SPECIAL CONDITIONS
Permit Number 4773A

Emission Standards

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

Maintenance Startup and Shutdown (MSS)

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

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

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

   The performance of each planned MSS activity not identified in Attachments A or B and the emissions associated with it shall be recorded and include at least the following information:

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

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

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

   D. the date and time of the MSS activity and its duration;

   E. the estimated quantity of each air contaminant, or mixture of air contaminants, emitted with the data and methods used to determine it. The emissions shall be estimated using the methods identified in the permit application, consistent with good engineering practice.

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

3. Process units and facilities, with the exception of those identified in Special Conditions 5, 6 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 or the CO concentration exceeds 10,000 ppmv 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. This paragraph does not apply to wash water with a VOC vapor pressure less than 0.5 psia directed to the wastewater system.

D If the VOC partial pressure is greater than 0.50 psi at the normal process temperature or 95°F or the CO concentration exceeds 10,000 ppmv, 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 and/or CO 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] or piping and instrumentation diagrams [P&IDs] may be used to demonstrate compliance with the requirement). If the process equipment is purged with a gas, two system volumes of purge gas must have passed through the control device or controlled recovery system before the vent stream may be sampled to verify acceptable-VOC concentration prior to uncontrolled venting. The VOC sampling and analysis shall be performed using an instrument meeting the requirements of Special Condition 4. The sampling point shall be upstream of the inlet to the control device or controlled recovery system. The sample ports and the collection system must be designed and operated such that there is no air leakage into the sample probe or the

collection system downstream of the process equipment or vessel being purged. 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 or 10 percent of the LEL and the CO concentration is less than 10,000 ppmv. 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 VOC air contaminant to be vented to atmosphere during shutdown or startup, as applicable.

All instances of venting directly to atmosphere per Special Condition 3.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.

4. 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 response factor shall be recorded. If the RF of the VOC (0r mixture of VOCs) to be monitored is greater than 2.0, the VOC concentration shall be determined as follows:

VOC Concentration = Concentration as read from the Instrument * RF

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

B. A CO specific detector with a range set no greater than 12,500 ppmv and calibrated in accordance with manufactures specifications. Calibration standards and records shall be recorded and retained. During sampling, data recording shall not begin until after two times

the instrument response time. The date and time shall be recorded, and CO concentration shall be monitored for at least 5 minutes.

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

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

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

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

measured contaminant concentration (ppmv) < release concentration.

Where the release concentration is:

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

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

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

D. Lower explosive limit measured and shown to be equal or less than 10% with a lower explosive limit detector may be used in lieu of VOC or CO monitoring noted above if vessel did not originally contain a 90% or greater concentration of CO.

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

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

5. This permit authorizes emissions from the floating roof methanol storage tank identified in the facility list during planned floating roof landings. Tank roofs may only be landed for tank inspection/maintenance as identified in the permit application. Tank roof landings include all operations when the tank floating roof is on its supporting legs. The following requirements apply to tank roof landings.

A. The tank liquid level shall be continuously lowered after the tank floating roof initially lands on its supporting legs until the tank has been drained to the maximum extent practicable without

entering the tank. Liquid level may be maintained steady for a period of up to two hours if necessary to allow for valve lineups and pump changes necessary to drain the tank. This requirement does not apply where the vapor under a floating roof is routed to control during this process.

B. If the VOC partial pressure of the liquid previously stored in the tank is greater than 0.50 psi at 95°F, tank refilling or degassing of the vapor space under the landed floating roof must begin within 24 hours after the tank has been drained unless the vapor under the floating roof is routed to control or a controlled recovery system during this period. The tank shall not be opened except as necessary to set up for degassing and cleaning. Floating roof tanks with liquid capacities less than 100,000 gallons may be degassed without control if the VOC partial pressure of the standing liquid in the tank has been reduced to less than 0.02 psia prior to ventilating the tank. Controlled degassing of the vapor space under landed roofs shall be completed as follows:

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

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

(3) A volume of purge gas equivalent to twice the volume of the vapor space under the floating roof must have passed through the control device or into a controlled recovery system, before the vent stream may be sampled to verify acceptable VOC concentration. The measurement of purge gas volume shall not include any make-up air introduced into the control device or recovery system. The VOC sampling and analysis shall be performed as specified in Special Condition 4.

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

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

C. The tank shall not be opened or ventilated without control, except as allowed below until the criteria in part D of this condition is satisfied.

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

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

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

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

(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 4.

(3) No standing liquid verified through visual inspection.

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

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

(1) Only one tank with a landed floating roof can be filled at any time at a rate not to exceed 17,964 gal/hr.

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

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

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

(2) the reason for the tank roof landing;

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

for each of the following events:

(a) the roof was initially landed,

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

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

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

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

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

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

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

6. Propylene unloading hose purge, EPN PRPUNLD, may be depressured to atmosphere after nitrogen clearing the liquid to the extent practicable without over pressuring the truck being filled. The emissions may be assumed equal to amount estimated in the permit application for each activity.

