## **Special Conditions**

## Permit Number 21356

## **Emission Limitations and Operating Requirements**

- 1. This permit covers only those sources of emissions listed in the attached table entitled "Emission Sources Maximum Allowable Emission Rates" (MAERT), and those sources are limited to the emission limits and other conditions specified in that attached table. The annual rates are based on a rolling 12-month period.
- 2. A copy of this permit shall be kept at the plant site and made available at the request of personnel from the Texas Commission on Environmental Quality (TCEQ) or any air pollution control agency. In addition, the holder of this permit shall identify all equipment at the property that has the potential of emitting air contaminants. Permitted emission points shall be identified by the emission point numbering (EPN) on the attached table entitled "Emission Sources Maximum Allowable Emission Rates" (MAERT). Exempt facilities shall be identified by the EPNs used in the most recent emissions inventory submitted to the TCEQ.
- 3. Fuel used for the Vapor Combustors (EPNs VC-1, VC-2A, VC-2B, and VC-2C) is limited to pipelinequality, natural gas containing no more than 0.25 grain of hydrogen sulfide (H<sub>2</sub>S) and 5.0 grains of sulfur per 100 dry standard cubic feet. Use of any other fuel will require an amendment to the permit or other authorization. **(02/19)**
- 4. Pure styrene and pure 1,3-butadiene shall not be stored or handled by any facilities covered by this permit unless authorized by a new permit, or permit amendment. Permit by rule authorizations shall not be used to allow the storage or handling of pure styrene and pure 1, 3-butadiene at any facilities covered by this permit.

# Vapor Combustors

- 5. Vapor Combustors (EPNs VC-1, VC-2A, VC-2B, and VC-2C) shall provide a volatile organic compound (VOC) destruction rate efficiency (DRE) of no less than 99.9 wt.-percent (%). **(02/19)** 
  - A. The combustor exhaust temperature shall be at least 1200°F prior to the stack test performed in accordance with Special Condition No. 6. 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. **(02/19)**
  - B. The combustor exhaust temperature shall be continuously monitored and recorded when waste gas is directed to the combustor. The temperature measurement device shall reduce the temperature readings to an averaging period of six minutes or less and record it at that frequency. The temperature measurement device shall be installed, calibrated, 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 ±2.5°C.
  - C. Quality-assured (or valid) data must be generated when the combustor 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 combustor operated over the previous rolling 12-month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

Special Conditions Permit Number 21356 Page 2 Initial Determination of Compliance

6. The permit holder shall perform stack sampling and other testing as required to establish the actual pattern and quantities of air contaminants being emitted into the atmosphere from the Vapor Combustors (EPNs VC-1, VC-2A, VC-2B, and VC-2C) to demonstrate compliance with the MAERT. (02/19)

The permit holder is responsible for providing sampling and testing facilities and conducting the sampling and testing operations at his expense. Sampling shall be conducted in accordance with the appropriate procedures of the TCEQ Sampling Procedures Manual and the U.S. Environmental Protection Agency (EPA) Reference Methods. Requests to waive testing for any pollutant specified in this condition shall be submitted to the TCEQ Office of Air, Air Permits Division. Test waivers and alternate/equivalent procedure proposals for Title 40 Code of Federal Regulations (CFR) Part 60 testing which must have EPA approval shall be submitted to the TCEQ Regional Manager.

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

The purpose of the pretest meeting is to review the necessary sampling and testing procedures, to provide the proper data forms for recording pertinent data, and to review the format procedures for the test reports.

The TCEQ Regional Director must approve any deviation from specified sampling procedures.

- B. Air contaminants emitted from the vapor combustors to be tested for include (but are not limited to) VOC.
- C. Sampling shall occur within 60 days after achieving the maximum operating rate, but no later than 180 days after initial start-up of the facilities and at any other times as requested by the TCEQ Executive Director. Requests for additional time to perform sampling shall be submitted to the appropriate TCEQ Regional Office.
- D. The facility being sampled shall operate at the maximum loading rate during the initial and any subsequently required stack testing. The loading rate and all other operating parameters or conditions specified as follows shall be monitored\* and recorded during the initial and any subsequently required stack test.
  - \* Feed rate of the fuel gas (scf/hr)

Heating value of the fuel gas (BTU/scf)

- Molecular formulas and %-compositions (mol.-%) of all fuel and waste gas constituents
- \* Temperature of the fuel gas and combustion air streams at the inlet (°F)

- \* Temperature of the combustion products stream at the exhaust (°F)
- \* Flowrate and composition of the combustion products stream at the exhaust (scfm and mol.-%)
- \* Oxygen concentration at the combustor exhaust (mol.-%)
- \* (by direct sampling or measurement)

Any additional parameters not specified in this condition shall be determined at the pretest meeting and shall be stated in the sampling report. Parameter limits and permit conditions 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; this waiver option does not apply to the parameters specified in this permit's Special Condition (SC) No. 6.D, nor to the limits on minimum exhaust temperature and oxygen concentration specified in this permit's SC No. 5.A. Permit allowable emissions and emission control requirements are not waived and still apply during stack testing periods.

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

E. Copies of the final sampling report shall be forwarded to the offices below within 60 days after sampling is completed. Sampling reports shall comply with the attached provisions entitled "Chapter 14, Contents of Sampling Reports" of the TCEQ Sampling Procedures Manual. The reports shall be distributed as follows:

One copy to the appropriate TCEQ Regional Office. One copy to each local air pollution control program.

F. Sampling ports and platform(s) or other temporary access shall be incorporated into the design of the vapor combustor according to the specifications set forth in the attachment entitled "Chapter 2, Stack Sampling Facilities" of the TCEQ Sampling Procedures Manual. Alternate sampling facility designs must be submitted for approval to the TCEQ Regional Manager.

## **Continuous Determination of Compliance**

7. The permit holder shall upon request of the TCEQ Executive Director conduct stack sampling on the Vapor Combustors (EPNs VC-1, VC-2A, VC-2B, and VC-2C) as required by SC No. 6. The permit holder may request a waiver from certain stack sampling requirements as indicated by SC No. 6.D. (02/19)

## Federal Applicability

- 8. These facilities shall comply with all applicable requirements of the EPA regulations on Standards of Performance for New Stationary Sources (NSPS) promulgated in 40 CFR Part 60: (02/19)
  - A. Subpart A, General Provisions.
  - B. Subpart Kb, Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984.

- 9. All applicable requirements of the U.S. EPA regulations on National Emission Standards for Hazardous Air Pollutants (NESHAPS) promulgated for Benzene Emissions from Benzene Transfer Operations, Equipment Leaks (Fugitive Emission Sources) of Benzene, Equipment Leaks (Fugitive Emission Sources), and Benzene Emissions from Benzene Storage Vessels in 40 CFR Part 61, Subparts A, BB, J, V, and Y shall be complied with by all applicable affected equipment units at the facility.
- 10. All applicable affected equipment units at this facility shall comply with all applicable requirements of Title 30 Texas Administrative Code §§ 113.230 and 113.300 (30 TAC §§ 113.230 and 113.300), including the referenced requirements contained in 40 CFR Part 63, Subparts A, R, and Y for Gasoline Distribution Facilities and Marine Vessel Loading.

# Storage Tanks

- 11. Internal Floating Roof (IFR) Tank Nos. 551, 552, 554, 556, 580, 583, 584, 585, 586, 587, 588, 589, 5100, 5101, 5102, 5103, 5104, 5105, 5106, 5107, 5108, 100-26, 100-27, 100-30, 100-31, 150-1, 150-2, 150-3, 150-4, 150-5, 150-13, 150-14, and 150-15 are only approved to store the products on the approved product list for these tanks, Attachment 1, or additional chemicals that meet the requirements of SC No. 15, except for the tanks and chemicals listed in this condition. No product with a vapor pressure above 11 pounds per square inch absolute (psia) at the maximum storage temperature shall be stored in these tanks. **(02/19)** 
  - A. Tanks 5100, 5101, 5102, 5103, 5104, 5105, 5106, 5107, 5108, 588 and 589 shall not store reformate or benzene. **(02/19)**
- 12. Fixed-Roof (FR) Tank Nos. 590, 591, 592, 593, 595, 596, 597, 598, and 599 are only approved to store vacuum gas oil (or similar products; i.e., No. 6 fuel oil, light cycle oil, and bunker fuel).
- 13. No more than ten IFR tanks may store pure benzene at any time on the Remote Tank Farm. These ten tanks may be any of Tank Nos. 556, 580, 583, 584, 585, 586, 5100, 5102, and 5104, which are called the "center tanks" of the Remote Tank Farm. The following tanks of the Remote Tank Farm may not store pure benzene, pure ethylene dichloride, or hydrochloric acid: Tank Nos. 589, 5101, 5103, 5105, 5106, 5107, and 5108.
- 14. Tank Nos. 150-1, 150-2, 150-3, 150-4, 150-5, 551, and 552 may store pure benzene at any time on the Riverside Tank Farm.
- 15. Storage in and unloading from IFR tanks shall be allowed for listed compounds on Attachment 1 and for new compounds not on Attachment 1 if the following conditions are met:
  - A. The vapor pressure of the new compound is less than or equal to 11 psia at the maximum storage temperature for that IFR tank.
  - B. The ratio of the short-term emission rate (ER) of the new compound to the short-term Effects Screening Level (ESL) of the new compound is less than or equal to the appropriate factors for specific conditions:

