UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS TX 75202-2733

NOV 21 2016

LDEQ
Public Participation Group
Louisiana Department of Environmental Quality
P.O. Box 4313
Baton Rouge, LA 70821-4313

Re: Proposed Title V Operating Permit Number 1560-00027-V2 and associated modification of Prevention of Significant Deterioration (PSD) permit PSD-LA-796(M-1) authorizing major modification and continuing operation of the Louisiana Offshore Oil Port (LOOP, LLC) – Port Complex, Galliano, Lafourche Parish, Louisiana. Agency Interest (AI) No.4634, Activity No. PER20160001

To Whom It May Concern:

The Environmental Protection Agency (EPA) has reviewed the proposed air permits for the LOOP, LLC Port Complex located in Lafourche Parish, Louisiana. We received notification of the draft permit from the LDEQ via email, which included a copy of the permit and statement of basis. We then evaluated the draft permits to ensure consistency with the Louisiana State Implementation Plan (SIP) and Federal Clean Air Act requirements. Our comments on proposed 1560-00027-V2 and associated draft PSD Permit No. PSD-LA-796(M-1) follow.

Based on our evaluation, we have preliminarily identified the following items of concern:

The Best Available Control Technology (BACT) analysis for the VOC emissions associated with the new storage tanks states that the BACT proposed is essentially compliance with all the applicable requirements of 40 CFR Part 60 Subpart Kb[1]. A subsequent expansion on that analysis was provided in a September 16, 2016 communication[2] to the LDEQ for the project. The analysis states that VOC BACT for the six new proposed crude oil storage tanks is determined to be storage vessels equipped with external floating roofs (EFRs) to limit VOC emissions to the annual ton/year emission rates, and to minimize the time required for roof landing operations for both convenience and for purposes of degassing and cleaning. Further, the proposed BACT is to route emissions from part of the degassing and cleaning to a portable incineration device with a control efficiency of 98%. Finally, the communication states, that the project requires the use of EFR tanks, and thus to convert such a tank to a closed vent system would be cost prohibitive for the project and for the additional amount of VOC potentially reduced. While the BACT analysis did not address the type of tank bottom to be utilized, unless there is a technical reason for precluding such use, the tank should be designed to minimize any liquid remaining when empty by employing either a drain dry bottom or employ a tank floor structure

[1] See Preliminary Determination Summary, Page 8.
[2] See email communication from Kerry Brouillette of C-Ka Associates to Dr. Qingming Zhang, dated September 16, 2016, as found in EDMS Document Number 10345520



ED_001774D_00109625-00001

that will inherently minimize the pooling of liquid that would be subject to emissions release when the external floating roof is resting on its legs, and thus the floating roof controls of this type compromised.

In EPA's review and July 31, 2015 letter commenting on VOC emissions from storage tank BACT related to the 2015 version of this permit, EPA identified as an example, a RACT/BACT/LAER clearing house entry for a Texas facility that did require control of landing losses from external floating roof (EFR) tanks (See RBLC entry TX-0756). It should be noted that an additional RBLC entry, number TX-0752, citing a Texas NSR/PSD Permit Number 122362/PSD-TX-1430 issued on June 22, 2015 also requires control of EFR landing emissions at a crude oil transfer and storage facility, both for convenience (i.e., product separation) and for purposes leading to and including tank degassing and cleaning. A copy of the TCEQ permit PSD-TX-1430 Special Conditions[3] is enclosed for example only, and for your convenience of how EFR roof landings have been addressed in an issued PSD permit in another Region 6 state.

EPA agrees that it is important to minimize the amount of time that the referenced EFR tank roofs are landed because landing the roof defeats the ability of the roof structure to control tank emissions, but EPA also believes that current BACT EFR landing loss control technology does not require that an external floating roof be converted to an internal floating roof tank. Control technology similar to that cited in the Texas PSD-TX-1430 permit is relevant and was available, but was not cited in the BACT analysis presented in this subject project, nor was justification provided why this project's conditions make such controls technically or economically infeasible.

While the proposed permit does appear to require in Specific Requirement 123 that a 12-month rolling total be calculated each month as part of the demonstration to assure compliance with VOC tank emissions cap, it does not appear to contain practically enforceable terms and conditions sufficient to demonstrate compliance with regard to tank landings and the control of emissions during degassing and cleaning operations. There appears to be insufficient specificity in how the control during degassing and cleaning is to be undertaken or documented or emissions calculated. In the permit application section on emissions calculation of tank landing emissions, it would appear that the duration of such landings would be a single 24 hr period. However, there is no requirement in the permit that would require the collection of each event of each tank roof landing and/or degassing and cleaning event, nor the duration of each.

In summary, we believe that, unless technically justified in their exclusion, all tank landing emissions should reasonably have been included in the BACT evaluation, not only those associated with cleanings, and controls required for each roof landing, regardless of reason. For practically enforceable reasons, we believe that the permit should include clearer requirements for the required use of the thermal control device when controlling emissions from the roof landings and from any degassing and cleaning operations, and in documenting how the emissions from each mode of operating are to be calculated and recorded. The LDEQ should update the BACT review and associated terms and conditions in the permit to address these matters.

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[3] Retrieved from the TCEQ Remote Document Server located here: https://webmail.tceq.state.tx.us/gw/webpub and searching "122362" and selecting document identified as "cnd 122362-PSD1430 Oxy 215243 - 216284 int" from the search result.

We look forward to working with the LDEQ to resolve the issues identified in our comments and to ensure that the final permit is consistent with the requirements of the approved Louisiana New Source Review and Title V programs. This letter is not a final position by the EPA concerning the disposition of the draft permits. Upon issuance of the final permits for this project, we will review the final permits and LDEQ's response to our comments to determine if our comments have been appropriately addressed in the final permits and permitting record. If you have any questions, please feel free to contact Brad Toups, of my staff, at (214) 665-7258.

Sincerely

Jeff Robinson
Chief
Air Permits Section

Enclosure

Special Conditions

Permit Number 122362/PSDTX1430

1. This permit covers only those sources of emissions listed in the attached table entitled "Emission Sources - Maximum Allowable Emission Rates" (MAERT), and those sources are limited to the emission limits and other conditions specified in that table.

