until one of the criteria in paragraph 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

B. Except as identified in paragraph A of this condition, the storage tank vents shall be directed to a control device at all times until both of the following criteria are satisfied:

(1) 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, and

(2) The VOC concentration in the vapor space is less than 10,000 ppmv.

(a) 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.

C. 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 23.

(3) No standing liquid verified through visual inspection.

(4) Once the VOC vapor pressure of the liquid remaining in the tank is verified to be less than 0.02 psia in accordance with the procedures in paragraph (1) above any additional water flushes do not require additional vapor pressure verification.

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

D. The vapor space of the tank shall be directed to a control device when the tank is refilled. 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.

E. The occurrence of each storage tank MSS activity and the associated emissions 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:

(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 activity;

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

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

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

(c) 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,

(d) 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 c and d with the data and methods used to determine it.

25. 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) During all transfers of liquid containing VOC which is transferred to the truck, 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, the VOC exhaust concentration shall be measured using an

instrument meeting the requirements of Special Condition 23.A or 23.B upon commencing each transfer, at least once every hour after transfer starts and at the end of each transfer. Data collected from each sampling event shall be recorded. If colorimetric gas detector tubes allowed by Special Condition 23.B are used, only one sample tube is required per sampling event, with each sampling event no more than 1-hour apart.

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 paragraphs A through D above do not apply.

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

A. Except for labels, logos, etc. that do not exceed 15% of the tank surface area, the exterior surfaces of these tanks/vessels that are exposed to the sun shall be white or aluminum. This requirement does not apply to tanks/vessels that only vent to atmosphere when being filled, sampled, gauged, or when removing material.

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

C. These requirements do not apply to vessels storing less than 450 gallons of liquid that are closed such that the vessel does not vent to atmosphere except when filling, sampling, gauging, or when removing material.

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. This record must be updated by the last day of the month following. 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, or if all tank vents are routed to a control device, 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.

27. Additional occurrences of MSS activities authorized by this permit 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.

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

    A. The NO_x and CO operating requirements for the pyrolysis furnaces identified in Special Condition No. 8 do not apply during the scenarios defined below:

        (1) 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 24 hours at 25% or less of the maximum allowable firing rate established in the most recent satisfactory stack test except during startups requiring refractory dry out which is limited to 72 hours at 25% or less of the maximum allowable firing rate.

        (2) 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.

        (3) 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.

        (4) 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.

        (5) 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.

        (6) 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.

    B. Operation of the pyrolysis furnaces in Start-up Mode or in Shutdown Mode as defined in paragraph A above shall not exceed a total of 280 hours per rolling 12 month period across all furnaces. The number of hours that each furnace operated in each mode shall be monitored and recorded on a monthly basis. The most recent month's records shall be totaled with the records from the preceding 11 months to determine the number of hours per rolling 12 month period.

        This requirement does not apply during the initial shakedown period. The initial shakedown period begins with the initial startup of the first furnace and shall not exceed 180 days.

    C. Records shall be maintained indicating that the start times and end times of each of the activities identified above, and the duration of each activity. The records shall also include information sufficient to demonstrate when the start and end times occur based on the parameters that define each scenario.

Initial Demonstration of Compliance

29. 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 pyrolysis furnaces (EPNs H-1101 through H-1107) and the thermal oxidizer (EPN X-3800) to demonstrate compliance with the MAERT, Special Condition No. 8 and to establish a minimum temperature as required by Special Condition No. 15.A. 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.

        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 to be tested for include (but are not limited to):

        (1) NO_x, CO, and NH_3 emissions from the pyrolysis furnaces, and

        (2) NO_x, CO and VOC emissions from the thermal oxidizer.

    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 (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.

    D. The pyrolysis furnace being sampled shall operate at the maximum allowable hourly firing rate during stack emission testing. The thermal oxidizer shall operate at the maximum allowable waste gas flow rate. 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 actual hourly firing rate of any furnace or the actual waste gas flow rate to the thermal oxidizer 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, 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.

Recordkeeping

30. The following records must be kept at the plant for the life of the permit. All records required in this permit must be made available at the request of personnel from the TCEQ, EPA, or any air pollution control agency with jurisdiction:

    A. A copy of this permit, and

    B. The permit application dated July 31, 2014 and subsequent representations submitted to the TCEQ.

31. The following information 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:

    A. Records of natural gas sulfur content in accordance with Special Condition No. 7.

    B. Records of in-stack concentrations of NO_x, CO and NH_3 to demonstrate compliance with Special Condition No. 8.

    C. Records of Method 9 and Method 22 and decoking hours of operation shall be maintained to demonstrate compliance with Special Condition No. 13.

    D. Records of ground flare waste gas flow, composition and net heating value in accordance with Special Condition No. 14.

    E. Records of thermal oxidizer firebox temperature and oxygen concentration in accordance with Special Condition No. 15.

F. Records of calculated emissions from tanks in accordance with Special Condition No. 16.C.

G. Records of cooling tower parameters in accordance with Special Condition No. 17.

H. Records required by the fugitive monitoring programs in accordance with Special Condition Nos. 18 and 19.

I. Emergency generator run time in accordance with Special Condition No. 20.

J. Records of MSS activities in accordance with Special Condition No. 21 - 28.

K. Records of stack test results conducted in accordance with Special Condition No. 29.

L. Records of all manufacturer specified installation, maintenance and calibration procedures for all monitors required to be installed, maintained and calibrated according to manufacturer specifications in accordance with the special conditions of this permit.

Alternative Means of Emission Limitation (AMEL)

32. If a request for an AMEL is granted by EPA for the multi-point ground flare (EPN: XF-4601), the requirements of the approved AMEL shall supplement the requirements of Special Condition 14. The permit holder shall incorporate these conditions into the permit through an alteration no later than 90 days after approvals of the AMEL. **(10/19)**

Date: October 9, 2019

Permit Numbers 122353 and PSDTX1426

Attachment A

Inherently Low Emitting Activities

Activity	Emissions				
	VOC	NO_x	CO	PM	H_2S/SO_2
Aerosol Cans	x				
Calibration of analytical equipment	x	x	x		x
Carbon can replacement	x				
Catalyst charging/handling				x	
Instrumentation/indicator/analyzer maintenance	x				
Meter proving	x				
Replacement of analyzer filters and screens	x				
Replacement, repair and inspections of gaskets	x				

Date: January 17, 2017

Permit Numbers 122353 and PSDTX1426

Attachment B

Routine Maintenance Activities

Pump repair/replacement

Fugitive component (valve, pipe, flange) repair/replacement

Compressor repair/replacement

Heat exchanger repair/replacement

Date: January 17, 2017

Permit Numbers 122353 and PSDTX1426

Attachment C

MSS Activity Summary

Facilities	Description	Emissions Activity	EPN
all process units	process unit shutdown/depressurize/drain	vent to multi-point ground flare	XF-4601
all process units	process unit purge/degas/drain	vent to atmosphere	SCMSS
all process units	process unit startup	vent to multi-point ground flare	XF-4601
all process units and tanks	preparation for facility/component repair/replacement	vent to multi-point ground flare	XF-4601
all process units and tanks	preparation for facility/component repair/replacement	vent to atmosphere	SCMSS
all process units and tanks	recovery from facility/component repair/replacement	vent to multi-point ground flare	XF-4601
all process units and tanks	recovery from facility/component repair/replacement	vent to atmosphere	SCMSS
all process units and tanks	preparation for unit turnaround or facility/component repair/replacement	remove liquid	SCMSS
see Attachment A	miscellaneous low emitting activities	see Attachment A	SCMSS

Date: January 17, 2017

Permit Numbers 122353 and PSDTX1426

Attachment D

Alternative Method of Control (AMOC) No. 113

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Alternative Method of Control (AMOC) Plan
Bayport Polymers, LLC (Baystar)
AMOC No.: AMOC-113
Port Arthur Refinery Ethane Cracker
Multi-Point Ground Flare (MPGF) System
Port Arthur, Jefferson County, Regulated Entity Number: RN109845768

A. This AMOC Plan Authorization shall apply at the Bayport Polymers, LLC (Baystar), Port Arthur Refinery located in **Port Arthur, Jefferson** County. This site is identified by Regulated Entity Number RN109845768**.** Under Title 30 Texas Administrative Code (TAC) Section 115.910 (§115.910) this plan authorizes a multi-point ground flare (MPGF) system identified as EPN XF-4601. The flare system will be used during emission events such as planned maintenance, start-ups, and shutdowns (MSS), and unplanned emergency and upset situations.

B. A copy of the AMOC application and the AMOC Plan provisions must be kept on-site or at a centralized location and made available at the request of personnel from the TCEQ or any pollution control agency with jurisdiction. The AMOC application is defined by the application received 5/15/2018 and subsequent supporting documents dated through June 14, 2019.

C. This authorization is granted under § 115.910 for emissions sources regulated by 30 TAC Chapter 115:

Subchapter B: General Volatile Organic Compound Sources
- Division 2: Vent Gas Control
- Division 3: Water Separation
- Division 4: Industrial Wastewater

Subchapter C: Volatile Organic Compound Transfer Operations
- Division 1: Loading and Unloading Of Volatile Organic Compounds

Subchapter D: Petroleum Refining, Natural Gas Processing, and Petrochemical Processes
- Division 1: Process Unit Turnaround and Vacuum-Producing Systems in Petroleum Refineries
- Division 3: Fugitive Emission Control in Petroleum Refining, Natural Gas/Gasoline Processing, And Petrochemical Processes in Ozone Nonattainment Areas

Subchapter F: Miscellaneous Industrial Sources
Division 3: Degassing of Storage Tanks, Transport Vessels And Marine Vessels

Subchapter H: Highly-Reactive Volatile Organic Compounds
Division 1: Vent Gas Control
Division 2: Cooling Tower Heat Exchange Systems
Division 3: Fugitive Emissions

This AMOC shall apply in lieu of the requirements §§ 115.122(a)(1)-(2), as applicable. Compliance with this AMOC is independent of Baystar's obligation to comply with all other applicable requirements of 30 TAC Chapter 115, TCEQ permits, and applicable state and federal law. The monitoring and testing requirements of 30 TAC Chapter 115 shall continue to apply.

Compliance with the requirements of this plan does not assure compliance with requirements of an applicable New Source Performance Standard, applicable National Emission Standard for Hazardous Air Pollutants, or an Alternative Means of Emission Limitation (AMEL) and does not constitute approval of alternative standards for these regulations.

If an AMEL is granted by the U.S. Environmental Protection Agency (EPA) or federal authorization is provided in regulations, the company shall incorporate AMEL conditions into this AMOC by revision within 90 days if any changes are needed for consistency.