ER ≤ <u>FactorIFR</u> ESL

Where:

- ER = short-term emission rate (pounds per hour [lbs/hr]) of the new chemical for the IFR tank using TCEQ methodology contained in the TCEQ publication titled "Technical Guidance Package for Chemical Sources Storage Tanks" dated February 1995 or a more recent version.
- ESL = The TCEQ health short-term ESL (μg/m<sub>3</sub>) for the new chemical. (The ESL shall be obtained from the most recently published TCEQ ESL list or by calling the TCEQ Toxicology and Risk Assessment [TARA] Section at [512] 239-1795 and obtaining an ESL for compounds not on the list. The permit holder shall maintain copies of ESL determinations performed by TARA).

FactorIFRs for IFR Tanks Unloading Scenarios			
	FactorIFR		
Unloading Tanks 100-26, 100-27, 150-1, 150-2, 150-3, 150-4, 150-5, 551, and 552 with or without controlled Barge or Ship Loading <b>(01/12)</b>	0.029		
Unloading four or fewer edge tanks of the Remote Tank Farm *	0.013		
Unloading four or fewer center tanks in the Remote Tank Farm with up to ten center tanks storing the same product **	0.016		
Unloading one edge tank of the Remote Tank Farm with all other IFR tanks of the Remote Tank Farm have at least 50 percent of the most toxic chemical being unloaded *	0.006		
Unloading of each tank of Tanks 100-30, 100-31, 150-13, 150-14, and 150-15 for products that do not contain benzene	0.0068		
Unloading of each tank of Tanks 100-30, 100-31, 150-13, 150-14, and 150-15 for products that contain 1% or more benzene	0.0022		

- \* Edge tanks are here defined as Tanks 554, 587, 588, 589, 5101, 5103, 5105, 5106, 5107, and 5108.
- \*\* Center tanks are here defined as Tanks 556, 580, 583, 584, 585, 586, 5100, 5102, and 5104.
- C. Records are kept of all compounds added and the records are kept until the compounds are added to Attachment 1 the next time the permit is amended or renewed.
- 16. Storage in and unloading from IFR tanks listed in SC No. 11 shall be allowed for listed compounds on Attachment 1 and for new compounds not on Attachment 1 if the following conditions are met:
  - A. The vapor pressure of the new compound is less than or equal to 11 psia at the maximum storage temperature for that IFR tank.
  - B. The new compound has an equal or lower vapor pressure (at 68°F or higher), an equal or lower vapor molecular weight, and an equal or higher published ESL, or, that the result of the multiplication of the vapor pressure at 68°F and the vapor molecular weight is equal or lower and has an equal or higher published ESL than a compound already approved for storage and loading on Attachment 1. Acceptable short-term ESL values for all compounds (those listed on Attachment 1, as well as any proposed compounds to be added under the authority of this condition) are limited to those specified in the most recent TCEQ Toxicology Section

Published ESL List or those ESLs otherwise approved in writing by the TCEQ Toxicology Section.

C. Records are kept of all compounds added and the records are kept until the compounds are added to Attachment 1 the next time the permit is amended or renewed.

## Storage and Loading of VOC

- 17. These conditions shall not apply to storage tanks smaller than 25,000 gallons.
  - A. A storage tank with an internal floating deck or "roof" or equivalent control shall be equipped with one of the following closure devices between the wall of the storage vessel and the edge of the IFR: (1) a liquid-mounted seal, (2) two continuous seals mounted one above the other, or (3) a mechanical shoe seal. Installation of equivalent control requires prior review and approval by the TCEQ Executive Director.
  - B. For any tank equipped with a floating roof, the holder of this permit shall follow 40 CFR § 60.113b, Testing and Procedures, to verify seal integrity. Additionally, the permit holder shall follow 40 CFR § 60.115b, Reporting and Recordkeeping Requirements, to provide records of the dates seals were inspected, seal integrity, and corrective actions taken.
  - C. The floating roof design shall incorporate sufficient flotation to conform to the requirements of API Code 650, Appendix C, or an equivalent degree of flotation, except that an internal floating cover need not be designed to meet rainfall support requirements.
  - D. Uninsulated tank exterior surfaces exposed to the sun shall be white or aluminum specular.
  - E. Operation without visible liquid leaks or spills shall be maintained at all loading/unloading facilities, regardless of vapor pressure. This does not apply to momentary dripping associated with the initial connection or disconnection of fittings. Sustained dripping from fittings during loading/unloading operations is not permitted.
- 18. Although IFR Tank Nos. 551, 552, 554, 556, 580, 583, 584, 585, 586, 587, 588, 589, 5100, 5101, 5102, 5103, 5104, 5105, 5106, 5107, and 5108 will be inspected using NSPS Subpart Kb inspection and recordkeeping (but not reporting) criteria as cited in SC No. 17.B, these tanks themselves are not subject to NSPS Subpart Kb. **(02/19)**
- 19. Domed External Floating Roof (DEFR) storage tanks (EPNs 390-1 through 390-5, 300-7, and 250-9) are subject to the following requirements: **(02/19)** 
  - A. An internal floating deck or "roof" shall be installed. A domed external floating roof tank is equivalent to an internal floating roof tank. The floating roof shall be equipped with one of the following closure devices between the wall of the storage vessel and the edge of the floating roof: (1) a liquid-mounted seal, (2) two continuous seals mounted one above the other, or (3) a mechanical shoe seal.
  - B. For any tank equipped with a floating roof, the permit holder shall perform the visual inspections specified in 40 CFR § 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 the DEFR storage tanks during the previous calendar month and the past consecutive 12 month period. The record shall include tank identification number, control method used, tank capacity in gallons, name of the material stored, VOC molecular weight, VOC monthly average temperature in degrees Fahrenheit, VOC vapor pressure at the monthly average material temperature in psia, VOC throughput for the previous month and year-to-date. Records of VOC monthly average temperature are not required to be kept for unheated tanks which receive liquids that are at or below ambient temperatures.

Emissions from tanks shall be calculated using the methods that were used to determine the MAERT limits in the permit application associated with the permit issued March 28, 2017. Sample calculations from the application shall be attached to a copy of this permit at the plant site.

- 20. In order to demonstrate compliance with special conditions that limit dissolved H<sub>2</sub>S concentration in products stored or loaded, the permit holder shall complete the following: **(02/19)** 
  - A. Determine dissolved H<sub>2</sub>S concentration of each crude oil or condensate stock to be stored or loaded in the applicable facilities. The H<sub>2</sub>S concentration may be determined using method ASTM UOP163-10 or ASTM D7621-14. Any additional method of sampling method and analysis used must be approved by the TCEQ. Product analysis (laboratory certificates of analysis) from the delivering source, are acceptable in place of on-site analysis. Records of Certificates or sampling results shall be kept for a period of five years.
  - B. The frequency of sampling, if laboratory certificates of analysis are not used, shall be the more frequent of:
    - (1) Annual; or
    - (2) Within 60 days of any change of service for an affected tank.
    - (3) Before crude oil or condensate stock is loaded at North Dock, South Dock, Barge Dock B, Dock 1, or Dock 2.
    - (4) Before crude oil or condensate stock is loaded, that has been treated with a scavenger to reduce  $H_2S$  concentrations in order to meet the requirements of SC No. 35.
  - C. If crude oil or condensate stock containing different levels of H<sub>2</sub>S are blended in a storage tank then the H<sub>2</sub>S concentration of the blended stock shall be calculated from the quantity of different stocks with known H<sub>2</sub>S concentrations, with concentrations demonstrated per paragraphs A or B above. The H<sub>2</sub>S concentration of a blended stock may also be set equal to the maximum H<sub>2</sub>S concentration that existed amongst the pre blended stocks. If the H<sub>2</sub>S concentration of stock being blended has not been demonstrated per paragraphs A or B above, then the H<sub>2</sub>S concentration of the unknown stock portion shall be considered equal to

200 ppmw. A storage tank is considered blended if product is added before the storage tank has been drained to the maximum extent practicable.

D. Records of  $H_2S$  concentrations measured to meet the requirements of this condition shall be maintained at the plant site.