7. Process vessels, tanks and equipment, including the tank, EPN SG110-1-1 in Permit 40938, flushed with water for maintenance clearing to the wastewater system shall be handled in enclosed piping. Emission points from the wastewater system are limited to the piping manhole covers, the lift station, the neutralization tank and the equalization tank. Emissions may be assumed to occur at the potential rates represented in the permit application for the floating roof tank heel clearing, small equipment and pipe clearing and the Rectisol area shutdown. Date, time and duration of the water flush activities shall be included with the record.

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

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

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

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

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

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

(3) If the vacuum truck exhaust is controlled, VOC exhaust concentration upon commencing each transfer, at the end of each transfer, and at least every hour during each transfer, measured using an instrument meeting the requirements of Special Condition 4.

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

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

E. If the VOC partial pressure of all the liquids vacuumed into the truck is less than 0.10 psi, this shall be recorded when the truck is unloaded or leaves the plant site and the emissions may be estimated as the maximum potential to emit for a truck in that service as documented in the permit application. The recordkeeping requirements in Special Condition 8.A through 8.D do not apply.

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

A. The exterior surfaces of these tanks/vessels that are exposed to the sun shall be white or aluminum effective May 1, 2013. This requirement does not apply to tanks/vessels that only vent to atmosphere when being filled, 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, 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.

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

11. Emissions from all painting of equipment in place or in-situ activities at this site must satisfy the criteria below. Painting of equipment and parts brought to designated areas are not authorized in this permit. New compounds may also be added or substituted through the use of the procedure below.

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

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

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

(1) The total emission rate is less than 0.1 lb/hr and the ESL greater than or equal to 2 $\mu g/m^3$; or

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

D. Compounds may be substituted provided that the ratio of the emission rate to the ESL for the new compound is equal or less than the one for the existing compound.

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

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

(2) Material Safety Data Sheet.

(3) Maximum concentration of the chemical in weight percent

(4) Paint purchase and the associated emissions with the purchased paint shall be recorded each month and the rolling 12 month total emissions updated.

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

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

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

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

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

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

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

Fugitive Monitoring Program

15. Piping, Valves, Connectors, Pumps, and Compressors in Volatile Organic Compounds (VOC) Service - 28VHP

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

    A. The requirements of paragraphs F and G shall not apply (1) where the VOC has an aggregate partial pressure or vapor pressure of less than 0.044 pound per square inch, absolute (psia) at 68°F, or (2) where the operating pressure is at least 5 kilopascals (0.725 pound per square inch) below ambient pressure. Equipment excluded from this condition shall be identified in a list to be made 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, American Petroleum Institute (API), American Society of Mechanical Engineers, or equivalent codes. New and reworked buried connectors shall be welded.

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

    D. To the extent that good engineering practice will permit, new and reworked valves and piping connections shall be so located to be reasonably accessible for leak-checking during plant

operation. Difficult-to-monitor and unsafe-to-monitor valves, as defined by Title 30 Texas Administrative Code (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 a 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 through 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 Standards, or an applicable National Emission Standard for Hazardous Air Pollutants and does not constitute approval of alternative standards for these regulations.

16. The following requirements apply to capture systems for the plant flare system.

A. Either conduct a once a month visual, audible, and/or olfactory inspection of the capture system to verify there are no leaking components in the capture system; or verify the capture system is leak-free by inspecting in accordance with 40 CFR Part 60, Appendix A, Test Method 21 once a year. Leaks shall be indicated by an instrument reading greater than or equal to 500 ppmv above background.

B. The control device shall not have a bypass.

or

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

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

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

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

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

Cooling Tower Requirements

17. The VOC associated with cooling tower (EPN, SGCT) water shall be monitored monthly with an approved air stripping system or equivalent (see Attachment E). The appropriate equipment shall

be maintained so as to minimize fugitive VOC emissions from the cooling tower. Faulty equipment shall be repaired at the earliest opportunity but no later than the next scheduled shutdown of the process unit in which the leak occurs. The results of the monitoring and maintenance efforts shall be recorded, and such records shall be maintained for a period of two years. The records shall be made available to the TCEQ Executive Director upon request.

18. Cooling tower water shall be sampled once a week for total dissolved solids (TDS) and once a day for conductivity. Dissolved solids in the cooling water drift are considered to be emitted as PM. PM_{10} and $PM_{2.5}$ may be assumed to be 70% and 42% of the PM as represented in the application. The data shall result from collection of water samples from the cooling tower feed water and represent the water being cooled in the tower. Water samples should be capped upon collection and transferred to a laboratory area for analysis. The analysis method for TDS shall be EPA Method 160.1, ASTM D5907, and SM 2540 C [SM - 19th edition of Standard Methods for Examination of Water]. The analysis method for Conductivity shall be ASTM D1125-95A and SM2510 B. Use of an alternative method shall be approved by the TCEQ Regional Director prior to its implementation.

Operational Limitations

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

    A. The flare systems shall be designed such that the combined assist natural gas and waste stream to each flare meets the requirements of 40 CFR § 60.18(c)(2)-(6) as amended through October 17, 2000 (65 FR 61744) during normal, upset, and maintenance flow conditions. Flare testing per 40 CFR § 60.18(f) may be requested by the appropriate TCEQ Regional Office to demonstrate compliance with these requirements.

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

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

    D. The permit holder shall comply with the HRVOC monitoring requirements in 30 TAC § 115.725(d) for the, High Pressure Flare (EPN SG21-1-1) and the Cold Flare (SG20-3-2).

