

Special Conditions

Permit Number 157150

1. This permit covers only those sources of emissions listed in the attached table entitled "Emission Sources – Maximum Allowable Emission Rates (MAERT)," including planned maintenance, startup, and shutdown (MSS) activities, and those sources are limited to the emission limits on that table, Attachments A and B, and other conditions specified in this permit.

Federal Applicability

2. These facilities shall comply with applicable requirements of the EPA regulations on Standards of Performance for New Stationary Sources, Title 40 Code of Federal Regulations Part 60 (40 CFR Part 60):
 - A. Subpart A: General Provisions.
 - B. Subpart IIII: Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
 - C. Subpart Kb: Standards of Performance for Volatile Organic Liquid Storage Vessels (including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction or Modification Commenced after Jul 23, 1984
3. These facilities shall comply with applicable requirements of the EPA regulations on National Emission Standards for Hazardous Air Pollutants (HAPS) for Source Categories, 40 CFR Part 63:
 - A. Subpart A: General Provisions.
 - B. Subpart Y: National Emission Standards for Marine Tank Vessel Loading Operations. Terminals, Bulk Plants, and Pipeline Facilities.

Marine Loading

4. All lines and connectors shall be visually inspected for any defects prior to hookup. Lines and connectors that are visibly damaged shall be removed from service. Operations shall cease immediately upon detection of any liquid leaking from the lines or connections.
5. The permit holder shall:
 - A. Maintain and update a monthly emissions record which includes calculated emissions of VOC from all loading operations over the previous rolling 12-month period.
 - B. The record shall include the following:
 - (1) the loading spot
 - (2) control method used
 - (3) quantity loaded in barrels
 - (4) name of the liquid loaded
 - (5) vapor molecular weight
 - (6) liquid temperature in degrees Fahrenheit
 - (7) liquid vapor pressure at the liquid temperature in psia

- (8) liquid throughput for the previous month and rolling 12 months to date.
- C. Records of VOC temperature are not required to be kept for liquids loaded from unheated tanks which receive liquids at or below ambient temperatures.
- D. Emissions shall be calculated using the TCEQ publication titled "Technical Guidance Package for Chemical Sources - Loading Operations."
6. The following requirements apply to loading of a VOC, which has a vapor pressure equal to or greater than 0.5 pounds per square inch absolute (psia) under actual storage conditions, onto inerted marine vessels (ships).
- A. Before loading, the owner or operator of the marine terminal shall verify that the marine vessel has passed an annual vapor tightness test as specified in 40 CFR §63.565(c) (September 19, 1995) or 40 CFR §61.304(f) (October 17, 2000) within the previous twelve months and received a recent, completed Standard Tanker Chartering Questionnaire from (Q88) or equivalent.
- B. The pressure at the vapor collection connection of an inerted marine vessel must be maintained such that the pressure in a vessel's cargo tanks does not go below 0.2 pounds per square inch gauge (psig) or exceed 80% of the lowest setting of any of the vessel's pressure relief valves. The lowest vessel cargo tank or vent header pressure relief valve setting for the vessel being loaded shall be recorded. Pressure shall be continuously monitored while the vessel is being loaded. Pressure shall be recorded at fifteen minute intervals.
- C. VOC loading rates shall be recorded during loading. The loading rate must not exceed the maximum permitted loading rate.
- D. During loading, the owner or operator of the marine terminal or of the marine vessel shall conduct audio, olfactory, and visual checks for leaks within the first hour of loading and once every 8 hours thereafter for on-shore equipment and on board the ship.
- (1) If a liquid leak is detected during loading and cannot be repaired immediately (for example, by tightening a bolt or packing gland), then the loading operation shall cease until the leak is repaired.
- (2) If a vapor leak is detected by sight, sound, smell, or hydrocarbon gas analyzer during the loading operation, then a "first attempt" shall be made to repair the leak. Loading operations need not be ceased if the first attempt to repair the leak is not successful provided that the first attempt effort is documented by the owner or operator of the marine vessel and a copy of the repair log is made available to a representative of the marine terminal.
- (3) If the attempt to repair the leak is not successful and loading continues, emissions from the loading operation for that ship shall be calculated assuming a collection efficiency of 99%.
- (4) Date and time of each inspection shall be noted in the operator's log or equivalent. Records shall be maintained at the plant site of all repairs and replacements made due to leaks. These records shall be made available to representatives of the Texas Commission on Environmental Quality (TCEQ) upon request.