Marine Loading – 99.89% Collection Efficiency (11/20)

- 21. The following additional requirements apply to loading of a volatile organic compound (VOC) which has a vapor pressure equal to or greater than 0.5 pounds per square inch absolute (psia) under actual storage conditions onto inerted marine vessels (ships).
  - A. Before loading, the owner or operator of the marine terminal shall verify that the marine vessel has passed an annual vapor tightness test as specified in 40 CFR §63.565(c) (September 19, 1995) or 40 CFR §61.304(f) (October 17, 2000) within the previous twelve months, and received a recent, completed Standard Tanker Chartering Questionnaire form (Q88) or equivalent.
  - B. The pressure at the vapor collection connection of an inerted marine vessel must be maintained such that the pressure in a vessel's cargo tanks do not go below 0.2 pounds per square inch gauge (psig) or exceed 80% of the lowest setting of any of the vessel's pressure relief valves. The lowest vessel cargo tank or vent header pressure relief valve setting for the vessel being loaded shall be recorded. Pressure shall be continuously monitored while the vessel is being loaded. Pressure shall be recorded at fifteen-minute intervals.
  - C. VOC loading rates shall be recorded during loading. The loading rate must not exceed the maximum permitted loading rate.
  - D. During loading, the owner or operator of the marine terminal or of the marine vessel shall conduct audio, olfactory, and visual checks for leaks within the first hour of loading and once every 8 hours thereafter for on-shore equipment and onboard the ship.
    - (1) If a liquid leak is detected during loading and cannot be repaired immediately (for example, by tightening a bolt or packing gland), then the loading operation shall cease until the leak is repaired.
    - (2) If a vapor leak is detected by sight, sound, smell, or hydrocarbon gas analyzer during the loading operation, then a "first attempt" shall be made to repair the leak. Loading operations need not be ceased if the first attempt to repair the leak is not successfully 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) An optical gas imaging instrument as defined in 30 TAC 115.358 may be used in addition to the audio, olfactory, and visual checks to identify leaks.

The date and time of each inspection shall be noted in the operator's log or equivalent. Records shall be maintained at the plant site of all repairs and replacements made due to leaks. These records shall be made available to representatives of the Texas Commission on Environmental Quality upon request

- 22. Permits by rule shall not be used at the permitted facility for the authorization of additional storage and loading activity or capacity. Provided all other requirements of 30 TAC Chapter 106 and of SC Nos. 4, 11, 14, 15, 16, 17, 26-29, 31-35, 47.B, and 47.C are satisfied, this restriction does not apply to the following circumstances:
  - A. Construction of new storage tanks or loading facilities, or additional throughput at existing storage tanks or loading facilities, in service only for compounds with vapor pressures less than 0.5 psia.
  - B. Construction of new storage tanks, or additional throughput at existing storage tanks, from which all emissions during the tank roof "off-float" period (i.e., roof landed to roof refloated) are routed to a vapor recovery and abatement system that provides a control efficiency of at least 99.5 wt.-percent. An alternative to the "route to control" option is demonstrable compliance with SC No. 29 of this permit.
  - C. Construction of new loading facilities, or additional throughput at existing loading facilities, routed to a vapor recovery and abatement system that provides a control efficiency of at least 99.5 wt.-percent. An alternative to the "route to control" option is demonstrable compliance with SC No. 31 of this permit.
  - D. Activities unrelated to, and that do not otherwise affect emissions from, storage tank and loading operations.
- 23. Use of Permit By Rules for any increase of benzene with a concentration greater than 15% in the liquid (by weight), reformate, or diesel shall not be authorized. Increases shall only be authorized by a permit amendment.

# **Tank Roof Landing Operations**

## General

- 24. This permit authorizes emissions from the planned tank roof landing activities listed below. The emissions from occurrences of the listed activities are subject to the maximum allowable emission rates indicated on this permit's MAERT:
  - A. Maintenance events
  - B. Inventory control
  - C. Routine product changes
- 25. The total emissions attributable to tank operations (e.g., routine withdrawal and storage emissions, standing idle emissions after landing, re-filling emissions after landings, degassing emissions) shall comply with applicable emission rate limits specified in SC No. 1 of this permit and with the permit's annual and short-term MAERT.
- 26. The occurrence of each roof landing and its associated emissions shall be recorded and the rolling 12-month emission total shall be updated on a monthly basis. These records shall include at least the following information:
  - A. The identification of the tank and EPN, and any control devices used to reduce emissions;
  - B. The reason for the tank roof landing;

- C. The date and time of each of the following events:
  - (1) the landing of the tank roof
  - (2) the withdrawal of standing liquid (i.e., all but heel)
  - (3) the removal of heel (if conducted)
  - (4) the completion of tank de-gassing (if conducted)
  - (5) the commencement of tank re-fill
  - (6) the re-float of the tank roof
- D. The estimated quantity of each air contaminant or mixture of air contaminants emitted, with the methods and supporting data (e.g., re-fill rate, leg height, etc.) used to determine it. The emissions associated with roof landing activities shall be calculated using the methods described in American Petroleum Institute's (API) Technical Report 2567 titled "Evaporative Loss from Storage Tank Floating Roof Landings" dated April 2005 or Section 7.1.3.2 of AP-42 "Compilation of Air Pollution Emission Factors, Chapter 7 - Storage of Organic Liquids."
- 27. The permit holder shall, within 72 hours after landing a tank roof, either (1) re-float the landed roof, or (2) begin the process to empty, de-gas, and (when practical) rinse the tank. The requirements of (1) and (2) of this condition apply within 48 hours for Tank Nos. 100-26, 100-27, 100-30, 100-31, 150-1, 150-2, 150-3, 150-4, 150-5, 150-13, 150-14, and 150-15.

These requirements do not apply to storage tanks being refilled with liquids of true vapor pressures less than 0.5 psia at 95°F, to new tanks at initial fill, to tanks de-gassed according to requirements of SC No. 32, or when tank emissions are routed to a control device.

The process of emptying and re-filling a tank shall be continuous and as rapid as possible.

## **Design and Construction of Specified Tanks**

- 28. The following requirements apply to floating roof tank Nos. 150-1, 150-2, 150-3, 150-4, and 150-5.
  - A. Tanks shall be constructed with a sloped bottom and a sump that can be emptied (i.e., "drain dry": no standing liquid in the tank and sump).
  - B. Tanks shall be constructed or equipped with the capability for connection to a vapor recovery system that routes vapors from the vapor space under the landed roof to a control device.
  - C. The tank's outlet to the vapor recovery system shall be located at a height from the tank floor not less than 90 percent of the tank roof's leg height.

## Abatement Requirements for Specified Tanks

29. With the exceptions listed in Paragraph E. of this special condition, the requirements of Paragraphs A - D apply to the tank roof landing operations conducted at (1) new floating roof tanks, (2) existing floating roof tanks modified such that any physical or operational change results in increased emissions, a change in their character, or a change in the method of their control and (3) existing and unmodified tanks in circumstances other than those specified in Special Condition No. 30 of this permit (subject tanks\* listed). **(03/25)** 

\*Tank Nos: 100-26, 100-27, 100-30, 100-31, 150-1, 150-2, 150-3, 150-4, 150-5, 150-13, 150-14, and 150-15. **(03/25)** 

- A. The tank's vapor space shall be connected to a vapor recovery system that routes vapors from the vapor space under the landed roof to a control device.
- B. The control device shall provide a control efficiency of no less than 99.5 wt.-percent.
- C. The vapor recovery and control device shall be applied to the subject tanks during the entire period that begins at the first stoppage of liquid withdrawal after the roof is landed and ends either when the re-filled liquid reaches a height no less than 90 percent of the tank roof's leg height, or (2) when the tank has been degassed according to the requirements of SC No. 32.
- D. A negative pressure (i.e., vacuum) of no less than 2 inches of water shall be maintained on the vapor space by the vapor recovery system. Vacuum shall be monitored in the vapor collection line immediately downstream from the tank's vapor space. Pressure readings in the collection line shall be recorded every 5 minutes during the first 15 minutes of re-filling, and every 15 minutes thereafter until the roof is re-floated.
- E. Paragraphs A. D. of this condition do not apply to vessels being refilled with liquids of true vapor pressures less than 0.5 psia at 95°F, to new tanks at initial fill, or to the re-fill of tanks de-gassed according to requirements of SC No. 32.

## **Exceptions to Abatement Requirements for Specified Tanks**

- 30. Tank roof landing operations for existing unmodified floating roof tanks are authorized to be conducted without the controls specified in Paragraphs A D of SC No. 29 of this permit only in the following circumstances\*:
  - A. "Convenience" landings required only by a customer's termination of the use of the tank.
  - B. Product changes (i.e. product different from the previously stored product) as defined by a different CAS number and/or product specifications (e.g., Reid vapor pressure, etc.).
  - C. The planned maintenance events comprised of a vessel's removal from service for purposes of:
    - (1) conducting repairs required by results of inspections or fugitive monitoring,
    - (2) removing inoperative internal equipment or accessories (e.g., blending impellers, jet nozzles, etc.).

