TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

EXAMPLE A

AMENDED NOTICE OF APPLICATION AND PRELIMINARY DECISION FOR AIR QUALITY PERMITS

AIR QUALITY PERMIT NUMBERS 156320, PSDTX1558M1, N272M1, AND GHGPSDTX193M1

APPLICATION AND PRELIMINARY DECISION. Enterprise Products Operating LLC, PO Box 4324, Houston, TX 77210-4324, has applied to the Texas Commission on Environmental Quality (TCEQ) for an amendment to State Air Quality Permit 156320, modification to Prevention of Significant Deterioration (PSD) Air Quality Permit PSDTX1558M1, modification to Nonattainment Permit Number N272M1, and modification to Greenhouse Gas (GHG) PSD Air Quality Permit GHGPSDTX193M1 for emissions of GHGs, which would authorize modification to the Enterprise Mont Belvieu Complex located at 10207 Farm-to-Market Road 1942, Mont Belvieu, Chambers County, Texas 77521. The existing facility will emit the following air contaminants in a significant amount: carbon monoxide, nitrogen oxides, organic compounds, particulate matter including particulate matter with diameters of 10 microns or less and 2.5 microns or less and greenhouse gases. The existing facility will emit the following air contaminants in a significant amount to require a Nonattainment Review: organic compounds and nitrogen oxides. In addition, the facility will emit: hazardous air pollutants and sulfur dioxide. No other pollutant emission increase will result from this facility.

The degree of PSD increment predicted to be consumed by the existing facility and other increment-consuming sources in the area is as follows:

PM_{10}

Maximum Averaging Time	Maximum Increment Consumed ($\mu g/m^3$)	Allowable Increment ($\mu g/m^3$)
24-hour	4.9	30
Annual	0.4	17

Nitrogen Dioxide

Maximum Averaging Time	Maximum Increment Consumed ($\mu g/m^3$)	Allowable Increment ($\mu g/m^3$)
Annual	0.1	25

$PM_{2.5}$

Maximum Averaging Time	Maximum Increment Consumed ($\mu g/m^3$)	Allowable Increment ($\mu g/m^3$)
24-hour	1	9
Annual	0.08	4

This application was submitted to the TCEQ on February 28, 2022. The executive director has determined that the emissions of air contaminants from the existing facility which are subject to PSD review will not violate any state or federal air quality regulations and will not have any significant adverse impact on soils, vegetation, or visibility. All air contaminants have been evaluated, and "best available control technology" will be used for the control of these contaminants.

Chambers County has been designated nonattainment for VOC and NOx because Continuous Ambient Air Monitoring Stations have shown that ambient concentrations of VOC and NOx exceed the National Ambient Air Quality Standards

(NAAQS) for VOC and NOx. The Federal Clean Air Act (FCAA) requires that new major stationary sources and major modifications at sources in designated nonattainment areas must satisfy nonattainment new source review prior to commencement of construction.

As required by the nonattainment review, all air contaminants have been evaluated and the "lowest achievable emission rate" has been addressed for the control of these contaminants. The emission increases from this project will be offset with emission reductions by a ratio of 1.2 to 1. Furthermore, the applicant has demonstrated that the benefits of the existing facility significantly outweigh the environmental and social costs imposed as a result of its location, construction, or modification. Finally, the applicant has certified that all major stationary sources owned or operated by the applicant in the state are in compliance or on a schedule for compliance with all applicable state and federal emission limitations and standards. The executive director, therefore, has made the preliminary determination to issue this permit.

The executive director has completed the technical review of the application and prepared a draft permit which, if approved, would establish the conditions under which the facility must operate. The permit application, executive director's preliminary decision, draft permit, and the executive director's preliminary determination summary and executive director's air quality analysis, will be available for viewing and copying at the TCEQ central office, the TCEQ Houston regional office, and at the Sam & Carmen Goss Memorial Library, 1 John Hall Drive, Mont Belvieu, Chambers County, Texas, beginning the first day of publication of this notice. The facility's compliance file, if any exists, is available for public review at the TCEQ Houston Regional Office, 5425 Polk St Ste H, Houston, Texas.

INFORMATION AVAILABLE ONLINE. These documents are accessible through the Commission's Web site at www.tceq.texas.gov/goto/cid: the executive director's preliminary decision which includes the draft permit, the executive director's preliminary determination summary, air quality analysis, and, once available, the executive director's response to comments and the final decision on this application. Access the Commissioners' Integrated Database (CID) using the above link and enter the permit number for this application. The public location mentioned above, the Sam & Carmen Goss Memorial Library, provides public access to the internet. This link to an electronic map of the site or facility's general location is provided as a public courtesy and not part of the application or notice. For exact location, refer to application. http://www.tceq.texas.gov/assets/public/hb610/index.html?lat=29.856111&lng=-94.912222&zoom=13&type=r.

PUBLIC COMMENT/PUBLIC MEETING. You may submit public comments or request a public meeting to the Office of the Chief Clerk at the address below. The purpose of a public meeting is to provide the opportunity to submit comment or to ask questions about the application. The TCEQ will hold a public meeting if the executive director determines that there is a significant degree of public interest in the application, if requested by an interested person, or if requested by a local legislator. A public meeting is not a contested case hearing. **You may submit additional written public comments within 30 days of the date of newspaper publication of this notice in the manner set forth in the AGENCY CONTACTS AND INFORMATION paragraph below.**

After the deadline for public comment, the executive director will consider the comments and prepare a response to all relevant and material or significant public comment. **The response to comments, along with the executive director's decision on the application, will be mailed to everyone who submitted public comments or is on a mailing list for this application. The mailing will also provide instructions for requesting a contested case hearing or reconsideration of the executive director's decision.**

OPPORTUNITY FOR A CONTESTED CASE HEARING. You may request a contested case hearing regarding the portions of the application for State Air Quality Permit Number 156320, PSD Air Quality Permit Number PSDTX1558M1, and for Nonattainment Air Quality Permit Number N272M1. There is no opportunity to request a contested case hearing regarding the portion of the application for GHG PSD Air Quality Permit Number GHGPSDTX193M1. A contested case hearing is a legal proceeding similar to a civil trial in a state district court. A person who may be affected by emissions of air contaminants, other than GHGs, from the facility is entitled to request a hearing. A contested case hearing request must include the following: (1) your name (or for a group or association, an official representative), mailing address, daytime phone number; (2) applicant's name and permit number; (3) the statement "I/we request a contested case hearing;" (4) a specific description of how you would be adversely affected by the application and air emissions from the facility in a way not common to the general public; (5) the location and distance of your property relative to the facility; (6) a description of how you use the property which may be impacted by the facility; and (7) a list of all disputed issues of fact that you submit during the comment period. If the request is made by a group or association, one or more members who have standing to request a hearing must be identified by name and physical address. The interests the group or association seeks to protect must also be identified. You may also submit your proposed adjustments to the application/permit which would satisfy your concerns. Requests for a contested case hearing must be submitted

in writing within 30 days following this notice to the Office of the Chief Clerk, at the address provided in the information section below.

A contested case hearing will only be granted based on disputed issues of fact or mixed questions of fact and law that are relevant and material to the Commission's decisions on the application. The Commission may only grant a request for a contested case hearing on issues the requestor submitted in their timely comments that were not subsequently withdrawn. Issues that are not submitted in public comments may not be considered during a hearing.

EXECUTIVE DIRECTOR ACTION. The executive director may issue final approval of the application for the portion of the application for GHG PSD Air Quality Permit GHGPSDTX193M1. If a timely contested case hearing request is not received or if all timely contested case hearing requests are withdrawn regarding State Air Quality Permit Number 156320, PSD Air Quality Permit Number PSDTX1558M1, and for Nonattainment Air Quality Permit Number N272M1, the executive director may issue final approval of the application. The response to comments, along with the executive director's decision on the application will be mailed to everyone who submitted public comments or is on a mailing list for this application, and will be posted electronically to the CID. If any timely hearing requests are received and not withdrawn, the executive director will not issue final approval of the State Air Quality Permit Number 156320, PSD Air Quality Permit Number PSDTX1558M1, and for Nonattainment Air Quality Permit Number N272M1 and will forward the application and requests to the Commissioners for their consideration at a scheduled commission meeting.

MAILING LIST. You may ask to be placed on a mailing list to obtain additional information on this application by sending a request to the Office of the Chief Clerk at the address below.

AGENCY CONTACTS AND INFORMATION. Public comments and requests must be submitted either electronically at www14.tceq.texas.gov/epic/eComment/, or in writing to the Texas Commission on Environmental Quality, Office of the Chief Clerk, MC-105, P.O. Box 13087, Austin, Texas 78711-3087. Please be aware that any contact information you provide, including your name, phone number, email address and physical address will become part of the agency's public record. For more information about this permit application or the permitting process, please call the Public Education Program toll free at 1-800-687-4040. Si desea información en Español, puede llamar al 1-800-687-4040.

Further information may also be obtained from Enterprise Products Operating LLC at the address stated above or by calling Ms. Beatriz Santamaria, P.E., Staff Environmental Engineer at (713) 381-4308.