Marine Loading Compliance Testing

1. VOC collection efficiency tests of inerted ocean-going marine vessels shall be conducted as follows to demonstrate a collection efficiency of 99.9 %.
- A. The holder of this permit shall perform testing as required to demonstrate an inerted ship loading collection efficiency of 99.9%. The permit holder is responsible for providing sampling and testing facilities and conducting the sampling and testing operation at his own expense.

- B. Complying test results shall be obtained in accordance a TCEQ Executive Director approved protocol for a minimum of one vessel. The first test shall be conducted within twelve months of the first loading of an inerted ocean-going marine vessel.
- C. The results of the test shall be submitted to the TCEQ Regional Office with a copy to the TCEQ Air Permits Division within 60 days after completion of the test.
- D. The TCEQ Regional Office must be notified at least 48 hours prior to testing. The facility owner or operator may request a waiver from the 48-hour advance notification requirement from the TCEQ Regional Office.
- E. The permit holder shall maintain the following records for each ship tested for a period of 5 years from the date of testing:
 - (1) The most recent vapor tightness certificate;
 - (2) A recent, completed Standard Tanker Chartering Questionnaire form (Q88); and
 - (3) Records of each incidence of testing conducted in accordance with this condition.

Vapor Combustor Unit (VCU) Requirements (EPNs: MVCU-1 through MCVU-4)

- 2. Each VCU shall be designed and operated in accordance with the following requirements:
 - A. The VCU shall achieve 99.9 % control of the waste gas directed to it or a maximum stack exhaust concentration of 10 ppmv at 3% O₂. This shall be ensured by maintaining the temperature in, or immediately downstream of, the combustion chamber above 1400 °F prior to the initial stack test. Following the completion of that stack test, the six-minute average temperature shall be maintained above the minimum one-hour average temperature maintained during the last satisfactory stack test.
 - B. The temperature measurement device shall reduce the temperature readings to an averaging period of 6 minutes or less and record it at that frequency. The temperature monitor shall be installed, calibrated or have a calibration check performed at least annually, and maintained according to the manufacturer's specifications. The device shall have an accuracy of the greater of ± 2 percent of the temperature being measured expressed in degrees Celsius or ± 2.5°C.
 - C. Quality assured (or valid) data must be generated when the VCU is operating except during the performance of a daily zero and span check. Loss of valid data due to periods of monitor break down, out-of-control operation (producing inaccurate data), repair, maintenance, or calibration may be exempted provided it does not exceed 5 percent of the time (in minutes) that the VCU operated over the previous rolling 12-month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.
 - E. The VCU shall be operated with no visible emissions and have a constant pilot flame during all times waste gas could be directed to it.
- 7. The following requirements apply to capture systems for the VCUs.
 - A. The permit holder shall conduct a once a month visual, audible and/or olfactory inspection of the capture systems, to verify there are no leaking components in the capture systems.
 - B. If there is a bypass for a control device, then the permit holder shall conduct once a month inspection of the valves, verifying the position of the valves and the condition of the car seals prevent flow out the bypass. A deviation shall be reported if the monitoring or inspections indicate bypass of a control device.

- C. If any of the above inspections is not satisfactory, the permit holder shall promptly take necessary corrective action.
8. Fuel fired in the vapor combustors is limited to natural gas.

Emergency Equipment

9. The Fire Water Pumps (EPNs: FWPUMP1 and FWPUMP2) are authorized to fire diesel fuel containing no more 0.0015 percent sulfur by weight.
10. Each fire water pump is limited to 100 hours per year of non-emergency operation.

Vapor Combustor Stack Sampling

3. 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 VCUs (EPNs: MVCU-1 through MVCU-4) to demonstrate compliance with all emission limits established in this permit.

The permit holder is responsible for providing sampling and testing facilities and conducting the sampling and testing operations at his expense. 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.

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.

- A. Air contaminants emitted from the (source or EPNs) to be tested for include NO_x, CO, and VOC.
- 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 scenarios during and after sampling periods.

