

## **Special Conditions**

Permit Number 1105

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. **(12/17)**
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 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. **(12/17)**

## **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): **(04/21)**
  - A. Subpart A, General Provisions.
  - B. Subpart Kb, Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984
  - C. Subpart NNN, Standards of Performance for Volatile Organic Compound (VOC) Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations
  - D. Subpart RRR, Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes
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: **(01/20)**
  - A. Subpart A, General Provisions.
  - B. Subpart F, National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry
  - C. Subpart G, National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry Process Vents, Storage Vessels, Transfer Operations, and Wastewater
  - D. Subpart H, National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks

## **Emission Standards**

5. This permit authorizes emissions from planned maintenance, start-up, and shutdown activities identified on Attachment G in the permit renewal confidential submittal (Form PI-1R August 17, 2015) which shall be kept at the plant site. **(12/17)**

These emissions are subject to the maximum allowable emission rates indicated on the MAERT. Records shall be kept at the plant demonstrating compliance with this representation for the last five years. Any maintenance, start-up, and shutdown activities not in the above list are not authorized by this permit. **(6/18)**

### **Process Fugitive Monitoring Program**

6. Piping, Valves, Flanges, Connectors, Pumps and Compressors in the Oxo Aldehydes Reaction and Distillation Areas - 28VHP **(01/20)**

The following requirements apply to piping, valves, connectors, pumps, agitators, and compressors containing or in contact with fluids that could reasonably be expected to contain greater than or equal to 10 weight percent volatile organic compounds (VOC) at any time.

- A. The requirements of paragraphs F and G shall not apply (1) where the VOC has an aggregate partial pressure or vapor pressure of less than 0.044 psia at 68°F, (2) to piping two inches nominal size and smaller, or (3) where the 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, 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 available upon request. The difficult-to-monitor and unsafe-to-monitor valves may be identified by one or more of the methods described in Paragraph A above. If an unsafe to monitor component is not considered safe to monitor within a calendar year, then it shall be monitored as soon as possible during safe to monitor times. A difficult to monitor component for which quarterly monitoring is specified may instead be monitored annually.

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

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

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

- F. Accessible valves shall be monitored by leak-checking for fugitive emissions at least quarterly using an approved gas analyzer. Sealless/leakless valves (including, but not limited to, welded bonnet bellows and diaphragm valves) and relief valves equipped with a rupture disc upstream or venting to a control device are not required to be monitored. If a relief valve is equipped with rupture disc, a pressure-sensing device shall be installed between the relief valve and rupture disc to monitor disc integrity.

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

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

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

- G. Except as may be provided for in the special conditions of this permit, all pump, compressor, and agitator seals shall be monitored with an approved gas analyzer at least quarterly or be equipped with a shaft sealing system that prevents or detects emissions of VOC from the seal. Seal systems designed and operated to prevent emissions or seals equipped with 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 flanges found to be emitting VOC in excess of 500 parts per million by volume (ppmv) or found by visual inspection to be leaking (e.g., dripping process fluids) shall be tagged and replaced or repaired. Damaged or leaking pump, compressor, and agitator seals found to be emitting VOC in excess of 2,000 ppmv or found by visual inspection to be leaking (e.g., dripping process fluids) shall be tagged and replaced or repaired. A first attempt to repair the leak must be made within 5 days and a record of the attempt shall be maintained.
- I. A leaking component shall be repaired as soon as practicable, but no later than 15 days after the leak is found. If the repair of a component would require a unit shutdown that would create more emissions than the repair would eliminate, the repair may be delayed until the next scheduled shutdown. All leaking components which cannot be repaired until a scheduled shutdown shall be identified for such repair by tagging within 15 days of the detection of the leak. A listing of all components that qualify for delay of repair shall be maintained on a delay of repair list. The cumulative daily emissions from all components on the delay of repair list shall be estimated by multiplying by 24 the mass emission rate for each component calculated in accordance with the instructions in 30 TAC 115.782 (c)(1)(B)(i)(II). The calculations of the cumulative daily emissions from all components on the delay of repair list shall be updated within ten days of when the latest leaking component is added to the delay of repair list. When the cumulative daily emission rate of all components on the delay of repair list times the number of days until the next scheduled unit shutdown is equal to or exceeds the total emissions from a unit shut down as calculated in accordance with 30 TAC 115.782 (c)(1)(B)(i)(I) or 500 pounds, whichever is greater, the TCEQ Regional Manager and any local programs shall be notified and the TCEQ Executive Director may require early unit shut down or other appropriate action based on the number and severity of tagged leaks awaiting shutdown. This notification shall be made within 15 days of making this determination.
- J. Records of repairs shall include date of repairs, repair results, justification for delay of repairs, and corrective actions taken for all components. Records of instrument monitoring shall indicate dates and times, test methods, and instrument readings. The instrument monitoring record shall include the time that monitoring took place for no less than 95% of the instrument readings recorded. Records of physical inspections shall be noted in the operator's log or equivalent.
- K. Alternative monitoring frequency schedules of 30 TAC §§ 115.352 - 115.359 and National Emission Standards for Organic Hazardous Air Pollutants, 40 CFR Part 63, Subpart H may be used in lieu of Items F and 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, or an applicable National Emission Standard for Hazardous Air Pollutants and does not constitute approval of alternative standards for these regulations.