\*Exclusions from control under these circumstances are applicable only to the existing tanks unmodified as of March 6, 2009, and authorized on this permit's MAERT of same date. These exclusions do not apply to the new or modified tanks listed in SC No. 29 of this permit and subject to the controls it specifies.

# **Operational Limits for Acceptable Off-Property Effects**

- 31. Off-property ground level concentrations of emissions from re-filling tanks listed in SC No. 15 with products of true vapor pressure greater than 0.5 psia shall not exceed the concentrations indicated by the site-specific dispersion modeling analyses submitted in support of this permit's August 8, 2006 (Project No. 124115) and November 21, 2007 (Project No. 134305) amendment applications. Compliance with this requirement shall be demonstrated by observance of the maximum combined re-fill emission rate specified by the following equation:
  - A. Maximum Combined Re-filling Emission Rate (lb/hr): The maximum combined re-filling emission rate (lb/hr) shall be determined as indicated:

ERp = E/ESL Factor \* ESLp

ERp	=	maximum emission rate, product re-filled (lb/hr)
E/ESL Factor	=	factor defined in Attachment 4 (E/ESL Factors for Single and Multiple Tank Re-fill Scenarios)
ESLp	=	hourly effects screening level, product re-filled ( $\mu$ g/m <sub>3</sub> )

#### **Degassing Operations**

- 32. The following requirements apply to degassing the vapor space under landed roofs if the vapor pressure of the previously stored liquid is greater than 0.50 psia at 95°F.
  - A. Emissions attributable to tank degassing, cleaning or rinsing operations shall be routed to a control device that satisfies the applicable VOC control requirements of 30 TAC Chapter 115, Subchapter F, Division 3 relating to Degassing or Cleaning of Stationary, Marine, and Transport Vessels.
  - B. Any liquid removed from the tank bottom shall be stored in a closed vessel until transferred to permanent storage.
  - C. The vapor space shall be depressurized prior to degassing and routed to a control device with a DRE of no less than 99.5 wt.-percent. The locations and identifiers of the vents and controlled exhaust stream shall be recorded. A negative pressure (i.e., vacuum) of no less than 2 inches of water shall be maintained on the vapor space by the vapor recovery system.
  - D. The vapor space shall be vented using good engineering practice to ensure its evacuation to the control device to the extent allowed by the design of the tank.
  - E. A volume of vapor equivalent to twice that of the vapor space shall be passed through the control device before the vent stream may be sampled to determine whether VOC concentrations are acceptable for uncontrolled venting. The vapor volume measurement shall include no make-up air to the control device. The VOC sampling and analysis shall be performed as specified in SC No. 40
  - F. 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.
  - G. A vapor space may be vented without control only after its vent stream VOC concentration has been monitored for at least a five-minute period in which the maximum one-minute average concentration does not exceed 10,000 parts per million by volume (ppmv). Degassing must be performed every 24 hours unless there is no standing liquid in the tank or the maximum one-minute average concentration does not exceed 10,000 ppmv and the time period since the most recent concentration measurement does not exceed 24 hours. Uncontrolled venting shall be performed as allowed in paragraph H of this condition.
  - H. Uncontrolled venting of the vapor space below the landed roof shall be performed using one of the following methods:
    - (1) Uncontrolled Venting Method No. 1: Prior to uncontrolled venting, the concentration of vapors beneath the landed roof must be less than or equal to 10,000 ppmv of VOC. Vapors shall be vented uncontrolled by connecting an exhaust blower to piping that is designed to pull air from the vapor space underneath the landed roof and exhausted at the top of the tank. Additional blowers may or may not be installed on the manways at

> the bottom of the tank to force fresh air into the vapor space beneath the landed roof. The blower on the top of the tank shall vent vertically from a stack that is at least the height of the tank being ventilated plus four feet above ground level and has an internal diameter of less than or equal to 10 inches.

- (2) Uncontrolled Venting Method No. 2: Prior to uncontrolled venting, the concentration of vapors beneath the landed roof must be less than or equal to 10,000 ppmv of VOC. Vapors shall be vented uncontrolled by connecting an exhaust blower to a manway at the bottom of a tank, that routes emissions to a vertical stack beside the tank. The venting stack shall be at least the height of the tank being ventilated above ground level and have an internal diameter of less than or equal to 10 inches. Venting locations are limited to the manways identified in the plot plan submitted with the air quality modeling study in support of the permit application.
- (3) Uncontrolled Venting Method No. 3: Prior to uncontrolled venting, the concentration of vapors beneath the landed roof must be less than or equal to 10,000 ppmv of VOC. Vapors shall be vented uncontrolled by connecting a blower to a manway at the bottom of the tank to force fresh air into the vapor space below the landed roof and out the roof vents on top of the storage tank and/or out vertical pipes at the top of the tank.
- (4) Uncontrolled Venting Method No. 4: Prior to uncontrolled venting, the concentration of vapors beneath the landed roof must be less than or equal to 10,000 ppmv of VOC. Vapors shall be vented uncontrolled by connecting a blower to a manway at the bottom of the tank to force fresh air into the vapor space below the landed roof and out the opposite manway.

## **Marine Loading**

- 33. The loading of materials with an H<sub>2</sub>S concentration greater than 200 ppmw is not authorized. Loading rates of crude oil or condensate with H<sub>2</sub>S greater than the concentrations listed in SC 35.A shall be controlled by a caustic scrubber. The scrubber shall comply with the following: **(02/19)** 
  - A. The scrubber shall achieve a 99-wt.% H<sub>2</sub>S removal efficiency.
  - B. The vendor's recommended minimum liquid flow to the absorber shall be maintained.
  - C. The scrubbing solution shall be maintained at or above a pH recommended by the scrubber vendor (pH 12 or more) for the removal of H<sub>2</sub>S. The solution pH shall be analyzed and recorded at least once an hour when emissions are vented to the scrubber. The pH can be monitored by a pH monitor instrument or a litmus test. If a monitoring device is used, it shall be cleaned with an automatic cleaning system, or cleaned weekly using hydraulic, chemical, or mechanical cleaning. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, or at least weekly, whichever is more frequent, and shall be accurate to within ± 0.5 pH unit.
  - D. Quality assured (or valid) data must be generated when the facility generating emissions is operating except during the performance of a daily zero and span check. Loss of valid data due to periods of monitor break down, out-of-control operation (producing inaccurate data), repair, maintenance, or calibration may be exempted provided it does not exceed 5 percent of the time (in hours) that the facility generating emissions operated over the previous rolling 12 month period. The measurements missed shall be estimated using engineering judgement and the methods used recorded.
  - E. On days the scrubber is used, the caustic from absorber shall be drained and purged or replaced with fresh caustic if pH has deviated from vendors recommendation (pH less than 12) per the vendor's recommendation. A titration or hydrometer test (in degrees Baume)

shall be performed on the fresh caustic before each batch purge to verify that the caustic strength is similar to the original batch strength as recommended by the vendor.

Records shall be kept of the flow rate, pH recorded each hour, and the time, date, and method of cleaning and calibration of each pH monitor. Records shall be kept of the date for each day caustic from the absorber is purged and replaced, and of titration test results. Documentation of all vendor recommendations shall be kept on site.

- 34. Marine loading at the site can occur at the North Dock, South Dock, Barge Dock B, Dock 1, and Dock 2 simultaneously, except as provided below: **(02/19)** 
  - A. Loading of sour product which contains H<sub>2</sub>S is limited to either Dock 1 or Dock 2 in any given hour, in addition to loading at the North Dock, South Dock and Barge Dock B. **(02/19)**
- 35. Marine loading of products containing H<sub>2</sub>S shall comply with the requirements listed in the table below: **(02/19)** 
  - A. The H<sub>2</sub>S concentrations listed in the table below were calculated at the maximum loading rates. If loading is not occurring at the maximum rate the following equation may be used to determine the allowable H<sub>2</sub>S concentration:

CH<sub>2</sub>S, ppmw = Constant / LR (ship) \*

Constant = The product of the maximum achieved loading rate (LR) from all loading activities occurring in any rolling 1-hour period, and the 1-hour rolling maximum H2S concentration ( $CH_2S$ ) for each VCU.