2. Non-fugitive emissions from relief valves, safety valves, or rupture discs of gases containing volatile organic compounds (VOC) at a concentration of greater than 1 weight percent are not authorized by this permit unless authorized on the MAERT. Any releases directly to atmosphere from relief valves, safety valves, or rupture discs of gases containing VOC at a concentration greater than 1 weight percent are not consistent with good practice for minimizing emissions.

## Federal Applicability

3. These facilities shall comply with all applicable requirements of the U.S. Environmental Protection Agency (EPA) regulations on Standards of Performance for New Stationary Sources promulgated in Title 40 Code of Federal Regulations Part 60 (40 CFR Part 60):

   A. Subpart A, General Provisions.

   B. Subpart Kb, Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984.

   C. Subpart OOOO, Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution

4. These facilities shall comply with all applicable requirements of the U.S. Environmental Protection Agency (EPA) regulations on National Emission Standards for Hazardous Air Pollutants for Source Categories in 40 CFR Part 63:

   A. Subpart A, General Provisions.

   B. Subpart EEEE, National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline).

5. If any condition of this permit is more stringent than the applicable regulations in Special Condition Nos. 3 and 4, then for the purposes of complying with this permit, the permit shall govern and be the standard by which compliance shall be demonstrated.

## Emission Standards and Operational Specifications

6. Fuel gas combusted at this facility shall be pipeline quality natural gas containing no more than 0.2 grains of total sulfur per 100 dry standard cubic feet. The

natural gas shall be sampled every 6 months to determine total sulfur and net heating value. Test results from the fuel supplier may be used to satisfy this requirement. Fuel gas volume used for each combustion device shall be monitored and recorded with records being updated on a monthly basis.

7. Storage tank throughput and service shall be limited to the following

| Tank EPN | Service | Fill/Withdraw Rate (barrels/hr) |
|---|---|---|
| T-101 | Crude/Crude Condensate | 30,000 |
| T-102 | Crude/Crude Condensate | 30,000 |
| T-103 | Crude/Crude Condensate | 30,000 |
| T-104 | Crude/Crude Condensate | 30,000 |
| T-105 | Crude/Crude Condensate | 30,000 |
| T-106 | Crude/Crude Condensate | 30,000 |
| T-107 | Crude/Crude Condensate | 30,000 |
| T-108 | Crude/Crude Condensate | 30,000 |
| T-109 | Crude/Crude Condensate | 30,000 |
| T-110 | Crude/Crude Condensate | 30,000 |
| T-111 | Crude/Crude Condensate | 30,000 |
| T-112 | Crude/Crude Condensate | 30,000 |
| T-200 | Crude/Crude Condensate | 1,000 |
| T-201 | Crude/Crude Condensate | 1,000 |
| T-202 | Crude/Crude Condensate | 1,000 |
| T-203 | Crude/Crude Condensate | 1,000 |

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

   A. The tank emissions must be controlled as specified in one of the paragraphs below:

      (1) 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.

      (2) An open-top tank shall contain a floating roof (external floating roof tank) which uses double seal or secondary seal technology provided the

primary seal consists of either a mechanical shoe seal or a liquid-mounted seal and the secondary seal is rim-mounted. A weathershield is not approvable as a secondary seal unless specifically reviewed and determined to be vapor-tight.

B. For any tank equipped with a floating roof, the permit holder shall perform the visual inspections and any seal gap measurements specified in Title 40 Code of Federal Regulations § 60.113b (40 CFR § 60.113b) Testing and Procedures (as amended at 54 FR 32973, Aug. 11, 1989) to verify fitting and seal integrity. Records shall be maintained of the dates inspection was performed, any measurements made, results of inspections and measurements made (including raw data), and actions taken to correct any deficiencies noted.

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

D. 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.

9. Each tank shall be designed to completely drain its entire contents to a sump in a manner that leaves no more than 8 gallons of free-standing liquid in the tank sump.

10. The holder of this permit shall reduce the temperature and/or vapor pressure of the stored material as needed to maintain a true vapor pressure of less than 11.0 psia at actual storage conditions in each storage tank. Storage of any product with a true vapor pressure of 11.0 psi or greater at ambient conditions is not authorized by this permit.

11. The permit holder shall determine the dissolved $H_2S$ concentration of each crude oil stock to be stored using ASTM D7621 or UOP163, or additional method approved by TCEQ.

A. The dissolved hydrogen sulfide in the crude oil shall not exceed 50 parts per million by weight (ppmw) in any sample.

B. The frequency of sampling shall be the more frequent of:

(1) quarterly; or

(2) within 60 days of any crude oil stock change of service.

12. The permit holder shall maintain an emissions record which includes calculated emissions of VOC and H2S from all storage tanks during the previous calendar month and the past consecutive 12 month period. The record shall include tank identification number, control method used, tank capacity in gallons, name of the material stored, VOC molecular weight, liquid monthly average temperature in degrees Fahrenheit, VOC and H2S vapor pressure at the monthly average material temperature in psia, liquid throughput for the previous month and year-to-date. Records of monthly average liquid 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, August 1, 2014. Sample calculations from the application shall be attached to a copy of this permit at the plant site.

Marine Loading

13. The loading of barges and ships is limited to loading crude oil and crude condensate. All vapors generated from marine loading shall be routed to the marine loading vapor control system (Vapor Combustor EPNs VCU-1, VCU-2, or VCU-3).

    The loading rate at any time shall not exceed a combined loading rate of 90,000 barrels per hour (30,000 bbl/hr for each of the three vapor combustors).

14. All loading lines (hoses) and connectors shall be visually inspected for any defects prior to hookup. Lines and connectors that are visibly damaged shall be removed from service. Operations shall cease immediately upon detection of any liquid leaking from the lines or connections. Flanged connections shall be used for all loading operations. The following actions shall be taken prior to removing loading lines/hoses from marine vessels and shore facilities.

