

## Special Conditions

Permit Number 102982

1. This permit authorizes chemical manufacturing operations for a facility located at 3525 Decker Drive, Baytown, Harris County, Texas.
2. 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.

### **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, Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984;
  - C. Subpart VVa, Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006;
  - D. Subpart NNN, Standards of Performance for Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations;
  - E. Subpart RRR, Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes; and
  - F. Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines.
4. These facilities shall comply with all applicable requirements of EPA regulations on National Emission Standards for Hazardous Air Pollutants in 40 CFR Part 61:
  - A. Subpart A, General Provisions.
  - B. Subpart J, National Emission Standards for Equipment Leaks (Fugitive Emission Sources) of Benzene;

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- C. Subpart V, National Emission Standards for Equipment Leaks (Fugitive Emission Sources); and
  - D. Subpart FF, National Emission Standard for Benzene Waste Operations.
5. These facilities shall comply with all applicable requirements of the EPA regulations on National Emission Standards for Hazardous Air Pollutants for Source Categories in 40 CFR Part 63:
- A. Subpart A, General Provisions.
  - B. Subpart XX, National Emission Standards for Ethylene Manufacturing Process Units: Heat Exchange Systems and Waste Operations; and
  - C. Subpart YY, National Emission Standards for Hazardous Air Pollutants for Source Categories: Generic Maximum Achievable Control Technology Standards.
6. If any condition of this permit is more stringent than the applicable regulations in Special Condition Nos. 3, 4, and 5, then for the purposes of complying with this permit, the permit shall govern and be the standard by which compliance shall be demonstrated.

**Emission Standards and Operational Specifications**

7. The furnaces [Emission Point Numbers (EPNs) XXAF01-ST, XXBF01-ST, XXCF01-ST, XXDF01-ST, XXEF01-ST, XXFF01-ST, XXGF01-ST, and XXHF01-ST] shall be designed and operated in accordance with the following requirements:
- A. Fuel fired in the furnaces shall contain no more than 5 grains of total sulfur per 100 dry standard cubic feet (dscf).
  - B. The permit holder shall install and operate a fuel flow meter to measure the gas fuel usage for each furnace. The monitored data shall be reduced to an hourly average flow rate at least once every day, using a minimum of four equally-spaced data points from each one-hour period. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, or equivalent, or at least annually, whichever is more frequent, and shall be accurate to within 5 percent. In lieu of monitoring fuel flow, the permit holder may monitor stack exhaust flow using the flow monitoring specifications of Title 40 of the Code of Federal Regulations Part 60 (40 CFR Part 60), Appendix B, Performance Specification 6 or 40 CFR Part 75, Appendix A.

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- C. Emissions from EPN BOPXXFURNACE (EPNs XXAF01-ST, XXBF01-ST, XXCF01-ST, XXDF01-ST, XXEF01-ST, XXFF01-ST, XXGF01-ST and XXHF01-ST) shall not exceed the following:
- (1) 0.015 pounds nitrogen oxides (NO<sub>x</sub>) per million Btu (lb NO<sub>x</sub>/MMBtu) at higher heating value (HHV) on a 24-hour rolling average;
  - (2) 0.010 lb NO<sub>x</sub>/MMBtu HHV on a 12-month rolling average;
  - (3) 50 parts per million by volume, dry (ppmvd) carbon monoxide (CO) corrected to 3 percent oxygen on a 12-month rolling average; and
  - (4) 15 ppmvd ammonia (NH<sub>3</sub>) corrected to 3 percent oxygen on a one-hour rolling average.
- D. Compliance with the limits in Special Condition No. 7.C shall be demonstrated for the average of all operating furnaces, EPN BOPXXFURNACE, except as specified in Special Condition No. 21.
- E. The requirements in this condition and the initial demonstration of compliance requirements in Special Condition No. 25 shall apply once the furnaces are operational after a shakedown period not to exceed 180 days.
8. During decoking events, cyclonic scrubbers shall achieve a particulate matter removal efficiency of at least 95%. There shall be no visible emissions exceeding 30 percent in any six-minute period as determined using U.S. Environmental Protection Agency (EPA) Test Method 22.
- A. The decoking vents covered by this permit shall not operate unless control devices and associated equipment are maintained in good working order and operating. All decoking vents will be inspected for visible emissions once per day during decoking mode. Records shall be maintained of all inspections and maintenance performed on decoking drum cyclone and ductwork.
  - B. The minimum steam flow rate into each decoking drum shall be continuously monitored and be recorded at least once an hour during decoking mode. The minimum steam flow rate shall be 45,000 lb/hr.
  - C. The steam flow meter shall be calibrated at a frequency in accordance with the manufacturer's specifications, or equivalent, or at least annually, whichever is more frequent, and shall be accurate to within 10 percent.
9. The decoking facilities shall be evaluated to demonstrate compliance with the Special Conditions and MAERT prior to commencement of operation. The