D. In accordance with § 115.913(c), all representations submitted for this plan, as well as the provisions listed here, become conditions upon which this AMOC Plan is issued. It is unlawful to vary from the emission limits, control requirements, monitoring, testing, reporting or recordkeeping requirements of this Plan.

E. The flare system EPN XF-4601is authorized under Permits No. **122353, PSDTX1426, GHGPSDTX114** and subject to this AMOC plan. The flare system uses Zeeco MJ-4 burners controlling MSS and upset activities. When the High Pressure (HP) Vent Header sends waste gas to the MPGF, the burners will exceed the tip velocity portions of §60.18, §63.11, and 30 TAC Chapter 115. In these instances, the Zeeco MJ-4 burners and stages will meet the requirements in paragraph F.

The MPGF system will be 11 stages of burners and a spare stage of burners for a total of 304 burners and 62 spare burners. Operations of the MPGF burners will achieve a reduction in emissions at least equivalent to the reduction in emissions being controlled by a steam-assisted, air-assisted, or non-assisted flare complying with the requirements of §§ 115.122(a)(1)-(2) or 40 CFR 60.18(b).

F. When the burners exceed the tip velocity requirements of §60.18, §63.11, and 30 TAC Chapter 115, the burners must be operated such that the following are met:

1. Operating Requirements: The net heating value of the flare vent gas combustion zone (*NHVcz*) is greater than or equal to 800 British thermal units per standard cubic foot (Btu/scf); or the combustion zone gas lower flammability limit (*LFLcz*) is less than or equal to 6.5 percent by volume.

The owner or operator must demonstrate compliance with the *NHVcz* or *LFLcz* metric by continuously complying with a 15-minute block average. The operator must calculate and monitor for the *NHVcz* or *LFLcz* according to the following:

a. **Calculation of *NHVcz***

i. If any owner or operator elects to use a monitoring system capable of continuously measuring, calculating, and recording the individual component concentrations present in the flare gas, the net heating value shall be determined using the following equation:

$$NHV_{vg} = \sum_{i=1}^{n} x_i \, NHV_i$$

Where: *NHVvg* = Net heating value of flare vent gas, British thermal units per standard cubic foot (Btu/scf). *Flare vent gas* means all gas found just prior to the MPGFs. This gas includes all flare waste gas (*i.e.,* gas from facility operations that is directed to a flare for the purpose of disposing of the gas), flare sweep gas, flare purge gas and flare supplemental gas, but does not include pilot gas.

i = Individual component in flare vent gas.

n = Number of components in flare vent gas.

x_i = Concentration of component *i* in flare vent gas, volume percent (vol %).

NHV_i = Net heating value of component *i* determined as the heat of combustion where the net enthalpy per mole of offgas is based on combustion at 25 degrees Celsius (°C) and 1 atmosphere (or constant pressure) with water in the gaseous state from values published in the literature, and then the values converted to a volumetric basis using 20 °C for ‘‘standard temperature.’’ Table 1 summarizes component properties including net heating values.

(ii) If the owner or operator uses a continuous net heating value monitor, the owner or operator may, at their discretion, install, operate, calibrate, and maintain a monitoring system capable of continuously measuring, calculating, and recording the hydrogen concentration in the flare vent gas. The owner or

operator shall use the following equation to determine NHVvg for each sample measured via the net heating value monitoring system.

$$NHV_{vg} = NHV_{measured} + 938\ x_{H2}$$

Where:

NHV_{vg} = Net heating value of flare vent gas, BTU/scf.

$NHV_{measured}$ = Net heating value of flare vent gas stream as measured by the continuous net heating value monitoring system, BTU/scf.

x_{H2} = Concentration of hydrogen in flare vent gas at the time the sample was input into the net heating value monitoring system, volume fraction.

938 = Net correction for the measured heating value of hydrogen 1,212-274 BTU/scf.

(iii) (A) For non-assisted flare burners, NHVvg = NHVcz.

(B) For air-assisted burners, NHVcz should be calculated using the following equation:

$$NHV_{cz} = (Q_{vg} * NHV_{vg} + Q_{ag} * NHV_{ag}) / (Q_{vg} + Q_{ag})$$

Where:

NHVcz = Net heating value of combustion zone gas, BTU/scf.

NHVvg = Net heating value of flare vent gas for the 15-minute block period as determined according to (1)(a)(i), BTU/scf.

Qvg = Cumulative volumetric flow of flare vent gas during the 15-minute block period, scf.

Qag = Cumulative volumetric flow of assist gas during the 15-minute block period, standard cubic feet flow rate, scf.

NHVag = Net heating value of assist gas, BTU/scf; this is zero for air or for steam.

(C) For steam-assisted burners, NHVcz should be calculated using the following equation:

$$NHV_{cz} = (Q_{vg} * NHV_{vg}) / (Q_{vg} + Q_s)$$

Where:

NHVcz = Net heating value of combustion zone gas, BTU/scf.

NHVvg = Net heating value of flare vent gas for the 15-minute block period as determined according to (1)(a)(i), BTU/scf.

Qvg = Cumulative volumetric flow of flare vent gas during the 15-minute block period, scf.

Qs = Cumulative volumetric flow of total assist steam during the 15-minute block period, standard cubic feet flow rate, scf.

b. **Calculation of *LFLcz***

(i) The owner or operator shall determine *LFLcz* from compositional analysis data by using the following equation:

$$LFL_{vg} = \frac{1}{\sum_{i=1}^{n}\left[\frac{\chi_i}{LFL_i}\right]} * 100\ \%$$

Where:

LFLvg = Lower flammability limit of flare vent gas, volume percent (vol %)

n = Number of components in the vent gas.

i = Individual component in the vent gas.

χi = Concentration of component i in the vent gas, vol %.

LFLi = Lower flammability limit of component *i* as determined using values published by the U.S. Bureau of Mines (Zabetakis, 1965), vol %. All inerts, including nitrogen, are assumed to have an infinite LFL (*e.g., LFLN2* = ∞, so that x*N2*/ *LFLN2* = 0). LFL values for common flare vent gas components are provided in Table 1.

(ii) (A) For non-assisted flare burners, LFLvg = LFLcz.

(B) For steam assisted burners, LFLcz shall be calculated using the following:

$$LFLcz = \frac{LFLvg\ x\ (Qvg + Qs)}{Qvg}$$

Where:

LFLcz = Lower flammability limit of combustion zone gas (vol %).

LFLvg = Lower flammability limit of flare vent gas (vol %)

Q_{vg} = Cumulative volumetric flow of flare gas vent in scf during the 15-minute block period.

Q_s = Cumulative volumetric flow of total assist steam in scf during the 15-minute block period.

c. Calculation of Vtip is not applicable to this MPGF.

d. The operator shall install, operate, calibrate and maintain a monitoring system capable of continuously measuring flare vent gas volumetric flow rate (Q_{vg}) the total assist steam volumetric flow rate (Q_s), the volumetric flow rate of total assist air (Q_a), and the volumetric flow rate of total assist gas (Q_{ag}), as applicable.

i. The flow rate monitoring system must be able to correct for the temperature and pressure of the system and output parameters in standard conditions (i.e., a temperature of 20 degrees C (68 ° F) and a pressure of 1 atmosphere).

ii. Mass flow monitors may be used for determining volumetric flow rate of flare vent gas provided the molecular weight of the flare vent gas is determined using compositional analysis so that the mass flow rate can be converted to volumetric flow at standard conditions using the following equation:

$$Qvol = \frac{Qmass\ x\ 385.3}{MWt}$$

Where:

Qvol = volumetric flow rate in scf per second (scf/s).

Qmass = mass flow rate in pounds per second (lb/s)

385.3 = conversion factor scf per pound-mole

MW_t = molecular weight of the gas at the flow monitoring location, pounds per pound-mole

e. The operator shall install, operate, calibrate and maintain a monitoring system capable of continuously measuring (i.e., at least once every 15-minutes) temperature consistent with the applicable requirements in 30 TAC Chapter 115 for purposes of correcting flow rate to standard conditions. The monitor must meet the accuracy and calibration specifications annually.

For each measurement produced by monitoring systems, the operator shall determine the 15-minute block average as the arithmetic average of all measurements made by the monitoring system within the 15-minute period.

f. The operator must follow the calibration and maintenance procedures according to Table 2.

Monitor downtime associated with maintenance periods, instrument adjustments or checks to maintain precision and accuracy and zero and span adjustments may not exceed 5 percent of the time the flare is receiving regulated material. Calibration and maintenance procedures conducted when the flare is not receiving regulated material are excluded from the monitor downtime calculation.

2. Pilot Flame Requirements:

a. The MPGF systems shall be operated with a flame present at all times when in use.

b. Each stage of MPGF burners must have at least two pilots with at least one continuously lit pilot flame.

c. Each pilot flame must be continuously monitored by a thermocouple or any other equivalent device (such as the video camera required for visible emission monitoring as outlined in 3 below), used to detect the presence of a flame.

d. The time, date and duration of any complete loss of pilot flame on any stage of burners must be recorded.

e. Each monitoring device must be maintained or replaced at a frequency in accordance with the manufacturer's specifications.

f. Flares at refineries must meet the requirements in the Petroleum Refinery MACT (§63.670(b)) in addition to the requirements in this subsection, including:

i. Each 15-minute block during which there is at least one minute where no pilot flame is present when regulated material is routed to the flare is a deviation of the standard.

ii. Deviations in different 15-minute blocks from the same event are considered separate deviations.

3. Visible Emission Requirements:

a. When the flare is receiving regulated material, the flare system shall be operated with no visible emissions except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.

b. A video camera that is capable of continuously recording (*i.e.,* at least one frame every 15 seconds with time and date stamps) images of the flare flame and a

reasonable distance above the flare flame at an angle suitable for visible emissions observations must be used to demonstrate compliance with this requirement.

c. The owner or operator must provide real-time video surveillance camera output to the control room or other continuously manned location where the video camera images may be viewed at any time.