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

- B. Sampling shall occur within 60 days after achieving the maximum operating rate, but no later than 180 days after initial start-up of the facilities (or increase in production, as appropriate) and at such other times (identify the need for any periodic sampling here) as may be required by the TCEQ Executive Director. Requests for additional time to perform sampling shall be submitted to the appropriate regional office.
- C. The facility being sampled shall operate at the maximum loading rate during testing. These conditions/parameters and any other primary operating parameters that affect the emission rate shall be monitored and recorded during the stack test. Any additional parameters shall be determined at the pretest meeting and shall be stated in the sampling report. Permit conditions and parameter limits may be waived during stack testing performed under this condition if the proposed condition/parameter range is identified in the test notice specified in paragraph A and accepted by the TCEQ Regional Office. Permit allowable emissions and emission control requirements are not waived and still apply during stack testing periods.
- During subsequent operations, if the maximum loading rate is greater than that recorded during the test period, stack sampling shall be performed at the new operating conditions within 120 days. This sampling may be waived by the TCEQ Air Section Manager for the region.
- D. Copies of the final sampling report shall be forwarded to the offices below within 60 days after sampling is completed. Sampling reports shall comply with the attached provisions entitled "Chapter 14, Contents of Sampling Reports" of the TCEQ Sampling Procedures Manual. The reports shall be distributed as follows:
- (1) One copy to the appropriate TCEQ Regional Office.
 - (2) One copy to each local air pollution control program.

Storage Tanks

11. Tank service is limited to storing the following liquid(s): crude oil and condensate.
 12. The dissolved hydrogen sulfide in the crude oil (or other product) shall not exceed 10 parts per million by volume, wet (ppmvw).
 13. The hydrogen sulfide in the vapor space of any tank subject to this condition shall not exceed 10 ppmvw.
- A. In order to demonstrate compliance with this Special Condition, the permit holder shall determine the dissolved hydrogen sulfide concentration of each crude oil stock to be stored in the storage tanks identified above. The hydrogen sulfide concentration may be determined using method ASTM UOP163-10 or ASTM D7621-16. Any additional method of sampling method and analysis used must be approved by the TCEQ.
- B. In order to demonstrate compliance with this Special Condition, the permit holder shall conduct sampling to determine the concentration of H₂S in tank vapor spaces. H₂S concentration may be determined using an instrument meeting the requirements of paragraph A above, except that the "release concentration" shall be 10 ppmv. Additional analytical methods may be approved by the TCEQ Regional Office.
- C. The frequency of sampling shall be the more frequent of:

(1) annual, or

(2) within 60 days of any change of service for an affected tank.

- D. Records of H₂S concentrations measured to meet the requirements of this condition shall be maintained at the plant site.
14. The true vapor pressure of any liquid stored at this facility in an atmospheric tank shall not exceed 11.0 psia.
15. Storage tanks (EPNs: 80-1 and 80-2) are subject to the following requirements: The control requirements specified in parts A–E of this condition shall not apply (1) where the VOC has an aggregate partial pressure of less than 0.50 psia at the maximum feed temperature or 95°F, whichever is greater, or (2) to storage tanks smaller than 25,000 gallons.
- A. The tank emissions must be controlled as specified in one of the paragraphs below:
- (1) An internal floating deck or “roof” shall be installed.
- (2) The floating roof shall be equipped with one of the following closure devices between the wall of the storage vessel and the edge of the floating roof:
- (a) a liquid-mounted seal,
 - (b) two continuous seals mounted one above the other, or
 - (c) a mechanical shoe seal.
- B. For any tank equipped with a floating roof, the permit holder shall perform the visual inspections and any seal gap measurements specified in Title 40 Code of Federal Regulations § 60.113b (40 CFR § 60.113b) Testing and Procedures (as amended at 54 FR 32973, Aug. 11, 1989) to verify fitting and seal integrity. Records shall be maintained of the dates inspection was performed, any measurements made, results of inspections and measurements made (including raw data), and actions taken to correct any deficiencies noted.
- C. The floating roof design shall incorporate sufficient flotation to conform to the requirements of API Code 650 dated November 1, 1998 except that an internal floating cover need not be designed to meet rainfall support requirements and the materials of construction may be steel or other materials.
- D. The tanks shall be designed to completely drain its entire contents to a sump in a manner that leaves no more than 9 gallons of free-standing liquid in the tank or the sump.
- E. Tanks shall be constructed or equipped with a connection to a vapor recovery system that routes vapors from the vapor space under the landed roof to a control device.
- F. Except for labels, logos, etc. not to exceed 15 percent of the tank total surface area, uninsulated tank exterior surfaces exposed to the sun shall be white or unpainted aluminum. Storage tanks must be equipped with permanent submerged fill pipes.
- G. The permit holder shall maintain an emissions record which includes calculated emissions of VOC from all storage tanks during the previous calendar month and the past consecutive 12 month period. The record shall include tank identification number, control method used, tank capacity in gallons, name of the material stored, VOC molecular weight, VOC monthly average temperature in degrees Fahrenheit, VOC vapor pressure at the monthly average material temperature in psia, VOC throughput for the previous month and year-to-date. Records of VOC monthly average temperature are not required to be kept for unheated tanks which receive liquids that are at or below ambient temperatures.
- H. Emissions from tanks shall be calculated using the methods that were used to determine the

MAERT limits in the permit application May 29, 2019.

