FEDERAL OPERATING PERMIT

A FEDERAL OPERATING PERMIT IS HEREBY ISSUED TO
Air Products LLC

AUTHORIZING THE OPERATION OF
Air Products Baytown 3 Facility
Industrial Gas Manufacturing

LOCATED AT
Chambers County, Texas
Latitude 29° 45′ 8″ Longitude 94° 54′ 28″
Regulated Entity Number: RN108401332

This permit is issued in accordance with and subject to the Texas Clean Air Act (TCAA), Chapter 382 of the Texas Health and Safety Code and Title 30 Texas Administrative Code Chapter 122 (30 TAC Chapter 122), Federal Operating Permits. Under 30 TAC Chapter 122, this permit constitutes the permit holder's authority to operate the site and emission units listed in this permit. Operations of the site and emission units listed in this permit are subject to all additional rules or amended rules and orders of the Commission pursuant to the TCAA.

This permit does not relieve the permit holder from the responsibility of obtaining New Source Review authorization for new, modified, or existing facilities in accordance with 30 TAC Chapter 116, Control of Air Pollution by Permits for New Construction or Modification.

The site and emission units authorized by this permit shall be operated in accordance with 30 TAC Chapter 122, the general terms and conditions, special terms and conditions, and attachments contained herein.

This permit shall expire five years from the date of issuance. The renewal requirements specified in 30 TAC § 122.241 must be satisfied in order to renew the authorization to operate the site and emission units.

Permit No: O3991 Issuance Date: _____

_____
For the Commission

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General Terms and Conditions

The permit holder shall comply with all terms and conditions contained in 30 TAC § 122.143 (General Terms and Conditions), 30 TAC § 122.144 (Recordkeeping Terms and Conditions), 30 TAC § 122.145 (Reporting Terms and Conditions), and 30 TAC § 122.146 (Compliance Certification Terms and Conditions).

In accordance with 30 TAC § 122.144(1), records of required monitoring data and support information required by this permit, or any applicable requirement codified in this permit, are required to be maintained for a period of five years from the date of the monitoring report, sample, or application unless a longer data retention period is specified in an applicable requirement. The five year record retention period supersedes any less stringent retention requirement that may be specified in a condition of a permit identified in the New Source Review Authorization attachment.

If the permit holder chooses to demonstrate that this permit is no longer required, a written request to void this permit shall be submitted to the Texas Commission on Environmental Quality (TCEQ) by the Responsible Official in accordance with 30 TAC § 122.161(e). The permit holder shall comply with the permit's requirements, including compliance certification and deviation reporting, until notified by the TCEQ that this permit is voided.

The permit holder shall comply with 30 TAC Chapter 116 by obtaining a New Source Review authorization prior to new construction or modification of emission units located in the area covered by this permit.

All reports required by this permit must include in the submittal a cover letter which identifies the following information: company name, TCEQ regulated entity number, air account number (if assigned), site name, area name (if applicable), and Air Permits Division permit number(s).

Special Terms and Conditions:

Emission Limitations and Standards, Monitoring and Testing, and Recordkeeping and Reporting

1. Permit holder shall comply with the following requirements:

    A. Emission units (including groups and processes) in the Applicable Requirements Summary attachment shall meet the limitations, standards, equipment specifications, monitoring, recordkeeping, reporting, testing, and other requirements listed in the Applicable Requirements Summary attachment to assure compliance with the permit.

    B. The textual description in the column titled "Textual Description" in the Applicable Requirements Summary attachment is not enforceable and is not deemed as a substitute for the actual regulatory language. The Textual Description is provided for information purposes only.

    C. A citation listed on the Applicable Requirements Summary attachment, which has a notation [G] listed before it, shall include the referenced section and subsection for all commission rules, or paragraphs for all federal and state regulations and all subordinate paragraphs, subparagraphs and clauses, subclauses, and items contained within the referenced citation as applicable requirements.

    D. When a grouped citation, notated with a [G] in the Applicable Requirements Summary, contains multiple compliance options, the permit holder must keep records of when each compliance option was used.