    A. After the transfer is complete, the loading line/hose shall be isolated at the connection to the shore piping. The loading line/hose shall be vented at the shore piping and shall be gravity drained into the marine vessel per the site operating procedure.

    B. The loading line/hose may be disconnected from the shore and/or marine vessel piping after the liquid has been removed to the extent possible by gravity draining to the vessel being loaded. If it is necessary to further empty the line/hose, any residual liquid in the line/hose shall be immediately drained directly into a covered sump. If the line/hose is not

emptied, the open end(s) of the line/hose shall be immediately capped, plugged, or blinded to prevent leakage.

C. After the loading line/hose has been removed from the vessel, the vapor return line shall be immediately isolated.

The actions shall be documented as part of the loading procedure.

15. Marine vessels shall not be loaded unless the vapor collection system is properly connected and the entire collection and destruction system is working as designed.

16. Unless the vessel must be inerted during loading due to safety requirements, all vapors associated with marine loading shall be routed through a vacuum-assisted collection system as specified below

A. the marine loading vapor collection system shall be operated such that the vacuum maintained in the collection system during loading is no less than one inch of water and that the vessel being loaded is also under a vacuum.

B. The vacuum monitor shall be installed, calibrated at least annually, and maintained according to the manufacturer's specifications. The device shall have an accuracy of the greater of ±5 percent of the vacuum being measured or ±0.15 inches of water.

C. A pressure measurement device shall be installed as close as possible to the vessel's vapor return port to continuously monitor and record the vacuum while loading is taking place. The collection system vacuum shall be continuously monitored and recorded at least once every 6 minutes while loading is occurring. The monitoring device shall be accurate to, and shall be calibrated at least annually in accordance with, the manufacturer's specifications.

D. Quality-assured (or valid) data must be generated when loading is occurring. 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 barge loading is occurring over the previous rolling 12-month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

17. The following requirements apply to marine vessels (ships and ocean going barges) that must remain inerted during loading (it is not possible to draw a vacuum on the marine vessel) due to safety concerns and cannot be loaded under vacuum as specified in condition 16.

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). The permit holder shall record the leak test documentation for all ships and ocean going barges loaded.

B. The pressure at the vapor recovery connection of an inerted marine vessel must be maintained such that the pressure in a vessel's cargo tanks does not go below 0.2 pounds per square inch gauge (psig) or exceed 80 percent of the lowest setting of any of the vessel's pressure relief valves. Pressure shall be continuously monitored and recorded while the vessel is being loaded.

C. Loading rate shall be continuously monitored and recorded during loading. The loading rate must not exceed the represented maximum loading rate and must be limited to the rate necessary to avoid exceeding the maximum pressure as required by paragraph B of this condition.

18. VOC collection efficiency tests of inerted ocean-going marine vessels shall be conducted as follows to demonstrate a collection efficiency of 99% as represented in the permit application.

A. Testing shall be conducted using the protocol agreed to by the Executive Director. Any revision to the approved testing protocol shall require approval from the Executive Director prior to implementation.

B. Complying test results shall be obtained for a minimum of 6 vessels or the number of inerted ocean-going vessels loaded, whichever is less, for each consecutive 12-month period beginning with the date that material is first loaded onto an inerted ship at the terminal. Testing may be suspended after five years provided that all tests confirm a collection efficiency of 99% or greater.

C. The results of the tests shall be submitted to the TCEQ Air Permits Division and the TCEQ Regional Office within 60 days after completion of the tests.

D. The TCEQ Regional Office must be notified at least 48 hours prior to testing. The facility owner or operator may request a waiver from the 48 hour advance notification requirement from the TCEQ Regional Office.

E. The permit holder shall maintain the following records for each ship tested for a period of 5 years from the date of testing:

(1) The most recent vapor tightness certificate;

(2) A recent, completed form Q88; and

(3) Records of each incidence of testing conducted in accordance with this condition.

F. The requirement for testing the collection efficiency shall no longer apply if the TCEQ establishes that Best Available Control Technology (BACT) for vapor collection efficiency of inerted ocean going-vessels is 99% or greater.

19. The following conditions apply to loading tank trucks with crude oil or crude condensate.

A. Loading of tank trucks with crude oil and crude condensate is limited to a maximum combined loading rate of 300 barrels per hour.

B. All lines and connectors shall be visually inspected for any defects prior to hookup. Lines and connectors that are visibly damaged shall be removed from service. Operations shall cease immediately upon detection of any liquid leaking from the lines or connections.

C. Loading emissions shall be vented to a vapor combustor (EPN VCU-4). The vapor combustor shall achieve a minimum of 99% control of the waste gas directed to it.

D. Each tank truck shall pass vapor-tight testing every 12 months using the methods described in Title 40 Code of Federal Regulations Part 63 (40 CFR 63), Subpart R. The permit holder shall not allow a tank truck to be filled unless it has passed a leak-tight test within the past year as evidenced by a certificate which shows the date the tank truck last passed the leak-tight test required by this condition and the identification number of the tank truck.

20. All loading shall be submerged.

21. The permit holder shall maintain and update monthly an emissions record which includes calculated emissions of VOC from all loading operations over the previous rolling 12 month period. The record shall include the loading spot, control method used, quantity loaded in gallons, name of the liquid loaded, vapor molecular weight, liquid temperature in degrees Fahrenheit, liquid vapor pressure at the liquid temperature in psia, liquid throughput for the previous month and rolling 12 months to date. Records of VOC temperature are not required to be kept for liquids loaded from unheated tanks which receive liquids that are at or below ambient temperatures. Loading emissions shall be calculated using the methods used to determine the MAERT limits in the permit application for the facilities authorized by this permit. Sample calculations from the application shall be attached to a copy of the permit at the terminal.

**Tank Roof Landings**

22. This permit authorizes emissions from tank roof landings due to inventory control, changes in tank service or tank inspection/maintenance as identified in the permit application. Tank roof landings include all operations when the tank floating roof is on its supporting legs. These emissions are subject to the maximum allowable emission rates indicated on the MAERT. The following requirements apply to tank roof landings.