Tank Landings

16. This permit authorizes emissions from the storage tanks during planned floating roof landings. Tank roof landings include all operations (inventory service, change of tank service or tank inspection/maintenance) when the tank floating roof is on its supporting legs.
4. The tanks (EPNs: 80-1 and 80-2) shall meet the requirements in Special Condition No. 22 when the floating roof is landed or refloated when handling liquids with a VOC partial pressure over 0.50 psia or maximum feed temperature of 95 °F, whichever is greater.
5. These emissions are subject to the maximum allowable emission rates indicated on the MAERT.
17. The following requirements apply to tank roof landings.
 - A. The tank liquid level shall be continuously lowered after the tank floating roof initially lands on its supporting legs until the tank has been drained to the maximum extent practicable without entering the tank. Liquid level may be maintained steady for a period of up to two hours if necessary to allow for valve lineups and pump changes necessary to drain the tank. This requirement does not apply where the vapor under a floating roof is routed to control or a controlled recovery system during this process.
 - B. If the VOC partial pressure of the liquid previously stored in the tank is greater than 0.50 psi at 95°F, tank refilling or degassing of the vapor space under the landed floating roof must begin within 24 hours after the tank has been drained unless the vapor under the floating roof is routed to control or a controlled recovery system during this period. The tank shall not be opened except as necessary to set up for degassing and cleaning. Floating roof tanks with liquid capacities less than 100,000 gallons may be degassed without control if the VOC partial pressure of the standing liquid in the tank has been reduced to less than 0.02 psia prior to ventilating the tank. Controlled degassing of the vapor space under landed roofs shall be completed as follows:
 - (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 27.
 - (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 until one of the criteria in part D of this condition is satisfied, except as follows:
- (1) One manway may be opened to allow access to the tank to remove or de-volatilize the remaining liquid.
 - (2) Other manways or access points may be opened as necessary to remove or de-volatilize the remaining liquid.
 - (3) Wind barriers shall be installed at all open manways and access points to minimize air flow through the tank.
 - (4) 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 27.
 - (3) No standing liquid verified through visual inspection.
- (5) The permit holder shall maintain records to document the method used to release the tank.
- (6) Only one tank shall be vented at a time.
- E. Tanks shall be refilled as rapidly as practicable until the roof is off its legs with the following exceptions:
- (1) 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.
 - (2) The control device used and the method and locations used to connect the control device shall be recorded.
 - (3) 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.

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

6. The following requirements apply to piping, valves, connectors, pumps, agitators, and compressors containing or in contact with fluids that could reasonably be expected to contain greater than or equal to 10 weight percent volatile organic compounds (VOC) at any time.
- A. The requirements of paragraphs F and G shall not apply (1) where the VOC has an aggregate partial pressure or vapor pressure of less than 0.044 pounds per square inch, absolute (psia) at 68°F or (2) operating pressure is at least 5 kilopascals (0.725 psi) below ambient pressure. Equipment excluded from this condition shall be identified in a list or by one of the methods described below to be made readily available upon request.

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

- (7) Piping and instrumentation diagram (PID);
- (8) A written or electronic database of electronic file;
- (9) Color coding;
- (10) A form of weatherproof identification; or

(11) Designation of exempted process unit boundaries.