Amended Notice Issuance Date: March 23, 2023

Special Conditions

Permit Numbers 156320, PSDTX1558M1, N272M1, GHGPSDTX193M1

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 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 Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units.

   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 in 40 CFR Part 61:

   A. Subpart A, General Provisions.

   B. Subpart FF, National Emission Standard for Benzene Waste Operations.

5. 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 FFFF, National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing.

   C. Subpart DDDDD, National Emission Standards for Hazardous Air Pollutants for Industrial for Institutional, Commercial, and Industrial Boilers and Process Heaters.

Emission Standards and Operational Specifications

6. The natural and fuel gas used at the site shall contain no more than 5 grains of sulfur per 100 dry standard cubic feet (dscf) of fuel at any time, and shall contain no more than 1.3 grains of sulfur per 100 dscf on an annual basis. The natural and fuel 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.

7. Emissions from Charge Heater + No. 1 Interheater Stack, No. 2 Interheater + No. 3 Interheater Stack, and Hot Oil Heater shall not exceed the following:

   A. 0.015 lb NO_x/MMBtu (HHV), hourly average, (except during startup and shutdown),

   B. 0.0075 lb NO_x /MMBtu (HHV), annual average,

   C. 100 ppmvd CO, corrected to 3% oxygen (O_2), hourly average (except during startup and shutdown),

   D. 50 ppmvd CO, corrected to 3% O_2, annual average, and

   E. 10 ppmvd NH_3, corrected to 3% O_2, hourly average (except during startup and shutdown).

8. The flare (EPN: SK25.801) 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.

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

   C. The 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 air assist to the flare.

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

      The monitors shall be calibrated or have a calibration check performed on an annual basis to meet the following accuracy specifications: the flow monitor shall be ±5.0%, temperature monitor shall be ±2.0% at absolute temperature, and pressure monitor shall be ±5.0 mm Hg.

Calibration of the analyzer shall follow the procedures and requirements of Section 10.0 of 40 CFR Part 60, Appendix B, Performance Specification 9, as amended through October 17, 2000 (65 FR 61744), except that the multi-point calibration procedure in Section 10.1 of Performance Specification 9 shall be performed at least once every calendar quarter instead of once every month, and the mid-level calibration check procedure in Section 10.2 of Performance Specification 9 shall be performed at least once every calendar week instead of once every 24 hours. The calibration gases used for calibration procedures shall be in accordance with Section 7.1 of Performance Specification 9. Net heating value of the gas combusted in the flare shall be calculated according to the equation given in 40 CFR §60.18(f)(3) as amended through October 17, 2000 (65 FR 61744).

The 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 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. Hourly mass emission rates shall be determined and recorded.

9. Absorber CCR Scrubber shall operate with no less than 99% removal efficiency (RE) for HCl, 98% RE for Cl_2, and 90% RE for SO_2, on an hourly average as demonstrated by the stack test performed in accordance with Special Condition No. 24.

   A. The recirculating caustic solution of the absorber shall be maintained at or above a pH of 7 prior to the first stack test performed in accordance with Special Condition No. 24, and at a minimum of 0.1 weight percent caustic solution. After the stack test has been completed, the pH shall be at or above the average pH maintained during the last satisfactory stack test. The pH shall be continuously analyzed and recorded at least once a minute. Each monitoring device shall be cleaned with an automatic cleaning system, or cleaned weekly using hydraulic, chemical, or mechanical cleaning. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, or at least weekly, whichever is more frequent, and shall be accurate to within ± 0.5 pH unit.

   B. The recirculating caustic solution shall be analyzed for caustic weight percent once every 24-hours. Fresh caustic shall be charged to the scrubber should either of the following conditions exist:

      (1) reading a pH less than 7, or minimum pH maintained during last satisfactory stack test, for the caustic solution in circulation, or

      (2) Upon reading less than 0.1 weight percent caustic for the caustic solution in circulation.

   C. As an alternative to Condition A, the oxidation-reduction potential (ORP) of the recirculating caustic solution shall be maintained at or below 30 mV prior to the first stack test performed in accordance with Special Condition No. 24. After the first satisfactory stack test, the ORP shall be at or below that maintained during the last satisfactory stack test. The ORP shall be monitored according to ASTM D1498 or equivalent, and recorded at least once a minute, and sufficient buffer (sodium bisulfite) shall be added to prevent the ORP from going above 30 mV. The ORP monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, or at least annually, whichever is more frequent, and shall be accurate to within ± 100 mV.

   D. The minimum liquid flow to the absorber shall be 15 gpm prior to the first stack test performed in accordance with Special Condition No. 24. After the first satisfactory stack test, the flow shall be at least equal to that maintained during the last satisfactory stack test. The circulation rate shall be monitored and recorded at least once an hour. The flow monitoring

device shall be calibrated at a frequency in accordance with the manufacturer's specifications, or at least annually, whichever is more frequent, and shall be accurate to within 2 percent of span or 5 percent of the design value.

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

F. The date and time of each caustic solution analysis (Special Condition Nos. 9A and 9B), ORP monitoring (Special Condition No. 9C) and circulation rate monitoring (Special Condition No. 9D) shall be noted in the operator's log or equivalent and made available to representatives of the TCEQ or any air pollution control program having jurisdiction, upon request.

10. Fixed roof storage tanks shall meet the following requirements:

A. Storage tanks (Spent Caustic Tank, Spent Caustic Tank 2, and Waste Water Tank) service is limited to storing the following liquid(s): spent caustic and wastewater.

B. The true vapor pressure of any liquid stored at the PDH II unit in an atmospheric tank shall not exceed 0.5 psia.

C. 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.

D. The permit holder shall maintain an emissions record which includes calculated emissions of VOC from all storage tanks during the previous calendar year. The record shall include tank identification number, control method used, tank capacity in gallons, name of the material stored, VOC molecular weight, and VOC throughput for the previous year.

Emissions from tanks shall be calculated using the methods that were used to determine the MAERT limits in the permit application Form PI-1 dated March 2019 and February 2022. Sample calculations from the application shall be attached to a copy of this permit at the plant site.

11. The 19% aqueous ammonia used for the SCR shall be stored in a pressurized tank. The pressurized ammonia tank shall be equipped with a pressure safety valve equipped with a rupture disc upstream. A pressure-sensing device shall be installed between the relief valve and rupture disc to monitor the disc integrity.

The fill level of the aqueous ammonia storage tank shall not exceed a level that is in line with good engineering practices. In addition, sealless pumps shall be used in all piping handling aqueous ammonia.

12. Atmospheric loading operations at the facility shall comply with the following requirements:

A. Submerged loading shall be performed at two spots using flexible hoses, and is limited to the hourly and annual rates as represented in the permit application dated March 2019. Loading may occur at both spots simultaneously.

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. Materials loaded are restricted to spent caustic and waste water. VOC vapor pressure of any material loaded shall not exceed 0.02 psia.

D. The permit holder shall maintain and update a monthly loading record which includes gallons of material loaded from all loading operations over the previous rolling 12-month period.

13. Pressurized tank truck loading operations are subject to the following requirements

A. Loading line disconnects are limited to the hourly and annual limits as represented in the permit application dated March 2019.

B. Each tank truck shall be leak checked and certified annually in accordance with 49 CFR 180.407 Department of Transportation (DOT), for pressure tank trucks rated at 15 pounds per square inch gage (psig) or greater. 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.

14. Opacity and visible emissions limits shall apply, as follows:

A. Opacity of emissions from each heater and CCR Scrubber Vent shall not exceed 5 percent averaged over a six-minute period.

B. Visible emissions from catalyst handling operations (Reactors 1 through 4 Catalyst Transfer, SHP Reactor Catalyst Transfer, and Catalyst Drum Filling) shall not exceed 30 seconds in any six-minute period.

C. The holder of this permit shall conduct a quarterly visible emissions determination to demonstrate compliance with the opacity limitations specified in Paragraph A. This visible emissions determination shall be performed:

(1) during normal plant operations,

(2) for a minimum of six minutes,

(3) approximately perpendicular to plume direction,

(4) with the sun behind the observer (to the extent practicable), and

(5) at least two stack heights, but not more than five stack heights, from the emission point.

D. If visible emissions are observed as determined according to Paragraph C, the owner or operator shall:

(1) Take immediate action (as appropriate) to eliminate visible emissions. The corrective action shall be documented within 24 hours of completion; or

(2) Determine opacity using 40 CFR Part 60, Appendix A, Test Method 9. If the opacity limit is exceeded, the owner or operation shall take immediate action (as appropriate) to reduce opacity to within the permitted limit. The corrective action shall be documented within 24 hours of completion.

E. The holder of this permit shall conduct a quarterly visible fugitive emissions determination to demonstrate compliance with the visible emissions limitation specified in Paragraph B. This visible fugitive emissions determination shall be performed:

(1) during normal plant operations,

(2) for a minimum of six minutes,

(3) approximately perpendicular to plume direction,

(4) with the sun behind the observer (to the extent practicable),

(5) at least 15 feet, but not more than 0.25 mile, from the plume, and

(6) in accordance with EPA 40 CFR Part 60, Appendix A, Test Method 22, except where stated otherwise in this condition.