    E. Natural gas assist shall be used to insure the Acid Gas Flare (EPN SG20-2-2) and the Wastewater Ammonia Stripper Flare (EPN POXNH3FLARE) meet the heating value requirements and has flame present at all times that waste gas is flowing through the tip. The waste gas flow and assist natural gas feed rates to each flare shall be continuously monitored and recorded.

    F. The Ammonia Stripper feed rate and ammonia composition shall be recorded instead of the waste gas flow to determine the ammonia flow to the Wastewater Ammonia Stripper Flare

G. Install a waste gas flow meter during the next scheduled turn-around when the Acid Gas Flare header is taken out of service or no later than January 1, 2024.

H. Flow meters shall not exceed 5% downtime.

(??/20)

20. Natural gas fired at the site shall meet the following requirements:

A. Natural gas shall contain no more than 5 grains of total sulfur per 100 dry standard cubic feet (dscf).

B. 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.

C. The permit holder shall install and operate a fuel flow meter to measure the natural gas fuel usage for each fired source. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications or at least annually, whichever is more frequent, and shall be accurate to within 5 percent.

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

(??/20)

21. The holder of this permit shall install, calibrate, and maintain a continuous emission monitoring instrument to monitor and record emissions of nitrogen oxides (NOx) from the Boiler (EPN SG23-50-1) and the emissions of NOx, CO and the concentration of O_2 from the Superheater (EPN SG23-51-1) and the composition of the fuel fired.

A. The continuous emission monitors shall be in compliance with the requirements of Performance Specification Nos. 2 through 9 as applicable in Title 40 Code of Federal Regulation Part 60 (40 CFR Part 60), Appendix B.

B. 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. 2 through 9, 40 CFR Part 60, Appendix B.

C. Each monitor shall be quality-assured at least quarterly using Cylinder Gas Audits (CGA) in accordance with 40 CFR Part 60, Appendix F, Procedure 1, Section 5.1.2, with the following exception: a relative accuracy test audit (RATA) is not required once every four quarters (i.e., four successive quarterly CGA may be conducted). An equivalent quality-assurance method approved by the TCEQ may also be used. Successive quarterly audits shall occur no closer than two months. All CGA exceedances of ±15 percent accuracy indicate that the CEMS is out of control.

D. The monitoring data shall be reduced to hourly average concentrations at least once every day, using a minimum of four equally-spaced data points from each one-hour period. The individual average concentrations shall be reduced to units of pounds per hour and for the

Superheater lbs NOx per million British thermal units (MMBtu) fired and parts per million by volume dry basis (ppmvd) CO at 3% O_2 at least once every week as follows:

The measured hourly average NOx and CO concentrations from the CEMS shall be multiplied by the exhaust gas flow rate as determined by either the measured fuel composition and firing rate, or a direct exhaust measurement as part of the continuous emission rate monitoring system, to determine the hourly emission rate. The measured fuel firing rate and the higher heating value (HHV) of the fuel shall be used to determine the lbs NOx/MMBtu. The measured hourly average O_2 concentration dry with the hourly average CO concentration dry shall be used to calculate the CO concentration in ppmvd at 3% O_2.

E. The monitoring data shall be maintained by the source for a period of at least two years and shall be made available to the TCEQ Executive Director or a designated representative upon request. The data from the continuous emission monitor may be used to determine compliance with the conditions of this permit.

G. Install a system that measures fuel composition and firing rate no later than one year from the date this permit is issued

H. All monitoring devices shall be operated with no more than 5% downtime
(??/20)

22. The Boiler (EPN SG23-50-1) and the Superheater (EPN SG23-51-1) shall meet the following requirements:

A. The Superheater is limited to:

(1) a maximum firing rate of 165 MMBtu/hour,

(2) a maximum NOx formation hourly average of 0.025 lbs NOx/MMBtu fired HHV, and

(3) a maximum hourly average CO concentration of 100 ppmvd @ 3% O_2.

The NOx and CO formation and concentration limitations do not apply during startup and shutdown of the Superheater.

B. The Boiler is limited to a maximum firing rate of 267 MMBtu/hour.
(??/20)

Storage and Loading of VOC

23. Storage tanks are subject to the following requirements. The control requirements specified in paragraphs A-D of this condition shall not apply (1) where the VOC has an aggregate partial pressure of less than 0.50 psia at the maximum feed temperature or 95° F, whichever is greater, or (2) to storage tanks smaller than 25,000 gallons, or (3) to storage tanks vented to a control device.

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

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

C. For any tank equipped with a floating roof, the permit holder shall perform the visual inspections and seal gap measurements as specified in 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.

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

E. Uninsulated tank exterior surfaces exposed to the sun shall be white or aluminum. The storage tanks SG13-25-1, SG930D, SG930U, and 310-50-1.2 must be equipped with permanent submerged fill pipes.

F. For purposes of assuring compliance with VOC emission limitations, the holder of this permit shall maintain a monthly emissions record which describes calculated emissions of VOC from storage tanks SG13-25-1, SG930D, SG930U, and 310-50-1.2. The record shall include tank or loading point identification number, control method used, tank or vessel capacity in gallons, name of the material stored or loaded, VOC molecular weight, VOC monthly average temperature in degrees Fahrenheit, VOC vapor pressure at the monthly average material temperature in psia, and 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. These records shall be maintained at the plant site for at least two years and be made available to representatives of the TCEQ upon request.