- B. Construction of new and reworked piping, valves, pump systems, and compressor systems shall conform to applicable American National Standards Institute (ANSI), American Petroleum Institute (API), American Society of Mechanical Engineers (ASME), or equivalent codes.
- C. New and reworked underground process pipelines shall contain no buried valves such that fugitive emission monitoring is rendered impractical. New and reworked buried connectors shall be welded.
- D. To the extent that good engineering practice will permit, new and reworked valves and piping connections shall be so located to be reasonably accessible for leak-checking during plant operation. Difficult-to-monitor and unsafe-to-monitor valves, as defined by Title 30 Texas Administrative Code Chapter 115 (30 TAC Chapter 115), shall be identified in a list to be made readily available upon request. The difficult-to-monitor and unsafe-to-monitor valves may be identified by one or more of the methods described in Paragraph A above. If an unsafe to monitor component is not considered safe to monitor within a calendar year, then it shall be monitored as soon as possible during safe to monitor times. A difficult to monitor component for which quarterly monitoring is specified may instead be monitored annually.
- E. New and reworked piping connections shall be welded or flanged. Screwed connections are permissible only on piping smaller than two-inch diameter. Gas or hydraulic testing of the new and reworked piping connections at no less than operating pressure shall be performed prior to returning the components to service or they shall be monitored for leaks using an approved gas analyzer within 15 days of the components being returned to service. Adjustments shall be made as necessary to obtain leak-free performance. Connectors shall be inspected by visual, audible, and/or olfactory means at least weekly by operating personnel walk-through.

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

- (1) a cap, blind flange, plug, or second valve must be installed on the line or valve; or
 - (2) the open-ended valve or line shall be monitored once for leaks above background for a plant or unit turnaround lasting up to 45 days with an approved gas analyzer and the results recorded. For all other situations, the open-ended valve or line shall be monitored once within the 72 hour period following the creation of the open ended line and monthly thereafter with an approved gas analyzer and the results recorded. For turnarounds and all other situations, leaks are indicated by readings of 500 ppmv and must be repaired within 24 hours or a cap, blind flange, plug, or second valve must be installed on the line or valve.
- F. Accessible valves shall be monitored by leak-checking for fugitive emissions at least quarterly using an approved gas analyzer. Sealless/leakless valves (including, but not limited to, welded bonnet bellows and diaphragm valves) and relief valves equipped with a rupture disc upstream or venting to a control device are not required to be monitored. If a relief valve is equipped with rupture disc, a pressure-sensing device shall be installed between the relief valve and rupture disc to monitor disc integrity.

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

requirements specified in this paragraph. All leaking discs shall be replaced at the earliest opportunity but no later than the next process shutdown.

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

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

- G. Except as may be provided for in the special conditions of this permit, all pump, compressor, and agitator seals shall be monitored with an approved gas analyzer at least quarterly or be equipped with a shaft sealing system that prevents or detects emissions of VOC from the seal. Seal systems designed and operated to prevent emissions or seals equipped with automatic seal failure detection and alarm system need not be monitored. These seal systems may include (but are not limited to) dual pump seals with barrier fluid at higher pressure than process pressure, seals degassing to vent control systems kept in good working order, or seals equipped with an automatic seal failure detection and alarm system. Submerged pumps or sealless pumps (including, but not limited to, diaphragm, canned, or magnetic-driven pumps) may be used to satisfy the requirements of this condition and need not be monitored.
- H. Damaged or leaking valves or connectors found to be emitting VOC in excess of 500 parts per million by volume (ppmv) or found by visual inspection to be leaking (e.g., dripping process fluids) shall be tagged and replaced or repaired. Damaged or leaking pump, compressor, and agitator seals found to be emitting VOC in excess of 2,000 ppmv or found by visual inspection to be leaking (e.g., dripping process fluids) shall be tagged and replaced or repaired. A first attempt to repair the leak must be made within 5 days and a record of the attempt shall be maintained.
- I. A leaking component shall be repaired as soon as practicable, but no later than 15 days after the leak is found. If the repair of a component would require a unit shutdown that would create more emissions than the repair would eliminate, the repair may be delayed until the next scheduled shutdown. All leaking components which cannot be repaired until a scheduled shutdown shall be identified for such repair by tagging within 15 days of the detection of the leak. A listing of all components that qualify for delay of repair shall be maintained on a delay of repair list. The cumulative daily emissions from all components on the delay of repair list shall be estimated by multiplying by 24 the mass emission rate for each component calculated in accordance with the instructions in 30 TAC 115.782 (c)(1)(B)(i)(II). The calculations of the cumulative daily emissions from all components on the delay of repair list shall be updated within ten days of when the latest leaking component is added to the delay of repair list. When the cumulative daily emission rate of all components on the delay of repair list times the number of days until the next scheduled unit shutdown is equal to or exceeds the total emissions from a unit shut down as calculated in accordance with 30 TAC 115.782 (c)(1)(B)(i)(I) or 500 pounds, whichever is greater, the TCEQ Regional Manager and any local programs shall be notified and the TCEQ Executive Director may require early unit shut down or other appropriate action based on the number and severity of

tagged leaks awaiting shutdown. This notification shall be made within 15 days of making this determination.