7. Process fugitive piping and valves two inches nominal size and smaller subject to 40 CFR 63 process fugitive instrument monitoring are subject to Special Condition No. 6 of this permit.
8. Process fugitive piping and valves two inches nominal size and smaller not subject to 40 CFR 63 process fugitive instrument monitoring shall implement the weekly walkthrough requirements of paragraphs E, H through J of Special Condition No. 6.
9. Flanges and Connectors Instrument Monitoring - 28CNTA **(01/20)**

In addition to the weekly physical inspection required by Item E of Special Condition 6, all accessible connectors subject to routine monitoring requirements per 40 CFR Part 63 Subpart H shall be monitored annually with an approved gas analyzer in accordance with Items F thru J of Special Condition 6. Alternative monitoring frequency schedules ("skip options") of Title 40 Code of Federal Regulations Part 63, Subpart H, National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks, may be used in lieu of the monitoring frequency required by this permit condition. Compliance with this condition does not assure compliance with requirements of applicable state or federal regulation and does not constitute approval of alternative standards for these regulations.

#### **Special Condition No. 6 LDAR Clarifications and Alternatives**

10. The following definitions and alternatives apply to the fugitive monitoring Special Conditions No. 6: **(01/20)**
  - A. Piping does not include 0.5-inch diameter or less flexible tubing.
  - B. The term "new and reworked" is meant to apply to major changes in piping. It is not intended to apply to minor activities including but not limited to:
    - (1) Installation/replacement of small number of valves and flanges;
    - (2) Minor repairs;
    - (3) Gasket replacement;
    - (4) Repair/replacement of small sections of piping; etc.
  - C. The term "process pipelines" does not apply to underground process sewer lines, cooling tower water, fire water, etc.
  - D. The requirement in Special Condition No. 6.C for new and reworked buried connectors to be welded shall not apply if compliance would require a process unit shutdown or would create a safety issue including (but not limited to) close proximity of other process pipelines and equipment or unsafe access to the piping.
  - E. The open-ended line requirements of Special Conditions No. 6.E may be superseded by the open-ended line requirements of the Maintenance, Startup, and Shutdown (MSS) Permit No. 84724 during MSS activities.
  - F. The following alternative may be utilized to comply with Special Condition No. 6.E.
    - (1) The new and reworked piping connections may be evaluated by the represented "Code Test" which includes a system leak test and shop test procedures to look for leaks. These tests are defined below:

- (a) The Shop Code Test is the default test method for piping at Eastman. The Shop Code Test is performed by Eastman Field Services Fabrication Shop or Construction Contractor Fabrication Shop per SOP-200.007 Piping Pressure Test (Submitted with the PI-1R dated June 12, 2012, for Permit 20567, TCEQ Project Number 178534) procedures on all flanged spools after fabrication to check the integrity of the welds. The Shop Code Test does not check flange to flange connections of piping. After a Shop Code Test is performed, a system leak test is required to check flange to flange connections in the field.
  - (b) The System Leak Test is required after a Shop Code Test. This test is performed on the piping system using air, nitrogen, or water to verify the tightness of every piping connection. For Class 150 and higher piping, the minimum test pressure shall be 50 psig (or in the range of available air, nitrogen, or water sources of 80 to 90 psig). The maximum pressure for this test shall not exceed the maximum operating pressure of the system. For systems that operate at temperatures greater than 300°F or pressures greater than 500 psig, bolted joints should be inspected after start-up to check for leaks and flange tightness.
- (2) If the repair or replacement is not completed within 72 hours, the permit holder may utilize current documented site procedures which ensure that the piping is empty of air contaminants for safety purposes as an alternative to paragraphs (1) or (2).
- G. The following alternative applies to Special Conditions 6.F gas analyzer response factor.

If a mixture of VOCs is being monitored, the response factor shall be demonstrated to be less than ten for the average composition of the process fluid. This demonstration is not required when all of the compounds in the mixture have a response factor less than 10 using methane.
- H. The following alternative applies to Special conditions 6.I delay of repair and TCEQ Regional Manager notification.

If a component subject to Special Condition 6 is found to be leaking and a determination is made that the component can't be repaired without a process unit shutdown, the repair of the component may be delayed until the next scheduled shutdown. All leaking components which cannot be repaired until a scheduled shutdown shall be identified for such repair by tagging within 15 days of the detection of the leak. A listing of all components that qualify for delay of repair shall be maintained on a delay of repair list. The cumulative daily emissions from all components on the delay of repair list shall be estimated by multiplying by 24 the mass emission rate for each component calculated in accordance with the instructions in 30 TAC 115.782 (c)(1)(B)(i)(II). The calculations of the cumulative daily emissions from all components on the delay of repair list shall be updated within ten days of when the latest leaking component is added to the delay of repair list. When the cumulative daily emission rate of all components on the delay of repair list times the number of days until the next scheduled unit shutdown is equal to or exceeds the total emissions from a unit shut down as calculated in accordance with 30 TAC 115.782 (c)(1)(B)(i)(I) or 500 pounds, whichever is greater, or as an alternative to the cumulative emissions until the next scheduled shutdown calculations, when the hourly emissions rate of all components on the delay of repair list exceeds 50% of the hourly allowable fugitive emissions rate on the MAERT, the TCEQ Regional Manager and any local programs shall be notified and the TCEQ Executive Director may require early unit shut down or other appropriate action based on the number and severity of tagged leaks awaiting shutdown. This notification shall be made within 15 days of making this determination.

### Operation Limits

11. Waste gas from the represented point sources authorized in this permit containing VOC generated during normal operation shall be routed to one or more of the steam boilers (EPNs 030B11, 030B12 and 030B15) authorized in NSR Permit No. 5283 and 92682, or to the facility flare (EPNs 027FL1, 005FL1 and 005FL2). Each boiler shall operate with no less than 99.0 percent efficiency in disposing of the VOC compounds captured by the collection system. The flares shall operate with no less than 98.0 percent efficiency in disposing of the VOC captured by the collection system. Startup, shutdown and maintenance VOC emissions from the EPN represented in this permit sent to these steam boilers are not authorized by this special condition. **(03/25)**
12. The production rates for propionaldehyde, iso-butyraldehyde and normal butyraldehyde are limited to the representations presented in Table 2 (Material Balance) in the confidential section of the permit amendment application, PI-1 dated August 24, 2022, and as updated during the project review (TCEQ Project Number 346620). Records shall be kept of the production of each aldehyde for each month (pounds of product per month). These records shall be maintained on at least a five-year retention basis and shall be immediately available upon request to TCEQ personnel. **(09/23)**
13. The permit holder shall maintain an emissions record which includes calculated emissions of VOC from 11 process analyzers (EPN 053GA1) during the previous calendar month and the past consecutive 12-month period. The record shall include analyzer identification number, name of VOC, and percentage in VOC mole. Emissions from analyzers shall be calculated using the methods that were used to determine the MAERT limits in the amendment application (Form PI-1 May 08, 2024, TCEQ Project No. 373712). Sample calculations from the application shall be attached to a copy of this permit at the plant site. **(03/25)**