F. If visible fugitive emissions are observed for more than 30 seconds in any six-minute period as determined according to Paragraph E, the owner or operator shall take immediate action (as appropriate) to eliminate the visible fugitive emissions. The corrective action shall be documented within 24 hours of completion.

Wet Surface Air Cooler (WSAC)

15. The wet surface air coolers (Circulating Wash Oil Cooler WSAC (EPN HT16.102) and WSAC HT16.104/211 (EPN HT16104211)) shall be operated and monitored in accordance with the following:

A. The wet surface air coolers shall each be equipped with drift eliminators having manufacturer's design assurance of 0.001% drift or less. Drift eliminators shall be maintained and inspected at least every three years or during scheduled maintenance on the equipment that requires a shutdown. The permit holder shall maintain records of all inspections and repairs.

B. Total dissolved solids (TDS) shall not exceed 3500 parts per million by weight (ppmw). Dissolved solids in the cooling water drift are considered to be emitted as PM, PM_{10}, and $PM_{2.5}$ as represented in the permit application calculations.

C. The cooling water used in the wet surface air coolers shall be analyzed for parameters related to particulate emissions using one of the following methods:

(1) Cooling water shall be sampled at least once per day for total dissolved solids (TDS); or

(2) TDS monitoring may be reduced to weekly if conductivity is monitored daily and TDS is calculated using a ratio of TDS-to-conductivity (in ppmw per µmho/cm or ppmw/siemens). The ratio of TDS-to-conductivity shall be determined by concurrently monitoring TDS and conductivity on a weekly basis. The permit holder may use the average of two consecutive TDS-to-conductivity ratios to calculate daily TDS; or

(3) TDS monitoring may be reduced to quarterly if conductivity is monitored daily and TDS is calculated using a correlation factor established for the wet surface air cooler. The correlation factor shall be the average of nine consecutive weekly TDS-to-conductivity ratios determined using C(2) above provided the highest ratio is not more than 10% larger than the smallest ratio.

(4) The permit holder shall validate the TDS-to-conductivity correlation factor once each calendar quarter. If the ratio of concurrently sampled TDS and conductivity is more than 10% higher or lower than the established factor, the permit holder shall increase TDS monitoring to weekly until a new correlation factor can be established.

D. Cooling water sampling shall be representative of the wet surface air cooler feed water and shall be conducted using approved methods.

(1) The analysis method for TDS shall be EPA Method 160.1, ASTM D5907, or SM 2540 C [SM - 19th edition of Standard Methods for Examination of Water]. Water samples should be capped upon collection, and transferred to a laboratory area for analysis.

(2) The analysis method for conductivity shall be either ASTM D1125-95A (field or routine laboratory testing) or ASTM D1125-95B (continuous monitor). The analysis may be conducted at the sample site or with a calibrated process conductivity meter. If a conductivity meter is used, it shall be calibrated at least annually. Documentation of the method and any associated calibration records shall be maintained.

(3) Alternate sampling and analysis methods may be used to comply with D(1) and D(2) with written approval from the TCEQ Regional Director.

(4) Records of all instrument calibrations and test results and process measurements used for the emission calculations shall be retained.

E. Emission rates of PM, PM_{10} and $PM_{2.5}$ shall be calculated using the measured TDS and the ratio or correlation of TDS to conductivity measurements, the design drift rate and the daily maximum and average actual cooling water circulation rate for the short term and annual average rates. Alternately, the design maximum circulation rate may be used for all calculations. Emission records shall be updated monthly.

Piping, Valves, Pumps, Agitators, and Compressors - Intensive Directed Maintenance – 28LAER

16. Except as may be provided for in the Special Conditions of this permit, the following requirements apply to the above-referenced equipment:

A. The requirements of paragraphs F and G shall not apply (1) where the VOC has an aggregate partial pressure or vapor pressure of less than 0.044 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:

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

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

Connectors shall be inspected by visual, audible, and/or olfactory means at least weekly by operating personnel walk-through. In addition, all connectors shall be monitored by leak-checking for fugitive emissions at least quarterly using an approved gas analyzer with a directed maintenance program in accordance with items F thru J of this special condition.

In lieu of the monitoring frequency specified above, connectors may be monitored on a semiannual basis if the percent of connectors leaking for two consecutive quarterly monitoring periods is less than 0.5 percent.

Connectors may be monitored on an annual basis if the percent of connectors leaking for two consecutive semiannual monitoring periods is less than 0.5 percent.

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

The percent of connectors leaking shall be determined using the following formula:

$$(Cl + Cs) \times 100/Ct = Cp$$

Where:

Cl = the number of connectors found leaking by the end of the monitoring period, either by Method 21 or sight, sound, and smell.

Cs = the number of connectors for which repair has been delayed and are listed on the facility shutdown log.

Ct = the total number of connectors in the facility subject to the monitoring requirements, as of the last day of the monitoring period, not including non-accessible and unsafe to monitor connectors.

Cp = the percentage of leaking connectors for the monitoring period.

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 by the end of the 72 hours period following the creation of the open ended line and monthly thereafter with an approved gas analyzer and the results recorded. For turnarounds and all other situations, leaks are indicated by readings of 500 ppmv and must be repaired within 24 hours or a cap, blind flange, plug, or second valve must be installed on the line or valve.

F. Accessible valves shall be monitored by leak-checking for fugitive emissions at least quarterly using an approved gas analyzer with a directed maintenance program. Non accessible valves shall be monitored by leak-checking for fugitive emissions at least annually using an approved gas analyzer with a directed maintenance program. Sealless/leakless valves (including, but not limited to, welded bonnet bellows and diaphragm valves) and relief valves equipped with a rupture disc upstream or venting to a control device are not required to be monitored. For valves equipped with rupture discs, a pressure-sensing device shall be installed between the relief valve and rupture disc to monitor disc integrity. All leaking discs shall be replaced at the earliest opportunity but no later than the next process shutdown. A check of the reading of the pressure-sensing device to verify disc integrity shall be performed at least quarterly and recorded in the unit log or equivalent. Pressure-sensing devices that are continuously monitored with alarms are exempt from recordkeeping requirements specified in this paragraph.

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, than the instrument may be calibrated with one of the VOC to be measured or any other VOC so long as the instrument has a response factor of less than 10 for each of the VOC to be measured.

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

G. All new and replacement pumps, compressors, and agitators shall be equipped with a shaft sealing system that prevents or detects emissions of VOC from the seal. These seal systems need not be monitored and may include (but are not limited to) dual pump seals with barrier fluid at higher pressure than process pressure, seals degassing to vent control systems kept in good working order, or seals equipped with an automatic seal failure detection and alarm system. Submerged pumps or sealless pumps (including, but not limited to, diaphragm, canned, or magnetic-driven pumps) may be used to satisfy the requirements of this condition and need not be monitored.

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

H. Damaged or leaking valves, connectors, compressor seals, pump seals, and agitator seals found to be emitting VOC in excess of 500 parts per million by volume (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. Records of the first attempt to repair shall be maintained. A leaking component shall be repaired as soon as practicable, but no later than 15 days after the leak is found. If the repair of a component would require a unit shutdown that would create more emissions than the repair would eliminate, the repair may be delayed until the next scheduled shutdown. All leaking components which cannot be repaired until a scheduled shutdown shall be identified for such repair by tagging. A listing of all components that 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.

I. 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, 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.

J. 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.

K. In lieu of the monitoring frequency specified in paragraph F, valves in gas and light liquid service may be monitored on a semiannual basis if the percent of valves leaking for two consecutive quarterly monitoring periods is less than 0.5 percent.

Valves in gas and light liquid service may be monitored on an annual basis if the percent of valves leaking for two consecutive semiannual monitoring periods is less than 0.5 percent.

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

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

(Vl + Vs) x 100/Vt = Vp

Where:

Vl = the number of valves found leaking by the end of the monitoring period, either by Method 21 or sight, sound, and smell.

Vs = the number of valves for which repair has been delayed and are listed on the facility shutdown log.

Vt = the total number of valves in the facility subject to the monitoring requirements, as of the last day of the monitoring period, not including nonaccessible and unsafe to monitor valves.

Vp = the percentage of leaking valves for the monitoring period.

M. Any component found to be leaking by physical inspection (i.e., sight, sound, or smell) shall be repaired or monitored with an approved gas analyzer within 15 days to determine whether the component is leaking in excess of 500 ppmv of VOC. If the component is found to be leaking in excess of 500 ppmv of VOC, it shall be subject to the repair and replacement requirements contained in this special condition.

Piping, Valves, Pumps, and Compressors in contact with Ammonia – 28AVO

17. Except as may be provided for in the Special Conditions of this permit, the following requirements apply to the above-referenced equipment:

A. Audio, olfactory, and visual checks for leaks within the operating area shall be made once per shift.

B. Immediately, but no later than one hour upon detection of a leak, plant personnel shall take at least one of the following actions:

(1) Isolate the leak.

(2) Commence repair or replacement of the leaking component.

(3) Use a leak collection/containment system to prevent the leak until repair or replacement can be made if immediate repair is not possible.

Date and time of each inspection shall be noted in the operator's log or equivalent. Records shall be maintained at the plant site of all repairs and replacements made due to leaks. These records shall be made available to representatives of the TCEQ upon request.