Dock	Product	Maximum H₂S (ppmw)	Maximum Load Rate (bph)	Constant LR * CH <sub>2</sub> S
North / South / Barge Dock B	Condensate	15	25,000	375,000
Controlled by: VC- 1	Crude Oil	6	25,000	150,000
Dock 1/2	Condensate (Unscrubbed)	25	50,000	1,250,000
Controlled by VC	Condensate (Scrubbed)	200	17,000	3,400,000
	Crude Oil (Unscrubbed)	11	50,000	550,000
2A, 2D, 2C	Crude Oil (Scrubbed)	200	11,000	2,200,000

\* LR (ship) for a barge = LR (barge) \* 0.5 / 0.2

The waste vent stream of crude oil and condensate being loaded shall be sent to a portable liquid caustic scrubber prior to control by the VCU at any time when the  $H_2S$  concentration within the liquid is greater than the listed limit. CH<sub>2</sub>S for each scenario is the combined  $H_2S$  ppmw (flow weighted) of all the waste vent streams routed to one or more VCUs (post the scrubber as applicable). One or more vent streams may be sent to the liquid caustic scrubber so that the scenario's limit is not exceeded. The caustic scrubber shall operate per the requirements of Special Condition No. 33. A scrubber will not be required as long as (LR \* CH<sub>2</sub>S) value for each scenario shown above is not exceeded.

#### Special Conditions Permit Number 21356 Page 15 Leak Detection and Repair Program – 28MID

36. Piping, Valves, Connectors, Pumps, and Compressors in contact with VOC - Intensive Directed Maintenance - 28MID

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 concentration of VOC in the stream is less than 10 percent by weight or (2) where the VOC has an aggregate partial pressure or vapor pressure of less than 0.044 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 available upon request.

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

- piping and instrumentation diagram (PID);
- a written or electronic database or electronic file;
- color coding;
- a form of weatherproof identification; or
- designation of exempted process unit boundaries.
- B. Construction of new and reworked piping, valves, pump systems, agitators, and compressor systems shall conform to applicable American National Standards Institute (ANSI), American Petroleum Institute (API), American Society of Mechanical Engineers (ASME), 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 30 TAC Chapter 115, shall be identified in a list to be made 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. No later than the next scheduled quarterly monitoring after initial installation or replacement, all new or reworked connections shall be gas-tested or hydraulically-tested at no less than normal operating pressure and adjustments 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 a cap, blind flange, plug, or a second valve.

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 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.
- F. Accessible valves shall be monitored by leak-checking for fugitive emissions at least quarterly using an approved gas analyzer with a directed maintenance program. 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. For valves equipped with rupture discs, a pressure-sensing device shall be installed between the relief valve and rupture disc to monitor disc integrity. All leaking discs shall be replaced at the earliest opportunity but no later than the next process shutdown.

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.

An approved 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.

A directed maintenance program shall consist of the repair and maintenance of components assisted simultaneously by the use of an approved gas analyzer such that a minimum concentration of leaking VOC is obtained for each component being maintained. Records of the first attempt to repair shall be maintained. Replaced components shall be re-monitored within 15 days of being placed back into VOC service.

G. All new and replacement pumps and compressors shall be equipped with a shaft sealing system that prevents or detects emissions of VOC from the seal. These seal systems need not be monitored and 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.

All other pump and compressor seals emitting VOC shall be monitored with an approved gas analyzer at least quarterly.

- Н. Damaged or leaking valves, connectors, compressor seals, pump seals, and agitator seals found to be emitting VOC in excess of 500 parts per million by volume (ppmy) or found by visual inspection to be leaking (e.g., dripping process fluids) shall be tagged and replaced or repaired. A leaking component shall be repaired as soon as practicable, but no later than 15 days after the leak is found. If the repair of a component would require a unit shutdown 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. A listing of all components that gualify 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.
- In lieu of the monitoring frequency specified in paragraph F, valves in gas and light liquid service may be monitored on a semiannual basis if the percent of valves leaking for two consecutive quarterly monitoring periods is less than 0.5 percent. Valves in gas and light liquid service may be monitored on an annual basis if the percent of valves leaking for two consecutive semiannual monitoring periods is less than 0.5 percent.

If the percent of valves leaking for any semiannual or annual monitoring period is 0.5 percent or greater, the facility shall revert to quarterly monitoring until the facility again qualifies for the alternative monitoring schedules previously outlined in this paragraph.

J. The percent of valves leaking used in paragraph I shall be determined using the following formula:

 $(VI + Vs) \times 100/Vt = Vp$ 

Where:

- VI = the number of valves found leaking by the end of the monitoring period, either by Method 21 or sight, sound, and smell.
- Vs = the number of valves for which repair has been delayed and are listed on the facility shutdown log.
- Vt = the total number of valves in the facility subject to the monitoring requirements, as of the last day of the monitoring period, not including nonaccessible and unsafe-to-monitor valves.
- Vp = the percentage of leaking valves for the monitoring period.
- K. 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.

L. Compliance with the requirements of this condition does not assure compliance with requirements of 30 TAC Chapter 115, an applicable NSPS, or an applicable NESHAPS and does not constitute approval of alternative standards for these regulations.

## Site-wide Maintenance, Startup, and Shutdown (MSS)

37. This permit authorizes the emissions from the facilities identified in the MSS Activity Summary (Attachment C) attached to this permit and from temporary facilities used to support those activities.

Temporary facilities used to support planned MSS activities at permanent site facilities may include frac tanks and vacuum trucks. Emissions from temporary facilities are authorized provided the temporary facility does not remain on the plant site for more than twelve consecutive months, is used solely to support planned MSS activities at the permanent site facilities, and does not operate as a replacement for an existing authorized facility.

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

Attachment B identifies routine maintenance activities that may be tracked through 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:

- B. The process unit at which emissions from the MSS activity occurred, including the emission point number and common name of the process unit;
- C. The type of planned MSS activity and the reason for the planned activity;
- D. The common name and the facility identification number, if applicable, of the facilities at which the MSS activity and emissions occurred;
- E. The date and time of the MSS activity and its duration;
- F. The estimated quantity of each air contaminant, or mixture of air contaminants, emitted with the data and methods used to determine it. The emissions shall be estimated using the methods identified in the permit application, consistent with good engineering practice.

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

- 38. The following site-wide scenarios shall be observed for MSS operations: (02/19)
  - B. At the BMW site, only one tank associated with PBR 122231 (EPN's: 390-18, 300-11, 300-12, 300-13, 300-14, 10-1, or 10-2) and one tank associated with PBR 131319 (EPN's: 390-6, 390-17, 390-19, or 390-20) can undergo MSS in any given hour, which includes uncontrolled storage tank degassing, storage tank roof landings controlled by a portable VCU, or storage tank degassing controlled by a portable VCU.

- 39. Process units and facilities identified in Attachment B shall be depressurized, emptied, degassed, and placed in service in accordance with the following requirements.
  - B. 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.
  - C. 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.
  - D. 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.
  - E. 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 SC No. 40. 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.

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

All instances of venting directly to atmosphere per this condition 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.

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

VOC Concentration = Concentration as read from the instrument\*RF

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

- (2) Sampling shall be performed as directed by this permit in lieu of section 8.3 of Method 21. During sampling, data recording shall not begin until after two times the instrument response time. The date and time shall be recorded, and VOC concentration shall be monitored for at least 5 minutes, recording VOC concentration each minute. As an alternative the VOC concentration may be monitored over a five-minute period with an instrument designed to continuously measure concentration and record the highest concentration read. The highest measured VOC concentration shall be recorded and shall not exceed the specified VOC concentration limit prior to uncontrolled venting.
- 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 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.

- D. LEL measured with a LEL detector.
  - (1) The detector shall be calibrated within 30 days of use with an appropriate certified gas standard at 25% of the LEL for the appropriate gas. Records of the calibration date/time and calibration result (pass/fail) shall be maintained.
  - (2) A functionality test shall be performed on each detector using the same type of certified gas standard. 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.
  - (4) Definitions:
    - (a) An appropriate gas is one which when used for calibration of the detector, ensures that the response factor (RF) of the VOC (or mixture of VOCs) to be monitored is less than 1.2.
  - (5) The same type of certified gas standard is a standard consisting of the same gas as used for calibration, certified to be 10 percent of the LEL for that gas.
- 41. At any time MSS emissions may occur simultaneously from waste drumming, staging (or temporary storage activities), and frac tank washing/loading. Additionally, emissions from any combination of Scenario/Tank Locations below may also occur provided the sum of predicted ground level concentrations (GLCmax) of Tank Locations does not exceed 11,524 micrograms per meter cubed (µg/m3) when handling crude oil and 13,811 (µg/m3) when handling condensate. Additionally, emissions from Uncontrolled Venting Method 4 at one of the DEFR tanks 390-1, 390-2, 390-3, 390-4, 390-5, 300-7, and 250-9 can occur simultaneously with the following scenarios. (02/19)