   Video camera downtime associated with maintenance periods and camera adjustments may not exceed 5 percent of the time the flare is receiving regulated material. Maintenance and adjustment procedures conducted when the flare is not receiving regulated material are excluded from the video camera downtime calculation.

d. Flares at refineries shall comply with the requirements of 40 CFR 63.670(h):

   i. The owner or operator shall conduct an initial visible emissions demonstration using an observation period of 2 hours using Method 22 at 40 CFR part 60, appendix A-7. The initial visible emissions demonstration should be conducted the first time regulated materials are routed to the flare.

   ii. Subsequent visible emissions observations must be conducted using either the methods in paragraph (h)(1) of this section or, alternatively, the methods in paragraph (h)(2) of this section. The owner or operator must record and report any instances where visible emissions are observed for more than 5 minutes during any 2 consecutive hours as specified in §63.655(g)(11)(ii).

   iii. Requirements of (h)(1) - At least once per day for each day regulated material is routed to the flare, conduct visible emissions observations using an observation period of 5 minutes using Method 22 at 40 CFR part 60, appendix A-7. If at any time the owner or operator sees visible emissions while regulated material is routed to the flare, even if the minimum required daily visible emission monitoring has already been performed, the owner or operator shall immediately begin an observation period of 5 minutes using Method 22 at 40 CFR part 60, appendix A-7. If visible emissions are observed for more than one continuous minute during any 5-minute observation period, the observation period using Method 22 at 40 CFR part 60, appendix A-7 must be extended to 2 hours or until 5-minutes of visible emissions are observed. Daily 5-minute Method 22 observations are not required to be conducted for days the flare does not receive any regulated material.

   iv. Requirements of (h)(2) - Use a video surveillance camera to continuously record (at least one frame every 15 seconds with time and date stamps) images of the flare flame and a reasonable distance above the flare flame at an angle suitable for visual emissions observations. The owner or operator must provide real-time video surveillance camera output to the control room or other continuously manned location where the camera images may be viewed at any time.

4. Pressure Monitor Requirements:

a. The operator of the flare system shall install and operate pressure monitor(s) on the main flare header, and

b. a valve position indicator monitoring systems for each staging valve to ensure that the flare system operates within the range of tested conditions or within the range of the manufacturer's specifications.

c. The pressure monitor shall meet the requirements in Table 2.

d. Monitor downtime associated with maintenance periods, instrument adjustments or checks to maintain precision and accuracy and zero and span adjustments may not exceed 5 percent of the time the flare is receiving regulated material. Calibration and maintenance procedures conducted when the flare is not receiving regulated material are excluded from the monitor downtime calculation.

5. Recordkeeping Requirements: All data must be recorded and maintained for a minimum of five years or for as long as applicable rule subpart(s) specify flare records should be kept, whichever is longer. Records must be maintained onsite and made available upon request by authorized representatives of the executive director, U.S. EPA, and any local air pollution control agency with jurisdiction.

6. Reporting Requirements

a. The information specified in (b) and (c) below should be reported in the timeline specified by the applicable rules for which the flare system will control emissions.

b. Owners or operators should include the final operating requirements for each flare in their initial Notification of Compliance (NOC) status report (including but not limited to the items listed in F.6.c.

c. The owner or operator shall notify the Administrator of periods of excess emissions in their Periodic Reports.

d. All MPGF shall include the following in their NOC, reports, and records:

i. Each 15-minute block during which there was at least one minute when regulated material was routed to the MPGFs and a complete loss of pilot flame on any stage or any individual burner(s) occurred.

ii. Periods of visible emissions events (including time and date stamp) that exceed more than 5 minutes in any 2 hour consecutive period.

iii. Each 15-minute block period for which an applicable combustion zone operating limit (*i.e., NHVcz* or *LFLcz*) is not met for the flare system when regulated material is being combusted in the flare. Indicate the date and time for each period, the *NHVcz* and/or *LFLcz* operating parameter for the period, the type of monitoring system used to determine compliance with the operating parameters (*e.g.,* gas chromatograph or calorimeter), and the flare stages which were in use.

iv. Periods when the pressure monitor(s) on the main flare header show the flare burners are operating outside the range of tested conditions or outside the range of the manufacturer's specifications. Indicate the date and time for each period, the pressure measurement, the stage(s) and number of flare burners affected and the range of tested conditions or manufacturer's specifications.

v. Periods when the staging valve position indicator monitoring system indicates a stage of the flare system should not be in operation, but is; or when a stage of the MPGF should be in operation, but is not. Indicate the date and time for each period, whether the stage was supposed to be open but was closed or vice versa and the stage(s) and number of flare burners affected.

vi. Flare systems at refineries shall meet the following additional requirements of §63.655(g)(11)(i)-(iii): Record the 15-minute block periods for which the applicable operating limits specified in F.(1) of this Plan are not met. Indicate the date and time for the period, the net heating value operating parameter(s) determined following the methods in §63.670(k) through (n) as applicable.

vii. Flare systems at refineries shall include the following records for flaring events meeting the criteria of §63.670(o)(3): the start and stop time and date of the flaring event; the length of time for which emissions were visible from the flare during the event; the periods of time that the flare tip velocity exceeds the maximum flare tip velocity determined using the methods in §63.670(d)(2) and the maximum 15-minute block average flare tip velocity recorded during the event; and results of the root cause and corrective actions analysis completed during the reporting period, including the corrective actions implemented during the reporting period and, if applicable, the implementation schedule for planned corrective actions to be implemented subsequent to the reporting period.

Table 1 — Individual Component Properties

Component	**Molecular Formula**	**MWi (lb/ lb mol)**	**NHVi (Btu/scf)**	**LFLi (volume %)**
Acetylene	C2H2	26.04	1,404	2.5
Benzene	C6H6	78.11	3,591	1.3
1,2- Butadiene	C4H6	54.09	2,794	2.0
1,3- Butadiene	C4H6	54.09	2,690	2.0
iso-Butane	C4H10	58.12	2,957	1.8
n-Butane	C4H10	58.12	2,968	1.8
cis-Butene	C4H8	56.11	2,830	1.6
iso-Butene	C4H8	56.11	2,928	1.8
trans-Butene	C4H8	56.11	2,826	1.7
Carbon Dioxide	CO2	44.01	0	∞
Carbon Monoxide	CO	28.01	316	12.5
Cyclopropane	C3H6	42.08	2,185	2.4
Ethane	C2H6	30.07	1,595	3.0
Ethylene	C2H4	28.05	1,477	2.7
Hydrogen	H2	2.02	1,212(*)	4.0
Hydrogen Sulfide	H2S	34.08	587	4.0
Methane	CH4	16.04	896	5.0
MethylAcetylene	C3H4	40.06	2,088	1.7
Nitrogen	N2	28.01	0	∞
Oxygen	O2	32.00	0	∞
Pentane+ (C5+)	C5H12	72.15	3,655	1.4
Propadiene	C3H4	40.06	2,066	2.16
Propane	C3H8	44.10	2,281	2.1
Propylene	C3H6	42.08	2,150	2.4
Water	H2O	18.02	0	∞

** The theoretical net heating value for hydrogen is 274 BTU/scf, but for the purposes of the flare requirement, a net heating value of 1,212 BTU/scf shall be used.*

Table 2 — Accuracy and Calibration Requirements

Parameter	Accuracy requirements	Calibration requirements
Flare Vent Gas Flow Rate	±20 percent of flow rate at velocities ranging from 0.1 to 1 feet per second. ±5 percent of flow rate at velocities greater than 1 foot per second.	Performance evaluation biennially (every two years) and following any period of more than 24 hours throughout which the flow rate exceeded the maximum rated flow rate of the sensor, or the data recorder was off scale. Conduct monthly AVO fugitive emission monitoring on each connection point. Visual inspections and checks of system operation every 3 months, unless the system has a redundant flow sensor. Select a representative measurement location where swirling flow or abnormal velocity distributions due to upstream and downstream disturbances at the point of measurement are minimized.
Flow Rate for All Flows Other Than Flare Vent Gas	± 5% over normal range of flow measured or 0.5 gal/min whichever greater for liquid flow. ± 5% over normal range of flow measured 10 ft3/min, whichever greater for gas flow. ± 5% over normal range measured for mass flow	Conduct a flow sensor calibration check at least biennially (every 2 years); conduct a calibration check following any period of more than 24 hours throughout which the flow rate exceeded the manufacturer's specified maximum rated flow rate or install a new flow sensor. At least quarterly, inspect all components for leakage, unless the continuous parameter monitoring system (CPMS) has a redundant flow sensor. Record the results of each calibration check and inspection. Locate the flow sensor(s) and other necessary equipment (such as straightening vanes) in a position that provides representative flow; reduce swirling flow or abnormal velocity distributions due to upstream and downstream disturbances.
Pressure	±5 percent over the normal range measured or 0.12 kilopascals (0.5 inches of water column), whichever is greater.	Review pressure sensor readings at least once a week for straight-line (unchanging) pressure and perform corrective action to ensure proper pressure sensor operation if blockage is indicated. Performance evaluation annually and following any period of more than 24 hours throughout which the pressure exceeded the maximum rated pressure of the sensor, or the data recorder was off scale. Checks of all mechanical connections for leakage monthly. Visual inspection of all components for integrity, oxidation, and galvanic corrosion every 3 months, unless the system has a redundant pressure sensor. Select a representative measurement location that minimizes or eliminates pulsating pressure, vibration, and internal and external corrosion.
Net Heating Value by Calorimeter	±2 percent of span	Calibration requirements should follow manufacturer’s recommendations at a minimum. Temperature control (heated and/or cooled as necessary) the sampling system to ensure proper year-round operation. Where feasible, select a sampling location at least two equivalent diameters downstream from and 0.5 equivalent diameters upstream from the nearest disturbance. Select the sampling location at least two equivalent duct diameters from the nearest control device, point of pollutant generation, air in leakages, or other point at which a change in the pollutant concentration or emission rate occurs.
Net Heating Value by Gas Chromatograph	As specified in Performance Specification 9 of 40 CFR part 60 Appendix B.	Follow the procedure in Performance Specification 9 of 40 CFR Part 60 Appendix B, except that a single daily mid-level calibration check can be used, a triplicate mid-level check weekly, and the multi-point calibration can be conducted quarterly (rather than monthly), and the sampling line temperature must be maintained at a minimum temperature of 60 °C (rather than 120 °C).

Hydrogen Analyzer	± 2% over concentration measured or 0.1 vol% whichever is greater	Specify calibration requirements in your site specific CPMS monitoring plan. Calibration requirements should follow manufacturer's recommendations at a minimum. Specify the sampling location at least 2 equivalent duct diameters from the nearest control device, point of pollutant generation, air in-leakages, or other point at which a change in the pollutant concentration occurs.
ADDITIONAL REQUIREMENTS FOR FLARES AT REFINERIES		
Temperature	±1 percent over the normal range of temperature measured, expressed in degrees Celsius (C), or 2.8 degrees C, whichever is greater	Locate the temperature sensor in a position that provides a representative temperature; shield the temperature sensor system from electromagnetic interference and chemical contaminants. Conduct calibration checks at least annually; conduct calibration checks following any period of more than 24 hours throughout which the temperature exceeded the manufacturer's specified maximum rated temperature or install a new temperature sensor. At least quarterly, inspect all components for integrity and all electrical connections for continuity, oxidation, and galvanic corrosion, unless the CPMS has a redundant temperature sensor. Record the results of each calibration check and inspection.
Pressure	Same as above	Same as above with the following additional requirements: Use an instrument recommended by the sensor's manufacturer for calibration checks. Alternative option for calibration check after period of exceeding specified maximum rated pressure, may install new pressure sensor.
Net Heating Value by Calorimeter	Same as above	Same as above with the following additional requirements: Specify calibration requirements in your site specific CPMS monitoring plan.