    A. If the tank is to be completely drained, the tank liquid level shall be continuously lowered after the tank floating roof initially lands on its supporting legs until the tank and tank sump have been drained to the maximum extent practicable without entering the tank.

    B. A vapor recovery system shall be connected to the vapor space under the landed tank roof and the vapor space vented to the tank roof landing vapor combustor (EPN VCU-4). The locations and identifiers of vents other than permanent roof fittings and seals, control device or controlled recovery system, and controlled exhaust stream shall be recorded. There shall be no other gas/vapor flow out of the vapor space under the floating roof when the vapor space is directed to the control device. The vapor space shall be vented to the control device during the period from the first stoppage of liquid withdrawal after the roof is landed until the VOC concentration in the tank per part E of this condition has been verified or the tank has been filled so that the landed roof is floating on the liquid. The vapor recovery system collection rate shall always be greater than 100 cubic feet per minute when the tank is idle and two times the fill rate when the tank is being refilled.

    C. The tank roof shall be landed on its lowest legs unless tank entry is planned. The time the roof is landed shall be minimized unless the tank has been completely drained and degassed.

    D. If the tank is not degassed per part E of this condition, the date and time the roof is again floating on liquid shall be recorded and parts E through G of this condition do not apply.

    E. Tanks shall be degassed as follows:

        (1) If tank entry is planned or the tank is to be removed from service for an extended period and the tank had not been entered within the last 24 months, the permit holder shall open at least one entry into the tank to perform a visual inspection of the tank floor and sump to confirm that there is no standing liquid present and the

drain dry tank is operating as designed. This inspection shall be performed during controlled degassing, if applicable. If any standing liquid is noted, it must be removed prior to uncontrolled tank degassing.

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

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

(4) A volume of purge gas equivalent to twice the volume of the vapor space under the floating roof must have passed through the control device before the vent stream may be sampled to verify acceptable VOC concentration. The measurement of purge gas volume shall not include any make-up air introduced into the control device or recovery system.

(5) 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.

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

G. The tank may be opened without restriction and ventilated without control after all standing liquid has been removed from the tank as verified by visible inspection and the vapor space concentration in the tank has been verified to be less than 10,000 ppmv or 10% of the LEL. The VOC

sampling and analysis shall be performed as specified in Special Condition No 31.A or 31.C.

H. During refilling, the vapor space below the tank roof shall be directed to the vapor combustor until the roof is floating on the liquid. The method and locations used to connect the control device shall be recorded. All vents from the tank being filled must exit through the vapor combustor.

I. Only one routine tank roof landing and one MSS tank roof landing may occur simultaneously. Only one tank with a landed floating roof can be filled at any time at a rate not to exceed 30,000 bbl/hr.

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

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

(2) the reason for the tank roof landing;

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

a. the roof was initially landed,
b. all liquid was pumped from the tank to the extent practical,
c. start and completion of controlled standing idle emissions, vapor space volume under the floating roof vented to control device and ventilation flow rate to the control device
d. start and completion of controlled degassing, total volumetric flow, results of any tank inspection of the tank for liquid and any corrective actions taken, VOC concentration sampling results,
e. all standing liquid was removed from the tank,
f. VOC concentration sampling results,
g. refilling commenced, liquid filling the tank, and the volume necessary to float the roof; and
h. tank roof off supporting legs, floating on liquid;.

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

Factors, Chapter 7 - Storage of Organic Liquids" dated November 2006 and the permit application.

**Piping, Valves, Connectors, Pumps, Agitators, and Compressors - 28VHP**
(Revised 5/17/11)

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

A. The requirements of paragraphs F and G shall not apply (1) where the Volatile Organic Compound (VOC) has an aggregate partial pressure or vapor pressure of less than 0.044 pounds per square inch, absolute (psia) at 68°F or (2) operating pressure is at least 5 kilopascals (0.725 psi) below ambient pressure. Equipment excluded from this condition shall be identified in a list or by one of the methods described below to be made readily available upon request.

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

(1) piping and instrumentation diagram (PID);

(2) a written or electronic database or electronic file;

(3) color coding;

(4) a form of weatherproof identification; or

(5) designation of exempted process unit boundaries.

B. Construction of new and reworked piping, valves, pump systems, and compressor systems shall conform to applicable American National Standards Institute (ANSI), American Petroleum Institute (API), American Society of Mechanical Engineers (ASME), or equivalent codes.

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

D. To the extent that good engineering practice will permit, new and reworked valves and piping connections shall be so located to be reasonably accessible for leak-checking during plant operation. Difficult-to-monitor and unsafe-to-monitor valves, as defined by Title 30 Texas Administrative Code Chapter 115 (30 TAC Chapter 115), shall be identified

in a list to be made readily available upon request. The difficult-to-monitor and unsafe-to-monitor valves may be identified by one or more of the methods described in subparagraph A above. If an unsafe-to-monitor component is not considered safe to monitor within a calendar year, then it shall be monitored as soon as possible during safe-to-monitor times. A difficult-to-monitor component for which quarterly monitoring is specified may instead be monitored annually.

E. New and reworked piping connections shall be welded or flanged. Screwed connections are permissible only on piping smaller than two-inch diameter. Gas or hydraulic testing of the new and reworked piping connections at no less than operating pressure shall be performed prior to returning the components to service or they shall be monitored for leaks using an approved gas analyzer within 15 days of the components being returned to service. Adjustments shall be made as necessary to obtain leak-free performance. Connectors shall be inspected by visual, audible, and/or olfactory means at least weekly by operating personnel walk-through.

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

(1) a cap, blind flange, plug, or second valve must be installed on the line or valve; or

(2) the open-ended valve or line shall be monitored once for leaks above background for a plant or unit turnaround lasting up to 45 days with an approved gas analyzer and the results recorded. For all other situations, the open-ended valve or line shall be monitored once within the 72 hour period following the creation of the open ended line and monthly thereafter with an approved gas analyzer and the results recorded. For turnarounds and all other situations, leaks are indicated by readings of 500 ppmv and must be repaired within 24 hours or a cap, blind flange, plug, or second valve must be installed on the line or valve.