evaluation procedures shall be submitted for approval to the Office of Air, Air Permits Division.

10. The elevated flare (EPN FLAREXX1) shall be designed and operated in accordance with the following requirements:
- A. The flare system shall be designed such that the combined assist gas and waste stream to each flare meets the 40 CFR § 60.18 specifications of minimum heating value and maximum tip velocity under normal, 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.
  - B. The flare shall be operated with a flame present at all times and/or have a constant pilot flame. The pilot flame shall be continuously monitored by a thermocouple or an infrared monitor. The time, date, and duration of any loss of pilot flame shall be recorded. Each monitoring device shall be accurate to, and shall be calibrated at a frequency in accordance with, the manufacturer's specifications or equivalent.
  - C. The flare shall be operated with no visible emissions except periods not to exceed a total of five minutes during any two consecutive hours. This shall be ensured by the use of steam assist to the flare, as appropriate.
  - D. The permit holder shall install a continuous flow monitor and composition analyzer that provide a record of the vent stream flow and composition to the flare. The flow monitor sensor and analyzer sample points shall be installed in the vent stream as near as possible to the flare inlet such that the total vent stream to the flare is measured and analyzed. Readings shall be taken at least once every 15 minutes and the average hourly values of the flow and composition shall be recorded each hour.

The monitors shall be calibrated on an annual basis to meet the following accuracy specifications: the flow monitor shall be  $\pm 5.0\%$ , temperature monitor shall be  $\pm 2.0\%$  at absolute temperature, and pressure monitor shall be  $\pm 5.0$  mm Hg. The initial calibration of the flow monitor shall demonstrate the flow monitor accuracy specification of  $\pm 5.0\%$ , at flow rates equivalent to 30%, 60%, and 90% of monitor full scale. Annual calibrations of the flow monitor thereafter shall be per manufacturer specification, or equivalent.

Calibration of the analyzer shall follow the procedures and requirements of Section 10.0 of 40 CFR Part 60, Appendix B, Performance Specification 9, as amended through October 17, 2000 (65 FR 61744), except that the

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

As an alternative to the calibration requirements for the continuous flow monitor and composition analyzer, the requirements for flares in 30 TAC Chapter 115 Subchapter H Division 1 (highly-Reactive Volatile Organic Compounds – Vent Gas Control) as amended to be effective December 23, 2004 (29 TexReg 11623) may be used.

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

11. The multi-point ground flare (EPN FLAREXX2) shall be designed and operated in accordance with the following requirements:
  - A. The flare system shall be designed such that the combined assist gas and waste stream to each flare meets the 40 CFR § 60.18 specifications of minimum heating value and maximum tip velocity under normal, 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.
  - B. The flare shall be operated with a flame present at all times and/or have a constant pilot flame. The pilot flame shall be continuously monitored by a thermocouple or an infrared monitor. The time, date, and duration of any loss of pilot flame shall be recorded. Each monitoring device shall be accurate to, and shall be calibrated at a frequency in accordance with, the manufacturer's specifications or equivalent.
  - C. The flare shall be operated with no visible emissions except periods not to exceed a total of five minutes during any two consecutive hours. This shall be ensured by the use of pressure assist to the flare.