Planned Maintenance, Startup and Shutdown

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

Additionally, this permit authorizes emissions from vacuum trucks used to support planned MSS activities at permanent site facilities and controlled recovery systems. Emissions from vacuum trucks are authorized provided the vacuum trucks (a) do not remain on the plant site for more than 12 consecutive months, (b) are used solely to support planned MSS activities at the permanent site facilities authorized in this permit, and (c) does not operate as a replacement for an existing authorized facility.

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

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

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

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

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

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

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

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

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

19. MSS for fixed roof storage tanks shall comply with the following:

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

Minimize air circulation in the tank vapor space.

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

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

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

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

(2) If water is added or sprayed into the tank to remove standing VOC, one of the following must be demonstrated:

(a) Take a representative sample of the liquid remaining in the tank and verify no visible sheen using the static sheen test from 40 CFR 435 Subpart A Appendix 1.

(b) Take a representative sample of the liquid remaining in the tank and verify hexane soluble VOC concentration is less than 1000 ppmw using EPA method 1664 (may also use 8260B or 5030 with 8015 from SW-846).

(c) Stop ventilation and close the tank for at least 24 hours. When the tank manway is opened after this period, verify VOC concentration is less than 1000 ppmv through the procedure in Special Condition No. 21.

(3) No standing liquid verified through visual inspection.

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

C. The occurrence of each fixed roof tank MSS event and the associated emissions shall be recorded and the rolling 12-month tank MSS 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) for the purpose of estimating emissions, the date, time, and other information specified for each of the following events:

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

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

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

(3) the estimated quantity of each air contaminant, or mixture of air contaminants, emitted between events D(2)(a) and D(2)(c) with the data and methods used to determine it.

20. Process units and facilities, with the exception of those identified in Attachment A shall be depressurized, emptied, degassed, and placed in service in accordance with the following requirements.

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

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

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

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

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

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

equipment is purged with a gas, two system volumes of purge gas must have passed through the control device or controlled recovery system before the vent stream may be sampled to verify acceptable VOC concentration prior to uncontrolled venting. The VOC sampling and analysis shall be performed using an instrument meeting the requirements of Special Condition 21. 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.

21. 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 standard of propane, propylene, or the gas being cleared from the vessel at 25% of the lower explosive limit (LEL) for the gas standard. 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 propane, propylene, or the gas being cleared from the vessel. 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 50% of the LEL for methane may be used for calibration and functionality tests provided that the LEL response is corrected to the LEL for gas that was in the vessel or a reading of 0% LEL is determined.

22. 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 21.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 paragraphs A through D do not apply.

23. 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.

Initial Demonstration of Compliance

24. The permit holder shall perform stack sampling and other testing as required to establish the actual pattern and quantities of air contaminants being emitted into the atmosphere from the three heater stacks equipped with SCR (EPNs: HR15.101, HR15.102, and HR15.601) and the CCR Scrubber to demonstrate compliance with the MAERT and other requirements found Special Condition Nos. 7 and 9. 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 during the sampling period.

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

B. Air contaminants to be tested for include (but are not limited to):

(1) From each of the three main heater stacks (EPNs: HR15.101, HR15.102, and HR15.601): NO_x, CO, and NH_3.

(2) From the CCR Scrubber Vent stack: SO_2, HCl, and Cl_2.

C. Sampling shall occur within 60 days after achieving the maximum operating rate, but no later than 180 days after initial start-up of the facilities and at such other times 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. The heaters being sampled shall operate at maximum firing rates during stack emission testing. These conditions/parameters and any other primary operating parameters that affect the emission rate shall be monitored and recorded during the stack test. Any additional parameters shall be determined at the pretest meeting and shall be stated in the sampling report. Permit conditions and parameter limits may be waived during stack testing performed under this condition if the proposed condition/parameter range is identified in the test notice specified in paragraph A and accepted by the TCEQ Regional Office. Permit allowable emissions and emission control requirements are not waived and still apply during stack testing periods.

During subsequent operations, if the heater firing rates or parameters that affect emissions from the heaters are greater than that recorded during the test period, or if conditions that increase air contaminate loading to the CCR Scrubber or the permit holder wants to operate the scrubber at a lower pH, higher ORP, or lower circulation rate 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.

F. Sampling ports and platform(s) shall be incorporated into the design of the heaters according to the specifications set forth in the attachment entitled “Chapter 2, Guidelines For 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

25. The permit holder shall install and operate a fuel flow meter to measure the fuel gas usage for each heater. The monitored data shall be reduced to an hourly average flow rate at least once every day, using a minimum of four equally-spaced data points from each one-hour period. Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications or at least annually, whichever is more frequent, and shall be accurate to within 5 percent. The permit holder may monitor stack exhaust flow using the flow monitoring specifications of 40 Code of Federal Regulations (CFR) Part 60, Appendix B, Performance Specification 6 or 40 CFR Part 75, Appendix A.

26. The permit holder shall install, calibrate, and maintain a continuous emission monitoring system (CEMS) to measure and record the in-stack concentration of NO_x, CO, NH_3, and O_2 from EPNs: HR15.101, HR15.102, and HR15.601. Monitoring as specified in Special Condition No. 27 may be substituted for an NH_3 CEMS.

    A. The CEMS shall meet the design and performance specifications, pass the field tests, and meet the installation requirements and the data analysis and reporting requirements specified in the applicable Performance Specification Nos. 1 through 9, Title 40 Code of Federal Regulation Part 60 (40 CFR Part 60), Appendix B. If there are no applicable performance specifications in 40 CFR Part 60, Appendix B, contact the TCEQ Office of Air, Air Permits Division for requirements to be met.

    B. Section 1 below applies to sources subject to the quality-assurance requirements of 40 CFR Part 60, Appendix F; section 2 applies to all other sources:

        (1) The permit holder shall assure that the CEMS meets the applicable quality-assurance requirements specified in 40 CFR Part 60, Appendix F, Procedure 1. Relative accuracy exceedances, as specified in 40 CFR Part 60, Appendix F, Section 5.2.3 and any CEMS downtime shall be reported to the appropriate TCEQ Regional Manager semi-annually, and necessary corrective action shall be taken. Supplemental stack concentration measurements may be required at the discretion of the appropriate TCEQ Regional Manager.

        (2) For the NH3, CO, NOX, and O2 CEMS, unless Appendix F is otherwise required by NSPS, state law or regulation, or permit or approval, in lieu of the requirements of 40 CFR Part 60 Appendix F, Section 5.1.1, 5.1.3, and 5.1.4, the permit holder may conduct:

            (a) Either a Relative Accuracy Audit (RAA) or a Relative Accuracy Test Audit (RATA) once every three years; and

            (b) A Cylinder Gas Audit (CGA) each calendar quarter in which the RAA or RATA is not performed.

        (3) The system shall be zeroed and spanned daily, and corrective action taken when the 24-hour span drift exceeds two times the amounts specified in the applicable Performance Specification Nos. 1 through 9, 40 CFR Part 60, Appendix B, or as specified by the TCEQ if not specified in Appendix B. Zero and span is not required on weekends and plant holidays if instrument technicians are not normally scheduled on those days.

            Each monitor shall be quality-assured at least quarterly using CGAs in accordance with 40 CFR Part 60, Appendix F, Procedure 1, Section 5.1.2, with the following exception:

a relative accuracy test audit (RATA) is not required once every four quarters (i.e., four successive quarterly CGA may be conducted). An equivalent quality-assurance method approved by the TCEQ may also be used. Successive quarterly audits shall occur no closer than two months.

All CGA exceedances of +15 percent accuracy indicate that the CEMS is out of control.

C. The monitoring data shall be reduced to one-hour average concentrations at least once every day, using a minimum of four equally-spaced data points from each one-hour period. The individual average concentrations shall be reduced to units of pounds per hour and lbs/MMBtu at least once every week as follows:

D. The measured hourly average concentration from the CEMS shall be multiplied by the flow rate measured during the latest stack test performed in accordance with Special Condition No. 24 to determine the hourly emission rate or by using "F" Factors for Various Fuels under 40 CFR Part 60, Appendix A, Method 19. Equivalent data such as measured fuel flow rates or measured effluent flow may be used to determine the flow rate in lieu of the stack test flow rate. All monitoring data and quality-assurance data shall be maintained by the source. The data from the CEMS may, at the discretion of the TCEQ, be used to determine compliance with the conditions of this permit.

E. The appropriate TCEQ Regional Office shall be notified at least 30 days prior to any required RATA in order to provide them the opportunity to observe the testing.

F. Quality-assured (or valid) data must be generated when the heaters are operating except during the performance of a daily zero and span check. Loss of valid data due to periods of monitor break down, out-of-control operation (producing inaccurate data), repair, maintenance, or calibration may be exempted provided it does not exceed 5 percent of the time (in minutes) that each heater operated over the previous rolling 12-month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded. Options to increase system reliability to an acceptable value, including a redundant CEMS, may be required by the TCEQ Regional Manager.

27. The NH_3 concentration as specified in Special Condition No. 26 shall be tested or calculated according to one of the methods listed below and shall be tested or calculated according to frequency listed below.