- J. Records of repairs shall include date of repairs, repair results, justification for delay of repairs, and corrective actions taken for all components. Records of instrument monitoring shall indicate dates and times, test methods, and instrument readings. The instrument monitoring record shall include the time that monitoring took place for no less than 95% of the instrument readings recorded. Records of physical inspections shall be noted in the operator's log or equivalent.
- K. Alternative monitoring frequency schedules of 30 TAC 115.352 - 115.359 or National Emission Standards for Organic Hazardous Air Pollutants, 40 CFR Part 63, Subpart H, may be used in lieu of Items G through H 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.

Maintenance, Startup and Shutdown (MSS)

- 18. This permit authorizes the emissions from the facilities identified in Attachment A and B for the planned MSS activities.
- 19. Routine maintenance activities, as identified in Attachment A shall be tracked through the work orders or equivalent. Emissions from activities identified in Attachment A 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.
- 20. The performance of each planned MSS activity identified in Attachment B and the emissions associated with it shall be recorded and include at least the following information:
 - M. the process unit at which emissions from the MSS activity occurred, including the emission point number and common name of the process unit;
 - N. the type of planned MSS activity and the reason for the planned activity;
 - O. the common name and the facility identification number, if applicable, of the facilities at which the MSS activity and emissions occurred;
 - P. the date and time of the MSS activity and its duration;
 - Q. 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.
- A. All MSS emissions shall be summed monthly and the rolling 12-month emissions shall be updated on a monthly basis.

Piping

- 21. Piping, piping components, and equipment containing a fluid with a vapor pressure equal to or greater than 0.50 psia at 95°F with isolated volumes greater than or equal to 85 ft³ shall be

depressured and purged to a temporary portable control device.

22. Vapor purging shall continue until at least two vapor space volumes have been directed to control and the vapor purge has reduced the VOC concentration to 10,000 ppmv as determined by the procedures and methods identified in Special Condition No. 29 for degassing.
23. The following requirements apply to piping, piping components, and equipment requiring degassing.
 - A. The process equipment shall be depressurized to a control device or a controlled recovery system prior to venting to atmosphere, degassing, or draining liquid. Equipment that only contains material that is liquid with VOC partial pressure less than 0.50 psi at the normal process temperature and 95°F may be opened to atmosphere and drained in accordance with paragraph C of this special condition. The vapor pressure at 95°F may be used if the actual temperature of the liquid is verified to be less than 95°F and the temperature is recorded.
 - B. If mixed phase materials must be removed from process equipment, the cleared material shall be routed to a knockout drum or equivalent to allow for managed initial phase separation. If the VOC partial pressure is greater than 0.50 psi at either the normal process temperature or 95°F, any vents in the system must be routed to a control device or a controlled recovery system. The vapor pressure at 95°F may be used if the actual temperature of the liquid is verified to be less than 95°F and the temperature is recorded. Control must remain in place until degassing has been completed or the system is no longer vented to atmosphere.
 - C. All liquids from process equipment or storage vessels must be removed to the maximum extent practical prior to opening equipment to commence degassing and/or maintenance. Liquids must be drained into a closed vessel or closed liquid recovery system unless prevented by the physical configuration of the equipment. If it is necessary to drain liquid into an open pan or sump, the liquid must be covered or transferred to a covered vessel within one hour of being drained.
 - D. If the VOC partial pressure is greater than 0.50 psi at the normal process temperature or 95°F, facilities shall be degassed using good engineering practice to ensure air contaminants are removed from the system through the control device or controlled recovery system to the extent allowed by process equipment or storage vessel design. The vapor pressure at 95°F may be used if the actual temperature of the liquid is verified to be less than 95°F and the temperature is recorded. The facilities to be degassed shall not be vented directly to atmosphere, except as necessary to establish isolation of the work area or to monitor VOC concentration following controlled depressurization. The venting shall be minimized to the maximum extent practicable and actions taken recorded. The control device or recovery system utilized shall be recorded with the estimated emissions from controlled and uncontrolled degassing calculated using the methods that were used to determine allowable emissions for the permit application.
- (1) For MSS activities identified in Attachment B, the following option may be used in lieu of (2) below. The facilities being prepared for maintenance shall not be vented directly to atmosphere until the VOC concentration has been verified to be less than 10 percent of the lower explosive limit (LEL) per the site safety procedures.
- (2) The locations and/or identifiers where the purge gas or steam enters the process equipment or storage vessel and the exit points for the exhaust gases shall be recorded (process flow diagrams [PFDs] 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 27. The sampling point shall be upstream of the inlet to the control device or controlled recovery system. The sample ports and the collection system must be designed and operated such that there is no air leakage into the sample probe or the collection system