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

The monitors shall be calibrated on an annual basis to meet the following accuracy specifications: the flow monitor shall be  $\pm 5.0\%$ , temperature monitor shall be  $\pm 2.0\%$  at absolute temperature, and pressure monitor shall be  $\pm 5.0$  mm Hg. The initial calibration of the flow monitor shall demonstrate the flow monitor accuracy specification of  $\pm 5.0\%$ , at flow rates equivalent to 30%, 60%, and 90% of monitor full scale. Annual calibrations of the flow monitor thereafter shall be per manufacturer specification, or equivalent.

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

As an alternative to the calibration requirements for the continuous flow monitor and composition analyzer, the requirements for flares in 30 TAC Chapter 115 Subchapter H Division 1 (highly-Reactive Volatile Organic Compounds – Vent Gas Control) as amended to be effective December 23, 2004 (29 TexReg 11623) may be used.

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

12. The emergency generators and fire water pumps engines shall be designed and operated in accordance with the following conditions:
- A. The firewater pump diesel engines (EPN DIESELXXFW) and emergency generators (EPN DIESELXX) are each authorized to fire diesel fuel containing not more than 0.3 weight percent sulfur and is limited to a maximum of 52 hours of engine testing annually.
  - B. Any operation in excess of the times specified in Special Condition No. 12.A is subject to reporting as required by 30 TAC § 122.
13. The cooling tower (EPN BOPXXCT) shall be designed and operated in accordance with the following conditions:
- A. The total dissolved solids (TDS) concentration and the recirculation rate shall be used to demonstrate compliance with the limits in the MAERT.
  - B. The holder of this permit shall monitor the conductivity of the cooling water at a monitoring point in the recirculating water of the cooling tower, and record these conductivity readings on a no less than weekly basis. Each conductivity measurement shall be converted to TDS concentration in ppmw using the conversion factor established in accordance with Special Condition No. 13.E.
  - C. The holder of this permit shall monitor the flow rate of the recirculating water of the cooling tower, and record these flow rate values on a no less than hourly basis.
  - D. The permit holder shall use the following equation to determine Total Dissolved Solids (TDS) concentration in cooling tower from conductivity measurement:

$$\text{TDS} = \text{Conductivity} \times \text{Conversion Factor (CF}_{\text{TDS}})$$

Where:

$\text{TDS}$  = Total dissolved solids concentration of the cooling water (ppmw)

$\text{Conductivity}$  = Conductivity of cooling water (micromho per centimeter [ $\mu\text{mho/cm}$ ])

$\text{Conversion Factor (CF}_{\text{TDS}})$  = Factor to convert conductivity measurement to TDS concentration (ppmw per  $\mu\text{mho/cm}$ )

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- E. The holder of this permit shall perform sampling to establish the relationship between TDS and conductivity that shall be used by the permit holder to demonstrate compliance with the MAERT. A cooling water sample shall be collected in each of the three calendar months following the facility startup and a conductivity and TDS analysis shall be performed for each of the three samples in order to establish the actual cooling water conductivity to TDS conversion factor. The conductivity and TDS analyses shall be performed in accordance with "Standard Methods for the Examination of Water and Wastewater" Method 2510 (Conductivity) and Method 2540 (Solids). An average conversion factor and standard deviation based on the three values shall be determined from the cooling water sample results. Additional sampling to adjust the conversion factor is allowed with approval from the Texas Commission on Environmental Quality (TCEQ) Regional Office.

The permit application TDS/conductivity conversion factor of 0.67 may be used initially until a site specific demonstrated value is determined.