F. Accessible valves shall be monitored by leak-checking for fugitive emissions at least quarterly using an approved gas analyzer. Sealless/leakless valves (including, but not limited to, welded bonnet

bellows and diaphragm valves) and relief valves equipped with a rupture disc upstream or venting to a control device are not required to be monitored. If a relief valve is equipped with rupture disc, a pressure-sensing device shall be installed between the relief valve and rupture disc to monitor disc integrity.

A check of the reading of the pressure-sensing device to verify disc integrity shall be performed at least quarterly and recorded in the unit log or equivalent. Pressure-sensing devices that are continuously monitored with alarms are exempt from recordkeeping requirements specified in this paragraph. All leaking discs shall be replaced at the earliest opportunity but no later than the next process shutdown.

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

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

G. Except as may be provided for in the special conditions of this permit, all pump, compressor, and agitator seals shall be monitored with an approved gas analyzer at least quarterly or be equipped with a shaft sealing system that prevents or detects emissions of VOC from the seal. Seal systems designed and operated to prevent emissions or seals equipped with an automatic seal failure detection and alarm system need not be monitored. These seal systems may include (but are not limited to) dual pump seals

with barrier fluid at higher pressure than process pressure, seals degassing to vent control systems kept in good working order, or seals equipped with an automatic seal failure detection and alarm system. Submerged pumps or sealless pumps (including, but not limited to, diaphragm, canned, or magnetic-driven pumps) may be used to satisfy the requirements of this condition and need not be monitored.

H. Damaged or leaking valves or connectors found to be emitting VOC in excess of 500 parts per million by volume (ppmv) or found by visual inspection to be leaking (e.g., dripping process fluids) shall be tagged and replaced or repaired. Damaged or leaking pump, compressor, and agitator seals found to be emitting VOC in excess of 2,000 ppmv or found by visual inspection to be leaking (e.g., dripping process fluids) shall be tagged and replaced or repaired. A first attempt to repair the leak must be made within 5 days and a record of the attempt shall be maintained.

I. A leaking component shall be repaired as soon as practicable, but no later than 15 days after the leak is found. If the repair of a component would require a unit shutdown that would create more emissions than the repair would eliminate, the repair may be delayed until the next scheduled shutdown. All leaking components which cannot be repaired until a scheduled shutdown shall be identified for such repair by tagging within 15 days of the detection of the leak. A listing of all components that qualify for delay of repair shall be maintained on a delay of repair list. The cumulative daily emissions from all components on the delay of repair list shall be estimated by multiplying by 24 the mass emission rate for each component calculated in accordance with the instructions in 30 TAC 115.782 (c)(1)(B)(i)(II). The calculations of the cumulative daily emissions from all components on the delay of repair list shall be updated within ten days of when the latest leaking component is added to the delay of repair list. When the cumulative daily emission rate of all components on the delay of repair list times the number of days until the next scheduled unit shutdown is equal to or exceeds the total emissions from a unit shutdown as calculated in accordance with 30 TAC 115.782 (c)(1)(B)(i)(I), the TCEQ Regional Manager and any local programs shall be notified and may require early unit shutdown or other appropriate action based on the number and severity of tagged leaks awaiting shutdown. This notification shall be made within 15 days of making this determination.

J. Records of repairs shall include date of repairs, repair results, justification for delay of repairs, and corrective actions taken for all components. Records of instrument monitoring shall indicate dates and times, test methods, and instrument readings. The instrument monitoring record shall include the time that monitoring took place for no less than 95% of

the instrument readings recorded. Records of physical inspections shall be noted in the operator's log or equivalent.

K. Alternative monitoring frequency schedules of 30 TAC §§ 115.352 - 115.359 or National Emission Standards for Organic Hazardous Air Pollutants, 40 CFR Part 63, Subpart H, may be used in lieu of Items F through G of this condition.

L. Compliance with the requirements of this condition does not assure compliance with requirements of 30 TAC Chapter 115, an applicable New Source Performance Standard (NSPS), or an applicable National Emission Standard for Hazardous Air Pollutants (NESHAPS) and does not constitute approval of alternative standards for these regulations.

**Vapor Combustors**

24. The vapor combustors (EPNs: VCU-1, VCU-2, VCU-3, and VCU-4) shall achieve 99 percent control of the carbon compounds directed to it. This shall be ensured by maintaining the temperature in the combustion chamber above 1400°F prior to the initial stack test performed in accordance with Special Condition 25. 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.

The temperature measurement device shall reduce the temperature readings to an averaging period of 6 minutes or less and record it at that frequency. The temperature monitor shall be installed, calibrated at least annually, and maintained according to the manufacturer's specifications. The device shall have an accuracy of the greater of ±2 percent of the temperature being measured expressed in degrees Fahrenheit or ±4.5°F.

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

Each vapor combustor shall be operated with no visible emissions and have a constant pilot flame during all times waste gas could be directed to it. The pilot flame shall be continuously monitored by a thermocouple or an infrared monitor. The time, date, and duration of any loss of pilot flame shall be recorded. Each monitoring device shall be accurate to, and shall be calibrated at a frequency in accordance with, the manufacturer's specifications.

25. The permit holder shall perform stack sampling and other testing as required to establish the actual pattern and quantities of air contaminants being emitted into the atmosphere from vapor combustor EPNs: VCU-1, VCU-2, VCU-3, and VCU-4 to demonstrate compliance with the MAERT. The permit holder is responsible for providing sampling and testing facilities and conducting the sampling and testing operations at his expense. Sampling shall be conducted in accordance with the appropriate procedures of the Texas Commission on Environmental Quality (TCEQ) Sampling Procedures Manual and the U.S. Environmental Protection Agency (EPA) Reference Methods.

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

A. The appropriate TCEQ Regional Office shall be notified not less than 45 days prior to sampling. The notice shall include:

(1) Proposed date for pretest meeting.

(2) Date sampling will occur.

(3) Name of firm conducting sampling.

(4) Type of sampling equipment to be used.

(5) Method or procedure to be used in sampling.

(6) Description of any proposed deviation from the sampling procedures specified in this permit or TCEQ/EPA sampling procedures.