A. Install, calibrate, maintain, and operate, as specified under Special Condition No. 26, a CEMS to measure and record the concentrations of NH_3. The NH_3 concentrations shall be corrected and reported in accordance with Special Condition No. 7.

B. Use a sorbent or stain tube device specific for NH_3 measurement in the 5 to 10 parts per million (ppm) range. The frequency of sorbent/stain tube testing shall be performed daily for the first 60 days of operation, after which the frequency may be reduced to weekly testing if operating procedures have been developed to prevent excess amounts of NH_3 from being introduced in the SCR unit and when operation of the SCR unit has been proven successful with regard to controlling NH_3 slip. Daily sorbent or stain tube testing shall resume when the catalyst is within 30 days of its useful life expectancy. These results shall be recorded and used to determine compliance with Special Condition No. 7.

If sorbent or stain tube testing indicates an NH_3 slip concentration which exceeds 5 ppm at any time, the permit holder shall begin NH_3 testing by either the Phenol Nitroprusside Method, the Indophenol Method, or the EPA Conditional Test Method (CTM) 27 on a quarterly basis, in addition to the weekly sorbent or stain tube testing. The quarterly testing

shall continue until such time as the SCR unit catalyst is replaced; or if the quarterly testing indicates NH_3 slip is 4 ppm or less, the Phenol Nitroprusside/Indophenol/CTM 27 tests may be suspended until sorbent or stain tube testing again indicate 5 ppm NH_3 slip or greater. These results shall be recorded and used to determine compliance with Special Condition No. 7.

C. Install, calibrate, maintain, and operate, as specified under Special Condition No. 27, a second NO_x CEMS upstream of the control device (in addition to the NO_x CEMS required under Special Condition No. 26). Perform the measurements and calculations associated with the mass balance method specified in 30 TAC §117.8130(1), using NO_x CEMS data to determine the NO_x concentration differential across the control device.

D. Install and operate a dual stream system of NO_x CEMS at the exit of the SCR. One of the exhaust streams would be routed, in an unconverted state, to one NO_x CEMS and the other exhaust stream would be routed through a NH_3 converter to convert NH_3 to NO_x and then to a second NO_x CEMS. The NH_3 slip concentration shall be calculated according to the method specified in 30 TAC §117.8130(2). These results shall be recorded and used to determine compliance with Special Condition No. 7.

E. Any other method used for measuring NH_3 slip shall require prior approval from the TCEQ Regional Director.

Netting and Offsets

28. This Nonattainment New Source Review (NNSR) permit is issued/approved based on the requirement that the permit holder offset the project emission increase for facilities authorized by this permit prior to the commencement of operation, through participation in the TCEQ Emission Banking and Trading (EBT) Program in accordance with the rules in 30 TAC Chapter 101, Subchapter H.

29. The permit holder shall use 101.1 tons per year (tpy) of VOC credits to offset the 84.22 tpy VOC project emissions increase for the facilities authorized in APD project number 339491 at a ratio of 1.2 to 1.0. **(xx/23)**

A. The permit holder shall use 101.1 tpy of VOC ECs from TCEQ credit certificate numbers 3800, 3801, 3551, 3581, 3661, 3836, 3837, 3838, 3839, 3840, 3841, 3843, 3844, 3847, 3848, 3849, 3871, 3872, 3873, and 3946 (EBT Project Numbers 416371, 416399, 416441, 416467, and 416926) to satisfy 101.1 tpy of the VOC offset requirement under Condition 29.

B. Prior to commencement of operation, the permit holder shall obtain approval from the TCEQ EBT Program for the credits being used and then submit a permit alteration or amendment request to the TCEQ Air Permits Division (and copy the TCEQ Regional Office) to identify approved credits by TCEQ credit certificate number.

30. The permit holder shall use 77.6 tpy of NOX credits to offset the 64.69 tpy NO_X project emissions increase for the facilities authorized in APD project number 339491 at a ratio of 1.2 to 1.0. **(xx/23)**

A. The permit holder shall use 77.6 tpy of NOX ECs from TCEQ credit certificate numbers 3423, 3470, 3595, 3687, 3584, 3610, 3774, 3471, 3604, 3611, 3660, 3853, 3854, and 4089 (EBT Project Numbers 414405, 415591, 415900, 415922, 416399, 416925, and 417547) to satisfy 77.6 tpy of the NOX offset requirement under Condition 30.

B. In addition to, or in place of, using credits as described in Special Condition Number 30, the permit holder may use up to 41.9 tpy of Mass Emission Cap and Trade (MECT) allowances to offset the 34.94 tpy NOx project emission increase for the following MECT facilities authorized by this permit at a ratio of 1.2 to 1.0: **(xx/23)**

(1) FIN HR15.101/EPN HR15.101

(2) FIN HR15.102/EPN HR15.102

(3) FIN HR15.601/EPN HR15.601

C. Prior to the commencement of operation, the permit holder shall obtain approval from the TCEQ EBT Program for the credits being used and then submit a permit alteration or amendment request to the TCEQ Air Permits Division (and copy the TCEQ Regional Office) to identify approved credits by TCEQ credit certificate number. **(xx/23)**

Cooling Tower (xx/23)

31. The cooling tower (EPN HT16.118) shall be operated and monitored in accordance with the following:

A. Cooling towers shall each be equipped with drift eliminators having manufacturer's design assurance of 0.001% drift or less. Drift eliminators shall be maintained and inspected at least annually. The permit holder shall maintain records of all inspections and repairs.

B. Total dissolved solids (TDS) shall not exceed 3500 parts per million by weight (ppmw). Dissolved solids in the cooling water drift are considered to be emitted as PM, PM_{10}, and $PM_{2.5}$ as represented in the permit application calculations.

C. Cooling towers shall be analyzed for particulate emissions using one of the following methods:

(1) Cooling water shall be sampled at least once per day for total dissolved solids (TDS); or

(2) TDS monitoring may be reduced to weekly if conductivity is monitored daily and TDS is calculated using a ratio of TDS-to-conductivity (in ppmw per µmho/cm or ppmw/siemens). The ratio of TDS-to-conductivity shall be determined by concurrently monitoring TDS and conductivity on a weekly basis. The permit holder may use the average of two consecutive TDS-to-conductivity ratios to calculate daily TDS; or

(3) TDS monitoring may be reduced to quarterly if conductivity is monitored daily and TDS is calculated using a correlation factor established for each cooling tower. The correlation factor shall be the average of nine consecutive weekly TDS-to-conductivity ratios determined using C(2) above provided the highest ratio is not more than 10% larger than the smallest ratio.

(4) The permit holder shall validate the TDS-to-conductivity correlation factor once each calendar quarter. If the ratio of concurrently sampled TDS and conductivity is more than 10% higher or lower than the established factor, the permit holder shall increase TDS monitoring to weekly until a new correlation factor can be established.

D. A sample of cooling tower water shall be taken from the circulated water stream(s) entering the cooling tower. The analysis shall be conducted using the approved methods below:

(1) The analysis method for TDS shall be EPA Method 160.1, ASTM D5907, or SM 2540 C [SM - 19th edition of Standard Methods for Examination of Water]. Water samples should be capped upon collection, and transferred to a laboratory area for analysis.

(2) The analysis method for conductivity shall be either ASTM D1125-14 Test Method A (field or routine laboratory testing) or ASTM D1125-14 Test Method B (continuous monitor). The analysis may be conducted at the sample site or with a calibrated process conductivity meter. If a conductivity meter is used, it shall be calibrated at least annually. Documentation of the method and any associated calibration records shall be maintained.

(3) Alternate sampling and analysis methods may be used to comply with D(1) and D(2) with written approval from the TCEQ Regional Director. If approved by the TCEQ Regional Director, the permit holder shall submit a permit application to incorporate the alternative sampling and analysis method into the permit within 2 months of the date of written approval.

(4) Records of all instrument calibrations and test results and process measurements used for the emission calculations shall be retained.

E. Emission rates of PM, PM_{10} and $PM_{2.5}$ shall be calculated using the measured TDS and the ratio or correlation of TDS to conductivity measurements, the design drift rate and the daily maximum and average actual cooling water circulation rate for the short term and annual average rates. Alternately, the design maximum circulation rate may be used for all calculations. Emission records shall be updated monthly.

Greenhouse Gases (GHG)

32. Permit holders must keep records sufficient to demonstrate compliance with 30 Texas Administrative Code § 116.164. If construction, a physical change or a change in method of operation results in Prevention of Significant Deterioration (PSD) review for criteria pollutants, records shall be sufficient to demonstrate the amount of emissions of GHGs from the source as a result of construction, a physical change or a change in method of operation does not require authorization under 30 TAC §116.164(a). If there is construction, a physical change or change in the method of operation that will result in a net emission increase of 75,000 tpy or more CO_{2e} and PSD review is triggered for criteria pollutants, greenhouse gas emissions are subject to PSD review.

33. Monitoring, quality assurance/quality control requirements, emission calculation methodologies, record keeping, and reporting requirements related to Greenhouse Gas (GHG) emissions shall adhere to the applicable requirements in 40 CFR Part 98 and in this permit.