- F. Within 30 days after completion of the sampling as specified in Special Condition No. 13.E above, copies of the sampling report shall be submitted to the TCEQ Regional Office.
- G. The VOC associated with cooling tower water shall be monitored at least monthly with an approved air stripping system, or equivalent for the purpose of detecting leaks of VOC into the cooling water.

When leaks are detected, the appropriate equipment shall be maintained so as to minimize fugitive VOC emissions from the cooling tower. Faulty equipment shall be repaired at the earliest opportunity, but no later than the next scheduled shutdown of the process unit in which the leak occurs. The results of the monitoring and maintenance efforts shall be recorded, and such records shall be maintained at the plant site and cover at least the two-year trailing period. The records shall be made available upon request to TCEQ personnel or any local air pollution control program having jurisdiction.

14. VOC storage tanks are subject to the following requirements:

- A. The control requirements specified in paragraphs B-E of this condition shall not apply (1) where the VOC has an aggregate partial pressure of less than 0.50 psia at the maximum feed temperature or 95°F, whichever is greater, or (2) to storage tanks smaller than 25,000 gallons.
- B. An internal floating deck or "roof" or equivalent control shall be installed in all tanks. The floating roof shall be equipped with one of the following

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closure devices between the wall of the storage vessel and the edge of the internal floating roof: (1) a liquid-mounted seal, (2) two continuous seals mounted one above the other, or (3) a mechanical shoe seal.

- C. An open-top tank containing a floating roof (external floating roof tank) which uses double seal or secondary seal technology shall be an approved control alternative to an internal floating roof tank provided the primary seal consists of either a mechanical shoe seal or a liquid-mounted seal and the secondary seal is rim-mounted. A weathershield is not approvable as a secondary seal unless specifically reviewed and determined to be vapor-tight.
  - D. For any tank equipped with a floating roof, the permit holder shall perform the visual inspections and seal gap measurements as specified in Title 40 Code of Federal Regulations § 60.113b (40 CFR § 60.113b) Testing and Procedures (as amended at 54 FR 32973, Aug. 11, 1989) to verify fitting and seal integrity. Records shall be maintained of the dates seals were inspected and seal gap measurements made, results of inspections and measurements made (including raw data), and actions taken to correct any deficiencies noted.
  - E. The floating roof design shall incorporate sufficient flotation to conform to the requirements of API Code 650 dated November 1, 1998, or an equivalent degree of flotation, except that an internal floating cover need not be designed to meet rainfall support requirements and the materials of construction may be steel or other materials.
  - F. Uninsulated tank exterior surfaces exposed to the sun shall be painted white, aluminum, or an equivalent light color, except for labels, logos, etc. not to exceed 15 percent of the exterior surface area. Storage tanks must be equipped with permanent submerged fill pipes.
  - G. As an alternative to the control requirements of Special Condition Nos. 14.B through 14.F, the tank vent may be routed for destruction in a combustion device, such as EPNs XXAF01-ST, XXBF01-ST, XXCF01-ST, XXDF01-ST, XXEF01-ST, XXFF01-ST, XXGF01-ST, XXHF01-ST, FLAREXX1 and FLAREXX2.
  - H. The permit holder shall maintain a record of tank throughput for the previous month and the past consecutive 12 month period for each tank.
15. Piping, Valves, Connectors, Pumps, Agitators, and Compressors - 28VHP

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

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- 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.
16. Alternative requirements for the equipment specified in Special Condition No. 14:
- A. In addition to the methods identified in Special Condition No. 14.A, exempted components may be identified by process flow diagrams that exhibit sufficient detail to identify major pieces of equipment, including major process flows to, from, and within a process unit. Major equipment

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includes, but is not limited to, columns, reactors, pumps, compressors, drums, tanks, and exchangers.