### Storage Tanks

14. Storage tanks 40TK-113, 40TK-114, 40TK-135, 43TK-167, 43TK-421, 62TK-33, and 62TK-34 (EPNs 022T113, 022T114, 023T135, 027T167, 050T421, 100T33, and 100T34) are subject to the following requirements: The control requirements specified in paragraphs A-C of this condition shall not apply to tank 43TK-167 (EPN 027T167). **(09/23)**
  - 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.
  - E. The permit holder shall maintain an emissions record which includes calculated emissions of VOC from all storage tanks during the previous calendar month and the past consecutive 12-month period. The record shall include tank identification number, control method used, tank capacity in gallons, name of the material stored, VOC molecular weight, VOC monthly average temperature in degrees Fahrenheit, VOC vapor pressure at the monthly average material temperature in psia, VOC throughput for the previous month and year-to-date. Records of VOC monthly average temperature are not required to be kept for unheated tanks which receive liquids that are at or below ambient temperatures.  
  
Emissions from tanks shall be calculated using the methods that were used to determine the MAERT limits in the permit amendment application, PI-1 dated August 24, 2022, and May 8, 2024, and as updated during the project reviews (TCEQ Project Numbers 346620 and 373712). Sample calculations from the application shall be attached to a copy of this permit at the plant site. **(03/25)**
  - F. The storage tanks 62TK-33 and 62TK-34 (EPNs 100T33 and 100T34) are permitted to store either n-Butyraldehyde or iso-Butyraldehyde. **(04/21)**
15. Storage tanks 43TK-32, 43TK-33, 43TK-35, 43TK-148, 43TK-153, 43TK-154, 43TK-155, 43TK-162, 43TK-163, and 43TK-164 are subject to the following requirements: **(01/20)**
- A. All vents shall be routed to the facility flare (EPN 027FL1) or recycled back to the process.  
  
Alternatively, when Tank 43TK-162 is used for storing PO<sub>x</sub> Liquid Feed, Tank 43TK-162 can be vented to an alternative control device provided:
    - (1) The alternative control device achieves a minimum VOC destruction or removal efficiency of 99%;
    - (2) The authorization for the alternative control device includes emissions from Tank 43TK-162.
  - B. The permit holder shall maintain an emissions record which includes calculated emissions of VOC from all storage tanks during the previous calendar month and the past consecutive 12-month period. The record shall include tank identification number, control method used, tank capacity in gallons, name of the material stored, VOC molecular weight, VOC monthly average temperature in degrees Fahrenheit, VOC vapor pressure at the monthly average material temperature in psia, VOC throughput for the previous month and year-to-date. Records of VOC monthly average temperature are not required to be kept for unheated tanks which receive liquids that are at or below ambient temperatures.
  - C. Storage tanks specified in this special condition shall be exempt from the record keeping and calculation requirements in Paragraph B of this special condition provided the total VOC flow to the facility flare (EPN 027FL1) is continuously monitored and records kept.
  - D. The following applies to storage tanks 43TK-148 and 43TK-162 only:



- (1) 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.
    - (2) The maximum filling rate and 12 month rolling throughput shall be limited to the representations in Horizontal Fixed Roof Storage Tank Emission Calculation in the confidential section of the permit amendment application, PI-1 dated August 7, 2020, and as updated during the project review (TCEQ Project Number 319066). Records shall be updated of the tank 12 month rolling throughput each month (gallons per year). These records shall be maintained on at least a five-year retention basis and shall be immediately available upon request to TCEQ personnel.
  - E. Storage tanks 43TK-33 and 43TK-35 shall be modified for submerged filling when they are emptied for maintenance, but no later than December 31, 2021. **(04/21)**
16. Product Loading
- A. All loading activities covered by this permit shall be by submerged filling of the drum, railcar or truck tank.
  - B. Loading emissions from loading of propionaldehyde, iso-butyraldehyde and normal butyraldehyde product into rail cars or truck tanks shall be vented to the facility flare designated as EPN 027FL1. Loading of Coproduct Solvents B-38 and B-624 may occur uncontrolled; however, the loading rate for each of these solvents shall not exceed the loading rates represented in the permit amendment application, PI-1 dated May 29, 2019, and as updated during the project review (TCEQ Project Number 302272). **(01/20)**
  - C. Connections for all tank truck and railcar loading racks covered by this permit shall operate with no visible liquid leaks or spills as determined by visual inspection. This condition applies to all loading operations regardless of compound vapor pressure. This does not apply to momentary dripping associated with the initial connection or disconnection of fittings; however, sustained dripping from fittings during the loading operation is not permitted.
  - D. The permit holder shall maintain and update a monthly 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 at or below ambient temperatures. Emissions shall be calculated using the TCEQ publication titled "Technical Guidance Package for Chemical Sources - Loading Operations." **(06/18)**
  - E. 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. **(06/18)**
17. The permit holder shall not allow any propionaldehyde, iso-butyraldehyde and normal butyraldehyde tank trucks to be filled unless certification has been presented indicating the tank truck has passed a vapor tightness test within the past 12 months conforming to the requirements of the DOT leak test in 49 CFR Part 180 or another applicable method as approved by the TCEQ Regional Office.

18. The holder of this permit shall not allow a propionaldehyde, iso-butyraldehyde and normal butyraldehyde railcar to be filled unless the railcar being filled has passed a leak-tight test designated under 40 CFR § 63.126(e). Railcar tank-tightness checking shall be conducted in accordance with this applicable subpart.

## Flares

19. Flares shall be designed and operated in accordance with the following requirements:
- A. The flare systems shall be designed such that the combined assist natural gas and waste stream to each flare meets the 40 CFR § 60.18 specifications of minimum heating value and maximum tip velocity at all times when emissions may be vented to them. **(09/23)**  
  
The heating value and velocity requirements shall be satisfied during operations authorized by this permit. Flare testing per 40 CFR § 60.18(f) may be requested by the appropriate regional office to demonstrate compliance with these requirements.
  - B. Each flare shall be operated with a flame present at all times and/or have a constant pilot flame. The pilot flame shall be continuously monitored by a thermocouple, infrared monitor, or ultraviolet monitor. The time, date, and duration of any loss of the monitored 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. **(03/25)**
  - C. Each flare shall be operated with no visible emissions except periods not to exceed a total of five minutes during any two consecutive hours. This shall be ensured by the use of steam or air assist to the flare.
  - D. The 027FL1 Flare (EPN 027FL1) shall be designed and operated in accordance with the following additional requirements: **(06/18)**
    - (1) The permit holder shall add supplemental fuel to the waste gas stream routed to the 027FL1 Flare to ensure the minimum British thermal unit (Btu) value of the waste gas stream being combusted is 200 Btu per standard cubic feet (scf) or greater. The ratio of volume of natural gas to volume of waste gas in shall be set at a ratio of 1 to 3.65. Records of the waste gas flowrate and supplemental fuel gas flowrate shall be kept. The permit holder may submit a permit amendment or a permit alteration to change the ratio, if they can demonstrate that a different ratio will ensure the minimum Btu value of the waste gas stream being combusted will be 200 Btu per scf or greater.
    - (2) Calibrations of the 027FL1 Flare continuous flow monitors shall be conducted annually in accordance with the manufacturer's specifications and shall be accurate to within  $\pm 5.0\%$ .
    - (3) The monitors and analyzers shall operate as required by this section at least 95% of the time when the flare is operational, averaged over a rolling 12-month period. Flared gas actual exit velocity determined in accordance with 40 CFR §§60.18(f)(4) shall be recorded at least once every hour.
  - E. The permit holder shall meet the requirements of Special Condition 20 for flares 005FL1 and 005FL2 by the required compliance date. **(03/25)**
20. The Flares (EPNs 005FL1 and 005FL2) shall be designed and operated in accordance with the following requirements: **(03/25)**
- A. The flare system shall be designed such that the combined flare vent gas, assist air, and/or total steam to each flare meets the 40 CFR § 63.670 specifications for minimum combustion