34. Permittee shall calculate the CO_{2e} emissions on a 12-month rolling basis, based on the procedures and Global Warming Potentials (GWP) contained in Greenhouse Gas Regulations, 40 CFR Part 98, Subpart A, Table A-1.

35. Records of emissions of GHG, and how they were determined, in compliance with Special Condition Nos. 322, 333, and 344 must be maintained by the holder of this permit in a form suitable for inspection for a period of five years after collection and must be made available upon request to representatives of the TCEQ, EPA, or any local air pollution control program having jurisdiction.

Recordkeeping

36. The following information shall be maintained by the holder of this permit in a form suitable for inspection for a period of five years after collection and shall be made immediately available upon request to representatives of the TCEQ, EPA, or any local air pollution control program having jurisdiction:

    A. Flare operation and monitoring according to Special Condition No. 8.
    B. Scrubber operation and monitoring according to Special Condition No. 9.
    C. Fixed roof storage tank operations according to Special Condition No. 10.
    D. Loading emissions according to Special Condition No. 12.
    E. Opacity / Visible Emissions readings according to Special Condition No. 14.
    F. WSAC operation and monitoring according to Special Condition No. 15.
    G. Fugitive monitoring according to Special Conditions No. 16 and 17.
    H. MSS activities and emissions according to Special Conditions No. 18 through 23.
    I. Stack sampling reports according to Special Condition No. 24.
    J. Fuel flow monitoring according to Special Condition No. 25.
    K. CEMS records according to Special Conditions No. 26 and 27.
    L. Cooling tower operation and monitoring according to Special Condition No. 32.
    M. GHG records according to Special Conditions No. 33 through 36.

Date: TBD

Permit 156320
Attachment A

Inherently Low Emitting Activities

Activity	Emissions				
	VOC	NO_x	CO	PM	H_2S/SO_2
Aerosol Cans	x				
Calibration/ Maintenance of process instrumentation	x				

Dated: January 24, 2020

Permit 156320

Attachment B

Routine Maintenance Activities

Compressor maintenance (100% gas)

Pump maintenance

Filter maintenance

Flow meter maintenance

Heat exchanger maintenance

Relief valve replacement

Valve and pipe maintenance/replacement: 100% liquid

Pump maintenance: 100% liquid

Pipeline pigging: 100% liquid

Dated: TBD

Permit 156320

Attachment C

MSS Activity Summary

Facilities	Description	Emissions Activity	EPN
all process units	process unit shutdown/depressurize/drain	vent to flare	SK25.801
all process units	process unit shutdown/depressurize/drain	vent to atmosphere	MSS-PDH2
all process units	process unit startup	vent to flare	SK25.801
all process units and tanks	preparation for facility/component repair/replacement	vent to flare	SK25.801
all process units and tanks	preparation for facility/component repair/replacement	vent to atmosphere	MSS-PDH2
all process units and tanks	recovery from facility/component repair/replacement	vent to flare	SK25.801
all process units and tanks	recovery from facility/component repair/replacement	vent to atmosphere	MSS-PDH2
all process units and tanks	preparation for unit turnaround or facility/component repair/replacement	remove liquid	MSS-PDH2 MSS-P2VAC
all tanks	tank cleaning	cleaning activity and solvents	MSS-PDH2

Dated: TBD

Emission Sources - Maximum Allowable Emission Rates

Permit Number 156320, PSDTX1558M1, N272M1

This table lists the maximum allowable emission rates and all sources of air contaminants on the applicant's property covered by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
HR15.101	Charge Heater + No. 1 Interheater Stack	NO_x	8.01	17.54
		CO	39.47	86.44
		VOC	2.88	12.61
		SO_2	12.46	14.19
		PM	3.98	17.42
		PM_{10}	3.98	17.42
		$PM_{2.5}$	3.98	17.42
		NH_3	2.40	10.51
HR15.101	Charge Heater + No. 1 Interheater Stack MSS	NO_x	21.36	---
HR15.102	No. 2 Interheater + No. 3 Interheater Stack	NO_x	6.60	14.45
		CO	32.52	71.22
		VOC	2.37	10.39
		SO_2	10.27	11.69
		PM	3.28	14.36
		PM_{10}	3.28	14.36
		$PM_{2.5}$	3.28	14.36
		NH_3	1.98	8.66
HR15.102	No. 2 Interheater + No. 3 Interheater Stack MSS	NO_x	17.60	---
HR15.601	Hot Oil Heater	NO_x	2.36	2.94
		CO	11.60	14.50
		VOC	0.85	2.12
		SO_2	3.66	2.38
		PM	1.17	2.92

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		PM_{10}	1.17	2.92
		$PM_{2.5}$	1.17	2.92
		NH_3	0.71	1.76
HR15.601	Hot Oil Heater MSS	NO_x	6.28	---
HT16.102	Circulating Wash Oil Cooler WSAC	PM	0.40	1.75
		PM_{10}	0.17	0.76
		$PM_{2.5}$	<0.01	<0.01
HT16.118	Cooling Tower	PM	0.06	0.24
		PM_{10}	0.02	0.11
		$PM_{2.5}$	<0.01	<0.01
HT16104211	WSAC HT16.104/211	PM	1.35	5.92
		PM_{10}	0.59	2.59
		$PM_{2.5}$	<0.01	0.01
FUG-PDH2	Process Area Fugitives (5)	VOC	3.51	15.38
FUG-NGAS	Natural Gas Fugitives (5)	VOC	0.01	0.06
FUG-SCR	Aqueous Ammonia Fugitives (5)	NH_3	0.01	0.03
SV19.863	Spent Caustic Tank 1	VOC	0.85	0.07
SV19.864	Spent Caustic Tank 2	VOC	0.85	0.09
SV19.911	Waste Water Tank	VOC	0.85	0.03
LO-1	Spent Caustic Truck Loading	VOC	0.23	0.08
LO-2	Waste Water Truck Loading	VOC	0.23	0.08
LO-3	Spent Solvent/C5+ Pressure Truck Loading	VOC	0.01	<0.01
SE29.751	CCR Scrubber Vent	SO_2	0.50	2.21
		PM	0.15	0.68
		PM_{10}	0.15	0.68
		$PM_{2.5}$	0.15	0.68

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
		HCl	0.25	1.09
		Cl_2	0.22	0.98
REACTOR1-4	Reactor 1/2/3/4 Catalyst Transfers	PM	0.30	0.07
		PM_{10}	0.14	0.03
		$PM_{2.5}$	0.02	<0.01
SHP	SHP Reactor Catalyst Transfer	PM	0.44	0.02
		PM_{10}	0.21	0.01
		$PM_{2.5}$	0.03	<0.01
CATFINE	Catalyst Drum Filling	PM	<0.01	<0.01
		PM_{10}	<0.01	<0.01
		$PM_{2.5}$	<0.01	<0.01
SK25.801	Flare (Pilot + Normal)	NO_x	104.69	22.81
		CO	189.03	52.99
		VOC	34.29	24.97
		SO_2	8.85	1.33
SK25.801	Flare (MSS)	NO_x	810.57	6.93
		CO	1,618.21	12.84
		VOC	2,913.77	16.45
		SO_2	34.95	0.07
MSS-PDH2	MSS Equipment Clearing	VOC	198.44	0.83
MSS-P2VAC	MSS Vacuum Trucks	VOC	0.51	0.03

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.
(2) Specific point source name. For fugitive sources, use area name or fugitive source name.
(3) VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1
NO_x - total oxides of nitrogen
SO_2 - sulfur dioxide
PM - total particulate matter, suspended in the atmosphere, including PM_{10} and $PM_{2.5}$, as represented
PM_{10} - total particulate matter equal to or less than 10 microns in diameter, including $PM_{2.5}$, as represented
$PM_{2.5}$ - particulate matter equal to or less than 2.5 microns in diameter
CO - carbon monoxide
NH_3 - ammonia

HCl - hydrogen chloride
Cl_2 - chlorine gas

(4) Compliance with annual emission limits (tons per year) is based on a 12 month rolling period.
(5) Emission rate is an estimate and is enforceable through compliance with the applicable special condition(s) and permit application representations.