Scenari o	Source Description	Locations	GLCmax Crude Oil (µg/m3)	GLCmax Condensat e (µq/m3)
1	Controlled Tank Degassing to PORTVC with up to three vapor combustors	5100 IFR Battery	2,999	3,737

	operating simultaneously			
2	Uncontrolled Venting	580 IFR Batterv	6.745	8.063
_	Method 1* at two tanks	5100 IFR Batterv	5.775	6.881
	and passive venting at	DEFR Battery	7,380	7,889
	one tank.	Riverside IFRs	8,968	8,470
3	Uncontrolled Venting	580 IFR Battery	11,167	13,309
	Method 2* at two tanks,	5100 IFR Battery	6,119	7,291
	and passive ventilation	DEFR Battery	7,383	7,893
	at three tanks.	Riverside IFRs	9,036	8,552
4	Uncontrolled Venting	580 IFR Battery	7,776	9,320
	Method 3* at two tanks,	5100 IFR Battery	10,640	12,775
	and passive venting at	DEFR Battery	7,377	7,886
	one tank.	Riverside IFRs	8,930	8,425
5	One Vacuum Truck at one	Any Location	3,478	4,551
	tank, and passive			
	ventilation at three			
	tanks.			
6	Pipeline and Manifold MSS	Any Location	11,524	13,811
7	Two Vacuum Truck use at	Any Location	3,001	3,740
	Manifolds for sludge			
	removal, controlled by			
	scrubbers.			
8	Vapor Collection from	Riverside Vapor	5,628	6,417
	seal pots and knockout	Combustor / IFRs		
	pots			

\* Uncontrolled Venting Methods 1, 2, 3, and 4 defined in SC No.32.H.

Tank Batteries are defined as follows:

Tank Battery Name	Tanks in Battery
5100 IFR Battery	T589, T5100, T5101, T5102, T5103, T5104, T5105, T5106, T5107, T5108, T590, T591, T592, T593, T595, T596, T597, T598, T599
580 IFR Battery	T554, T556, T580, T583, T584, T585, T586, T587, T588
DEFR Battery	300-11, 300-12, 300-13, 300-14, 390-1, 390-2, 390-3, 390-4, 390-5, 390-6, 300-7, 250-9, 390-17, 390-18, 390-19, 390-20
Riverside IFR Battery	100-26, 100-27, 100-30, 100-31, 100-32, 150-1, 150-2, 150-3, 150-4, 150-5,150-13, 150-14, 150-15, 160-7, 160-8, 551, 552

\* Tanks in the DEFR Battery are authorized under this permit and Permit by Rule (PBR) Nos. 122231 and 131319.

\*\* Tanks 100-32, 160-7, and 160-8 are authorized under PBR Nos. 94732 and 97245.

Records shall be kept and maintained identifying the date, time, and duration of all waste drumming, staging, (or temporary storage activities), frac tank washing/loading activities. Additionally, records shall be kept and maintained identifying the date, time, and duration of all activities at Tank Locations. For each Tank Location the associated scenario and GLCmax shall

also be recorded. Records shall be kept for at least a two-year rolling period and made available to the Executive Director of the TCEQ or his designated representative upon request.

- 42. The following requirements apply to vacuum and air mover truck operations to support planned MSS at this site:
  - B. 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.
  - C. 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 SC No. 40.A or 40.B.
  - D. Record the volume in the vacuum truck at the end of the day, or the volume unloaded, as applicable.
  - E. 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.
  - F. 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 SC Nos. 37.A through 37.D do not apply.
- 43. The following requirements apply to frac, or temporary, tanks and vessels used in support of MSS activities.
  - B. 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.

- C. These tanks/vessels must be covered and equipped with fill pipes that discharge within 6 inches of the tank/vessel bottom.
- D. 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.
- E. 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 Sources Storage Tanks."
- F. 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.
- G. If water is added or sprayed into a tank/vessel to clean and remove standing VOC, one of the following must be demonstrated before the tank/vessel is opened to the atmosphere:
  - (1) 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.
  - (2) 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).
  - (3) 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 SC No. 40.

Additionally, the permit holder shall verify through visual inspection that the tank/vessel contains no standing liquid before the tank/vessel is opened to the atmosphere. The permit holder shall maintain records to document the method used to remove standing VOC from the frac tank.

- 44. Additional occurrences of MSS activities authorized by this permit in Attachments A, B, or C may be authorized under permit by rule only if conducted in compliance with this permit's procedures, emission controls, monitoring, and recordkeeping requirements applicable to the activity.
- 45. Control devices required by this permit for emissions from planned MSS activities are limited to those types identified in this condition. Control devices shall be operated with no visible emissions except periods not to exceed a total of five minutes during any two consecutive hours. Each device used must meet all the requirements identified for that type of control device.

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

B. 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 SC No. 40.A or 40.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.
- C. A liquid scrubbing system may be used as the sole control device if the requirements below are satisfied.
  - (1) The exhaust to atmosphere shall be monitored continuously and the VOC concentration recorded at least once every 15 minutes when waste gas is directed to the scrubber.
  - (2) The method of VOC sampling and analysis shall be by detector meeting the requirements of SC No. 40.A.
  - (3) An alarm shall be installed such that an operator is alerted when outlet VOC concentration exceeds 100 ppmv above background. The MSS activity shall be stopped as soon as possible when the VOC concentration exceeds 100 ppmv above background for more than one minute. The date and time of all alarms and the actions taken shall be recorded.
  - (4) When the liquid scrubber system consists of two liquid scrubbers in series, each with adequate scrubbing solution to control MSS emissions for at least 24 hours, the system shall be sample downstream of the first liquid scrubber and the concentration recorded once every 24 hours to check for breakthrough. The MSS activity shall be stopped as soon as possible when the VOC concentration exceeds 100 ppmv above background for more than one minute. The date and time of all readings and the actions taken shall be recorded.
- D. A closed loop refrigerated vapor recovery system
  - (1) The vapor recovery system shall be installed on the facility to be degassed using good engineering practice to ensure air contaminants are flushed from the facility through the refrigerated vapor condensers and back to the facility being degassed. The vapor

recovery system and facility being degassed shall be enclosed except as necessary to insure structural integrity (such as roof vents on a floating roof tank).

- (2) VOC concentration in vapor being circulated by the system shall be sampled and recorded at least once every 4 hours at the inlet of the condenser unit with an instrument meeting the requirements of SC No. 40.
- (3) The quantity of liquid recovered from the tank vapors and the tank pressure shall be monitored and recorded each hour. The liquid recovered must increase with each reading and the tank pressure shall not exceed one inch water pressure while the system is operating.
- E. A portable vapor combustion unit may be used if the requirements below are satisfied.
  - (1) The vapor combustion unit shall provide no less than 99.5 percent DRE control of the waste gas directed to it, or allow a VOC exit stream concentration of no greater than 10 ppmv, dry corrected to 3 percent oxygen. This may be demonstrated by:
    - (a) Maintaining thermal oxidizer/vapor combustor firebox exit temperature at not less than 1400°F with 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/combustor; or
    - (b) Having completed a control efficiency demonstration (stack test) in accordance with the approved test methods in 30 TAC 115.545 (relating to Approved Test Methods) within the past 12 months and maintaining vapor combustor firebox exit temperature at not less than that temperature maintained during the demonstration with waste gas flow limited to that maintained during the demonstration while waste gas is being fed into the combustor.
  - (2) The vapor combustor exhaust temperature shall be continuously monitored and recorded when waste gas is directed to the oxidizer/combustor. 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  $\pm 0.75$  percent of the temperature being measured expressed in degrees Celsius or  $\pm 2.5^{\circ}$ C.

- F. Permanent vapor combustors shall comply with the requirements of SCs 3 and 5.
- 46. The following requirements apply to capture systems routed to the portable vapor combustor during MSS tank roof landing, degassing, or refill activities.
  - B. During each use of a portable vapor combustor either conduct a 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. Leaks shall be indicated by an instrument reading greater than or equal to 500 ppmv above background.
  - C. The control device shall not have a bypass.
  - D. The date and results of each inspection performed shall be recorded. If the results of any inspection are not satisfactory, the deficiencies shall be recorded and the permit holder shall promptly take necessary corrective action, recording each action with the date completed.