Date: October 9, 2019

Emission Sources - Maximum Allowable Emission Rates

Permit Numbers 122353 & PSDTX1426

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)
FURNCAP (6)	Pyrolysis Furnace Block Emission Cap (H-1101 through H-1107)	NO_x	28.17	123.38
		NO_x (MSS) (8)	76.96	
		CO	95.47	461.71
		VOC	5.11	24.68
		SO_2	1.96	7.00
		SO_2 (MSS) (8)	1.96	
		PM	6.44	30.84
		PM_{10}	6.44	30.84
		$PM_{2.5}$	6.44	30.84
		H_2SO_4	0.11	0.54
		NH_3	11.61	56.14
H-1101, H-1102, H-1103, H-1104, H-1105, H-1106, and H-1107 (7)	Pyrolysis Furnaces (H-1101 through H-1107)	NO_x	6.04	--
		CO	15.06	--
		VOC	0.80	--
		SO_2	0.23	--
		PM	1.01	--
		PM_{10}	1.01	--
		$PM_{2.5}$	1.01	--
		H_2SO_4	0.02	--
		NH_3	1.83	--

Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
HDECOKE1	Decoke Cyclone 1	CO	280.00	76.23
		PM	1.91	0.98
		PM_{10}	1.91	0.98
		$PM_{2.5}$	1.91	0.98
HDECOKE2	Decoke Cyclone 2	CO	280.00	76.23
		PM	1.91	0.98
		PM_{10}	1.91	0.98
		$PM_{2.5}$	1.91	0.98
XF-4601	Multi-Point Ground Flare - Normal	NO_x	8.29	35.86
		CO	33.03	142.82
		VOC	13.86	59.93
		SO_2	0.34	1.48
	Multi-Point Ground Flare - MSS	NO_x	919.05	58.41
		CO	3,660.23	232.64
		VOC	2,077.69	98.16
		SO_2	0.02	0.10
X-3800	Thermal Oxidizer	NO_x	0.69	3.03
		CO	0.44	1.91
		VOC	0.69	0.13
		SO_2	0.02	0.11
		PM	0.04	0.17
		PM_{10}	0.04	0.17
		$PM_{2.5}$	0.04	0.17
X-3401	Cooling Tower	VOC	6.30	27.59
		PM	0.92	4.03
		PM_{10}	0.71	3.11
		$PM_{2.5}$	0.01	0.01

Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
SCFUG (5)	Equipment Leak Fugitives	VOC	3.92	17.17
		NH_3	0.18	0.80
EMERGEN	Emergency Generator	NO_x	1.46	0.07
		CO	7.61	0.38
		VOC	0.55	0.03
		SO_2	0.02	0.01
		PM	0.07	0.01
		PM_{10}	0.07	0.01
		$PM_{2.5}$	0.07	0.01
SCMSS	Planned MSS Activities	NO_x	0.01	0.01
		CO	0.01	0.01
		VOC	42.18	4.78
		PM	0.09	0.04
		PM_{10}	0.03	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
NH_3 - ammonia
H_2SO_4 - sulfuric acid
(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 EPN FURNCAP is a short-term and annual cap of emissions from all furnaces, EPNs H-1101, H-1102, H-1103, H-1104, H-1105, H-1106 and H-1107.

Emission Sources - Maximum Allowable Emission Rates

(7) These are the short-term emission rates of each furnace, EPNs H-1101, H-1102, H-1103, H-1104, H-1105, H-1106 and H-1107.

(8) These emission rates apply across all furnaces in the cap when any one furnace is in one of the planned maintenance, startup and shutdown scenarios defined in the Special Conditions.

Date: January 17, 2017

Texas Commission on Environmental Quality
Air Quality Permit

A Permit Is Hereby Issued To
Bayport Polymers LLC
Authorizing the Construction and Operation of
Total Petro Chemicals & Refining USA Port Arthur Refinery
Located at **Port Arthur, Jefferson County, Texas**
Latitude 29° 57′ 47″ Longitude −93° 53′ 25″

Permit: GHGPSDTX114

Issuance Date: October 9, 2019

For the Commission

1. **Facilities** covered by this permit shall be constructed and operated as specified in the application for the permit. All representations regarding construction plans and operation procedures contained in the permit application shall be conditions upon which the permit is issued. Variations from these representations shall be unlawful unless the permit holder first makes application to the Texas Commission on Environmental Quality (commission) Executive Director to amend this permit in that regard and such amendment is approved. [Title 30 Texas Administrative Code (TAC) Section 116.116 (30 TAC § 116.116)] [1]
2. **Voiding of Permit**. A permit or permit amendment is automatically void if the holder fails to begin construction within 18 months of the date of issuance, discontinues construction for more than 18 months prior to completion, or fails to complete construction within a reasonable time. Upon request, the executive director may grant an 18-month extension. Before the extension is granted the permit may be subject to revision based on best available control technology, lowest achievable emission rate, and netting or offsets as applicable. One additional extension of up to 18 months may be granted if the permit holder demonstrates that emissions from the facility will comply with all rules and regulations of the commission, the intent of the Texas Clean Air Act (TCAA), including protection of the public's health and physical property; and (b)(1)the permit holder is a party to litigation not of the permit holder's initiation regarding the issuance of the permit; or (b)(2) the permit holder has spent, or committed to spend, at least 10 percent of the estimated total cost of the project up to a maximum of $5 million. A permit holder granted an extension under subsection (b)(1) of this section may receive one subsequent extension if the permit holder meets the conditions of subsection (b)(2) of this section. [30 TAC § 116.120]
3. **Construction Progress**. Start of construction, construction interruptions exceeding 45 days, and completion of construction shall be reported to the appropriate regional office of the commission not later than 15 working days after occurrence of the event. [30 TAC § 116.115(b)(2)(A)]
4. **Start-up Notification**. The appropriate air program regional office shall be notified prior to the commencement of operations of the facilities authorized by the permit in such a manner that a representative of the commission may be present. The permit holder shall provide a separate notification for the commencement of operations for each unit of phased construction, which may involve a series of units commencing operations at different times. Prior to operation of the facilities authorized by the permit, the permit holder shall identify the source or sources of allowances to be utilized for compliance with Chapter 101, Subchapter H, Division 3 of this title (relating to Mass Emissions Cap and Trade Program). [30 TAC § 116.115(b)(2)(B)]
5. **Sampling Requirements**. If sampling is required, the permit holder shall contact the commission's Office of Compliance and Enforcement prior to sampling to obtain the proper data forms and procedures. All sampling and testing procedures must be approved by the executive director and coordinated with the regional representatives of the commission. The permit holder is also responsible for providing sampling facilities and conducting the sampling operations or contracting with an independent sampling consultant. [30 TAC § 116.115(b)(2)(C)]
6. **Equivalency of Methods.** The permit holder must demonstrate or otherwise justify the equivalency of emission control methods, sampling or other emission testing methods, and monitoring methods proposed as alternatives to methods indicated in the conditions of the permit. Alternative methods shall be applied for in writing and must be reviewed and approved by the executive director prior to their use in fulfilling any requirements of the permit. [30 TAC § 116.115(b)(2)(D)]
7. **Recordkeeping.** The permit holder shall maintain a copy of the permit along with records containing the information and data sufficient to demonstrate compliance with the permit, including production records and

operating hours; keep all required records in a file at the plant site. If, however, the facility normally operates unattended, records shall be maintained at the nearest staffed location within Texas specified in the application; make the records available at the request of personnel from the commission or any air pollution control program having jurisdiction in a timely manner; comply with any additional recordkeeping requirements specified in special conditions in the permit; and retain information in the file for at least two years following the date that the information or data is obtained. [30 TAC § 116.115(b)(2)(E)]

8. **Maximum Allowable Emission Rates**. The total emissions of air contaminants from any of the sources of emissions must not exceed the values stated on the table attached to the permit entitled "Emission Sources--Maximum Allowable Emission Rates." [30 TAC § 116.115(b)(2)(F)] [1]
9. **Maintenance of Emission Control**. The permitted facilities shall not be operated unless all air pollution emission capture and abatement equipment is maintained in good working order and operating properly during normal facility operations. The permit holder shall provide notification in accordance with 30 TAC §101.201, 101.211, and 101.221 of this title (relating to Emissions Event Reporting and Recordkeeping Requirements; Scheduled Maintenance, Startup, and Shutdown Reporting and Recordkeeping Requirements; and Operational Requirements). [30 TAC§ 116.115(b)(2)(G)]
10. **Compliance with Rules**. Acceptance of a permit by an applicant constitutes an acknowledgment and agreement that the permit holder will comply with all rules and orders of the commission issued in conformity with the TCAA and the conditions precedent to the granting of the permit. If more than one state or federal rule or regulation or permit condition is applicable, the most stringent limit or condition shall govern and be the standard by which compliance shall be demonstrated. Acceptance includes consent to the entrance of commission employees and agents into the permitted premises at reasonable times to investigate conditions relating to the emission or concentration of air contaminants, including compliance with the permit. [30 TAC § 116.115(b)(2)(H)]
11. **This** permit may not be transferred, assigned, or conveyed by the holder except as provided by rule. [30 TAC § 116.110(e)]
12. **There** may be additional special conditions attached to a permit upon issuance or modification of the permit. Such conditions in a permit may be more restrictive than the requirements of Title 30 of the Texas Administrative Code. [30 TAC § 116.115(c)]
13. **Emissions** from this facility must not cause or contribute to "air pollution" as defined in Texas Health and Safety Code (THSC) §382.003(3) or violate THSC § 382.085. If the executive director determines that such a condition or violation occurs, the holder shall implement additional abatement measures as necessary to control or prevent the condition or violation.
14. **The** permit holder shall comply with all the requirements of this permit. Emissions that exceed the limits of this permit are not authorized and are violations of this permit. [1]

[1] Please be advised that the requirements of this provision of the general conditions may not be applicable to greenhouse gas emissions.