Date: _____

Emission Sources - Maximum Allowable Emission Rates
Permit Number GHGPSDTX193M1

This table lists the maximum allowable emission rates of greenhouse gas (GHG) emissions, as defined in Title 30 Texas Administrative Code § 101.1, for all sources of GHG air contaminants on the applicant's property that are authorized by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities authorized by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates
			TPY (4)
HR15.101	Charge Heater + No. 1 Interheater Stack	CO_2 (5)	273,523
		CH_4 (5)	5.15
		N_2O (5)	0.52
		CO_2e	273,806
HR15.102	No. 2 Interheater + No. 3 Interheater Stack	CO_2 (5)	225,375
		CH_4 (5)	4.25
		N_2O (5)	0.42
		CO_2e	225,608
HR15.601	Hot Oil Heater	CO_2 (5)	45,895
		CH_4 (5)	0.86
		N_2O (5)	0.09
		CO_2e	45,942
SE29.751	CCR Scrubber Vent	CO_2 (5)	6,652
		CO_2e	6,652
FUG-PDH2	Process Area Fugitives (5)	CH_4 (5)	0.19
		CO_2e	4.71
FUG-NGAS	Natural Gas Fugitives (5)	CO_2 (5)	0.08
		CH_4 (5)	1.59
		CO_2e	40
SK25.801	Flare (Pilot + Normal)	CO_2 (5)	42,573
		CH_4 (5)	38.46
		N_2O (5)	0.07
		CO_2e	43,555
SK25.801	Flare (MSS)	CO_2 (5)	6,082
		CH_4 (5)	6.16

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates
			TPY (4)
		N_2O (5)	0.01
		CO_2e	6,239

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.
(2) Specific point source name. For fugitive sources, use area name or fugitive source name.
(3) CO_2 - carbon dioxide
N_2O - nitrous oxide
CH_4 - methane
HFCs - hydrofluorocarbons
PFCs - perfluorocarbons
SF_6 - sulfur hexafluoride
CO_2e - carbon dioxide equivalents based on the following Global Warming Potentials (1/2015): CO_2 (1), N_2O (298), CH_4(25), SF_6 (22,800), HFC (various), PFC (various)
(4) Compliance with annual emission limits (tons per year) is based on a 12-month rolling period. These rates include emissions from maintenance, startup, and shutdown.
(5) Emission rate is given for informational purposes only and does not constitute enforceable limit.

Date: _____

Preliminary Determination Summary

Enterprise Products Operating LLC
Permit Numbers 156320, N272M1, PSDTX1558M1, and GHGPSDTX193M1

I. Applicant

Enterprise Products Operating LLC
PO Box 4324
Houston, TX 77210-4324

II. Project Location

Enterprise Mont Belvieu Complex
10207 Fm 1942 Rd
Chambers County
Mont Belvieu, Texas 77521

III. Project Description

Enterprise Products Operating LLC ("Enterprise") is requesting an amendment to Permit No. 156320 to authorize 'as built' design changes to the Propane Dehydrogenation No. II (PDH II) Unit at the existing Mont Belvieu Complex in Chambers County, Texas. The PDH II Unit will convert propane to propylene using continuous catalyst regeneration (CCR) technology. The initial NSR Permit for the PDH II Unit was issued on January 24, 2020, and the unit is currently under construction. The initial PDH II permit was also subject to federal NSR permitting requirements under the Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NNSR) rules, including PSD for Greenhouse Gas (GHG) emissions. Authorizations for these federal NSR programs have been issued under the following permit numbers: PSDTX1558, N272, and GHGPSDTX193.

IV. Emissions

Air Contaminant	Proposed Allowable Emission Rates (tpy)
VOC	83.20
NO_x	64.67
SO_2	31.87
CO	237.99
PM	43.39
PM_{10}	38.89
$PM_{2.5}$	35.43
NH_3	20.96
Cl_2	0.98
CO2	593448.08
CH4	56.66
N2O	1.11

CO2 Equivalents (CO2e)	595194.71

CO2e - carbon dioxide equivalents based on global warming potentials of CH4 = 25, N2O = 298, SF6=22,800.

V. Federal Applicability

The following chart illustrates the annual project emissions for each pollutant and whether this pollutant triggers PSD or Nonattainment (NA) review.

Pollutant	Project Emissions (tpy)	Major Mod Trigger (tpy)	NA Triggered Y/N	PSD Triggered Y/N
VOC	83.20	25 for NA 40 for PSD	Y	Y
NO_x	64.67	25 for NA 40 for PSD	Y	Y
SO_2	31.87	40	N/A	N
CO	237.99	100	N/A	Y
PM	43.39	25	N/A	Y
PM_{10}	38.89	15	N/A	Y
$PM_{2.5}$	35.43	10	N/A	Y
H_2SO_4	N/A	7	N/A	N/A
H_2S	N/A	10	N/A	N/A

The proposed project triggers PSD review for non-GHG NSR regulated pollutants. As shown in the table below, because the project increase is more than 75,000 tpy of CO2e, PSD review is triggered for GHG emissions.

Pollutant	Project Emissions (tpy)	Major Source or Major Mod Trigger Level (tpy)	PSD Triggered Y/N
CO2e	595,194.71	75,000	Y

VI. Control Technology Review

Source Name	EPN	Best Available Control Technology Description
Charge Heater, No. 1 Interheater, No. 2 Interheater, No. 3 Interheater, No. 1 Hot Oil Heater	HR15.101 HR15.102 HR15.601	Ultra-Low NO_X burners with SCR, limiting NO_X to 0.015 lb/MMBtu hourly, 0.0075 lb/MMBtu annual which is consistent with current LAER, Good combustion practices shall be used for CO to meet 100 ppmvd, corrected to 3% O_2 hourly, 50 ppmvd, corrected to 3% O_2 annual which is considered BACT; Best operating practices shall be used for NH_3 to meet 10 ppmvd, corrected to 3% O_2 which is BACT. Good combustion practices and firing pipeline natural gas shall be used for VOC to meet AP-42, which is consistent with current LAER. Good combustion practices PM emissions meets AP-42 particulate emission factors. Low sulfur fuel and good combustion practices is BACT for SO_2. The EPA's RBLC and recently issued permits were evaluated for these pollutants, and TCEQ's Tier I BACT was confirmed as the top-performing appropriate control option.
Wet Surface Air Coolers Cooling Tower	HT16.102 HT16104211 HT16.118	PM – Drift less than or equal to 0.001%. VOC – non-contact design. The process fluid is carried inside the WSAC water spray zone through a hard-piped tube matrix. Within the WSAC water spray zone, the process fluid piping consists of continuous seamless tubes without any connections. All connections and other potential process fluid leak points are outside the WSAC water spray area. Since there are no connections inside the WSAC, these units are considered to not be sources of VOC emissions. The cooling tower is not a potential source of VOC emissions and will provide cooling to mechanical systems, electrical equipment, and non-VOC process fluids. The cooling tower does not receive water from any heat exchanger which contains VOC, so there is no potential for VOC leaks into the cooling water. The cooling tower is subject to the same BACT considerations as the WSAC units for PM emissions. Consistent with the current TCEQ Tier I BACT for particulates, high-efficiency drift eliminators will be installed to limit drift losses to no more than 0.001% of the total water flow.
Storage Tanks	SV19.863 SV19.911 SV19.864	The fixed roof storage tanks store material with vapor pressure less than 0.02 psia. Accordingly, submerged fill and white or aluminum exterior surfaces meet LAER. The RBLC and recently issued TCEQ nonattainment permits do not contain more stringent control methods for storing comparable low-vapor pressure materials.
Catalyst Operation	REACTOR1-4 CATFINE	Material handling BACT is Best Management Practices – No open storage, no onsite blending, containers kept

Source Name	EPN	Best Available Control Technology Description
	SHP	closed except during transfer, minimal drop height, lock hoppers to enclose transfer points, vent back into process when practical.
Flare	SK25.801	DRE 99% C_3 and below, 98% C_4, meets 40 CFR § 60.18, flow meter and composition analyzer / calorimeter. The RBLC search for flare controls indicates that good combustion, good operational maintenance practices, and compliance with 40 CFR §60.18 meet LAER for NOx and VOC. This also meets BACT for CO. Flaring of only low-sulfur gases meets BACT for SO_2. The flare will be smokeless consistent with BACT for PM, PM_{10}, and $PM_{2.5}$.

VII. Air Quality Analysis

The air quality analysis (AQA) is acceptable for all review types and pollutants. The results are summarized below.

A. De Minimis Analysis

A De Minimis analysis was initially conducted to determine if a full impacts analysis would be required. The De Minimis analysis modeling results for all pollutants and averaging times indicate that the project is below the respective de minimis concentrations and no further analysis is required.

The justification for selecting the EPA's interim 1-hr NO_2 De Minimis level is based on the assumptions underlying EPA's development of the 1-hr NO_2 De Minimis level. As explained in EPA guidance memoranda[1], the EPA believes it is reasonable as an interim approach to use a De Minimis level that represents 4% of the 1-hr NO_2 NAAQS.

The $PM_{2.5}$ De Minimis levels are the EPA recommended De Minimis levels. The use of the EPA recommended De Minimis levels is sufficient to conclude that a proposed source will not cause or contribute to a violation of a $PM_{2.5}$ NAAQS or $PM_{2.5}$ PSD increments based on the analyses documented in EPA guidance and policy memoranda[2].

While the De Minimis levels for both the NAAQS and increment are identical for $PM_{2.5}$ in the table below, the procedures to determine significance (that is, predicted concentrations to compare to the De Minimis levels) are different. This difference occurs because the NAAQS for $PM_{2.5}$ are statistically-based, but the corresponding increments are exceedance-based.