(7) Procedure/parameters to be used to determine worst case emissions.

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, NOx, and CO.

C. Sampling shall occur within 60 days after achieving the maximum operating rate, but no later than 180 days after initial start-up of the facilities (or increase in production, as appropriate) and at such other times (identify the need for any periodic sampling here) as may be required by the TCEQ Executive Director. Requests for additional time to perform sampling shall be submitted to the appropriate regional office.

D. Each vapor combustor shall be sampled under the following conditions during stack emission testing:

- For EPNs VCU-1, VCU-2, VCU-3, each vapor combustor shall be sampled while loading marine vessels at the maximum loading rate.
- EPN VCU-4: the vapor combustor shall be sampled while refloating the tank roof of an uncleaned tank (heel present) that has been emptied to the maximum extent possible while filling at the maximum fill rate.

These conditions/parameters and any other primary operating parameters that affect the emission rate shall be monitored and recorded during the stack test. Any additional parameters shall be determined at the pretest meeting and shall be stated in the sampling report. Permit conditions and parameter limits may be waived during stack testing performed under this condition if the proposed condition/parameter range is identified in the test notice specified in paragraph A and accepted by the TCEQ Regional Office. Permit allowable emissions and emission control requirements are not waived and still apply during stack testing periods.

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

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.

Sampling ports and platform(s) shall be incorporated into the design of (source stack and EPN) according to the specifications set forth in the attachment entitled "Chapter 2, Stack Sampling Facilities" of the Texas Commission on Environmental Quality (TCEQ) Sampling Procedures Manual. Alternate

sampling facility designs must be submitted for approval to the TCEQ Regional Director

**Continuous Demonstration of Compliance**

26. The following requirements apply to capture systems for vapor combustors (EPNs VCU-1, VCU-2, VCU-3, and VCU-4).

    A. The permit holder shall perform one of the following:

        (1) Conduct a once a month visual, audible, and/or olfactory inspection of the capture system to verify there are no leaking components in the capture system; or

        (2) Once a year, verify the capture system is leak-free by inspecting in accordance with 40 CFR Part 60, Appendix A, Test Method 21. Leaks shall be indicated by an instrument reading greater than or equal to 500 ppmv above background.

    B. The control device shall not have a bypass, or if there is a bypass for the control device, comply with either of the following requirements:

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

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

        A bypass does not include authorized analyzer vents, highpoint bleeder vents, low point drains, or rupture discs upstream of pressure relief valves if the pressure between the disc and relief valve is monitored and recorded at least weekly. A deviation shall be reported if the monitoring or inspections indicate bypass of the control device when it is required to be in service.

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

## Planned Maintenance, Startup and Shutdown

27. This permit authorizes the emissions from the facilities authorized by this permit for the planned maintenance, startup, and shutdown (MSS) activities summarized in this condition.

    A. MSS Activity Summary

| Facility | Activity | EPN |
|---|---|---|
| Storage Tanks | Controlled Tank Roof landings (Standing idle and refilling) | MSS-CONT |
| Storage Tanks | Controlled Tank Degassing | MSS-CONT |
| Storage Tanks | Tank opening, uncontrolled venting to atmosphere | MSS-ATM |
| Routine Maintenance Activities (Paragraph B) | Drain | MSS-ATM |
| Routine Maintenance Activities (Paragraph B) | Degas to control | MSS-CONT |
| Routine Maintenance Activities (Paragraph B) | Opening, uncontrolled venting to atmosphere. | MSS-ATM |
| Routine Maintenance Activities (Paragraph B) | Controlled refilling | MSS-CONT |
| Minor facilities meeting criteria of Special Condition 30.E; pumps, valves, piping, filters, etc. with an isolated volume of less than 85 cubic feet (i.e. 50 lbs of air contaminant) | Isolate, drain, degas to atmosphere, and refill to support planned maintenance | MSS-ATM |
| Air movers and vacuum trucks | Drain liquid from tanks for planned maintenance | MSS-CONT |
| Frac Tanks, temporary tanks and vessels | Temporary Storage | MSS-ATM |

    B. Routine Maintenance Activities

        1. Pump repair/replacement
        2. Fugitive component (valve, pipe, flange) repair/replacement
        3. Filter and meter repair/replacement
        4. Compressor repair/replacement

28. This permit authorizes emissions from the following temporary facilities used to support planned MSS activities at permanent site facilities: frac tanks, containers, vacuum trucks, portable control devices identified in Special Condition 37 and controlled recovery systems. Emissions from temporary facilities are authorized provided the temporary facility (a) does not remain on

the plant site for more than 12 consecutive months, (b) is used solely to support planned MSS activities at the permanent site facilities listed in this Attachment, and (c) does not operate as a replacement for an existing authorized facility.

29. Routine maintenance activities, as identified in Special Condition 27.B may be tracked through the work orders or equivalent. Emissions from activities identified in Special Condition 27.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 Special Condition 27.B and the emissions associated with it shall be recorded and include at least the following information:

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

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

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

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

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

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

30. Permanent units and facilities, with the exception of those identified in Special Conditions 22 and 35 shall be depressurized, emptied, degassed, and placed in service in accordance with the following requirements.

A. The process equipment shall be depressurized to a control device or a controlled recovery system prior to venting to atmosphere, degassing, or draining liquid. Equipment that only contains material that is liquid with VOC partial pressure less than 0.50 psi at the normal process temperature and 95°F may be opened to atmosphere and drained in accordance with paragraph C of this special condition. The vapor pressure at 95°F may be used if the actual temperature of the liquid is verified to be less than 95°F and the temperature is recorded

B. If mixed phase materials must be removed from process equipment, the cleared material shall be routed to a knockout drum or equivalent to allow for managed initial phase separation. If the VOC partial pressure is greater than 0.50 psi at either the normal process temperature or 95°F, any vents in the system must be routed to a control device or a controlled recovery system. The vapor pressure at 95°F may be used if the actual temperature of the liquid is verified to be less than 95°F and the temperature is recorded. Control must remain in place until degassing has been completed or the system is no longer vented to atmosphere