Common Acronyms in Air Permits

°C = Temperature in degrees Celsius
°F = Temperature in degrees Fahrenheit
°K = Temperature in degrees Kelvin
µg = microgram
$\mu g/m^3$ = microgram per cubic meter
acfm = actual cubic feet per minute
AMOC = alternate means of control
AOS = alternative operating scenario
AP-42 = Air Pollutant Emission Factors, 5th edition
APD = Air Permits Division
API = American Petroleum Institute
APWL = air pollutant watch list
BPA = Beaumont/ Port Arthur
BACT = best available control technology
BAE = baseline actual emissions
bbl = barrel
bbl/day = barrel per day
bhp = brake horsepower
BMP = best management practices
Btu = British thermal unit
Btu/scf = British thermal unit per standard cubic foot or feet
CAA = Clean Air Act
CAM = compliance-assurance monitoring
CEMS = continuous emissions monitoring systems
cfm = cubic feet (per) minute
CFR = Code of Federal Regulations
CN = customer ID number
CNG = compressed natural gas
CO = carbon monoxide
COMS = continuous opacity monitoring system
CPMS = continuous parametric monitoring system
DFW = Dallas/ Fort Worth (Metroplex)
DE = destruction efficiency
DRE = destruction and removal efficiency
dscf = dry standard cubic foot or feet
dscfm = dry standard cubic foot or feet per minute
ED = (TCEQ) Executive Director
EF = emissions factor
EFR = external floating roof tank
EGU = electric generating unit
EI = Emissions Inventory
ELP = El Paso
EPA = (United States) Environmental Protection Agency
EPN = emission point number
ESL = effects screening level
ESP = electrostatic precipitator
FCAA = Federal Clean Air Act
FCCU = fluid catalytic cracking unit
FID = flame ionization detector
FIN = facility identification number
ft = foot or feet
ft/sec = foot or feet per second
g = gram
gal/wk = gallon per week
gal/yr = gallon per year
GLC = ground level concentration
GLC_{max} = maximum (predicted) ground-level concentration
gpm = gallon per minute
gr/1000scf = grain per 1000 standard cubic feet
gr/dscf = grain per dry standard cubic feet
H_2CO = formaldehyde
H_2S = hydrogen sulfide
H_2SO_4 = sulfuric acid
HAP = hazardous air pollutant as listed in § 112(b) of the Federal Clean Air Act or Title 40 Code of Federal Regulations Part 63, Subpart C
HC = hydrocarbons
HCl = hydrochloric acid, hydrogen chloride
Hg = mercury
HGB = Houston/Galveston/Brazoria
hp = horsepower
hr = hour
IFR = internal floating roof tank
in H_2O = inches of water
in Hg = inches of mercury
IR = infrared
ISC3 = Industrial Source Complex, a dispersion model
ISCST3 = Industrial Source Complex Short-Term, a dispersion model
K = Kelvin; extension of the degree Celsius scaled-down to absolute zero
LACT = lease automatic custody transfer
LAER = lowest achievable emission rate
lb = pound
hp = horsepower
hr = hour lb/day = pound per day
lb/hr = pound per hour
lb/MMBtu = pound per million British thermal units
LDAR = Leak Detection and Repair (Requirements)
LNG = liquefied natural gas
LPG = liquefied petroleum gas
LT/D = long ton per day
m = meter
m^3 = cubic meter
m/sec = meters per second
MACT = maximum achievable control technology
MAERT = Maximum Allowable Emission Rate Table
MERA = Modeling and Effects Review Applicability
mg = milligram
mg/g = milligram per gram
mL = milliliter
MMBtu = million British thermal units
MMBtu/hr = million British thermal units per hour
MSDS = material safety data sheet
MSS = maintenance, startup, and shutdown
MW = megawatt
NAAQS = National Ambient Air Quality Standards
NESHAP = National Emission Standards for Hazardous Air Pollutants
NGL = natural gas liquids
NNSR = nonattainment new source review
NO_x = total oxides of nitrogen

NSPS = New Source Performance Standards
PAL = plant-wide applicability limit
PBR = Permit(s) by Rule
PCP = pollution control project
PEMS = predictive emission monitoring system
PID = photo ionization detector
PM = periodic monitoring
PM = total particulate matter, suspended in the atmosphere, including PM_{10} and $PM_{2.5}$, as represented
$PM_{2.5}$ = particulate matter equal to or less than 2.5 microns in diameter
PM_{10} = total particulate matter equal to or less than 10 microns in diameter, including $PM_{2.5}$, as represented
POC = products of combustion
ppb = parts per billion
ppm = parts per million
ppmv = parts per million (by) volume
psia = pounds (per) square inch, absolute
psig = pounds (per) square inch, gage
PTE = potential to emit
RA = relative accuracy
RATA = relative accuracy test audit
RM = reference method
RVP = Reid vapor pressure
scf = standard cubic foot or feet
scfm = standard cubic foot or feet (per) minute
SCR = selective catalytic reduction
SIL = significant impact levels
SNCR = selective non-catalytic reduction
SO_2 = sulfur dioxide
SOCMI = synthetic organic chemical manufacturing industry
SRU = sulfur recovery unit
TAC = Texas Administrative Code
TCAA = Texas Clean Air Act
TCEQ = Texas Commission on Environmental Quality
TD = Toxicology Division
TLV = threshold limit value
TMDL = total maximum daily load
tpd = tons per day
tpy = tons per year
TVP = true vapor pressure
VOC = volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1
VRU = vapor recovery unit or system

Special Conditions

Permit Number GHGPSDTX114

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. Also, this permit authorizes emissions from planned maintenance, startup and shutdown activities.

Emission Standards and Operational Specifications

Fuel specifications

2. Unless specified in the special conditions of this permit, fired sources shall be fueled with pipeline quality natural gas containing no more than 5 grains of sulfur per dry standard cubic foot (scf) and/or plant produced high hydrogen fuel gas (process gas).

Pyrolysis Furnaces

3. The furnaces, emission point numbers (EPNs) H-1101 through H-1107, shall be designed and operated according to the following emissions standards and operating specifications:

   A. The permit holder shall continuously monitor and record the average hourly fuel consumption of the furnaces with individual flow measurements being taken no less frequently than once every 15 minutes. The fuel flow meter shall be installed, calibrated, maintained, and operated according to the manufacturer's instructions. The flow meters shall be accurate to ± 5.0 percent of the unit’s maximum flow.

   Each month, the permit holder shall reduce hourly average records of the total fuel flow rate for each fuel utilized by the furnaces to a monthly average.

   B. The natural gas and process gas shall be sampled monthly to determine high heat value and, if applicable, molecular weight and carbon content. Records of the natural gas and process gas high heat value shall be maintained for a minimum period of five years. Upon request by the Executive Director of the Texas Commission on Environmental Quality (TCEQ) or any local air pollution control program having jurisdiction, the holder of this permit shall provide a sample and/or an analysis of the fuel, or shall allow air pollution control agency representatives to obtain a sample for analysis

   C. Pipeline quality natural gas shall be exempt from requirement B above provided the permit holder receives and maintains quarterly records of the vendor’s analysis and the data is of sufficient quality to yield further analysis as required above.

   D. The furnace stack exhaust temperature shall be less than or equal to 350 °F on a 12-month rolling average basis. The permit holder shall continuously monitor and record the furnace gas exhaust temperature hourly. On a monthly basis, the one hour average temperatures shall be reduced to monthly and 12-month rolling average temperatures to demonstrate compliance with the emission limit of this condition. This stack temperature is for normal operations and does not include commissioning, authorized planned maintenance, startup, and shutdown.

   E. The permit holder shall maintain a minimum overall efficiency of 1.33 short tons of CO_{2e} per short ton of ethylene produced on a 12-month rolling average basis, calculated monthly, for the furnace block (EPNs H-1101 through H-1107), including periods of start-up, shutdown, and maintenance.

4. After the first full calendar month of ethylene production, the permit holder shall compare that month's ethylene production rate and furnace firing rate to the limits in Special Condition No. 3.E and the MAERT. Within 45 days after collecting the data, the permit holder shall submit a report to the region identifying whether the data causes any concerns regarding the permit holder's ability to comply with the applicable limitations.

5. The monitors and analyzers identified in Special Condition 3 shall operate as required at least 95% of the time when the furnaces are operational, averaged over a rolling 12 month period. The monitors and analyzers shall be installed, operated and calibrated according to the manufacturer's specifications.

6. The permit holder shall check calibration and calibrate as needed, and perform preventative maintenance checks of the fuel gas flow meters and document at the minimum frequency established per the manufacturer's recommendation.

Decoke Cyclones

7. Decoking for all seven furnaces shall only be performed as needed and shall be limited to 2,058 hours per rolling 12-month period.

   Decoking operations shall follow best practices so as to limit the amount of decoking emissions vented to the atmosphere.

Ground Flare

8. If a request for an AMEL is granted by EPA for the multi-point ground flare (EPN: XF-4601), the requirements of the approved AMEL shall supplement the requirements of Special Condition 9. The permit holder shall incorporate these conditions into the permit through an alteration no later than 90 days after approvals of the AMEL. **(10/19)**

9. The multi-point ground flare (EPN: XF-4601) shall be designed and operated in accordance with the following requirements: **(10/19)**

   A. The flare system shall be designed such that it meets one of the following:

      (1) The 40 CFR § 60.18 specifications of minimum heating value and maximum tip velocity under normal, upset, 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.

      (2) The conditions of Alternative Means of Control (AMOC) No. 113 (Attachment A) authorized by TCEQ on June 21, 2019, and any Alternative Means of Emission Limitation (AMEL) authorized by EPA issued in accordance with Special Condition No. 8 of this permit. The Multi-Point Ground Flare (MPGF) system, EPN XF-4601, shall meet the design, operating, monitoring, recordkeeping, and reporting requirements of AMOC No. 113 (Attachment A).

Thermal Oxidizer

10. The thermal oxidizer (EPN X-3800) shall maintain a firebox exit temperature greater than or equal to 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 Permit No. 122353 and PSDTX1426.

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

B. The oxygen analyzer used to satisfy Special Condition No. 10 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. Quarterly reports to the TCEQ Regional Director are only necessary when a CGA exceedance of ±15 percent accuracy occurs or when any continuous emissions monitoring system downtime in excess of 5 percent of the incinerator operating time occurs. Supplemental stack concentration measurements may be required at the discretion of the appropriate TCEQ Regional Director.

C. 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.

11. The capture systems for the ground flare (EPN XF-4601) and the thermal oxidizer (EPN X-3800) shall be subject to the following requirements:

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

B. 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. The control device shall not have a 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.

D. 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.

Emergency Generators

12. The emergency generator engine (EPN EMERGEN) shall be designed and operated in accordance with the following requirements:

A. The generator shall be fired with ultra-low sulfur diesel containing 15 ppmw sulfur or less.

B. The diesel engine shall not exceed 100 hours of non-emergency operation per year, on a rolling 12-month basis. The diesel engine must be equipped with a non-resettable runtime meter.

C. Upon request by the Executive Director of the Texas Commission on Environmental Quality (TCEQ) or any local air pollution control program having jurisdiction, the holder of this permit shall provide a sample and/or an analysis of the fuel or shall allow air pollution control agency representatives to obtain a sample for analysis.