    E. The permit holder shall comply with the following 30 TAC Chapter 101, Subchapter H, Division 3 (Mass Emission Cap and Trade Program) Requirements:

(i) Title 30 TAC § 101.352 (relating to General Provisions)

(ii) Title 30 TAC § 101.353 (relating to Allocation of Allowances)

(iii) Title 30 TAC § 101.354 (relating to Allowance Deductions)

(iv) Title 30 TAC § 101.356 (relating to Allowance Banking and Trading)

(v) Title 30 TAC § 101.359 (relating to Reporting)

(vi) Title 30 TAC § 101.360 (relating to Level of Activity Certification)

(vii) The terms and conditions by which the emission limits are established to meet or exceed the cap are applicable requirements of this permit

2. The permit holder shall comply with the following sections of 30 TAC Chapter 101 (General Air Quality Rules):

A. Title 30 TAC § 101.1 (relating to Definitions), insofar as the terms defined in this section are used to define the terms used in other applicable requirements

B. Title 30 TAC § 101.3 (relating to Circumvention)

C. Title 30 TAC § 101.8 (relating to Sampling), if such action has been requested by the TCEQ

D. Title 30 TAC § 101.9 (relating to Sampling Ports), if such action has been requested by the TCEQ

E. Title 30 TAC § 101.10 (relating to Emissions Inventory Requirements)

F. Title 30 TAC § 101.201 (relating to Emission Event Reporting and Recordkeeping Requirements)

G. Title 30 TAC § 101.211 (relating to Scheduled Maintenance, Start-up, and Shutdown Reporting and Recordkeeping Requirements)

H. Title 30 TAC § 101.221 (relating to Operational Requirements)

I. Title 30 TAC § 101.222 (relating to Demonstrations)

J. Title 30 TAC § 101.223 (relating to Actions to Reduce Excessive Emissions)

3. Permit holder shall comply with the following requirements of 30 TAC Chapter 111:

A. Visible emissions from stationary vents with a flow rate of less than 100,000 actual cubic feet per minute and constructed after January 31, 1972 that are not listed in the Applicable Requirements Summary attachment for 30 TAC Chapter 111, Subchapter A, Division 1, shall not exceed 20% opacity averaged over a six-minute period. The permit holder shall comply with the following requirements for stationary vents at the site subject to this standard:

(i) Title 30 TAC § 111.111(a)(1)(B) (relating to Requirements for Specified Sources)

(ii) Title 30 TAC § 111.111(a)(1)(E)

(iii) Title 30 TAC § 111.111(a)(1)(F)(i), (ii), (iii), or (iv)

(iv) For emission units with vent emissions subject to 30 TAC § 111.111(a)(1)(B), complying with 30 TAC § 111.111(a)(1)(F)(ii), (iii), or (iv), and capable of producing visible emissions from, but not limited to, particulate matter, acid gases and NO_x, the permit holder shall also comply with the following periodic monitoring requirements for the purpose of annual compliance certification under 30 TAC § 122.146. These periodic monitoring requirements do not apply to vents that are not capable of producing visible emissions such as vents that emit only colorless VOCs; vents from non-fuming liquids; vents that provide passive ventilation, such as plumbing vents; or vent emissions from any other source that does not obstruct the transmission of light. Vents, as specified in the "Applicable Requirements Summary" attachment, that are subject to the emission limitation of 30 TAC § 111.111(a)(1)(B) are not subject to the following periodic monitoring requirements:

(1) An observation of stationary vents from emission units in operation shall be conducted at least once during each calendar quarter unless the emission unit is not operating for the entire quarter.

(2) For stationary vents from a combustion source, if an alternative to the normally fired fuel is fired for a period greater than or equal to 24 consecutive hours, the permit holder shall conduct an observation of the stationary vent for each such period to determine if visible emissions are present. If such period is greater than 3 months, observations shall be conducted once during each quarter. Supplementing the normally fired fuel with natural gas or fuel gas to increase the net heating value to the minimum required value does not constitute creation of an alternative fuel.

(3) Records of all observations shall be maintained.