zone net heating value and maximum tip velocity at all times that flare vent gas may be directed to the flare for more than 15 minutes. Flared gas actual exit velocity, vent gas net heating value, and flared gas combustion zone net heating value shall be determined in accordance with 40 CFR §63.670(k), §63.670(l), and §63.670(m) on a 15-minute block average and recorded at least once every 15 minutes.

If the flare actively receives perimeter assist air, it shall be operated to meet the 40 CFR §63.670 specifications for minimum net heating value dilution parameters.

- B. The flares shall be operated with pilot or flare flames present at all times flare vent gas may be directed to the flares. The pilot or flare flames shall be continuously monitored by a thermocouple, infrared monitor, or ultraviolet monitor. The time, date, and duration of any loss of pilot or flare flame shall be recorded. Each monitoring device shall be accurate to and shall be calibrated at a frequency in accordance with, the manufacturer's specifications.
- C. Flares shall be operated with no visible emissions except periods not to exceed a total of five minutes during any two consecutive hours, demonstrated and recorded per the requirements of §63.670(h).
- D. The permit holder shall install flow monitors that continuously measure, calculate, and record the total volumetric vent stream flow rate (including waste gas, purge gas, supplemental gas, and sweep gas), and shall install a monitoring system capable of determining the concentration of individual components in the flare vent gas or the net heating value of the flare vent gas. The flow monitor sensor and analyzer sample points shall be installed in the vent stream such that the total vent stream to the flare is measured and analyzed.

If one or more gas streams that combine to comprise the total flare vent gas flow are monitored separately for net heating value and flow, the 15-minute block average net heating value shall be determined separately for each measurement location and a flow-weighted average of the gas stream net heating values shall be used to determine the 15-minute block average net heating value of the cumulative flare vent gas.

If assist air or assist steam is used, the owner or operator shall install, operate, calibrate, and maintain a monitoring system capable of continuously measuring, calculating, and recording the total volumetric flow rate of assist air and/or assist steam used with the flare.

If pre-mix assist air and/or perimeter assist air are used, the owner or operator shall install, operate, calibrate, and maintain a monitoring system capable of separately measuring, calculating, and recording the volumetric flow rate of pre-mix assist air and/or perimeter assist air used with the flare. Continuously monitoring fan speed or power and using fan curves is an acceptable method for continuously monitoring assist air flow rates.

Perimeter assist air includes all air assist except pre-mix assist air. Pre-mix assist air includes any air intentionally entrained in center steam.

Assist air includes pre-mix assist air and perimeter assist air but does not include the surrounding ambient air.

The monitors shall be calibrated or have a calibration check performed as specified in Table 13 of the appendix to 40 CFR 63, Part CC to meet the following accuracy specifications: the vent flow monitor shall be  $\pm 20$  percent of flow rate at velocities ranging from 0.03 to 0.3 meters per second (0.1 to 1 foot per second)  $\pm 5$  percent of flow rate at velocities greater than 0.3 meters per second (1 foot per second), all other gas flow monitors shall be  $\pm 5$  percent over the normal range of flow measured or 280 liters per minute (10 cubic feet per minute) whichever is greater, temperature monitor shall be  $\pm 1$  percent over the normal range of temperature measured, expressed in degrees Celsius (C), or 2.8 degrees C, whichever is greater, and pressure monitor shall be  $\pm 5$  percent over the normal operating range or 0.12 kilopascals (0.5 inches of water column), whichever is greater. For purposes of this permit, a

calibration check means, at a minimum, using a second device or method to verify that the monitor is accurate as specified in the permit.