Cooling Tower

13. The methane (CH_4) associated with cooling tower (EPN X-3401) 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 tower hourly CH_4 emissions. The rolling 12 month cooling water emission rate shall be recorded on a monthly basis and be determined by summing the CH_4 emissions between CH_4 monitoring periods over the rolling 12 month period. The emissions between CH_4 monitoring periods shall be obtained by multiplying the total cooling water mass flow between cooling water monitoring periods by the higher of the 2 CH_4 monitored results.

Fugitives

14. Except as may be provided for in the special conditions of this permit, the following requirements apply to the above-referenced equipment in service greater than 10% CH_4:

A. The requirements of paragraphs F and G shall not apply where the 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 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 CH_4.

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 CH_4 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 CH_4 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 CH_4 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.

Data Quality

15. The monitors and analyzers referenced in Special Condition Nos. 3 through 14 shall operate as required by this section at least 95% of the time when the streams that they are monitoring are operational, averaged over a rolling 12 month period.

Planned Maintenance, Startup and Shutdown

16. The permit holder shall depressure sections of pipe and equipment in CH_4 service to the ground flare (EPN XF-4601), or other parts of the process prior to performing MSS activities. GHG emissions are not permitted to emit from venting pipe and equipment to the atmosphere.

17. Records of MSS activities shall be maintained to include the date, time, and estimated volume of each MSS event.

18. Permit holder must record the time, date, and higher heating value in MMBtu of each MSS event that is vented to the ground flare. The records must include hourly CH_4 emission levels as measured by the inline gas analyzer (Gas chromatograph or equivalent with volumetric stack gas flowrate) and the calculations based on the actual heat input for the carbon dioxide (CO_2), nitrous oxide (N_2O), and CH_4 emissions during each MSS event. These records must be kept for five years following the date of each event.

Calculations

19. Calculations of emissions of CO_2, CH_4, and N_2O to determine compliance with the MAERT carbon dioxide equivalent (CO_{2e}) emission limitation shall be calculated in the following manner by the end of the current month for the previous rolling 12-months.

A. Any referenced methodology of 40 CFR Part 98 is modified as follows:

(1) References to annual measurements are to be construed as a rolling 12-month total if the variable is measured on a monthly or more frequent basis.

(2) References to annual measurements that are not measured at a frequency greater than one month (e.g. quarterly or semiannual) are to be construed as the average of the most recent measurements based on a year (e.g. average of 4 quarterly or 2 semiannual). This is a rolling basis.

B. GHG emissions from the pyrolysis furnaces (EPNs H-1101 through H-1107), the ground flare (EPN XF-4601), the thermal oxidizer (EPN X-3800) and the emergency generator (EPN EMERGEN) shall be calculated according to the following calculation methodologies and the process data listed in part C below:

(1) For calculating CO_2 emissions use the methodology in equation C-5 in 40 CFR Part 98 Subpart C, converted to short tons.

(2) For calculating emissions of CH_4 and N_2O, use the default CH_4 and N_2O emission factors contained in Table C-2 and equation C-8, converted to short tons.

C. Use the following data in conjunction with the methodology referenced above to calculate GHG emissions:

(1) For the pyrolysis furnaces, use the rolling 12-month process gas and natural gas fuel flow rates.

(2) For the ground flare, use the rolling 12–month average waste gas flow rate to the flare.

(3) For the thermal oxidizer, use the rolling 12–month average waste gas flow rate to the thermal oxidizer.

(4) For the emergency generator, use the rolling 12–month average run-time and corresponding fuel flow rate.

D. Cooling Tower (EPN X-3401)

(1) For calculating CH_4 emissions, assume all carbon monitored in accordance with Special Condition No. 13 is CH_4.

20. The permit holder shall calculate the CO_{2e} emissions on a 12-month rolling basis, using the procedures and Global Warming Potentials (GWP) contained in, 40 CFR Part 98, Subpart A, Table A-1, as published on November 29, 2013 (78 FR 71904).

Recordkeeping

21. Permit holders must keep records sufficient to demonstrate compliance with 30 Texas Administrative Code § 116.164. Records shall be sufficient to demonstrate the amount of emissions of GHGs from the sources as a result of construction, a physical change or change in method of operation does not require authorization under 30 TAC § 116.164(a).

22. The following records must be kept at the plant for the life of the permit. All records required in this permit must be made available at the request of personnel from the TCEQ, EPA, or any air pollution control agency with jurisdiction:

A. A copy of this permit, and

B. The permit application dated July 31, 2014 and subsequent representations submitted to the TCEQ.

23. The following information 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:

A. Pyrolysis furnaces

(1) Monthly and 12-month rolling fuel flow data according to Special Condition No. 3.A,

(2) Natural gas and process gas records according to Special Condition No. 3.B.

(3) Exhaust stack temperature according to Special Condition No. 3.D.

(4) Efficiency according to Special Condition No. 3.E.

B. Decoke Cyclones

(1) The records of time and date of decoking to demonstrate compliance with Special Condition No. 7.

C. Ground Flare

(1) Records of pilot flame outages according to Special Condition No. 9.

(2) Records of waste gas flow rate and heating value according to Special Condition No. 9.

D. Thermal Oxidizer

(1) Records of thermal oxidizer firebox temperature according to Special Condition No. 10.A.

(2) Records of thermal oxidizer exhaust oxygen concentration according to Special Condition No. 10.B.

E. Emergency Generator

(1) Records of engine run-time according to Special Condition No. 12.B.

F. Cooling Tower

(1) Records of CH_4 content of cooling water according to Special Condition No. 13.

G. Fugitives

(1) Records required by Special Condition No. 14.

H. For records of MSS:

(1) Date, time and CH_4 volume of the event; and

(2) Emissions of CO_{2e} from the event.

Permit Number GHGPSDTX114

Attachment A

Alternative Method of Control (AMOC) No. 113

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Alternative Method of Control (AMOC) Plan
Bayport Polymers, LLC (Baystar)
AMOC No.: AMOC-113
Port Arthur Refinery Ethane Cracker
Multi-Point Ground Flare (MPGF) System
Port Arthur, Jefferson County, Regulated Entity Number: RN109845768

A. This AMOC Plan Authorization shall apply at the Bayport Polymers, LLC (Baystar), Port Arthur Refinery located in **Port Arthur, Jefferson** County. This site is identified by Regulated Entity Number RN109845768**.** Under Title 30 Texas Administrative Code (TAC) Section 115.910 (§115.910) this plan authorizes a multi-point ground flare (MPGF) system identified as EPN XF-4601. The flare system will be used during emission events such as planned maintenance, start-ups, and shutdowns (MSS), and unplanned emergency and upset situations.

B. A copy of the AMOC application and the AMOC Plan provisions must be kept on-site or at a centralized location and made available at the request of personnel from the TCEQ or any pollution control agency with jurisdiction. The AMOC application is defined by the application received 5/15/2018 and subsequent supporting documents dated through June 14, 2019.

C. This authorization is granted under § 115.910 for emissions sources regulated by 30 TAC Chapter 115:

Subchapter B: General Volatile Organic Compound Sources
- Division 2: Vent Gas Control
- Division 3: Water Separation
- Division 4: Industrial Wastewater

Subchapter C: Volatile Organic Compound Transfer Operations
- Division 1: Loading and Unloading Of Volatile Organic Compounds

Subchapter D: Petroleum Refining, Natural Gas Processing, and Petrochemical Processes
- Division 1: Process Unit Turnaround and Vacuum-Producing Systems in Petroleum Refineries
- Division 3: Fugitive Emission Control in Petroleum Refining, Natural Gas/Gasoline Processing, And Petrochemical Processes in Ozone Nonattainment Areas

Subchapter F: Miscellaneous Industrial Sources
Division 3: Degassing of Storage Tanks, Transport Vessels And Marine Vessels

Subchapter H: Highly-Reactive Volatile Organic Compounds
Division 1: Vent Gas Control
Division 2: Cooling Tower Heat Exchange Systems
Division 3: Fugitive Emissions

This AMOC shall apply in lieu of the requirements §§ 115.122(a)(1)-(2), as applicable. Compliance with this AMOC is independent of Baystar's obligation to comply with all other applicable requirements of 30 TAC Chapter 115, TCEQ permits, and applicable state and federal law. The monitoring and testing requirements of 30 TAC Chapter 115 shall continue to apply.

Compliance with the requirements of this plan does not assure compliance with requirements of an applicable New Source Performance Standard, applicable National Emission Standard for Hazardous Air Pollutants, or an Alternative Means of Emission Limitation (AMEL) and does not constitute approval of alternative standards for these regulations.

If an AMEL is granted by the U.S. Environmental Protection Agency (EPA) or federal authorization is provided in regulations, the company shall incorporate AMEL conditions into this AMOC by revision within 90 days if any changes are needed for consistency.

D. In accordance with § 115.913(c), all representations submitted for this plan, as well as the provisions listed here, become conditions upon which this AMOC Plan is issued. It is unlawful to vary from the emission limits, control requirements, monitoring, testing, reporting or recordkeeping requirements of this Plan.

E. The flare system EPN XF-4601is authorized under Permits No. **122353, PSDTX1426, GHGPSDTX114** and subject to this AMOC plan. The flare system uses Zeeco MJ-4 burners controlling MSS and upset activities. When the High Pressure (HP) Vent Header sends waste gas to the MPGF, the burners will exceed the tip velocity portions of §60.18, §63.11, and 30 TAC Chapter 115. In these instances, the Zeeco MJ-4 burners and stages will meet the requirements in paragraph F.

The MPGF system will be 11 stages of burners and a spare stage of burners for a total of 304 burners and 62 spare burners. Operations of the MPGF burners will achieve a reduction in emissions at least equivalent to the reduction in emissions being controlled by a steam-assisted, air-assisted, or non-assisted flare complying with the requirements of §§ 115.122(a)(1)-(2) or 40 CFR 60.18(b).

F. When the burners exceed the tip velocity requirements of §60.18, §63.11, and 30 TAC Chapter 115, the burners must be operated such that the following are met:

1. Operating Requirements: The net heating value of the flare vent gas combustion zone (*NHVcz*) is greater than or equal to 800 British thermal units per standard cubic foot (Btu/scf); or the combustion zone gas lower flammability limit (*LFLcz*) is less than or equal to 6.5 percent by volume.

The owner or operator must demonstrate compliance with the *NHVcz* or *LFLcz* metric by continuously complying with a 15-minute block average. The operator must calculate and monitor for the *NHVcz* or *LFLcz* according to the following:

a. **Calculation of *NHVcz***

i. If any owner or operator elects to use a monitoring system capable of continuously measuring, calculating, and recording the individual component concentrations present in the flare gas, the net heating value shall be determined using the following equation:

$$NHV_{vg} = \sum_{i=1}^{n} x_i \, NHV_i$$

Where: *NHVvg* = Net heating value of flare vent gas, British thermal units per standard cubic foot (Btu/scf). *Flare vent gas* means all gas found just prior to the MPGFs. This gas includes all flare waste gas (*i.e.,* gas from facility operations that is directed to a flare for the purpose of disposing of the gas), flare sweep gas, flare purge gas and flare supplemental gas, but does not include pilot gas.

i = Individual component in flare vent gas.

n = Number of components in flare vent gas.

x_i = Concentration of component *i* in flare vent gas, volume percent (vol %).