(4) Visible emissions observations of emission units operated during daylight hours shall be conducted no earlier than one hour after sunrise and no later than one hour before sunset. Visible emissions observations of emission units operated only at night must be made with additional lighting and the temporary installation of contrasting backgrounds. Visible emissions observations shall be made during times when the activities described in 30 TAC § 111.111(a)(1)(E) are not taking place. Visible emissions shall be determined with each stationary vent in clear view of the observer. The observer shall be at least 15 feet, but not more than 0.25 mile, away from each stationary vent during the observation. For outdoor locations, the observer shall select a position where the sun is not directly in the observer's eyes. When condensed water vapor is present within the plume, as it emerges from the emissions outlet, observations must be made beyond the point in the plume at which condensed water vapor is no longer visible. When water vapor within the plume condenses and becomes visible at a distance from the emissions outlet, the observation shall be evaluated at the outlet prior to condensation of water vapor. A certified opacity reader is not required for visible emissions observations.

(5) Compliance Certification:

(a) If visible emissions are not present during the observation, the RO may certify that the source is in compliance with the

applicable opacity requirement in 30 TAC § 111.111(a)(1) and (a)(1)(B).

(b) However, if visible emissions are present during the observation, the permit holder shall either list this occurrence as a deviation on the next deviation report as required under 30 TAC § 122.145(2) or conduct the appropriate opacity test specified in 30 TAC § 111.111(a)(1)(F) as soon as practicable, but no later than 24 hours after observing visible emissions to determine if the source is in compliance with the opacity requirements. If an opacity test is performed and the source is determined to be in compliance, the RO may certify that the source is in compliance with the applicable opacity requirement. However, if an opacity test is performed and the source is determined to be out of compliance, the permit holder shall list this occurrence as a deviation on the next deviation report as required under 30 TAC § 122.145(2). The opacity test must be performed by a certified opacity reader.

(c) Some vents may be subject to multiple visible emission or monitoring requirements. All credible data must be considered when certifying compliance with this requirement even if the observation or monitoring was performed to demonstrate compliance with a different requirement.

B. Emission limits on nonagricultural processes, except for the steam generators specified in 30 TAC § 111.153, shall comply with the following requirements:

(i) Emissions of PM from any source may not exceed the allowable rates as required in 30 TAC § 111.151(a) (relating to Allowable Emissions Limits)

(ii) Sources with an effective stack height (h_e) less than the standard effective stack height (H_e), must reduce the allowable emission level by multiplying it by $[h_e/H_e]^2$ as required in 30 TAC § 111.151(b)

(iii) Effective stack height shall be calculated by the equation specified in 30 TAC § 111.151(c)

Additional Monitoring Requirements

4. The permit holder shall comply with the periodic monitoring requirements as specified in the attached “Periodic Monitoring Summary” upon issuance of the permit. Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), the permit holder shall conduct all monitoring in continuous operation (or shall collect data at all required intervals) at all times that the pollutant-specific emissions unit is operating. The permit holder may elect to collect monitoring data on a more frequent basis and average the data, consistent with the averaging time or minimum frequency specified in the “Periodic Monitoring Summary,” for purposes of determining whether a deviation has occurred. However, the additional data points must be collected on a regular basis. In no event shall data be collected and used in particular instances to avoid reporting deviations. Deviations shall be reported according to 30 TAC § 122.145 (Reporting Terms and Conditions).

New Source Review Authorization Requirements

5. Permit holder shall comply with the requirements of New Source Review authorizations issued or claimed by the permit holder for the permitted area, including permits, permits by rule (including the terms, conditions, monitoring, recordkeeping, and reporting identified in registered PBRs and permits by rule identified in the PBR Supplemental Tables dated March 31,2023 in the application for project 34977), standard permits, flexible permits, special permits, permits for existing facilities including Voluntary Emissions Reduction Permits and Electric Generating Facility Permits issued under 30 TAC Chapter 116, Subchapter I, or special exemptions referenced in the New Source Review Authorization References attachment. These requirements:

    A. Are incorporated by reference into this permit as applicable requirements

    B. Shall be located with this operating permit

    C. Are not eligible for a permit shield

6. The permit holder shall comply with the general requirements of 30 TAC Chapter 106, Subchapter A or the general requirements, if any, in effect at the time of the claim of any PBR.

7. The permit holder shall maintain records to demonstrate compliance with any emission limitation or standard that is specified in a permit by rule (PBR) or Standard Permit listed in the New Source Review Authorizations attachment. The records shall yield reliable data from the relevant time period that are representative of the emission unit's compliance with the PBR or Standard Permit. These records may include, but are not limited to, production capacity and throughput, hours of operation, safety data sheets (SDS), chemical composition of raw materials, speciation of air contaminant data, engineering calculations, maintenance records, fugitive data, performance tests, capture/control device efficiencies, direct pollutant monitoring (CEMS, COMS, or PEMS), or control device parametric monitoring. These records shall be made readily accessible and available as required by 30 TAC § 122.144. Any monitoring or recordkeeping data indicating noncompliance with the PBR or Standard Permit shall be considered and reported as a deviation according to 30 TAC § 122.145 (Reporting Terms and Conditions).