C. All liquids from process equipment or storage vessels must be removed to the maximum extent practical prior to opening equipment to commence degassing and/or maintenance. Liquids must be drained into a closed vessel or closed liquid recovery system unless prevented by the physical configuration of the equipment. If it is necessary to drain liquid into an open pan or sump, the liquid must be covered or transferred to a covered vessel within one hour of being drained

D. If the VOC partial pressure is greater than 0.50 psi at the normal process temperature or 95°F, facilities shall be degassed using good engineering practice to ensure air contaminants are removed from the system through the control device or controlled recovery system to the extent allowed by process equipment or storage vessel design. The vapor pressure at 95°F may be used if the actual temperature of the liquid is verified to be less than 95°F and the temperature is recorded. The facilities to be degassed shall not be vented directly to atmosphere, except as necessary to establish isolation of the work area or to monitor VOC concentration following controlled depressurization. The venting shall be minimized to the maximum extent practicable and actions taken recorded. The control device or recovery system utilized shall be recorded with the estimated emissions from controlled and uncontrolled degassing calculated using the methods that were used to determine allowable emissions for the permit application.

(1) For MSS activities identified in Special Condition 27.B, the following option may be used in lieu of (2) below. The facilities being prepared for maintenance shall not be vented directly to atmosphere until the VOC concentration has been verified to be less than 10 percent of the lower explosive limit (LEL) per the site safety procedures

(2) The locations and/or identifiers where the purge gas or steam enters the process equipment or storage vessel and the exit points for the exhaust gases shall be recorded (process flow diagrams [PFDs] or piping and instrumentation diagrams [P&IDs] may be

used to demonstrate compliance with the requirement). If the process equipment is purged with a gas, two system volumes of purge gas must have passed through the control device or controlled recovery system before the vent stream may be sampled to verify acceptable-VOC concentration prior to uncontrolled venting. The VOC sampling and analysis shall be performed using an instrument meeting the requirements of Special Condition 31. The sampling point shall be upstream of the inlet to the control device or controlled recovery system. The sample ports and the collection system must be designed and operated such that there is no air leakage into the sample probe or the collection system downstream of the process equipment or vessel being purged. If there is not a connection (such as a sample, vent, or drain valve) available from which a representative sample may be obtained, a sample may be taken upon entry into the system after degassing has been completed. The sample shall be taken from inside the vessel so as to minimize any air or dilution from the entry point. The facilities shall be degassed to a control device or controlled recovery system until the VOC concentration is less than 10,000 ppmv or 10 percent of the LEL. Documented site procedures used to de-inventory equipment to a control device for safety purposes (i.e., hot work or vessel entry procedures) that achieve at least the same level of purging may be used in lieu of the above

E. Gases and vapors with VOC partial pressure greater than 0.50 psi may be vented directly to atmosphere if all the following criteria are met:

(1) It is not technically practicable to depressurize or degas, as applicable, into the process

(2) There is not an available connection to a plant control system (flare)

(3) There is no more than 50 lb of air contaminant to be vented to atmosphere during shutdown or startup, as applicable

All instances of venting directly to atmosphere per Special Condition 30.E must be documented when occurring as part of any MSS activity. The emissions associated with venting without control must be included in the work order or equivalent for those planned MSS activities identified in Special Condition 27.B

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

A. VOC concentration shall be measured using an instrument meeting all the requirements specified in EPA Method 21 (40 CFR 60, Appendix A) with the following exceptions:

(1) The instrument shall be calibrated within 24 hours of use with a calibration gas such that the response factor (RF) of the VOC (or mixture of VOCs) to be monitored shall be less than 2.0. The calibration gas and the gas to be measured, and its approximate (RF) shall be recorded. If the RF of the VOC (or mixture of VOCs) to be monitored is greater than 2.0, the VOC concentration shall be determined as follows:

VOC Concentration = Concentration as read from the instrument*RF

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

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

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

(1) The air contaminant concentration measured as defined in (3) is less than 80 percent of the range of the tube and is at least 20 percent of the maximum range of the tube

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

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

measured contaminant concentration (ppmv) < release concentration.

Where the release concentration is:

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

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

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

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

(1) The detector shall be calibrated within 30 days of use with a certified pentane gas standard at 25% of the lower explosive limit (LEL) for pentane. Records of the calibration date/time and calibration result (pass/fail) shall be maintained

(2) A functionality test shall be performed on each detector within 24 hours of use with a certified gas standard at 25% of the LEL for pentane. The LEL monitor shall read no lower than 90% of the calibration gas certified value. Records, including the date/time and test results, shall be maintained

(3) A certified methane gas standard equivalent to 25% of the LEL for pentane may be used for calibration and functionality tests provided that the LEL response is within 95% of that for pentane

32. This permit authorizes emissions from internal floating roof storage tanks during planned floating roof landings associated with MSS activities. The requirements of Special Condition No. 22 apply to tank roof landings associated with MSS activities. For purposes of this permit tank roof landings associated with MSS are defined as anytime the tank is cleaned.

33. This condition applies only to piping and components subject to leak detection and repair monitoring requirements identified in other NSR permits. Each open-ended valve or line shall be equipped with an appropriately sized cap, blind flange, plug, or a second valve to seal the line. Except during sampling, both valves shall be closed. If the isolation of equipment for hot work or the removal

of a component for repair or replacement results in an open ended line or valve, it is exempt from the requirement to install a cap, blind flange, plug, or second valve for 72 hours. If the repair or replacement is not completed within 72 hours, the permit holder must complete either of the following actions within that time period;

A. a cap, blind flange, plug, or second valve must be installed on the line or valve; or

B. the open-ended valve or line shall be monitored once for leaks above background for a plant or unit turnaround lasting up to 45 days with an approved gas analyzer and the results recorded. For all other situations, the open-ended valve or line shall be monitored once by the end of the 72 hours period following the creation of the open ended line and monthly thereafter with an approved gas analyzer and the results recorded. For turnarounds and all other situations, leaks are indicated by readings of 500 ppmv and must be repaired within 24 hours or a cap, blind flange, plug, or second valve must be installed on the line or valve.