- B. In lieu of the requirements specified in Special Condition No. 14.E, new and reworked piping connections may be monitored for leaks using an approved gas analyzer within 30 days of the components being returned to service.
  - C. As an alternative to comparing the daily emission rate of the components on the delay of repair (DOR) list to the total emissions from a unit shutdown per the requirements of Special Condition No. 14, Subparagraph I, the cumulative hourly emission rate of all components on the DOR list may be compared to ten percent of the fugitive short term allowable on the Maximum Allowable Emission Rate Table in order to determine if the TCEQ Regional Director and any local program is to be notified. In addition, the hourly emission rates of each specific compound on the DOR list must be less than ten percent of the specified hourly fugitive emission rate of the same compound.
17. Additional Flange Monitoring - 28CNTQ
- A. All non-insulated flanges in gas/vapor and/or light liquid service shall be monitored quarterly with an approved gas analyzer in accordance with Special Condition Nos. 15.F through 15.J.
  - B. In lieu of the monitoring frequency specified in paragraph A, flanges may be monitored on a semiannual basis if the percent of flanges leaking for two consecutive quarterly monitoring periods is less than 0.5 percent. Flanges may be monitored on an annual basis if the percent of flanges leaking for two consecutive semiannual monitoring periods is less than 0.5 percent. If the percent of flanges leaking for any semiannual or annual monitoring period is 0.5 percent or greater, the facility shall revert to quarterly monitoring until the facility again qualifies for the alternative monitoring schedules previously outlined in this paragraph.
18. The permit holder shall maintain the piping and valves in NH<sub>3</sub> service as follows:
- A. Audio, olfactory, and visual checks for NH<sub>3</sub> leaks within the operating area shall be made once per shift.
  - B. As soon as practicable, following the detection of a leak, plant personnel shall take one or more of the following actions:
    - (1) Locate and isolate the leak, if necessary.
    - (2) Commence repair or replacement of the leaking component.

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

**Planned Maintenance, Startup and Shutdown (MSS)**

19. The holder of this permit shall minimize emissions during planned maintenance, start-up and shutdown (MSS) activities by operating the facility and associated air pollution control equipment in accordance with good air pollution control practices, safe operating practices, and protection of the facility.
20. Allowable emissions for planned MSS activities associated with the facilities authorized by this permit are contained in Permit No. 3452, unless specified otherwise in this permit.
21. The emissions limits that are identified in Special Conditions No. 7.C(1) through 7.C(4) do not apply during the following planned MSS activities for furnaces (EPN BOPXXFURNACE):
  - A. Hot Steam Standby Mode, defined as the period when the furnace is firing at 50% or less of the maximum allowable firing rate and no hydrocarbon feed is being charged to the furnace.
  - B. Decoking Mode, defined as the period starts when air is introduced to the furnace for the purpose of decoking and ends when air is removed from the furnace.
  - C. Start-up Mode, defined as the period beginning when fuel is introduced to the furnace and ending when the SCR catalyst bed reaches its stable operating temperature. A planned startup for each furnace is limited to 24 hours at 25% or less of the maximum allowable firing rate, except during startups requiring refractory dry out which is limited to 72 hours at 25% or less of the maximum allowable firing rate.
  - D. Shutdown Mode, defined as the period beginning when the SCR catalyst bed first drops below its stable operating temperature and ending when the fuel is removed from the furnace.
  - E. Feed in Mode, defined as the period beginning when hydrocarbon feed is introduced to the furnace and ending when the furnace reaches 70% of the maximum allowable firing rate.
  - F. Feed out Mode, defined as the period beginning when a furnace drops below 70% of the maximum allowable firing rate and ending when hydrocarbon feed is isolated from the furnace.

22. Upon commencement of operation, the total hours of operation for the ground flare (EPN FLAREXX2) are limited to 160 hours in a rolling 12-month period.