Compliance Requirements

8. The permit holder shall certify compliance in accordance with 30 TAC § 122.146. The permit holder shall comply with 30 TAC § 122.146 using at a minimum, but not limited to, the continuous or intermittent compliance method data from monitoring, recordkeeping, reporting, or testing required by the permit and any other credible evidence or information. The certification period may not exceed 12 months and the certification must be submitted within 30 days after the end of the period being certified.

9. Permit holder shall comply with the following 30 TAC Chapter 117 requirements:

    A. The permit holder shall comply with the compliance schedules and submit written notification to the TCEQ Executive Director as required in 30 TAC Chapter 117, Subchapter H, Division 1:

        (i) For sources in the Houston-Galveston-Brazoria Nonattainment area, 30 TAC § 117.9020:

            (1) Title 30 TAC § 117.9020(2)(A), (C), and (D)

B. The permit holder shall comply with the requirements of 30 TAC § 117.354 for Final Control Plan Procedures for Attainment Demonstration Emission Specifications and 30 TAC § 117.356 for Revision of Final Control Plan.

10. Use of Emission Credits to comply with applicable requirements:

A. Unless otherwise prohibited, the permit holder may use emission credits to comply with the following applicable requirements listed elsewhere in this permit:

(i) Title 30 TAC Chapter 115

(ii) Title 30 TAC Chapter 117

(iii) Offsets for Title 30 TAC Chapter 116

B. The permit holder shall comply with the following requirements in order to use the emission credits to comply with the applicable requirements:

(i) The permit holder must notify the TCEQ according to 30 TAC § 101.306(c)-(d)

(ii) The emission credits to be used must meet all the geographic, timeliness, applicable pollutant type, and availability requirements listed in 30 TAC Chapter 101, Subchapter H, Division 1

(iii) The executive director has approved the use of the credit according to 30 TAC § 101.306(c)-(d)

(iv) The permit holder keeps records of the use of credits towards compliance with the applicable requirements in accordance with 30 TAC § 101.302(g) and 30 TAC Chapter 122

(v) Title 30 TAC § 101.305 (relating to Emission Reductions Achieved Outside the United States)

11. Use of Discrete Emission Credits to comply with the applicable requirements:

A. Unless otherwise prohibited, the permit holder may use discrete emission credits to comply with the following applicable requirements listed elsewhere in this permit:

(i) Title 30 TAC Chapter 115

(ii) Title 30 TAC Chapter 117

(iii) If applicable, offsets for Title 30 TAC Chapter 116

(iv) Temporarily exceed state NSR permit allowables

B. The permit holder shall comply with the following requirements in order to use the credit to comply with the applicable requirements:

(i) The permit holder must notify the TCEQ according to 30 TAC § 101.376(d)

(ii) The discrete emission credits to be used must meet all the geographic, timeliness, applicable pollutant type, and availability requirements listed in 30 TAC Chapter 101, Subchapter H, Division 4

(iii) The executive director has approved the use of the discrete emission credits according to 30 TAC § 101.376(d)(1)(A)

(iv) The permit holder keeps records of the use of credits towards compliance with the applicable requirements in accordance with 30 TAC § 101.372(h) and 30 TAC Chapter 122

(v) Title 30 TAC § 101.375 (relating to Emission Reductions Achieved Outside the United States)

Risk Management Plan

12. For processes subject to 40 CFR Part 68 and specified in 40 CFR § 68.10, the permit holder shall comply with the requirements of the Accidental Release Prevention Provisions in 40 CFR Part 68. The permit holder shall submit to the appropriate agency either a compliance schedule for meeting the requirements of 40 CFR Part 68 by the date provided in 40 CFR § 68.10(a), or as part of the compliance certification submitted under this permit, a certification statement that the source is in compliance with all requirements of 40 CFR Part 68, including the registration and submission of a risk management plan.