G. If throughput records are specified in the special conditions of this permit, the holder of this permit may keep such records in lieu of the records required in paragraph F.

H. Emissions for tanks SG13-25-1, SG930D, SG930U, and 310-50-1.2 shall be calculated using: (a) AP-42 Compilation of Air Pollution Emission Factors, Chapter 7 - Storage of Organic Liquids and (b) the TCEQ publication titled Technical Guidance Package for Chemical Sources-Storage Tanks.

I. Operation without visible liquid leaks or spills shall be maintained at all loading and unloading facilities, regardless of vapor pressure. This does not apply to momentary dripping associated with the initial connection or disconnection of fittings. Sustained dripping from fittings during loading and unloading operations is not permitted. Any liquid spill that occurs during loading and unloading activities shall be reported pursuant to 30 TAC §§ 101.201, 101.211, and 101.221 and shall be cleaned up immediately to minimize air emissions.

(??/20)

24. Wastewater entering the wastewater handling system, including POX water, Process Lift, Cooling Tower purge, and Methanol Stripper Tails shall comply with the following conditions:

    A. The wastewater flow shall be continuously monitored or calculated and recorded with flow metered data. The concentration of ammonia (NH_3), methanol (MeOH), and VOC shall be monitored and recorded on at least a quarterly basis during normal operations and before, during and after each scheduled startup or shutdown of the process unit when MSS wastewater is generated, unit trips may be sampled during and after the trip. The flows and concentrations shall be used to calculate the lb/hr emissions for each wastewater facility using the methods in the confidential permit application and the hourly emissions recorded. The higher of the measured concentrations shall be used to determine the normal wastewater emissions for each hour between measurements and the concentration measurement during the MSS wastewater flow shall be used for each hour the MSS wastewater is generated with the higher value applied for the period between measurements if more than one measurement is made. A record of the hourly emissions shall be created and maintained within one week of each concentration measurement.

    B. The concentrations for ammonia, methanol and VOC are measured by grab samples collected and analyzed using EPA standard methods, and/or with a total organic carbon (TOC) online analyzer that determines the total carbon concentration which is assumed to be the total VOC and Methanol concentration for the following streams:

        (1) Process Lift Water: TOC online analyzer which performs TOC analysis continuously.

        (2) MeOH Stripper Tails: TOC online analyzer which performs TOC analysis continuously.

    C. Flow and concentration monitors shall be calibrated and maintained as recommended by the manufacturer with records of the activities. The flow meters shall not exceed 5% downtime.

    D. The cooling tower blowdown shall be a continuously calculated value and recorded. **(??/20)**

25. Wastewater to the ammonia stripper must be treated to maintain minimum pH of 9.5 and stripping steam feed shall be maintained at a minimum pressure of 475 kPa when wastewater is flowing. The pH and pressure shall be continuously monitored and recorded. The monitors shall be calibrated and maintained as recommended by the manufacturer with records of the activities. **(??/20)**

<u>Control for Maintenance Startup and Shutdown</u>

26. Control devices required by this permit for emissions from planned MSS activities are limited to the Wastewater Ammonia Stripper Flare (EPN POXNH3FLARE), the Acid Gas Flare (EPN SG20-2-2), the High Pressure Flare (EPN SG21-1-1) and the Cold Flare (SG20-3-2) and those types identified in this condition. Control devices shall be operated with no visible emissions except periods not to exceed a total of five minutes during any two consecutive hours. Each device used must meet all the requirements identified for that type of control device. **(??/20)**

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

A. Carbon Adsorption System (CAS).

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

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

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

(b) The carbon sampling frequency may be extended to longer periods based on previous experience with carbon control of a MSS waste gas stream. The past experience must be with the same VOC, type of facility, and MSS activity. The basis for the sampling frequency shall be recorded. If the VOC concentration on the initial sample downstream of the first carbon canister following a new polishing canister being put in place is greater than 100 ppmv above background, it shall be assumed that breakthrough occurred while that canister functioned as the final polishing canister and a permit deviation shall be recorded.

(3) The method of VOC sampling and analysis shall be by detector meeting the requirements of Special Condition 4.A or B.

(4) Breakthrough is defined as the highest measured VOC concentration at or exceeding 100 ppmv above background. When the condition of breakthrough of VOC from the initial saturation canister occurs, the waste gas flow shall be switched to the second canister and a fresh canister shall be placed as the new final polishing canister within four hours. Sufficient new activated carbon canisters shall be maintained at the site to replace spent carbon canisters such that replacements can be done in the above specified time frame.

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

(a) Sample time and date.
(b) Monitoring results (ppmv).
(c) Canister replacement log.

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

B. Thermal Oxidizer.

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

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

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

C. Temporary Flare.

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

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

(2) 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

(3) The flare shall have a continuous flow monitor and composition analyzer or calorimeter that provide a record of the vent stream flow and composition or heat content to the flare. The flow monitor sensor and analyzer sample points shall be installed in the vent stream as near as possible to the flare inlet such that the total vent stream to the flare is measured and analyzed. Readings shall be taken at least once every 15 minutes and the average hourly values of the flow and composition shall be recorded each hour.