- 47. The following records shall be kept for at least a five-year rolling period and made available to the Executive Director of the TCEQ or his designated representative upon request.
  - B. Visible emissions from the vapor combustors. Records shall be kept of any visible emissions from the vapor combustors including vapor combustor EPN, date and duration of visible emissions.
  - C. Tank storage records. The records shall include tank or loading point identification number, control method used, tank or vessel capacity in barrels, name of the material stored or loaded, amount of the material stored or loaded in barrels, ESL of the material stored or loaded, VOC molecular weight, VOC vapor pressure at the material temperature in psia, and benzene content in weight percent of liquid. The tank records shall be sufficient in detail to determine compliance with SC Nos. 11 through 16.
  - D. Marine loading operations. Records shall be kept of product loading to marine vessels. The records that shall be kept are as follows:
    - (1) For all controlled loading, records of each loading operation performed shall include (but are not limited to) date and time, dock used, product loaded, ESL of product loaded, benzene content, H<sub>2</sub>S concentration, vessel type (ship or barge), loading rate (bbl/hour), total amount of product loaded (bbls), temperature of product loaded in °F using actual measured value, vapor pressure of product at loading temperature in psia, type of loading (controlled with vacuum assist or controlled without vacuum assist), the heat of combustion, ΔhC, for the product being loaded and calculated air emissions from the loading listed for each vapor combustor EPN (VC-1, VC-2A, VC-2B, and VC-2C). The controlled marine loading records shall be sufficient in detail to determine compliance with all Special Conditions of this permit applicable to controlled marine loading, and to calculate compliance with the emission limits in the MAERT.
    - (2) For all uncontrolled loading, records of each loading operation performed shall include (but are not limited to) date and time, dock used, product loaded, ESL of product loaded, benzene content, H<sub>2</sub>S concentration, vessel type (ship or barge), loading rate (bbl/hour), total amount of product loaded (bbls), temperature of product loaded in °F using actual measured value, vapor pressure of product at loading temperature in psia, type of loading (uncontrolled), and calculated air emissions from the loading listed for each EPNs NVESSEL1, SVESSEL1, DOCK1, and DOCK2. The uncontrolled marine loading records shall be sufficient in detail to determine compliance with all Special Conditions of this permit applicable to uncontrolled marine loading operations, and to calculate compliance with the emission limits in the MAERT.

# **Emission Cap Calculation**

48. The holder of this permit shall provide a continuous demonstration of compliance with the emission cap limits listed in the attached table entitled "Emission Sources – Maximum Allowable Emission Rates" by calculating and recording aggregate air contaminant emission rates as outlined in Attachment 3, Emission Cap Calculation and Recordkeeping.

These records shall be maintained at the plant site on at least a five-year retention basis and shall be made available upon request to TCEQ personnel or to any local air pollution control agency having jurisdiction.

49. The following sources and/or activities are authorized under a 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. **(03/25)** 

Authorization	Source or Activity Authorized
PBR No. 43352	Fugitive components
PBR No. 51105	Fugitive components and one fixed roof tank
PBR No. 56132	Fugitive components and six fixed roof tanks
PBR No. 76912	Marine loading at Barge Dock A and fugitive components
PBR No. 78552	Increased tank pumping rate
PBR No. 78927	Fugitive components and three fixed roof tanks
PBR No. 79617	Four fixed roof tanks, a heater, and fugitive components
PBR No. 83482	Fugitive components
PBR No. 86367	Four fixed roof tanks, a heater, and fugitive components
PBR No. 91630	Fugitive components
PBR No. 94732	One IFR tank and fugitive components.
PBR No. 96946	Certified emissions from twenty fixed roof tanks, a heater, and fugitive components.
PBR No. 97245	Five new IFR tanks, fugitive components, and controlled MSS roof landings.
PBR No. 108754	One fixed roof tank and fugitive components.
PBR No. 122231	Five new DEFR tanks, two IFR tanks, fugitive components, and controlled MSS roof landings.
PBR No. 131319	Four new DEFR tanks, one IFR tank, fugitive components, and controlled MSS roof landings.
PBR No. 156280	Colonial Tanks MSS.

Date: March 14, 2025

## Permit Numbers 21356 Attachment A

MSS Inherently Low VOC Emitting Activities

Temporary Storage and Disposal of Roll-off Boxes Aerosol and Solvent Products Sump Cleaning Minor Vessel Openings for Maintenance Inspections Open Hatches for Visual IFR Inspections While in Active Service Open Manway for Visual Inspections While in Residue Service Liquid Drumming Hose and Line Fills (and associated emissions from a catch bucket or drip pan)

Date: May 2, 2018

## Permit Number 21356 Attachment B

#### **MSS** Routine Maintenance Activities

Pump and Valve Maintenance Gasket Replacement Hose and Line Draining, Clearing, and Drying Openings for Equipment Maintenance Pipeline Fills Pump Priming Pipeline Clearing, Draining, and Venting Pipeline Washing (with and without a Pig) Pipeline and Hose Bleeding Pressure Pig Installation/Removal Pipe Sample Collection Solid Waste Drumming Sump Cleaning (storm water catch basin)

Date: May 2, 2018

# Permit Number 21356 Attachment C MSS Activity Summary

Facilities	Description	Emissions Activity	EPN
Attachment A	Activities listed in Attachments A	Vent to atmosphere	MSS-U
Attachment B	Activities listed in Attachment B	Vent to atmosphere	MSS-U
IFR and DEFR Tanks	Roof landings (uncontrolled and controlled venting and tank	Vent to atmosphere	MSS-U
	refilling)	Vent to control device	PORTVC
IFR and DEFR Tanks	Tank Degassing (with landed roof if applicable)	Vent to control device	PORTVC
IFR and DEFR Tanks	Opening and cleaning	Ventilation (passive or active)	MSS-U
Vacuum Trucks	Tanks and process units purging, degassing, and draining	Vent to control device	MSS-C
Frac Tanks	Frac tank usage	Vent to atmosphere	MSS-U
Frac Tanks	Frac tank washing	Vent to atmosphere	MSS-U

Date: February 28, 2019

# ATTACHMENT 1

## Permit Number 21356

Approved Product List for Internal Floating Roof Tanks and Ship and Barge Loading				
Acetal	Ethyl Formate	Methyl Isoamyl Ketone		
Acetone	Ethyl Hexane	Methyl Isobutyl Ketone		
Acetonitrile	Ethyl Methacrylate	Methyl Isopropyl Ketone		
Alkylate	Ethyl Pentane	Methyl Methacrylate		
Amyl Acetate	Ethyl Propionate	Methyl Pentane		
Amyl Alcohol	Gasoline	Methyl Propionate		
Benzene	Gasoline Additives (non-metallic)	Methyl Propyl Ketone		
Butyl Acetate	Heptane	Naphtha		
Butyl Alcohol	Heptene	Natural Gas Condensate		
Butyl Ether	Hexane	Neohexane		
Butyl Formate	Hexene	No. 6 Oil		
Butyronitrile	Hexanone	Octane		
Cellosolves	Isobutyl Acetate	Octene		
Cellosolve Acetates	Isobutyl Alcohol	Propyl Acetate		
Chlorobenzene	Isobutyl Isobutyrate	Propyl Alcohol		
Condensate	Isohexane	Propyl Formate		
Crude Oil	Iso Octane	Propyl Propionate		
Crude Oil Condensates	Isopropyl Acetate	Pyrolysis Gasoline		
Cyclohexane	Isopropyl Alcohol	Raffinate		
Cyclohexene	Isopropyl Ether	Refinery Petroleum		
		10% Benzene		
Cyclopentane	Jet Kerosene (JP-5)	Reformate		
	let Nanhtha (JP-4)	Toluene		
Cyclopentanone	Mesityl Oxide	Vinvl Acetate		
Cyclopentene	Methyl Acetate	Vacuum Gas Oil		
Diesel	Methyl Alcohol	Varsol		
Diethyl Ketone	Methyl Amyl Alcohol	Xvlene		
Dipropyl Ketone	Methyl Butyrate			
Ethyl Acetate	Methyl Cyclohexane			
Ethyl Alcohol	Methyl Cyclopentane			
Ethyl Benzene	Methyl Ethyl Ketone			
Ethyl Butyrates	Methyl Heptane			
Ethyl Cyclohexane	Methyl Hexane			
Ethyl Cyclopentane	Methyl-Tert-Butyl Ether			

Date: May 2, 2018

# ATTACHMENT 2

## Permit Number 21356

Approved Product List for Fixed-Roof Tanks and Ship and Barge loading

**Butyl Acetate Butyl Alcohol** Cellosolves Crude Oil \* Cyclopentanone **Dipropyl Ketone** Ethyl Benzene **Ethyl Butyrates** Ethyl Cyclohexane Gasoline Additives (non-metallic) \* Hexanone Isobutyl Alcohol Mesityl Oxide Methyl Amyl Alcohol Octane **Propyl Propionate** Refinery Petroleum (Products containing less than 10 percent Benzene) \*\* Vacuum Gas Oil Xylene

- \* With vapor pressure less than 0.5 psia at maximum storage temperature.
- \*\* Includes: marine diesel oil, marine gas oil, No. 2 oil, No. 6 oil, light cycle oil, slurry, bunkers, and other refinery petroleum products with vapor pressures less than 0.5 psia at the maximum storage temperature.