Alternative Requirements

13. The permit holder shall comply with the approved alternative means of control (AMOC); alternative monitoring, recordkeeping, or reporting requirements; or requirements determined to be equivalent to an otherwise applicable requirement contained in the Alternative Requirements attachment of this permit. Units complying with an approved alternative requirement have reference to the approval in the Applicable Requirements summary listing for the unit. The permit holder shall maintain the original documentation, from the TCEQ Executive Director, demonstrating the method or limitation utilized. Documentation shall be maintained and made available in accordance with 30 TAC § 122.144.

Permit Location

14. The permit holder shall maintain a copy of this permit and records related to requirements listed in this permit on site.

Permit Shield (30 TAC § 122.148)

15. A permit shield is granted for the emission units, groups, or processes specified in the attached "Permit Shield." Compliance with the conditions of the permit shall be deemed compliance with the specified potentially applicable requirements or specified potentially applicable state-only requirements listed in the attachment "Permit Shield." Permit shield provisions shall not be modified by the executive director until notification is provided to the permit holder. No later than 90 days after notification of a change in a determination made by the executive director, the permit holder shall apply for the appropriate permit revision to reflect the new determination. Provisional terms are not eligible for this permit shield. Any term or condition, under a permit shield, shall not be protected by the permit shield if it is replaced by a provisional term or condition or the basis of the term and condition changes.

Attachments

Applicable Requirements Summary

Additional Monitoring Requirements

Permit Shield

New Source Review Authorization References

Alternative Requirement

Applicable Requirements Summary

Unit Summary **10**

Applicable Requirements Summary **11**

Note: A “none” entry may be noted for some emission sources in this permit’s “Applicable Requirements Summary” under the heading of “Monitoring and Testing Requirements” and/or “Recordkeeping Requirements” and/or “Reporting Requirements.” Such a notation indicates that there are no requirements for the indicated emission source as identified under the respective column heading(s) for the stated portion of the regulation when the emission source is operating under the conditions of the specified SOP Index Number. However, other relevant requirements pursuant to 30 TAC Chapter 122 including Recordkeeping Terms and Conditions (30 TAC § 122.144), Reporting Terms and Conditions (30 TAC § 122.145), and Compliance Certification Terms and Conditions (30 TAC § 122.146) continue to apply.

Unit Summary

Unit/Group/ Process ID No.	Unit Type	Group/Inclusive Units	SOP Index No.	Regulation	Requirement Driver
AMDEA-T424	STORAGE TANKS/VESSELS	N/A	R5112-01	30 TAC Chapter 115, Storage of VOCs	No changing attributes.
AMDEA-T425	STORAGE TANKS/VESSELS	N/A	R5112-01	30 TAC Chapter 115, Storage of VOCs	No changing attributes.
COLD FLARE	FLARES	N/A	R1111-01	30 TAC Chapter 111, Visible Emissions	No changing attributes.
DEGREASER	CLEANING/DEPAINTING OPERATION	N/A	R5460-01	30 TAC Chapter 115, Subchapter E, Division 6	No changing attributes.
LOT-T6111	STORAGE TANKS/VESSELS	N/A	R5112-01	30 TAC Chapter 115, Storage of VOCs	No changing attributes.
SMR1	PROCESS HEATERS/FURNACES	N/A	R7300-01	30 TAC Chapter 117, Subchapter B	No changing attributes.
SMR1-STK	EMISSION POINTS/STATIONARY VENTS/PROCESS VENTS	N/A	R1111-01	30 TAC Chapter 111, Visible Emissions	No changing attributes.
WARM FLARE	FLARES	N/A	R1111-01	30 TAC Chapter 111, Visible Emissions	No changing attributes.