downstream of the process equipment or vessel being purged. If there is not a connection (such as a sample, vent, or drain valve) available from which a representative sample may be obtained, a sample may be taken upon entry into the system after degassing has been completed. The sample shall be taken from inside the vessel so as to minimize any air or dilution from the entry point. The facilities shall be degassed to a control device or controlled recovery system until the VOC concentration is less than 10,000 ppmv or 10 percent of the LEL. Documented site procedures used to de-inventory equipment to a control device for safety purposes (i.e., hot work or vessel entry procedures) that achieve at least the same level of purging may be used in lieu of the above.

- E. Gases and vapors with VOC partial pressure greater than 0.50 psi may be vented directly to atmosphere if all the following criteria are met:
- (1) It is not technically practicable to depressurize or degas, as applicable, into the process.
 - (2) There is not an available connection to a plant control system (flare).
 - (3) There is no more than 50 lb of air contaminant to be vented to atmosphere during shutdown or startup, as applicable.

All instances of venting directly to atmosphere per Special Condition 26 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.

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

- A. VOC concentration shall be measured using an instrument meeting all the requirements specified in EPA Method 21 (40 CFR 60, Appendix A) with the following exceptions:
- (1) The instrument shall be calibrated within 24 hours of use with a calibration gas such that the response factor (RF) of the VOC (or mixture of VOCs) to be monitored shall be less than 2.0. The calibration gas and the gas to be measured, and its approximate (RF) shall be recorded. If the RF of the VOC (or mixture of VOCs) to be monitored is greater than 2.0, the VOC concentration shall be determined as follows:

$$\text{VOC Concentration} = \text{Concentration as read from the instrument} * \text{RF}$$

In no case should a calibration gas be used such that the RF of the VOC (or mixture of VOCs) to be monitored is greater than 5.0.

- (2) Sampling shall be performed as directed by this permit in lieu of section 8.3 of Method 21. During sampling, data recording shall not begin until after two times the instrument response time. The date and time shall be recorded, and VOC concentration shall be monitored for at least 5 minutes, recording VOC concentration each minute. As an alternative the VOC concentration may be monitored over a five-minute period with an instrument designed to continuously measure concentration and record the highest concentration read. The highest measured VOC concentration shall be recorded and shall not exceed the specified VOC concentration limit prior to uncontrolled venting.
- B. Colorimetric gas detector tubes may be used to determine air contaminant concentrations if they are used in accordance with the following requirements.
- (1) The air contaminant concentration measured as defined in (3) is less than 80 percent of the range of the tube and is at least 20 percent of the maximum range of the tube.

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

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

measured contaminant concentration (ppmv) < release concentration.

Where the release concentration is:

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

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

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

- C. Lower explosive limit measured with a lower explosive limit detector.
- (1) The detector shall be calibrated within 30 days of use with a certified pentane gas standard at 25% of the lower explosive limit (LEL) for pentane. Records of the calibration date/time and calibration result (pass/fail) shall be maintained.
- (2) A functionality test shall be performed on each detector within 24 hours of use with a certified gas standard at 25% of the LEL for pentane. The LEL monitor shall read no lower than 90% of the calibration gas certified value. Records, including the date/time and test results, shall be maintained.
- (3) A certified methane gas standard equivalent to 25% of the LEL for pentane may be used for calibration and functionality tests provided that the LEL response is within 95% of that for pentane.
25. 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;
- A. a cap, blind flange, plug, or second valve must be installed on the line or valve; or
- B. the open-ended valve or line shall be monitored once for leaks above background for a plant or unit turnaround lasting up to 45 days with an approved gas analyzer and the results recorded. For all other situations, the open-ended valve or line shall be monitored once by the end of the 72 hours period following the creation of the open-ended line and monthly thereafter with an approved gas analyzer and the results recorded. For turnarounds and all other situations, leaks are indicated by readings of 500 ppmv and must be repaired within 24 hours or a cap, blind flange, plug, or second valve must be installed on the line or valve.