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

Calibration of the composition 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).

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

The monitors may be calibrated prior to use if records of calibration are not available.

Flared gas net heating value and actual exit velocity determined in accordance with 40 CFR §60.18(f)(4) or as measured shall be recorded at least once every 15 minutes. Hourly mass emission rates shall be determined and recorded using the above readings and the emission factors used in the permit amendment application.

D. Water Scrubber for Methanol Control

The temporary water scrubber shall be monitored to ensure emissions are effectively controlled as follows:

(1) The exhaust to atmosphere shall be monitored in accordance with Special Condition 4 A or C and the VOC concentration recorded at least once every 15 minutes when waste gas is directed to the scrubber.

(2) The VOC concentration may not exceed 100 ppmv above background.

Periodic Monitoring

27. The following monitoring shall be conducted, and records shall be maintained in addition to the other monitoring and records required by these Special Conditions.

A. For the Emergency Firewater Pump Engine, EPN PW310-50-1, records of each operation including date, time of start and stop, purpose of operation, and total hours of operation each month and the previous 12 months.

B. For the Cold Solvent Degreaser, EPN DEGREASER, a monthly visual inspection and solvent use records.

C. For the Process Analyzer Vents (EPN PRANLZVNT) compare to and confirm flow is consistent with confidential application representation, during analyzer calibration or at least once per year

D. For the In-Situ Sampling of gases and MeOH sampling (EPN SAMPLE) compare to and confirm at least once per year that the frequency and volume of samples taken has not changed from the confidential application representation

These records shall be retained a minimum of 5 years from the date of creation.

Federal Applicability

28. 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 in the General Provisions, and for Standards of Performance for Industrial – Commercial – Institutional Steam Generating Units and Stationary Compression Ignition Internal Combustion Engines in Title 40 Code of Federal Regulations Part 60 (40 CFR Part 60), Subparts A, Db and IIII. **(??/20)**

29. These facilities shall comply with all applicable requirements of EPA regulations on National Emission Standards for Hazardous Air Pollutants for Source Categories in the General Provisions, and for Stationary Reciprocating Internal Combustion Engines in Title 40 Code of Federal Regulations Part 63 (40 CFR Part 63), Subparts A and ZZZZ. **(??/20)**

Permit by Rule Incorporation

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

Authorization	Source or Activity
30 TAC § 106.478 (effective 09/04/2000)	Lube Oil Storage Tanks

(??/20)

Dated: DRAFT April 2020

Permit 4773A
Attachment A
INHERENTLY LOW EMITTING ACTIVITIES

Activity	Emissions				
	VOC	NOx	CO	PM	MeOH
Paint and Non-Paint Aerosols and lubricant use	x			x	

Permit 4773A
Attachment B
ROUTINE MAINTENANCE ACTIVITIES

POx Reactor Start-ups
Vacuum Truck Loading Operations
Propylene Unloading Hose Purge

Permit 4773A
Attachment C
MSS ACTIVITY SUMMARY

Facilities	Description	Emissions Activity	EPN
All process units small vessels/equipment	Clearing and Cleaning	vent to atmosphere when concentration less than 10,000 ppm after water flush	MSS-LINDE
All process units large vessels/equipment	Clearing and Cleaning	vent to atmosphere when concentration less than 10,000 ppm	MSS-LINDE
All process units vessels/equipment	Depressure and/or Purge with Nitrogen	vent to control for concentrations exceeding 10,000 ppmv VOC or CO	MSS-LNDCNT MSS-LNDCNTTEMP
Process vessels, storage tanks and wastewater system	Vacuum Truck Loading	vent to atmosphere	MSS-LINDE
Containers, temporary storage (Frac) tanks, drums	Temporary holding of process liquids and wastewater during maintenance	vent to atmosphere	MSS-LINDE
Floating roof tank	Roof landing, clearing and cleaning for inspection and maintenance, and then refloating roof	vent to atmosphere	MSS-LINDE
Floating roof tank	Roof landing, clearing and cleaning for inspection and maintenance, and then refloating roof	vent to control	MSS-LNDCNT MSS-LNDCNTTEMP
All process units plant structures	Abrasive blasting and surface coating of equipment and structures in place	vent to atmosphere	MSS-LINDE
All process units and plant equipment	Aerosol and non-aerosol propellant liquids use on equipment	vent to atmosphere	MSS-LINDE
Wastewater sumps, piping and containment for floating roof tanks large and small process vessels & equipment,	Maintenance wastewater from water flushing vessels and equipment through the wastewater system	vent to atmosphere	MSS-LINDE
Methanol Stripper Tails and POx Water maintenance flush.	Maintenance wastewater flush being stripped in the FA-07 NH3 Stripper	vent to control	MSS-LNDCNT
Propylene Unloading	Propylene unloading hose purge	vent to atmosphere	PRPUNLD
POx Reactors	Reactor Startups	steam educted to atmosphere	MSS-LINDE MSS-POX3

Permit 4773A
Attachment D
Facility List

This permit authorizes emissions from the following temporary facilities used to support planned MSS activities at permanent site facilities: containers, vacuum trucks, water scrubber and painting and abrasive blasting equipment used on fixed structures and equipment, flare, engine, thermal oxidizer and carbon adsorption unit. Emissions from temporary facilities are authorized provided the temporary facility (a) does not remain on the plant site for more than 12 consecutive months, (b) is used solely to support planned MSS activities at the permanent site facilities listed in this Attachment, and (c) does not operate as a replacement for an existing authorized facility.