Applicable Requirements Summary

Unit Group Process ID No.	Unit Group Process Type	SOP Index No.	Pollutant	State Rule or Federal Regulation Name	Emission Limitation, Standard or Equipment Specification Citation	Textual Description (See Special Term and Condition 1.B.)	Monitoring And Testing Requirements	Recordkeeping Requirements (30 TAC § 122.144)	Reporting Requirements (30 TAC § 122.145)
AMDEA-T424	EU	R5112-01	VOC	30 TAC Chapter 115, Storage of VOCs	§ 115.111(a)(1)	Except as provided in § 115.118, a storage tank storing VOC with a true vapor pressure less than 1.5 psia is exempt from the requirements of this division.	[G]§ 115.117	§ 115.118(a)(1) § 115.118(a)(5) § 115.118(a)(7)	None
AMDEA-T425	EU	R5112-01	VOC	30 TAC Chapter 115, Storage of VOCs	§ 115.111(a)(1)	Except as provided in § 115.118, a storage tank storing VOC with a true vapor pressure less than 1.5 psia is exempt from the requirements of this division.	[G]§ 115.117	§ 115.118(a)(1) § 115.118(a)(5) § 115.118(a)(7)	None
COLD FLARE	CD	R1111-01	Opacity	30 TAC Chapter 111, Visible Emissions	§ 111.111(a)(4)(A)	Visible emissions from a process gas flare shall not be permitted for more than five minutes in any two-hour period. Non-excessive upset events are subject to the provisions under §101.222(b).	§ 111.111(a)(4)(A)(i) § 111.111(a)(4)(A)(ii)	§ 111.111(a)(4)(A)(ii)	None
DEGREASER	PRO	R5460-01	VOC	30 TAC Chapter 115, Subchapter E, Division 6	§ 115.461(b)	The owner or operator of any process or operation subject to another division of this chapter that specifies solvent cleaning operation requirements related to that process or operation is exempt from the requirements in this division.	None	§ 115.468(b)(2) § 115.468(b)(5)	None
LOT-T6111	EU	R5112-01	VOC	30 TAC Chapter 115, Storage of VOCs	§ 115.111(a)(1)	Except as provided in § 115.118, a storage tank storing VOC with a true vapor pressure less than 1.5 psia is exempt from the	[G]§ 115.117	§ 115.118(a)(1) § 115.118(a)(5) § 115.118(a)(7)	None

Applicable Requirements Summary

Unit Group Process ID No.	Unit Group Process Type	SOP Index No.	Pollutant	State Rule or Federal Regulation Name	Emission Limitation, Standard or Equipment Specification Citation	Textual Description (See Special Term and Condition 1.B.)	Monitoring And Testing Requirements	Recordkeeping Requirements (30 TAC § 122.144)	Reporting Requirements (30 TAC § 122.145)
						requirements of this division.			
SMR1	EU	R7300-01	CO	30 TAC Chapter 117, Subchapter B	§ 117.310(c)(1) § 117.310(c)(1)(B) § 117.310(c)(3)	CO emissions must not exceed 400 ppmv at 3.0% O 2, dry basis.	[G]§ 117.335(a)(1) § 117.335(a)(4) § 117.335(b) § 117.335(d) § 117.335(e) § 117.335(g) § 117.340(a) § 117.340(b)(1) § 117.340(b)(3) § 117.340(e) § 117.8000(b) § 117.8000(c) § 117.8000(c)(2) § 117.8000(c)(3) § 117.8000(c)(5) § 117.8000(c)(6) [G]§ 117.8000(d) § 117.8120 § 117.8120(2) [G]§ 117.8120(2)(A) § 117.8120(2)(B) ** See Periodic Monitoring Summary	§ 117.345(a) § 117.345(f) § 117.345(f)(1) § 117.345(f)(7) § 117.345(f)(9)	§ 117.335(b) § 117.335(g) [G]§ 117.345(b) [G]§ 117.345(c) § 117.8010 [G]§ 117.8010(1) § 117.8010(2) § 117.8010(2)(A) § 117.8010(2)(B) [G]§ 117.8010(3) § 117.8010(4) [G]§ 117.8010(5) § 117.8010(6) [G]§ 117.8010(7)
SMR1	EU	R7300-01	NH_3	30 TAC Chapter 117, Subchapter B	§ 117.310(c)(2) § 117.310(c)(2)(A)	For process heaters that inject urea or ammonia into the exhaust stream for NO_x control, ammonia emissions must not exceed 10 ppmv at 3.0% O_2, dry.	§ 117.335(a)(2) § 117.335(a)(4) § 117.335(b) § 117.335(d) § 117.335(e) § 117.335(g) § 117.340(b)(1) § 117.340(b)(3) § 117.340(d) § 117.8000(b) § 117.8000(c) § 117.8000(c)(3)	§ 117.345(a) § 117.345(f) § 117.345(f)(11) § 117.345(f)(9)	§ 117.335(b) § 117.335(g) [G]§ 117.345(b) [G]§ 117.345(c) § 117.8010 [G]§ 117.8010(1) § 117.8010(2) § 117.8010(2)(A) § 117.8010(2)(B) [G]§ 117.8010(3) § 117.8010(4) [G]§ 117.8010(5)