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

A. Prior to initial use, identify any liquid in the truck. Record the liquid level and document the VOC partial pressure. After each liquid transfer, identify the liquid, the volume transferred, and its VOC partial pressure.

B. If vacuum pumps or blowers are operated when liquid is in or being transferred to the truck, the following requirements apply:

(1) If the VOC partial pressure of the liquid in or being transferred to the truck is greater than 0.50 psi at 95°F, the vacuum/blower exhaust shall be routed to a control device or a controlled recovery system.

(2) Equip fill line intake with a "duckbill" or equivalent attachment if the hose end cannot be submerged in the liquid being collected.

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

(a) For each liquid transfer made with the vacuum operating, record the duration of any periods when air may have been entrained with the liquid transfer. The reason for operating in this manner and whether a "duckbill" or equivalent was used shall be recorded. Short, incidental periods, such as

those necessary to walk from the truck to the fill line intake, do not need to be documented.

(b) If the vacuum truck exhaust is controlled with a control device other than an engine or oxidizer, VOC exhaust concentration upon commencing each transfer, at the end of each transfer, and at least every hour during each transfer shall be recorded, measured using an instrument meeting the requirements of Special Condition 31.A or B.

C. Record the volume in the vacuum truck at the end of the day, or the volume unloaded, as applicable.

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

E. If the VOC partial pressure of all the liquids vacuumed into the truck is less than 0.10 psi, this shall be recorded when the truck is unloaded or leaves the plant site and the emissions may be estimated as the maximum potential to emit for a truck in that service as documented in the permit application. The recordkeeping requirements in Special Condition 34.A through 34.D do not apply.

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

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

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

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

D. Frac tanks and temporary storage vessels shall be designed such that there are no standing losses emitted to the atmosphere. Standing loss emissions from frac tanks or temporary storage are not authorized by this permit.

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 Guidance Package for Chemical 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.

36. Additional occurrences of MSS activities authorized by this permit may be authorized under permit by rule only if conducted in compliance with this permit's procedures, emission controls, monitoring, and recordkeeping requirements applicable to the activity.

37. 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.

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

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

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

(3) The method of VOC sampling and analysis shall be by detector meeting the requirements of Special Condition 31.A or B.

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

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

(a) Sample time and date.

(b) Monitoring results (ppmv).

(c) Canister replacement log.

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

service shall be recorded and the expiration date attached to the carbon can.

B. Internal Combustion Engine.

(1) The internal combustion engine shall have a VOC destruction efficiency of at least 99 percent.

(2) The engine must have been stack tested with butane or propane to confirm the required destruction efficiency within the period specified in part iii below. VOC shall be measured in accordance with the applicable United States Environmental Protection Agency (EPA) Reference Method during the stack test and the exhaust flow rate may be determined from measured fuel flow rate and measured oxygen concentration. A copy of the stack test report shall be maintained with the engine. There shall also be documentation of acceptable VOC emissions following each occurrence of engine maintenance that may reasonably be expected to increase emissions including oxygen sensor replacement and catalyst cleaning or replacement. Stain tube indicators specifically designed to measure VOC concentration shall be acceptable for this documentation, provided a hot air probe or equivalent device is used to prevent error due to high stack temperature, and three sets of concentration measurements are made and averaged. Portable VOC analyzers meeting the requirements of Special Condition 31.A are also acceptable for this documentation.

(3) The engine shall be operated and monitored as specified below.

(a) If the engine is operated with an oxygen sensor-based air-to-fuel ratio (AFR) controller, documentation for each AFR controller that the manufacturer's or supplier's recommended maintenance has been performed, including replacement of the oxygen sensor as necessary for oxygen sensor-based controllers shall be maintained with the engine. The oxygen sensor shall be replaced at least quarterly in the absence of a specific written recommendation. The engine must have been stack tested within the past 12 months in accordance with part ii of this condition.

(b) The test period may be extended to 24 months if the engine exhaust is sampled once an hour when waste gas is directed to the engine using a detector meeting the requirements of Special Condition 31.A. 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 engine. The concentrations shall be recorded and the MSS activity shall be stopped as soon as possible if the VOC concentration exceeds 100 ppmv above background.

(c) If an oxygen sensor-based AFR controller is not used, the engine 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 engine. 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 engine. The method of VOC sampling and analysis shall be by detector meeting the requirements of Special Condition 31.A. 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 if 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. The engine must have been stack tested within the past 24 months in accordance with Paragraph B(2) of this condition.

C. Vapor Combustor

(1) Temporary portable vapor combustors shall provide no less than 99 percent DRE control of the waste gas directed to it. This may be demonstrated by one of the following:

a. maintaining thermal vapor combustor firebox exit temperature at not less than 1400°F with waste gas flows limited to assure at least a 0.5 second residence time in the fire box while waste gas is being fed into the 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 combustor. The temperature measurements shall be made at intervals of six minutes or less and recorded at that frequency.

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

D. Pilot and assist gas combusted shall be sweet natural gas containing no more than 0.2 grains of total sulfur per 100 dry standard cubic feet. The volume of pilot and assist gas shall be monitored and recorded with records being updated on a monthly basis.

38. The following requirements apply to capture systems for temporary portable vapor combustors used to support MSS activities:

A. If used to control pollutants other than particulate conduct a visual, audible, and/or olfactory inspection of the capture system prior to each use and after each month of continuous operation to verify there are no leaking components in the capture system; or

B. The control device shall not have a bypass, or if there is a bypass for the control device, comply with either of the following requirements:

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

(2) prior to initial use and each month of continuous service, inspect the valves, verifying that the position of the valves and the condition of the car seals prevent flow out the bypass.

A bypass does not include authorized analyzer vents, highpoint bleeder vents, low point drains, or rupture discs upstream of pressure relief valves if the pressure between the disc and relief valve is monitored and recorded at least weekly. A deviation shall be reported if the monitoring or inspections indicate bypass of the control device when it is required to be in service.

Records of the inspections required shall be maintained and if the results of any of the above inspections are not satisfactory, the permit holder shall promptly take necessary corrective action.

Dated: June 22, 2015