This permit authorizes MSS emissions from the permanent site facilities identified below. The headings for each group of facilities (Process Units, Tanks, etc) are used in the MSS Activity Summary to identify all facilities in the respective group.

Process Units

Description	FIN	Permit #	Notes
CE Boiler	SG23-50-1	4773A	
Superheater	SG23-51-1	4773A	
Rectisol Unit		4773A	
Syngas Units		4773A	
Methanol Unit		40938	(a)

Tanks

Description	FIN	Permit #	Notes
Methanol Floating Roof Tank	SG13-25-1	4773A	
Crude Methanol Tank	SG110-1-1	40938	(b)

Flares

Description	EPN	Permit #	Notes
Acid Gas Flare	SG20-2-2	4773A	(c)
Cold Flare	SG20-3-2	4773A	(c)
High Pressure Flare	SG21-1-1	4773A	(c)
Wastewater Ammonia Stripper Flare	POXNH3FLARE	4773A	(c)

Wastewater System

Description	EPN	Permit #	Notes
Maintenance Wastewater Collection	MSS-LINDE	4773A	(d)

NOTES:

(a) MSS Emissions from the Methanol Unit are directed to the Plant Flares, the Equipment opening emissions are in Permit 40938.

(b) MSS Emissions from the Crude Methanol Floating Roof Tank are directed to the Maintenance Wastewater Collection System, other emissions with landing the floating roof are covered in Permit 40938.

(c) The MSS emissions through each flare are accounted in EPN MSS-LNDCNT.

(d) The Maintenance Wastewater Collection consists of the Neutralization Tank, EPN SG810-21-1; the Equalization Tank and Diversion Tank, EPN SG810-22-1; the West Basin, EPN SG810-28; the Mid Basin, EPN SG810-29; the Aeration Basin, EPN SG810-30; the Process Lift Station, EPN LFTSTN; the CWS Divert Pit, EPN CWSPIT; the Wastewater Hold Tank, EPN SG5-1-1; the Carbon Water Tank, EPN SG5-1-14; and the Gray Water Tank, EPN SG5-1-17.

Permit 4773A
ATTACHMENT E

Special Condition 17 of the TCEQ permit 4773A requires monthly sampling for VOCs of the cooling tower water system identified as Emission Point Number (EPN) SGCT at the Linde LaPorte Facility in LaPorte, Texas.

In a letter dated February 6, 2004, Linde submitted a revised cooling tower monitoring methodology (Revised Method). Linde's procedure uses chilled midget impingers for collecting methanol from the exhaust air of the Appendix P air stripping apparatus. The impinger solutions are then analyzed according to U.S. Environmental Protection Agency (EPA) Method 18. The TCEQ has reviewed the Revised Method and has found that the Revised Method for methanol is adequate for determining compliance with the TCEQ air permit. Therefore, TCEQ has approved the Revised Method for satisfying the required cooling tower VOC monitoring in TCEQ Air Permit No. 4773A, with the following provisions:

1. Samples for methanol shall be collected and analyzed according to the approved procedure each month regardless of VOC results indicated by the on-site FID analysis. The portable FID's response for methanol is not adequate for the FID to serve as an indicator for the presence of methanol in the stripped gas.

2. The equation on page 3 of the Revised Method protocol for converting the mass of methanol collected in the midget impingers to a cooling water matrix concentration will not accurately reflect the methanol concentration in the cooling tower water. The equation assumes all the stripping air effluent from the stripping chamber is directed through the midget impingers and that the methanol collected in the impingers is the total mass of methanol stripped from the cooling water sample stream; however, as indicated in the revised method, only a portion of the stripping air stream will be directed through the impingers. Consequently, only a portion of the methanol stripped from the water sample would be collected by the midget impingers. The following equation must be used to determine the methanol gas phase concentration in the stripping air effluent:

$$C_{MeOH} = \frac{(C_{Li} \times V_{Li})}{V_g} \times \frac{g}{1{,}000{,}000\ \mu g} \times \frac{(24.057\ liters/g\text{-}mole \times 1{,}000{,}000\ ppmv)}{MW}$$

Where:

C_{MeOH} = Concentration of methanol in the air stripper gas effluent, ppmv.
C_{Li} = Concentration of methanol in each impinger, µg/ml.
V_{Li} = Total volume of liquid in each impinger, ml.
V_g = Total volume stripping gas effluent sampled through impingers, dry standard liters.
MW = Molecular weight of methanol, 32.04 g/g-mole.

The concentration of methanol determined by the above equation, C_{MeOH}, will be used with the molecular weight of methanol and equation 7-1 of Appendix P to determine the concentration of methanol in the cooling tower water.