Applicable Requirements Summary

Unit Group Process ID No.	Unit Group Process Type	SOP Index No.	Pollutant	State Rule or Federal Regulation Name	Emission Limitation, Standard or Equipment Specification Citation	Textual Description (See Special Term and Condition 1.B.)	Monitoring And Testing Requirements	Recordkeeping Requirements (30 TAC § 122.144)	Reporting Requirements (30 TAC § 122.145)
							§ 117.8000(c)(4) § 117.8000(c)(5) § 117.8000(c)(6) [G]§ 117.8000(d) § 117.8130 § 117.8130(1) ** See Periodic Monitoring Summary ** See Alternative Requirement		§ 117.8010(6) [G]§ 117.8010(7)
SMR1	EU	R7300-01	NO_X	30 TAC Chapter 117, Subchapter B	§ 117.310(d)(3) § 117.310(a) § 117.310(a)(8)(A)(i) § 117.310(b) [G]§ 117.310(e)(1) § 117.310(e)(2) [G]§ 117.310(e)(3) § 117.310(e)(4) § 117.340(f)(1) § 117.340(l)(2) § 117.340(p)(1) § 117.340(p)(3)	An owner or operator may not use the alternative methods specified in §§ 117.315, 117.323 and 117.9800 to comply with the NO_x emission specifications but shall use the mass emissions cap and trade program in Chapter 101, Subchapter H, Division 3, except that electric generating facilities must also comply with the daily and 30-day system cap emission limitations of § 117.320. An owner or operator may use the alternative methods specified in § 117.9800 to comply with § 117.320.	[G]§ 117.335(a)(1) § 117.335(a)(4) § 117.335(b) § 117.335(c) § 117.335(d) § 117.335(f) § 117.335(g) § 117.340(a) § 117.340(b)(1) § 117.340(b)(3) § 117.340(c)(1) [G]§ 117.340(c)(3) [G]§ 117.340(f)(2) § 117.340(l)(2) § 117.340(o)(1) § 117.340(p)(1) § 117.8100(a) § 117.8100(a)(1) § 117.8100(a)(1)(A) § 117.8100(a)(1)(B) § 117.8100(a)(1)(B)(i) § 117.8100(a)(1)(B)(ii) § 117.8100(a)(1)(C) § 117.8100(a)(2) [G]§ 117.8100(a)(3)	§ 117.345(a) § 117.345(f) § 117.345(f)(1) [G]§ 117.345(f)(2) § 117.345(f)(8) § 117.345(f)(9) § 117.8100(a)(5)(C)	§ 117.335(b) § 117.335(g) [G]§ 117.345(b) [G]§ 117.345(c) § 117.345(d) § 117.345(d)(3) § 117.8010 [G]§ 117.8010(1) § 117.8010(2) § 117.8010(2)(A) § 117.8010(2)(B) § 117.8010(2)(C) § 117.8010(2)(D) [G]§ 117.8010(3) § 117.8010(4) [G]§ 117.8010(5) § 117.8010(6) [G]§ 117.8010(7) [G]§ 117.8010(8) § 117.8100(c)

Applicable Requirements Summary

Unit Group Process ID No.	Unit Group Process Type	SOP Index No.	Pollutant	State Rule or Federal Regulation Name	Emission Limitation, Standard or Equipment Specification Citation	Textual Description (See Special Term and Condition 1.B.)	Monitoring And Testing Requirements	Recordkeeping Requirements (30 TAC § 122.144)	Reporting Requirements (30 TAC § 122.145)
							§ 117.8100(a)(4) § 117.8100(a)(5) § 117.8100(a)(5)(A) § 117.8100(a)(5)(B) [G]§ 117.8100(a)(5)(D) [G]§ 117.8100(a)(5)(E) § 117.8100(a)(6)		
SMR1-STK	EP	R1111-01	Opacity	30 TAC Chapter 111, Visible Emissions	§ 111.111(a)(1)(C) § 111.111(a)(1)(E)	Visible emissions from any stationary vent shall not exceed an opacity of 15% averaged over a six minute period for any source with a total flow rate of at least 100,000 acfm unless a CEMS is installed.	[G]§ 111.111(a)(1)(F) ** See Periodic Monitoring Summary	None	None
WARM FLARE	CD	R1111-01	Opacity	30 TAC Chapter 111, Visible Emissions	§ 111.111(a)(4)(A)	Visible emissions from a process gas flare shall not be permitted for more than five minutes in any two-hour period. Non-excessive upset events are subject to the provisions under §101.222(b).	§ 111.111(a)(4)(A)(i) § 111.111(a)(4)(A)(ii)	§ 111.111(a)(4)(A)(ii)	None