NHV_i = Net heating value of component *i* determined as the heat of combustion where the net enthalpy per mole of offgas is based on combustion at 25 degrees Celsius (°C) and 1 atmosphere (or constant pressure) with water in the gaseous state from values published in the literature, and then the values converted to a volumetric basis using 20 °C for ‘‘standard temperature.’’ Table 1 summarizes component properties including net heating values.

(ii) If the owner or operator uses a continuous net heating value monitor, the owner or operator may, at their discretion, install, operate, calibrate, and maintain a monitoring system capable of continuously measuring, calculating, and recording the hydrogen concentration in the flare vent gas. The owner or

operator shall use the following equation to determine NHVvg for each sample measured via the net heating value monitoring system.

$$NHV_{vg} = NHV_{measured} + 938\ x_{H2}$$

Where:

NHV_{vg} = Net heating value of flare vent gas, BTU/scf.

$NHV_{measured}$ = Net heating value of flare vent gas stream as measured by the continuous net heating value monitoring system, BTU/scf.

x_{H2} = Concentration of hydrogen in flare vent gas at the time the sample was input into the net heating value monitoring system, volume fraction.

938 = Net correction for the measured heating value of hydrogen 1,212-274 BTU/scf.

(iii) (A) For non-assisted flare burners, NHVvg = NHVcz.

(B) For air-assisted burners, NHVcz should be calculated using the following equation:

$$NHV_{cz} = (Q_{vg} * NHV_{vg} + Q_{ag} * NHV_{ag}) / (Q_{vg} + Q_{ag})$$

Where:

NHVcz = Net heating value of combustion zone gas, BTU/scf.

NHVvg = Net heating value of flare vent gas for the 15-minute block period as determined according to (1)(a)(i), BTU/scf.

Qvg = Cumulative volumetric flow of flare vent gas during the 15-minute block period, scf.

Qag = Cumulative volumetric flow of assist gas during the 15-minute block period, standard cubic feet flow rate, scf.

NHVag = Net heating value of assist gas, BTU/scf; this is zero for air or for steam.

(C) For steam-assisted burners, NHVcz should be calculated using the following equation:

$$NHV_{cz} = (Q_{vg} * NHV_{vg}) / (Q_{vg} + Q_s)$$

Where:

NHVcz = Net heating value of combustion zone gas, BTU/scf.

NHVvg = Net heating value of flare vent gas for the 15-minute block period as determined according to (1)(a)(i), BTU/scf.

Qvg = Cumulative volumetric flow of flare vent gas during the 15-minute block period, scf.

Qs = Cumulative volumetric flow of total assist steam during the 15-minute block period, standard cubic feet flow rate, scf.

b. **Calculation of *LFLcz***

(i) The owner or operator shall determine *LFLcz* from compositional analysis data by using the following equation:

$$LFL_{vg} = \frac{1}{\sum_{i=1}^{n}\left[\frac{\chi_i}{LFL_i}\right]} * 100\ \%$$

Where:

LFLvg = Lower flammability limit of flare vent gas, volume percent (vol %)

n = Number of components in the vent gas.

i = Individual component in the vent gas.

χi = Concentration of component i in the vent gas, vol %.

LFLi = Lower flammability limit of component *i* as determined using values published by the U.S. Bureau of Mines (Zabetakis, 1965), vol %. All inerts, including nitrogen, are assumed to have an infinite LFL (*e.g., LFLN2* = ∞, so that x*N2*/ *LFLN2* = 0). LFL values for common flare vent gas components are provided in Table 1.

(ii) (A) For non-assisted flare burners, LFLvg = LFLcz.

(B) For steam assisted burners, LFLcz shall be calculated using the following:

$$LFLcz = \frac{LFLvg\ x\ (Qvg + Qs)}{Qvg}$$

Where:

LFLcz = Lower flammability limit of combustion zone gas (vol %).

LFLvg = Lower flammability limit of flare vent gas (vol %)

Q_{vg} = Cumulative volumetric flow of flare gas vent in scf during the 15-minute block period.

Q_s = Cumulative volumetric flow of total assist steam in scf during the 15-minute block period.

c. Calculation of Vtip is not applicable to this MPGF.

d. The operator shall install, operate, calibrate and maintain a monitoring system capable of continuously measuring flare vent gas volumetric flow rate (Q_{vg}) the total assist steam volumetric flow rate (Q_s), the volumetric flow rate of total assist air (Q_a), and the volumetric flow rate of total assist gas (Q_{ag}), as applicable.

i. The flow rate monitoring system must be able to correct for the temperature and pressure of the system and output parameters in standard conditions (i.e., a temperature of 20 degrees C (68 ° F) and a pressure of 1 atmosphere).

ii. Mass flow monitors may be used for determining volumetric flow rate of flare vent gas provided the molecular weight of the flare vent gas is determined using compositional analysis so that the mass flow rate can be converted to volumetric flow at standard conditions using the following equation:

$$Qvol = \frac{Qmass\ x\ 385.3}{MWt}$$

Where:

Qvol = volumetric flow rate in scf per second (scf/s).

Qmass = mass flow rate in pounds per second (lb/s)

385.3 = conversion factor scf per pound-mole

MW_t = molecular weight of the gas at the flow monitoring location, pounds per pound-mole

e. The operator shall install, operate, calibrate and maintain a monitoring system capable of continuously measuring (i.e., at least once every 15-minutes) temperature consistent with the applicable requirements in 30 TAC Chapter 115 for purposes of correcting flow rate to standard conditions. The monitor must meet the accuracy and calibration specifications annually.

For each measurement produced by monitoring systems, the operator shall determine the 15-minute block average as the arithmetic average of all measurements made by the monitoring system within the 15-minute period.

f. The operator must follow the calibration and maintenance procedures according to Table 2.

Monitor downtime associated with maintenance periods, instrument adjustments or checks to maintain precision and accuracy and zero and span adjustments may not exceed 5 percent of the time the flare is receiving regulated material. Calibration and maintenance procedures conducted when the flare is not receiving regulated material are excluded from the monitor downtime calculation.

2. Pilot Flame Requirements:

a. The MPGF systems shall be operated with a flame present at all times when in use.

b. Each stage of MPGF burners must have at least two pilots with at least one continuously lit pilot flame.

c. Each pilot flame must be continuously monitored by a thermocouple or any other equivalent device (such as the video camera required for visible emission monitoring as outlined in 3 below), used to detect the presence of a flame.

d. The time, date and duration of any complete loss of pilot flame on any stage of burners must be recorded.

e. Each monitoring device must be maintained or replaced at a frequency in accordance with the manufacturer's specifications.

f. Flares at refineries must meet the requirements in the Petroleum Refinery MACT (§63.670(b)) in addition to the requirements in this subsection, including:

i. Each 15-minute block during which there is at least one minute where no pilot flame is present when regulated material is routed to the flare is a deviation of the standard.

ii. Deviations in different 15-minute blocks from the same event are considered separate deviations.

3. Visible Emission Requirements:

a. When the flare is receiving regulated material, the flare system shall be operated with no visible emissions except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.

b. A video camera that is capable of continuously recording (*i.e.,* at least one frame every 15 seconds with time and date stamps) images of the flare flame and a

reasonable distance above the flare flame at an angle suitable for visible emissions observations must be used to demonstrate compliance with this requirement.

c. The owner or operator must provide real-time video surveillance camera output to the control room or other continuously manned location where the video camera images may be viewed at any time.

   Video camera downtime associated with maintenance periods and camera adjustments may not exceed 5 percent of the time the flare is receiving regulated material. Maintenance and adjustment procedures conducted when the flare is not receiving regulated material are excluded from the video camera downtime calculation.

d. Flares at refineries shall comply with the requirements of 40 CFR 63.670(h):

   i. The owner or operator shall conduct an initial visible emissions demonstration using an observation period of 2 hours using Method 22 at 40 CFR part 60, appendix A-7. The initial visible emissions demonstration should be conducted the first time regulated materials are routed to the flare.

   ii. Subsequent visible emissions observations must be conducted using either the methods in paragraph (h)(1) of this section or, alternatively, the methods in paragraph (h)(2) of this section. The owner or operator must record and report any instances where visible emissions are observed for more than 5 minutes during any 2 consecutive hours as specified in §63.655(g)(11)(ii).

   iii. Requirements of (h)(1) - At least once per day for each day regulated material is routed to the flare, conduct visible emissions observations using an observation period of 5 minutes using Method 22 at 40 CFR part 60, appendix A-7. If at any time the owner or operator sees visible emissions while regulated material is routed to the flare, even if the minimum required daily visible emission monitoring has already been performed, the owner or operator shall immediately begin an observation period of 5 minutes using Method 22 at 40 CFR part 60, appendix A-7. If visible emissions are observed for more than one continuous minute during any 5-minute observation period, the observation period using Method 22 at 40 CFR part 60, appendix A-7 must be extended to 2 hours or until 5-minutes of visible emissions are observed. Daily 5-minute Method 22 observations are not required to be conducted for days the flare does not receive any regulated material.

   iv. Requirements of (h)(2) - Use a video surveillance camera to continuously record (at least one frame every 15 seconds with time and date stamps) images of the flare flame and a reasonable distance above the flare flame at an angle suitable for visual emissions observations. The owner or operator must provide real-time video surveillance camera output to the control room or other continuously manned location where the camera images may be viewed at any time.

4. Pressure Monitor Requirements:

a. The operator of the flare system shall install and operate pressure monitor(s) on the main flare header, and

b. a valve position indicator monitoring systems for each staging valve to ensure that the flare system operates within the range of tested conditions or within the range of the manufacturer's specifications.

c. The pressure monitor shall meet the requirements in Table 2.

d. Monitor downtime associated with maintenance periods, instrument adjustments or checks to maintain precision and accuracy and zero and span adjustments may not exceed 5 percent of the time the flare is receiving regulated material. Calibration and maintenance procedures conducted when the flare is not receiving regulated material are excluded from the monitor downtime calculation.

5. Recordkeeping Requirements: All data must be recorded and maintained for a minimum of five years or for as long as applicable rule subpart(s) specify flare records should be kept, whichever is longer. Records must be maintained onsite and made available upon request by authorized representatives of the executive director, U.S. EPA, and any local air pollution control agency with jurisdiction.