[1] www.tceq.texas.gov/assets/public/permitting/air/memos/guidance_1hr_no2naaqs.pdf
[2] www.tceq.texas.gov/permitting/air/modeling/epa-mod-guidance.html

Table 1. Modeling Results for PSD De Minimis Analysis in Micrograms Per Cubic Meter (µg/m^3)

Pollutant	Averaging Time	GLCmax (µg/m^3)	De Minimis (µg/m^3)
PM_{10}	24-hr	4.9	5
PM_{10}	Annual	0.4	1
$PM_{2.5}$ (NAAQS)	24-hr	0.9	1.2
$PM_{2.5}$ (NAAQS)	Annual	0.08	0.2
$PM_{2.5}$ (Increment)	24-hr	1	1.2
$PM_{2.5}$ (Increment)	Annual	0.08	0.2
NO_2	1-hr	5	7.5
NO_2	Annual	0.1	1
CO	1-hr	377	2000
CO	8-hr	245	500

The 24-hr and annual $PM_{2.5}$ (NAAQS), and 1-hr NO_2 GLCmax are based on the highest five-year averages of the maximum predicted concentrations determined for each receptor.

The GLCmax for all other pollutants and averaging times represent the maximum predicted concentrations over five years of meteorological data.

Intermittent guidance was relied on for the 1-hr NO_2 PSD De Minimis analysis. Please refer to the Modeling Emissions Inventory section for details.

To evaluate secondary $PM_{2.5}$ impacts, the applicant provided an analysis based on a Tier 1 demonstration approach consistent with the EPA's Guideline on Air Quality Models. Specifically, the applicant used a Tier 1 demonstration tool developed by the EPA referred to as Modeled Emission Rates for Precursors (MERPs). The basic idea behind the MERPs is to use technically credible air quality modeling to relate precursor emissions and peak secondary pollutants impacts from a source. Using data associated with the 500 tpy Harris County source, the applicant estimated 24-hr and annual secondary $PM_{2.5}$ concentrations of 0.031 µg/m^3 and 0.0009 µg/m^3, respectively. When these estimates are added to the GLCmax listed in the table above, the results are less than the De Minimis levels.

The project site is located in the Houston-Galveston-Brazoria ozone nonattainment area. Therefore, an ambient ozone impacts analysis is not required.

B. Air Quality Monitoring

The De Minimis analysis modeling results indicate that all pollutants and averaging times are below their respective monitoring significance level.

Table 2. Modeling Results for PSD Monitoring Significance Levels

Pollutant	Averaging Time	GLCmax (µg/m^3)	Significance (µg/m^3)
PM_{10}	24-hr	5	10
NO_2	Annual	0.1	14
CO	8-hr	245	575

The GLCmax for all pollutants and averaging times represent the maximum predicted concentrations over five years of meteorological data.

The applicant evaluated ambient $PM_{2.5}$ monitoring data to satisfy the requirements for the pre-application air quality analysis.

Background concentrations for $PM_{2.5}$ were obtained from the EPA AIRS monitor 482010058 located at 7210 ½ Bayway Dr., Baytown, Harris County. The three-year average (2019- 2021) of the 98th percentile of the annual distribution of the 24-hr concentrations was used for the 24-hr value (20.7 µg/m^3). The three-year average (2019-2021) of the annual concentrations was used for the annual value (9.5 µg/m^3). The use of this monitor is reasonable based on a comparison of county-wide emissions, population, and a quantitative review of emissions sources in the surrounding area of the monitor site relative to the project site.

C. National Ambient Air Quality Standards (NAAQS) Analysis

The De Minimis analysis modeling results indicate that all pollutants and averaging times are below the respective de minimis concentrations and no further analysis is required.

D. Increment Analysis

The De Minimis analysis modeling results indicate that all pollutants and averaging times are below the respective de minimis concentrations and no further analysis is required.

E. Additional Impacts Analysis

The applicant performed an Additional Impacts Analysis as part of the PSD AQA. The applicant conducted a growth analysis and determined that population will not significantly increase as a result of the proposed project. The applicant conducted a soils and vegetation analysis and determined that all evaluated criteria pollutant concentrations are below their respective secondary NAAQS. The applicant meets the Class II visibility analysis requirement by complying with the opacity requirements of 30 TAC Chapter 111. The Additional Impacts Analyses are reasonable and possible adverse impacts from this project are not expected.

The ADMT evaluated predicted concentrations from the proposed project to determine if emissions could adversely affect a Class I area. The nearest Class I area, Caney Creek Wilderness, is located approximately 506 kilometers (km) from the proposed site.

The predicted concentrations of PM_{10}, $PM_{2.5}$, NO_2, and SO_2 for all averaging times, are all less than de minimis levels at a distance of 0.6 km from the proposed sources in the direction the Caney Creek Wilderness Class I area. The Caney Creek Wilderness Class I

area is an additional 505.4 km from the location where the predicted concentrations of PM_{10}, $PM_{2.5}$, NO_2, and SO_2 for all averaging times are less than de minimis. Therefore, emissions from the proposed project are not expected to adversely affect the Caney Creek Wilderness Class I area.

F. Minor Source NSR and Air Toxics Review

Table 3. Project-Related Modeling Results for State Property Line

Pollutant	Averaging Time	GLCmax (µg/m^3)	De Minimis (µg/m^3)
SO_2	1-hr	13	20.42

Table 4. Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLCmax (µg/m^3)	De Minimis (µg/m^3)
SO_2	1-hr	5	7.8
SO_2	3-hr	9	25

The 1-hr SO_2 GLCmax is based on the highest five-year average of the maximum predicted concentrations determined for each receptor. The 3-hr SO_2 GLCmax is the maximum predicted concentration associated with five years of meteorological data.

Intermittent guidance was relied on for the 1-hr SO_2 De Minimis analysis. Please refer to the Modeling Emissions Inventory section for details.

The justification for selecting the EPA's interim 1-hr SO_2 De Minimis level was based on the assumptions underlying EPA's development of the 1-hr SO_2 De Minimis level. As explained in EPA guidance memoranda[3] , the EPA believes it is reasonable as an interim approach to use a De Minimis level that represents 4% of the 1-hr SO_2 NAAQS.

Table 5. Generic Modeling Results

Source ID	1-hr GLCmax (µg/m^3 per lb/hr)	Annual GLCmax (µg/m^3 per tpy)
HR15.101	0.17	0.002
HR15.102	0.20	0.002
HR15.601	0.41	0.003
SE29.751	2.79	0.01
SK25801A	0.21	0.002

[3] www.epa.gov/sites/production/files/2015-07/documents/appwso2.pdf

Source ID	1-hr GLCmax (µg/m^3 per lb/hr)	Annual GLCmax (µg/m^3 per tpy)
SK25801B	0.04	0.002
SK25801C	0.04	0.002
SK25801D	0.21	0.002
SK25801E	0.11	0.001
SV19.863	52.66	0.29
SV19.864	52.19	0.29
SV19.911	37.01	0.14
LO1	72.58	0.34
LO2	42.02	0.15
LO3	39.62	0.16
FUGSCR	66.89	0.17
FUGNGAS	66.89	0.17
FUGPDH2	58.18	0.20
MSSPDH2	37.01	0.15
MSSP2VAC	58.18	0.20

G. Greenhouse Gases

EPA has stated that unlike the criteria pollutants for which EPA has historically issued PSD permits, there is no National Ambient Air Quality Standard (NAAQS) for GHGs, including no PSD increment. The global climate-change inducing effects of GHG emissions, according to the "Endangerment and Cause or Contribute Finding", are far-reaching and multi-dimensional (75 FR 66497). Climate change modeling and evaluations of risks and impacts are typically conducted for changes in emissions that are orders of magnitude larger than the emissions from individual projects that might be analyzed in PSD permit reviews. Quantifying the exact impacts attributable to a specific GHG source obtaining a permit in specific places and points would not be possible [EPA's PSD and Title V Permitting Guidance for GHGs at 48]. Thus, EPA has concluded in other GHG PSD permitting actions it would not be meaningful to evaluate impacts of GHG emissions on a local community in the context of a single permit.

The TCEQ has determined that an air quality analysis would provide no meaningful data and has not required the applicant to perform one. As stated in the preamble to TCEQ's adoption of the GHG PSD program, the impacts review for individual air contaminants will continue to be addressed, as applicable, in the state's traditional minor and major NSR permits program per 30 TAC Chapter 116.

VIII. Offsets

The applicant must meet an offset ratio of 1.2 to 1. Prior to the commencement of operation, the permit holder shall obtain approval from the TCEQ EBT Program for the credits being used and then submit a permit alteration or amendment request to the TCEQ Air Permits Division (and copy the TCEQ Regional Office) to identify approved credits by TCEQ credit certificate number.

IX. Alternative Site Analysis and Compliance Certification

The applicant has submitted the required demonstrations relating to consideration of alternate sites and Clean Air Act compliance status for sites owned or operated by the applicant (or by any entity controlling, controlled by, or under common control with the applicant). The analysis demonstrate that the benefits of the proposed location and source configuration outweigh the environmental and social costs of that location.

X. Conclusion

Enterprise Products has demonstrated that this project meets all applicable rules, regulations and requirements of the Texas and Federal Clean Air Acts. The proposed facilities and controls represent BACT/LAER. The modeling analysis indicates that the proposed project will not violate the NAAQS, cause an exceedance of the increment, or have any adverse impacts on soils, vegetation, or Class I Areas. The applicant has demonstrated the project meets all applicable rules, regulations and requirements of the Texas and Federal Clean Air Acts. The executive director makes a preliminary recommendation to issue Permit Nos. 156320, N272M1, PSDTX1558M1, and GHGPSDTX193M1.