3. Since the potential VOCs other than methanol have adequate FID responses, Linde may use the total VOC on-site approach in Section 6.1 of Appendix P. The total VOC in the cooling tower water shall be the sum total of methanol determined according to the midget impinger method and the VOC results determined according to Section 6.1 of Appendix P. If Linde wishes to subtract non-VOC constituents, such as methane and ethane, the total VOC results from Section 6.1 shall be corrected as follows, prior to calculating the VOC water concentration as described in equation 7-1 of Appendix P:

$$C_{TVOC} = C_{THC} - C_{methane} - \frac{C_{ethane}}{RF_{ethane}}$$

Where:

C_{TVOC} = Concentration of non-methane/non-ethane VOC in the air stripper gas effluent.

C_{THC} = Concentration of total hydrocarbons/VOC determined according to Section 6.1 of Appendix P.

$C_{methane}$ = Concentration of methane determined according to Section 6.2 of Appendix P.

C_{ethane} = Concentration of ethane determined according to Section 6.2 of Appendix P.

RF_{ethane} = Response factor multiplier for ethane to convert ethane concentrations to methane equivalents on the portable FID.

The total VOC in the cooling tower water shall be the sum total of the VOC water concentration determined according to equation 7-1 of Appendix P plus the methanol water concentration determined according to provision 2 above.

4. Linde may elect to determine the VOCs other than methanol according to Section 6.2 of Appendix P, *Off-Site Determination of VOC by GC Analysis*. All unidentified non-target compounds detected in the analyses must be quantified as propane equivalents. Total VOC results for determining compliance with the permit requirements will be based on the sum total of the individually speciated VOCs (excluding methane and ethane) and the results of the determination for methanol. When target list compounds (i.e. methane, ethane, propane, n-butane, ethylene, propylene, 1-butene, and methanol) are not detected, one-half the analytical minimum detection limit for the non-detected individual compounds may be used when calculating total emissions and total VOC, provided a spike recovery study is performed at five times the analytical MDL for each compound. The spike recovery study in Section 3.5.1.2 shall be used for Tedlar™ bag samples. If samples are to be collected in canisters, an acceptable recovery study may be performed by introducing known concentrations, at five times the MDL, of each target compound into an empty canister. The recovery study canister sample must be allowed to set for the maximum time that actual field samples will be allowed to wait before analysis. Acceptable recovery results and correction of actual sample results for the canister recovery study shall be as specified for Tedlar™ bags in Section 3.5.1.2. Recovery studies must be performed initially, and repeated whenever sample container type or manufacturer/brands are changed. If Linde elects to not perform a spike recovery study, the full MDL must be used for non-detected target compounds when calculating total VOC.

Emission Sources - Maximum Allowable Emission Rates
Permit Number 4773A

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)
SGFUG1C3C	Syngas Process and Propylene Refrigeration Fugitives (5)	CO	5.80	25.41
		VOC	3.06	13.39
		Propylene	0.82	3.60
SGCT	Cooling Tower	VOC	16.50	16.44
		Propylene	2.56	3.89
		Ethylene	1.71	1.30
		Butene	3.41	2.59
		PM	1.02	4.48
		PM10	0.72	3.13
		PM2.5	0.43	1.88
SG23-50-1	CE Boiler (6)	VOC	1.68	7.58
		NO_x	60.80	72.96
		SO_2	4.08	17.87
		PM	2.07	9.05
		PM_{10}	2.07	9.05
		$PM_{2.5}$	2.07	9.05
		CO	20.32	85.99

Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
SG23-51-1	Superheater (6)	VOC	8.45	6.17
		Methanol	7.56	3.10
		NO_x	4.13	15.46
		SO_2	2.43	8.37
		PM	1.23	4.24
		PM_{10}	1.23	4.24
		$PM_{2.5}$	1.23	4.24
		CO	17.18	60.40
SG20-2-2	Acid Gas Flare	VOC	1.72	0.13
		Methanol	1.69	0.08
		NO_x	2.19	1.18
		SO_2	0.08	0.11
		CO	95.71	49.72
SG20-3-2	Cold Flare	NO_x	5.90	6.08
		SO_2	0.29	0.42
		CO	86.71	52.08
		VOC	0.60	1.58
		Methanol	0.43	1.16
		Propylene	0.06	0.25

Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
SG21-1-1	High-Pressure Flare	NO_x	144.32	5.18
		SO_2	0.34	0.11
		CO	3412.37	175.95
		VOC	18.09	2.33
		Butane	0.14	0.03
		Methanol	2.32	0.26
		Propylene	0.07	0.31
		1, 3 Butadiene	1.90	0.21
		Isomers of butene	13.52	1.48
SG810-21-1	Neutralization Tank	VOC	0.01	0.05
		Methanol	0.01	0.04
		NH_3	<0.01	<0.01
SG810-22-1	Equalization Tank and Diversion Tank	VOC	0.29	1.28
		Methanol	0.22	0.94
		NH_3	0.16	0.68
SG810-28	West Basin	VOC	0.90	3.94
		Methanol	0.74	3.24
		NH_3	0.01	0.06
SG810-29	Mid Basin	VOC	1.22	5.36
		Methanol	0.99	4.35
		NH_3	0.01	0.06

Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
SG810-30	Aeration Basin	VOC	0.90	3.94
		Methanol	0.74	3.24
		NH_3	0.01	0.06
LFTSTN	Process Lift Station	VOC	<0.01	0.01
		Methanol	<0.01	<0.01
		NH_3	<0.01	<0.01
CWSPIT	CWS Divert Pit	VOC	<0.01	0.01
		Methanol	<0.01	0.01
		NH_3	<0.01	0.01
SG5-1-1	Wastewater Hold Tank	VOC	<0.01	0.01
		Methanol	<0.01	0.01
		NH_3	0.01	0.05
SG5-1-14	Carbon Water Tank	VOC	<0.01	0.02
		Methanol	<0.01	0.01
		NH_3	0.01	0.06
SG5-1-17	Gray Water Tank	VOC	<0.01	0.02
		Methanol	<0.01	0.01
		NH_3	0.01	0.05
SG13-25-1	Methanol Storage Tank	VOC	0.23	0.24
SG930D	Diesel Storage Tank	VOC	0.30	0.01
SG930U	Gasoline/Diesel Dual Storage Tank	VOC	8.92	0.23

Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
PW310-50-1	Emergency Firewater Pump Engine	VOC	1.79	0.06
		NO_x	18.60	0.60
		SO_2	1.23	0.04
		PM	1.32	0.04
		PM_{10}	1.32	0.04
		$PM_{2.5}$	1.32	0.04
		CO	4.01	0.13
PW310-50-1.2	Diesel Storage Tank	VOC	0.27	0.01
DEGREASER	Cold Solvent Degreaser	VOC	3.04	0.39
MSS-LINDE	Maintenance, Startup and Shutdown Emissions directly to Atmosphere (7)	VOC	77.76	6.25
		Methanol	40.64	1.48
		Propylene	0.16	<0.01
		CO	3.72	0.19
		NOx	2.04	0.22
		PM	5.43	0.50
		PM_{10}	2.91	0.43
		$PM_{2.5}$	0.43	0.06
		SO_2	0.01	<0.01
		NH_3	1.36	0.23
MSS-POX3	MSS Emissions Directly to Atmosphere – 3rd POx Reactor Start-ups and Purging	VOC	0.06	0.01
		CO	0.97	0.09
		NOx	1.02	0.11
		PM	0.08	0.01
		PM_{10}	0.08	0.01
		$PM_{2.5}$	0.08	0.01
		SO_2	0.01	<0.01
MSS-LNDCNT	Maintenance, Startup and Shutdown	VOC	-	0.33
		Methanol	-	0.19

Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
	Emissions to Plant Flares (8)	Propylene	-	0.06
		CO	-	31.12
		NO_x	-	1.07
		SO_2	-	0.03
		NH_3	-	0.09
MSS-LNDCNTTEMP	Maintenance, Startup and Shutdown Emissions to Temporary Control (9)	VOC	-	0.08
		Methanol	-	0.01
		Propylene	-	0.06
		CO	-	1.64
		NO_x	-	0.15
		PM	0.04	0.01
		PM_{10}	0.04	0.01
		$PM_{2.5}$	0.04	0.01
		SO_2	-	<0.01
		NH_3	-	<0.01
MSS-LNDCNT, MSS-LNDCNTTEMP	MSS Emissions to Plant Flares or Temporary Control Hourly Cap	VOC	147.34	-
		Methanol	101.00	-
		Propylene	43.03	-
		CO	1750.90	-
		NO_x	90.20	-
		SO_2	7.43	-
		NH_3	0.37	-
SAMPLE	In-Situ Sampling and MeOH Sampling	VOC	<0.01	<0.01
		Methanol	<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)
		CO	8.64	1.58
PRANLZVNT	Process Analyzer Vents	CO	0.39	1.69
		NOx	<0.01	0.01
PRPUNLD	Propylene Unloading Hose Purge	VOC	3.53	0.01
		Propylene	3.53	0.01
POXNH3FLARE	Wastewater Ammonia Stripper Flare	VOC	0.10	0.45
		Methanol	0.03	0.11
		NOx	0.11	0.50
		CO	0.53	2.33
		SO2	0.01	0.06
		NH3	0.21	0.92

(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
MeOH methanol
(4) Compliance with annual emission limits (tons per year) is based on a 12 month rolling period.
(5) Emission rate is an estimate and is enforceable through compliance with the applicable special condition(s) and permit application representations.
(6) Includes MSS emissions for the CE Boiler, 36 hrs for 3 events @ 12 hr /event, and for the Superheater, 60 hrs for 3 events @ 20 hrs/event.
(7) The emission includes 13.95 lb/hr & 1.11 tpy VOC, 0.62 lb/hr & 0.05 tpy PM or PM_{10}, and 0.06 lb/hr and 0.005 tpy $PM_{2.5}$ of inherently low emitting sources emissions addressed in Appendix A to the Special Conditions and which should be assumed to be emitted in any hour or 12 month period for which compliance is evaluated for the EPN.
(8) Control includes the Cold, High Pressure, and Wastewater Ammonia Stripper Flares (EPNs SG20-3-2, SG 21-1-1, and POXNH3FLARE) with emissions accounted separately from the currently authorized emissions for the flares.
(9) Temporary control devices identified in Appendix C to the Special Conditions.

Date: **DRAFT April 2020**