Date: May 2, 2018

## ATTACHMENT 3

## Permit Number 21356

## Emission Cap Calculation and Recordkeeping

**Volatile Organic Compounds (VOC) Emissions** - By the end of the following month, the permit holder shall calculate and record air contaminant emission rates for the calendar month in units of tons per month and for the trailing 12-month period in units of tons per year (tpy) for all emission units subject to overall emission rate limits on the following air contaminants:

VOC

Benzene

Upon request from the Executive Director or as otherwise required by any condition of this permit, the monthly emission rate shall be used to derive the maximum pounds-per-hour (lbs/hr) emission rate value with which to demonstrate compliance with the applicable overall short-term allowable emission rate limits for VOC and benzene.

The following limits apply to the tanks listed in the Hourly Tank Group 1 Compliance Cap and the pipeline component equipment listed in the Hourly Fugitives Group 1 Compliance Cap if products containing benzene are to be stored or handled at the permitted facility:

- B. The total hourly storage tank benzene emissions shall not exceed the following limits:
  - (1) 24.75 lb/hour from tanks storing products containing more than 9 wt.-% benzene, or
  - (2) 29.97 lb/hour from all tanks storing products containing benzene if the total hourly storage tank benzene emissions from the tanks storing products containing more than 9 wt.-% benzene exceed 24.75 lb./hr.
- C. The total hourly equipment fugitive benzene emissions shall not exceed the following limits:
  - (1) 1.06 lb/hour from transferring products containing more than 9 wt.-% benzene, or
  - (2) 1.16 lb/hour from transferring products containing benzene if the total hourly equipment fugitive benzene emissions from transferring products containing more than 9 wt.-% benzene exceed 1.06 lb./hr.
- D. Compliance with these limits shall be demonstrable with the permit holder's knowledge and record of the information listed below prior to the onset of any period of subject storing or handling, regardless of the stored material's benzene concentration:
  - (1) The storage vessels and supporting equipment proposed for the specified service.
  - (2) The duration of each period of the specified service, indicated by the time and date of the period's onset and cessation.
  - (3) The fractional composition (wt.-%) of benzene in all subject material to be stored or handled.
  - (4) The physical and operational parameters necessary for the calculation of emission rates from all subject storage vessels and supporting equipment.
  - (5) The calculations (therefore including conservative estimates) and their results necessary to demonstrate compliance with the applicable emission rate limits of (A) and (B) above, derived by the methods described in this condition using the data required to be known and recorded by Items 1.- 4. of this Subparagraph.

Attachment 3 Permit Number 21356 Emission Cap Calculation and Recordkeeping Page 2

E. The information required by subparagraph (C) of this condition shall be maintained at the plant site during, and for no less than five years after, each operational period in which it is recorded, and shall be made available upon request to TCEQ personnel or to any local air pollutant control agency having jurisdiction.

All storage tank emissions shall be calculated and recorded using the methodology in: (a) AP-42 "Compilation of Air Pollution Emission Factors, Fifth Edition, Chapter 7 - Storage of Organic Liquids," dated January 1995 including Supplement D dated September 1997 (or the U.S. EPA TANKS 4.09b or higher computer program) and (b) the TCEQ publication titled "Technical Guidance Package for Chemical Sources - Storage Tanks" dated February 1995 or later. The derived rim seal loss factor, KR of 4.0 for riveted internal floating roof tanks equipped with a vapor mounted primary seal and a rim-mounted secondary seal shall be used in emission calculations for this type of tank (pages VII.C-49 through VII.C-51 of flexible permit application).

Total combined fugitive emissions (EPNs DKFUG, FUG2, FUG3, FUG4, FUG5, FUG6, FUG7, FUG8, FUG13, and METERSTAT1) shall be calculated and recorded using the following emission factors:

VOC-0.46 lbs/hr; 11.04 lbs/day

Benzene-0.24 lbs/hr; 5.76 lbs/day

Using the fugitive emission factors and credits appropriate for the Leak Detection and Repair Program in SC No. 36, permittee shall revise the above emission factors as necessary to incorporate the future addition and removal of fugitive emission components. Records of any such adjustments shall be maintained with each monthly compliance demonstration using the above factors as the base.

Emissions from Vapor Combustor 1 (EPN VC-1) shall be calculated and recorded. A VOC destruction efficiency of at least 99.9 percent is assumed for this vapor combustor. Hence, the VOC emitted from this vapor combustor shall be no more than 0.1 percent of the VOC sent to it. The VOC sent to the vapor combustor shall be 100 percent of controlled loading emissions with vacuum assist. Controlled loading emissions shall be calculated using the loading loss equation in AP-42 "Compilation of Air Pollution Emission Factors, Fifth Edition, Chapter 5 - Transportation and Marketing of Petroleum Liquids," dated January 1995, the appropriate saturation factor, S, 0.2 for ships and 0.5 for barges, the actual vapor pressure P (in psia), and the actual liquid temperature, T (in degrees Rankine).

Benzene emissions for the internal floating roof tanks, ship and barge dock fugitives, vapor combustor, and marine loading flares shall be calculated and recorded by multiplying the VOC emission by the benzene vapor weight percentage (i.e., the benzene in a VOC stream containing 5 percent (by vapor weight) benzene would be the VOC emission rate multiplied by 0.05).

**Criteria Pollutant Emissions -** By the end of the following month, the permittee shall calculate and record air contaminant emission rates for the calendar month in units of tons per month and for the trailing 12-month period in units of TPY for the following air contaminants:

Nitrogen Oxides (NO<sub>x</sub>) Carbon Monoxide (CO) Attachment 3 Permit Number 21356 Emission Cap Calculation and Recordkeeping Page 3

For Vapor Combustor 1 (EPN VC-1), the NO<sub>x</sub> and CO emission factors used in this recordkeeping shall be applied with the calculative techniques contained on pages IX.E-4 and IX.E-5 of the flexible permit amendment application dated August 2009 or from any other reputable source, and shall not exceed the following:

- NO<sub>x</sub> 0.11 lbs per million BTU
- CO 0.12 lbs per million BTU

The BTU content of the material being sent to Vapor Combustor 1 shall be calculated using the technique contained on pages VII.C-27 and VII.C-28 of the flexible permit application dated October 2000 or from any other reputable source. The loading loss, LL, shall be calculated using the actual temperature of the liquid being loaded, T, in degrees Rankine and the actual vapor pressure of the loading liquid at that temperature in psia.

Date: February 28, 2019

#### ATTACHMENT 4 Permit Number 21356 E/ESL Factors for Single and Multiple Tank Re-Fill Scenarios

Single Tanks with Roofs to be Refloated Individually						
Tank No.	E/ESL Factor	Tank No.	E/ESL Factor		Tank No.	E/ESL Factor
551	0.510	584	0.147	1	150-1	0.539
552	0.397	585	0.139	1	150-2	0.705
554	0.151	586	0.121	1	150-3	0.654
556	0.140	587	0.114		150-4	0.732
580	0.153	588	0.186		150-5	0.762
583	0.130	589	0.080		150-13	0.046*
		5100	0.104			0.078**
		5101	0.061		150-14	0.046*
		5102	0.069			0.078**
		5103	0.057		150-15	0.046*
		5104	0.080			0.078**
		5105	0.065		100-30	0.046*
		5106	0.086			0.078**
		5107	0.097	7	100-31	0.046*
		5108	0.111			0.078**
				] [		

\* for products that contain benzene

\*\* for products that do not contain benzene

Multiple Tanks with Roof to be Refloated Simultaneously <sup>(1)</sup>	E/ESL Factor <sup>(2)</sup>
580, 589, 5100, 5101, 5102, 5103, 5104, 5105, 5106, 5107, 5108 and up to 17 other tanks are "Idle" <sup>(3)</sup>	0.336
580 and up to 17 other tanks are "Idle"	0.468
580, 589, 5100, 5101, 5102, 5103, 5104, 5105, 5106, 5107, 5108 and 8	0.35
other tanks are "Idle"	
580 and up to 23 other tanks are "Idle"	0.172
585, 586, 587, 588 and up to 23 other tanks are "Idle"	0.292
580 and no tanks "Idle"	0.24
585, 586, 587, 588 and no tanks "Idle"	0.356
150-1, 150-2, 150-3, 150-4 and up to 23 other tanks are "Idle"	0.608
150-1, 150-2, 150-3, 150-4 and no tanks "Idle"	0.796

(1) The E/ESL factor for multiple tank scenarios not described in the table shall be the lesser of:

- (a) the factor for the most similar described scenario, or
- (b) the factor determined as:
  [SUM (Individual Tanks E/ESL)]\* [0.37], for scenarios with idle tanks
  [SUM (Individual Tanks E/ESL)]\* [0.51], for scenarios without idle tanks
- (2) The E/ESL factor for multiple tank scenarios determines the total emission rate from all tanks.
- (3) The "Idle" term means the roof is landed and the vapor space below it has not been degassed; the designation pertains only to tank(s) not included in the re-fill scenario being evaluated.