Portable/Temporary Facilities

26. This permit authorizes emissions from the following temporary facilities used to support planned MSS activities at permanent site facilities: frac tanks, containers, vacuum trucks, portable control devices, temporary devices, and controlled recovery systems.
27. 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 permit, and
- C. does not operate as a replacement for an existing authorized facility.
28. The following requirements apply to vacuum and air mover truck operations to support planned MSS at this site:
- A. Prior to initial use, identify any liquid in the truck. Record the liquid level and document the VOC partial pressure. After each liquid transfer, identify the liquid, the volume transferred, and its VOC partial pressure.
- B. If vacuum pumps or blowers are operated when liquid is in or being transferred to the truck, the following requirements apply:
- (1) If the VOC partial pressure of the liquid in or being transferred to the truck is greater than 0.50 psi at 95°F, the vacuum/blower exhaust shall be routed to a control device or a controlled recovery system.
 - (2) Equip fill line intake with a "duckbill" or equivalent attachment if the hose end cannot be submerged in the liquid being collected.
 - (3) A daily record containing the information identified below is required for each vacuum truck in operation at the site each day.
 - (a) For each liquid transfer made with the vacuum operating, record the duration of any periods when air may have been entrained with the liquid transfer. The reason for operating in this manner and whether a "duckbill" or equivalent was used shall be recorded. Short, incidental periods, such as those necessary to walk from the truck to the fill line intake, do not need to be documented.
 - (b) If the vacuum truck exhaust is controlled with a control device other than an engine or oxidizer, VOC exhaust concentration upon commencing each transfer, at the end of each transfer, and at least every hour during each transfer shall be recorded, measured using an instrument meeting the requirements of Special Condition 4.A or B.
- C. Record the volume in the vacuum truck at the end of the day, or the volume unloaded, as applicable.
- D. The permit holder shall determine the vacuum truck emissions each month using the daily vacuum truck records and the calculation methods utilized in the permit application. If records of the volume of liquid transferred for each pick-up are not maintained, the emissions shall be determined using the physical properties of the liquid vacuumed with the greatest potential emissions. Rolling 12-month vacuum truck emissions shall also be determined on a monthly basis.
- E. If the VOC partial pressure of all the liquids vacuumed into the truck is less than 0.10 psi, this shall be recorded when the truck is unloaded or leaves the plant site and the emissions may be estimated as the maximum potential to emit for a truck in that service as documented in the permit application. The recordkeeping requirements in Special Condition 8.A through 8.D do not apply.
29. 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. 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.

Control Devices

- 30. Control devices shall be operated with no visible emissions except periods not to exceed a total of five minutes during any two consecutive hours.
 - 31. Each device used must meet all the requirements identified for that type of control device.
 - 32. 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. Vapor Combustor.
- (1) The vapor combustor 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 vapor combustor exhaust temperature shall be continuously monitored and recorded when waste gas is directed to the combustor. The temperature measurements shall be made at intervals of six minutes or less and recorded at that frequency.
 - (3) 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 ± 2.0 percent of the temperature being measured expressed in degrees Celsius or $\pm 2.5^\circ\text{C}$.
- R. Carbon Adsorption System (CAS).
- (1) The CAS shall consist of 2 carbon canisters in series with adequate carbon supply for the emission control operation.
 - (2) The CAS shall be sampled downstream of the first can and the concentration recorded at least once every hour of CAS run time to determine breakthrough of the VOC.

(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.

Date: _____

Permit Number 154527

Attachment A

Routine Maintenance Activities							
Planned Maintenance Activities	EPN	Emissions					
		NO _x	CO	VO C	PM	SO ₂	H ₂ S
Pump repair/replacement ¹	MSS			X			
Filter/meter/Valve repair replacement ¹	MSS			X			

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¹ Includes but is not limited to: the uncontrolled startup/shutdown/depressurizing/draining of process equipment
² Includes but is not limited to: the recovery from facility/component/repair/replacement
³ Includes but is not limited to: the uncontrolled startup/shutdown/depressurizing/draining of process equipment
⁴ Uncontrolled and controlled degassing

Attachment B

MSS Activity Summary							
Planned Maintenance Activities	EPN	Emissions					
		NO _x	CO	VOC	PM	SO ₂	H ₂ S
Storage Tanks – Controlled Maintenance Landings	T-Comb-1	X	X	X	X	X	X
Storage Tanks – Uncontrolled Maintenance Landings	MSS			X			X
Vessels and Piping ²	MSS	X	X	X	X	X	X
Frac Tank ³	MSS	X	X	X	X	X	X
Air and Vacuum Mover ²	MSS	X	X	X	X	X	X
Pipeline Pigging ⁴	MSS			X			X

Date:

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