6. Reporting Requirements

a. The information specified in (b) and (c) below should be reported in the timeline specified by the applicable rules for which the flare system will control emissions.

b. Owners or operators should include the final operating requirements for each flare in their initial Notification of Compliance (NOC) status report (including but not limited to the items listed in F.6.c.

c. The owner or operator shall notify the Administrator of periods of excess emissions in their Periodic Reports.

d. All MPGF shall include the following in their NOC, reports, and records:

i. Each 15-minute block during which there was at least one minute when regulated material was routed to the MPGFs and a complete loss of pilot flame on any stage or any individual burner(s) occurred.

ii. Periods of visible emissions events (including time and date stamp) that exceed more than 5 minutes in any 2 hour consecutive period.

iii. Each 15-minute block period for which an applicable combustion zone operating limit (*i.e., NHVcz* or *LFLcz*) is not met for the flare system when regulated material is being combusted in the flare. Indicate the date and time for each period, the *NHVcz* and/or *LFLcz* operating parameter for the period, the type of monitoring system used to determine compliance with the operating parameters (*e.g.,* gas chromatograph or calorimeter), and the flare stages which were in use.

iv. Periods when the pressure monitor(s) on the main flare header show the flare burners are operating outside the range of tested conditions or outside the range of the manufacturer's specifications. Indicate the date and time for each period, the pressure measurement, the stage(s) and number of flare burners affected and the range of tested conditions or manufacturer's specifications.

v. Periods when the staging valve position indicator monitoring system indicates a stage of the flare system should not be in operation, but is; or when a stage of the MPGF should be in operation, but is not. Indicate the date and time for each period, whether the stage was supposed to be open but was closed or vice versa and the stage(s) and number of flare burners affected.

vi. Flare systems at refineries shall meet the following additional requirements of §63.655(g)(11)(i)-(iii): Record the 15-minute block periods for which the applicable operating limits specified in F.(1) of this Plan are not met. Indicate the date and time for the period, the net heating value operating parameter(s) determined following the methods in §63.670(k) through (n) as applicable.

vii. Flare systems at refineries shall include the following records for flaring events meeting the criteria of §63.670(o)(3): the start and stop time and date of the flaring event; the length of time for which emissions were visible from the flare during the event; the periods of time that the flare tip velocity exceeds the maximum flare tip velocity determined using the methods in §63.670(d)(2) and the maximum 15-minute block average flare tip velocity recorded during the event; and results of the root cause and corrective actions analysis completed during the reporting period, including the corrective actions implemented during the reporting period and, if applicable, the implementation schedule for planned corrective actions to be implemented subsequent to the reporting period.

Table 1 — Individual Component Properties

Component	**Molecular Formula**	**MWi (lb/ lb mol)**	**NHVi (Btu/scf)**	**LFLi (volume %)**
Acetylene	C2H2	26.04	1,404	2.5
Benzene	C6H6	78.11	3,591	1.3
1,2- Butadiene	C4H6	54.09	2,794	2.0
1,3- Butadiene	C4H6	54.09	2,690	2.0
iso-Butane	C4H10	58.12	2,957	1.8
n-Butane	C4H10	58.12	2,968	1.8
cis-Butene	C4H8	56.11	2,830	1.6
iso-Butene	C4H8	56.11	2,928	1.8
trans-Butene	C4H8	56.11	2,826	1.7
Carbon Dioxide	CO2	44.01	0	∞
Carbon Monoxide	CO	28.01	316	12.5
Cyclopropane	C3H6	42.08	2,185	2.4
Ethane	C2H6	30.07	1,595	3.0
Ethylene	C2H4	28.05	1,477	2.7
Hydrogen	H2	2.02	1,212(*)	4.0
Hydrogen Sulfide	H2S	34.08	587	4.0
Methane	CH4	16.04	896	5.0
MethylAcetylene	C3H4	40.06	2,088	1.7
Nitrogen	N2	28.01	0	∞
Oxygen	O2	32.00	0	∞
Pentane+ (C5+)	C5H12	72.15	3,655	1.4
Propadiene	C3H4	40.06	2,066	2.16
Propane	C3H8	44.10	2,281	2.1
Propylene	C3H6	42.08	2,150	2.4
Water	H2O	18.02	0	∞

** The theoretical net heating value for hydrogen is 274 BTU/scf, but for the purposes of the flare requirement, a net heating value of 1,212 BTU/scf shall be used.*

Table 2 — Accuracy and Calibration Requirements

Parameter	**Accuracy requirements**	**Calibration requirements**
Flare Vent Gas Flow Rate	±20 percent of flow rate at velocities ranging from 0.1 to 1 feet per second. ±5 percent of flow rate at velocities greater than 1 foot per second.	Performance evaluation biennially (every two years) and following any period of more than 24 hours throughout which the flow rate exceeded the maximum rated flow rate of the sensor, or the data recorder was off scale. Conduct monthly AVO fugitive emission monitoring on each connection point. Visual inspections and checks of system operation every 3 months, unless the system has a redundant flow sensor. Select a representative measurement location where swirling flow or abnormal velocity distributions due to upstream and downstream disturbances at the point of measurement are minimized.
Flow Rate for All Flows Other Than Flare Vent Gas	± 5% over normal range of flow measured or 0.5 gal/min whichever greater for liquid flow. ± 5% over normal range of flow measured 10 ft3/min, whichever greater for gas flow. ± 5% over normal range measured for mass flow	Conduct a flow sensor calibration check at least biennially (every 2 years); conduct a calibration check following any period of more than 24 hours throughout which the flow rate exceeded the manufacturer's specified maximum rated flow rate or install a new flow sensor. At least quarterly, inspect all components for leakage, unless the continuous parameter monitoring system (CPMS) has a redundant flow sensor. Record the results of each calibration check and inspection. Locate the flow sensor(s) and other necessary equipment (such as straightening vanes) in a position that provides representative flow; reduce swirling flow or abnormal velocity distributions due to upstream and downstream disturbances.
Pressure	±5 percent over the normal range measured or 0.12 kilopascals (0.5 inches of water column), whichever is greater.	Review pressure sensor readings at least once a week for straight-line (unchanging) pressure and perform corrective action to ensure proper pressure sensor operation if blockage is indicated. Performance evaluation annually and following any period of more than 24 hours throughout which the pressure exceeded the maximum rated pressure of the sensor, or the data recorder was off scale. Checks of all mechanical connections for leakage monthly. Visual inspection of all components for integrity, oxidation, and galvanic corrosion every 3 months, unless the system has a redundant pressure sensor. Select a representative measurement location that minimizes or eliminates pulsating pressure, vibration, and internal and external corrosion.
Net Heating Value by Calorimeter	±2 percent of span	Calibration requirements should follow manufacturer’s recommendations at a minimum. Temperature control (heated and/or cooled as necessary) the sampling system to ensure proper year-round operation. Where feasible, select a sampling location at least two equivalent diameters downstream from and 0.5 equivalent diameters upstream from the nearest disturbance. Select the sampling location at least two equivalent duct diameters from the nearest control device, point of pollutant generation, air in leakages, or other point at which a change in the pollutant concentration or emission rate occurs.
Net Heating Value by Gas Chromatograph	As specified in Performance Specification 9 of 40 CFR part 60 Appendix B.	Follow the procedure in Performance Specification 9 of 40 CFR Part 60 Appendix B, except that a single daily mid-level calibration check can be used, a triplicate mid-level check weekly, and the multi-point calibration can be conducted quarterly (rather than monthly), and the sampling line temperature must be maintained at a minimum temperature of 60 °C (rather than 120 °C).

Hydrogen Analyzer	± 2% over concentration measured or 0.1 vol% whichever is greater	Specify calibration requirements in your site specific CPMS monitoring plan. Calibration requirements should follow manufacturer's recommendations at a minimum. Specify the sampling location at least 2 equivalent duct diameters from the nearest control device, point of pollutant generation, air in-leakages, or other point at which a change in the pollutant concentration occurs.
ADDITIONAL REQUIREMENTS FOR FLARES AT REFINERIES		
Temperature	±1 percent over the normal range of temperature measured, expressed in degrees Celsius (C), or 2.8 degrees C, whichever is greater	Locate the temperature sensor in a position that provides a representative temperature; shield the temperature sensor system from electromagnetic interference and chemical contaminants. Conduct calibration checks at least annually; conduct calibration checks following any period of more than 24 hours throughout which the temperature exceeded the manufacturer's specified maximum rated temperature or install a new temperature sensor. At least quarterly, inspect all components for integrity and all electrical connections for continuity, oxidation, and galvanic corrosion, unless the CPMS has a redundant temperature sensor. Record the results of each calibration check and inspection.
Pressure	Same as above	Same as above with the following additional requirements: Use an instrument recommended by the sensor's manufacturer for calibration checks. Alternative option for calibration check after period of exceeding specified maximum rated pressure, may install new pressure sensor.
Net Heating Value by Calorimeter	Same as above	Same as above with the following additional requirements: Specify calibration requirements in your site specific CPMS monitoring plan.

Date: October 9, 2019

Emission Sources - Maximum Allowable Emission Rates

Permit Number GHGPSDTX114

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)
FURNCAP (7)	Pyrolysis Furnace Block (H-1101 through H-1107)	CO_2 (5)	1,346,793
		CH_4 (5)	21.0
		N_2O (5)	2.7
		CO_2e	1,348,172
SCFUG	Process Fugitive Emissions (6)	CO_2 (5)	3.5
		CH_4 (5)	60.0
		CO_2e	1,503
XF-4601	Multi-Point Ground Flare	CO_2 (5)	34,244
		CH_4 (5)	66.0
		N_2O (5)	0.43
		CO_2e	36,022
X-3800	Thermal Oxidizer	CO_2 (5)	10,169
		CH_4 (5)	0.06
		N_2O (5)	0.03
		CO_2e	10,180
X-3401	Cooling Tower	CH_4 (5)	1.7
		CO_2e	42

Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates
			TPY (4)
EMERGEN	Emergency Generator	CO_2 (5)	75.42
		CH_4 (5)	<0.01
		N_2O (5)	<0.01
		CO_2e	75.68
HDECOKE1	Decoke Cyclone 1	CO_2 (5)	240.69
		CO_2e	240.69
HDECOKE2	Decoke Cyclone 2	CO_2 (5)	240.69
		CO_2e	240.69

(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
CO_2e - carbon dioxide equivalents based on the following Global Warming Potentials (1/2015): CO_2 (1), N_2O (298), CH_4 (25)
(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) Emission rate is an estimate and is enforceable through compliance with the special conditions.
(7) The EPN FURNCAP is a cap of annual emissions from Furnaces H-1101, H-1102, H-1103, H-1104, H-1105, H-1106 and H-1107.

Date: July 22, 2016