### **Continuous Demonstration of Compliance**

23. The permit holder shall install, calibrate, and maintain a continuous emission monitoring system (CEMS) to measure and record the in-stack concentration of NO<sub>x</sub> and CO from the furnaces (EPNs XXAF01 through XXHF01).
- A. The CEMS shall meet the design and performance specifications, pass the field tests, and meet the installation requirements and the data analysis and reporting requirements specified in the applicable Performance Specification Nos. 1 through 9, Title 40 Code of Federal Regulation Part 60 (40 CFR Part 60), Appendix B. If there are no applicable performance specifications in 40 CFR Part 60, Appendix B, contact the TCEQ Office of Air, Air Permits Division for requirements to be met.
- B. Section (1) below applies to sources subject to the quality-assurance requirements of 40 CFR Part 60, Appendix F; section (2) applies to all other sources:
- (1) The permit holder shall assure that the CEMS meets the applicable quality-assurance requirements specified in 40 CFR Part 60, Appendix F, Procedure 1. Relative accuracy exceedances, as specified in 40 CFR Part 60, Appendix F, Subpart 5.2.3 and any CEMS downtime shall be reported to the appropriate TCEQ Regional Manager, and necessary corrective action shall be taken. Supplemental stack concentration measurements may be required at the discretion of the appropriate TCEQ Regional Manager.
- (2) The system shall be zeroed and spanned daily, and corrective action taken when the 24-hour span drift exceeds two times the amounts specified in the applicable Performance Specification Nos. 1 through 9, 40 CFR Part 60, Appendix B, or as specified by the TCEQ if not specified in Appendix B. Zero and span is not required on weekends and plant holidays if instrument technicians are not normally scheduled on those days.

Each monitor shall be quality-assured at least quarterly using Cylinder Gas Audits (CGA) in accordance with 40 CFR Part 60, Appendix F, Procedure 1, Section 5.1.2, with the following exception: a relative accuracy test audit (RATA) is not required once every four quarters (i.e., four successive quarterly CGA may be conducted). An equivalent quality-assurance method approved by

the TCEQ may also be used. Successive quarterly audits shall occur no closer than two months.

All CGA exceedances of  $\pm 15$  percent accuracy or 5 ppm, whichever is greater, indicate that the CEMS is out of control.

- C. The monitoring data shall be reduced to 1-hour average concentrations at least once every day, using a minimum of four equally-spaced data points from each one-hour period. The individual average concentrations shall be reduced to units of the permit allowable emission rate in the MAERT and Special Condition 7 at least once every week as follows:

Emissions calculations based on measured concentrations and exhaust flow rate shall be used to convert the 1-hour average concentration from the CEMS to lb/MMBtu, ppmvd, and lb/hr to demonstrate compliance with the NO<sub>x</sub> and CO emission limits in Special Condition 7 and the MAERT. Exhaust flow rate may be monitored directly or calculated by monitoring fuel flow and using EPA Test Method 19.

- (1) All monitoring data and quality-assurance data shall be maintained by the source. The data from the CEMS may, at the discretion of the TCEQ, be used to determine compliance with the conditions of this permit.
  - (2) The appropriate TCEQ Regional Office shall be notified at least 15 days prior to any required RATA in order to provide them the opportunity to observe the testing.
  - (3) Quality-assured (or valid) data must be generated when the furnace is operating except during the performance of a daily zero and span check. Loss of valid data due to periods of monitor break down, out-of-control operation (producing inaccurate data), repair, maintenance, or calibration may be exempted provided it does not exceed 5 percent of the time (in hours) that the furnace operated over the previous calendar year. The measurements missed shall be estimated using engineering judgment and the methods used recorded. Options to increase system reliability to an acceptable value, including a redundant CEMS, may be required by the TCEQ Regional Manager.
24. The NH<sub>3</sub> concentration in each Exhaust Stack (EPNs XXAF01-ST, XXBF01-ST, XXCF01-ST, XXDF01-ST, XXEF01-ST, XXFF01-ST, XXGF01-ST and XXHF01-ST) shall be tested or calculated according to one of the methods listed below and shall be tested or calculated according to frequency listed below. Testing for NH<sub>3</sub> slip is only required on days when the SCR unit is in operation.