Calorimeters shall have an accuracy of at least  $\pm 2\%$  of span and be calibrated, installed, operated, and maintained in accordance with manufacturer recommendations and as specified in Table 13 of the appendix to 40 CFR 63, Part CC, to continuously measure and record the net heating value of the vent gas sent to the flare, in British thermal units/standard cubic foot of the gas.

For determination of net heating value by gas chromatograph, the minimum accuracy shall be as specified in Performance Specification 9 of Part 60, appendix B. Composition monitoring instruments shall be calibrated, installed, operated, and maintained in accordance with manufacturer recommendations and as specified in 40 CFR §63.671(e) and Table 13 of 40 CFR Pt. 63, Subpart CC. Individual component properties specified in Table 12 of Subpart CC shall apply to net heating value calculations.

For determination of net heating value by continuous process mass spectrometer, the minimum accuracy; composition monitoring; calibration; installation; operation and maintenance shall be done in accordance with 40 CFR §63.1103(e)(4)(viii).

Except as specified in Special Condition 20.E, the monitors and analyzers shall operate as required by this section at least 95% of the time when the flare is operational, average over a rolling 12 -month period. Flared gas net heating value and actual exit velocity determined in accordance with 40 CFR §§60.18(f)(3) and 60.18(f)(4) shall be recorded at least once every hour. Records of time periods when the SICK flowmeter signal is not accurate or is reflective of high hydrogen or high ethylene concentrations, shall be maintained.

- E. Eastman shall install SICK ultrasonic flare flow meters to accurately measure flows over the expected range of concentrations for various components sent to the flare. The permit holder shall develop an operating procedure to best determine the volumetric flow rate when the SICK flowmeter is not able to record an accurate signal (i.e. periods of high hydrogen (>85%) or high ethylene (>95%)). Records of time periods when the SICK flowmeter signal is not accurate, or is reflective of high hydrogen or ethylene concentrations, shall be maintained.
  - F. Quality assured (or valid) data must be generated during periods that the specified flare 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 flare operated over the previous rolling 12-month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.
  - G. Hourly mass emission rates shall be determined and recorded using the monitoring data collected pursuant to paragraph D of this Special Condition and the emission factors specified in the permit amendment application PI-1 dated May 8, 2024, for NSR Project 373712.
21. Pilot and supplemental (fuel) gas combusted in the flares shall be sweet natural gas containing no more than 0.26 grains of total sulfur per 100 dry standard cubic feet. **(03/25)**

#### **Compliance Assurance Monitoring (CAM) Requirements**

22. The following requirements apply to waste gas capture systems for the flares (EPNs 027FL1, 005FL1, and 005FL2). **(03/25)**
- A. If the control device does not have a bypass, comply with either of the following requirements:

- (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.
  - (3) If the closed vent system is constructed of hard-piping, the permit holder shall comply with the following requirements:
    - (a) Conduct an initial Method 21 inspection as specified in (2) above.
    - (b) Conduct annual AVO inspections thereafter.
- B. 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 15 minutes immediately downstream of each valve that if opened would allow a vent stream to bypass the control device and be emitted, either directly or indirectly to the atmosphere; or
  - (2) Once a month, inspect the valves, verifying the position of the valves and the condition of the car seals prevent flow out the bypass.

A deviation shall be reported if the monitoring or inspections indicate bypass of the control device.
- C. If any of the above inspections are not satisfactory, the permit holder shall promptly take necessary corrective action.

Records of the inspection, monitoring, and corrective action shall be maintained and kept at the site and made available to TCEQ representatives upon request.

#### **Recordkeeping Requirement**

23. The records required by these special conditions shall be maintained in hard copy or electronic format and shall be maintained for at least five years. These records shall be made immediately available at the request of personnel from the TCEQ or any air pollution control agency with jurisdiction. **(01/20)**

Date: March 18, 2025