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- A. The holder of this permit may install, calibrate, maintain, and operate a CEMS to measure and record the concentrations of NH<sub>3</sub>. The NH<sub>3</sub> concentrations shall be corrected in accordance with Special Condition No. 7.C(4).
- B. As an approved alternative, the NH<sub>3</sub> slip may be measured using a sorbent or stain tube device specific for NH<sub>3</sub> measurement in the 5 to 10 ppm range. The frequency of sorbent or stain tube testing shall be daily for the first 60 days of operation, after which, the frequency may be reduced to weekly testing if operating procedures have been developed to prevent excess amounts of NH<sub>3</sub> from being introduced in the SCR unit and when operation of the SCR unit has been proven successful with regard to controlling NH<sub>3</sub> slip. Daily sorbent or stain tube testing shall resume when the catalyst is within 30 days of its useful life expectancy. These results shall be recorded and used to determine compliance with Special Condition No. 7.C(4).
- C. As an approved alternative to sorbent or stain tube testing or an NH<sub>3</sub> CEMS, the permit holder may install and operate a second NO<sub>x</sub> CEMS probe located between the firebox and the SCR, upstream of the stack NO<sub>x</sub> CEMS, which may be used in association with the SCR efficiency and NH<sub>3</sub> injection rate to estimate NH<sub>3</sub> slip. This condition shall not be construed to set a minimum NO<sub>x</sub> reduction efficiency on the SCR unit. These results shall be recorded and used to determine compliance with Special Condition No. 7.C(4).
- D. If the sorbent or stain tube testing indicates an ammonia slip concentration which exceeds 5 parts per million (ppm) at any time, the permit holder shall begin NH<sub>3</sub> 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<sub>3</sub> 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<sub>3</sub> slip or greater. These results shall be recorded and used to determine compliance with Special Condition No. 7.C(4).
- E. As an approved alternative to sorbent or stain tube testing, NH<sub>3</sub> CEMS, or a second NO<sub>x</sub> CEMS, the permit holder may install and operate a dual stream system of NO<sub>x</sub> CEMS at the exit of the SCR. One of the exhaust streams would be routed, in an unconverted state, to one NO<sub>x</sub> CEMS, and the other exhaust stream would be routed through a NH<sub>3</sub> converter to convert NH<sub>3</sub> to NO<sub>x</sub> and then to a second NO<sub>x</sub> CEMS. The NH<sub>3</sub> slip concentration shall be calculated from the delta between the two NO<sub>x</sub>

CEMS readings (converted and unconverted). These results shall be recorded and used to determine compliance with Special Condition No. 7.C(4).

- F. Any other method used for measuring NH<sub>3</sub> slip shall require prior approval from the TCEQ Regional Director.

### **Initial Demonstration of Compliance**

25. 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 furnaces (EPNs XXAF01-ST, XXBF01-ST, XXCF01-ST, XXDF01-ST, XXEF01-ST, XXFF01-ST, XXGF01-ST and XXHF01-ST) to demonstrate compliance with the MAERT. The permit holder is responsible for providing sampling and testing facilities and conducting the sampling and testing operations at his expense. Sampling shall be conducted in accordance with the appropriate procedures of the Texas Commission on Environmental Quality (TCEQ) Sampling Procedures Manual and the U.S. Environmental Protection Agency (EPA) Reference Methods.

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

- A. The appropriate TCEQ Regional Office shall be notified not less than 45 days prior to sampling. The notice shall include:
- (1) Proposed date for pretest meeting.
  - (2) Date sampling will occur.
  - (3) Name of firm conducting sampling.
  - (4) Type of sampling equipment to be used.
  - (5) Method or procedure to be used in sampling.
  - (6) Description of any proposed deviation from the sampling procedures specified in this permit or TCEQ/EPA sampling procedures.
  - (7) Procedure/parameters to be used to determine worst case emissions during the sampling period.

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.

- (a) Air contaminants emitted from the furnaces to be tested include (but are not limited to) NO<sub>x</sub>, CO, and NH<sub>3</sub>.
- (b) Sampling shall occur within 60 days after achieving the maximum operating rate, but no later than 180 days after initial start-up of the facilities and at such other times as may be required by the TCEQ Executive Director. Requests for additional time to perform sampling shall be submitted to the appropriate regional office.
- (c) The facility being sampled shall operate at a minimum of 80 percent of the design firing rate during stack emission testing. These conditions/parameters and any other primary operating parameters that affect the emission rate shall be monitored and recorded during the stack test. Any additional parameters shall be determined at the pretest meeting and shall be stated in the sampling report. Permit conditions and parameter limits may be waived during stack testing performed under this condition if the proposed condition/parameter range is identified in the test notice specified in paragraph A and accepted by the TCEQ Regional Office. Permit allowable emissions and emission control requirements are not waived and still apply during stack testing periods.

During subsequent operations, if the firing rate is more than 10 percent higher than the firing rate during the previous stack test, stack sampling shall be performed at the new operating conditions within 120 days. This sampling may be waived by the TCEQ Air Section Manager for the region.

- (d) Copies of the final sampling report shall be forwarded to the offices below within 60 days after sampling is completed. Sampling reports shall comply with the attached provisions entitled "Chapter 14, Contents of Sampling Reports" of the TCEQ Sampling Procedures Manual. The reports shall be distributed to the appropriate TCEQ Regional Office and each local air pollution control program, as required.

## **Recordkeeping**

26. The permit holder shall maintain the following records electronically or in hard copy format for at least five years. These records shall be used to demonstrate compliance with the Special Conditions and the limits specified in the MAERT:
- A. Gas fuel usage for each furnace as required by Special Condition No. 7.B. Records from CEMs or monitoring/testing to demonstrate compliance with the limits in Special Condition No. 7.C.
  - B. Records of decoke vent inspections and maintenance as required by Special Condition No. 8.A.
  - C. Records of steam flow rate and steam flow meter calibration as required in Special Condition Nos 8.B and 8.C.
  - D. Record of pilot flame presence as specified in Special Condition Nos. 10.B and 11.B. Records of vent stream flow and composition to flares EPNs FLAREXX1 and FLAREXX2 as required by Special Condition Nos. 10.D and 11.D.
  - E. Records of testing hours for firewater pump diesel engines (EPNs DIESELXXFW01 through DIESELXXFW02) and emergency generators (EPNs DIESELXX01, DIESELXX02 and DIESELXX03) to demonstrate compliance with Special Condition No. 12.
  - F. Records of TDS concentration and recirculating water flow rate in the cooling tower (EPN BOPXXCT) as required by Special Condition No. 13.
  - G. Records of tank seal inspections as required by Special Condition No. 14.D.
  - H. Records demonstrating compliance with the requirements of 28VHP as specified in Special Condition No. 15.
  - I. Records of planned MSS activities and hours to demonstrate compliance with Special Condition No. 21.C for the furnaces (EPNs XXAF01-ST, XXBF01-ST, XXCF01-ST, XXDF01-ST, XXEF01-ST, XXFF01-ST, XXGF01-ST and XXHF01-ST).
  - J. Record of operation of the multi-point ground flare (EPN FLAREXX2) to demonstrate compliance with Special Condition No. 22.
  - K. Records of quality assurance calibration for the CEMs as required by Special Condition No. 23.

- L. Records of stack tests completed in accordance with Special Condition No. 25.

**Alternate Means of Control (AMOC)**

- 27. If a request for an AMOC is granted by the regulating authority (TCEQ or EPA) for the multi-point ground flare (EPN FLAREXX2), the requirements of the approved AMOC shall supersede the requirements of Special Condition No. 11. The permit holder shall incorporate these conditions into the permit through an alteration no later than 90 days after approval of the AMOC.

Date:           Draft          

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