Additional Monitoring Requirements

Periodic Monitoring Summary 16

Periodic Monitoring Summary

Unit/Group/Process Information	
ID No.: SMR1	
Control Device ID No.: N/A	Control Device Type: N/A
Applicable Regulatory Requirement	
Name: 30 TAC Chapter 117, Subchapter B	SOP Index No.: R7300-01
Pollutant: CO	Main Standard: § 117.310(c)(1)
Monitoring Information	
Indicator: Fuel Flow Rate	
Minimum Frequency: Hourly	
Averaging Period: Annual	
Deviation Limit: A fuel flow that exceeds a calculated heat input of 1097 MMBtu/hr shall be considered and reported as a deviation.	
Periodic Monitoring Text: Periodic Monitoring Text: Measure and record fuel flow rate when the steam methane reformer is in operation. The monitoring instrumentation shall be maintained, calibrated and operated in accordance with the manufacturer's specifications or other written procedures. The flow rate shall be used in conjunction with the permitted CO emission factors authorized with the issuance of NSR 133027 to demonstrate compliance with the NSR Permit No. 133027 MAERT limitations, which correspond to a CO concentration of less than the 30 TAC Chapter 117(c)(1) CO emission limitation of 400 ppmv (@3% oxygen).	

Periodic Monitoring Summary

Unit/Group/Process Information	
ID No.: SMR1	
Control Device ID No.: N/A	Control Device Type: N/A
Applicable Regulatory Requirement	
Name: 30 TAC Chapter 117, Subchapter B	SOP Index No.: R7300-01
Pollutant: NH_3	Main Standard: § 117.310(c)(2)
Monitoring Information	
Indicator: NOx concentration, NH3 injection rate, flow rate	
Minimum Frequency: See periodic monitoring text	
Averaging Period: Rolling 24-hour average	
Deviation Limit: Maximum NH3 concentration equals 10 ppmv at 3.0% O2, dry	
Periodic Monitoring Text: The permit holder shall conduct a material balance to calculate NH3 (ammonia) emissions using the inlet and outlet NOx emission rates as measured by a NOx CEMS, the ammonia injection rate, and the dry exhaust flow rate. The NOx CEMS shall meet the design and performance specifications of 40 CFR Part 60, Appendix B and the quality assurance requirements of 40 CFR Part 60, Appendix F, Procedure 1. The monitoring data shall be reduced to hourly average concentrations using a minimum of four equally-spaced data points from each one hour period. The ammonia injection rate shall be continuously monitored and recorded at least once per hour. The dry exhaust gas flow rate shall be determined through a combustion calculation using continuously monitored natural gas and purge gas flow information. The calculation results shall be recorded at least once per hour. The ammonia emissions shall be calculated using the mass balance equation specified in 30 TAC § 117.8130(1) using the NOx CEMS data, the ammonia injection rate, and the measured flow rate. Any calculated ammonia emissions that indicate that the 24-hour rolling average exceeds 10 ppmv, dry, 3% O2 basis shall be considered and reported as a deviation.	

Periodic Monitoring Summary

Unit/Group/Process Information	
ID No.: SMR1-STK	
Control Device ID No.: N/A	Control Device Type: N/A
Applicable Regulatory Requirement	
Name: 30 TAC Chapter 111, Visible Emissions	SOP Index No.: R1111-01
Pollutant: Opacity	Main Standard: § 111.111(a)(1)(C)
Monitoring Information	
Indicator: Fuel Type	
Minimum Frequency: Annually or at any time an alternate fuel is used	
Averaging Period: N/A	
Deviation Limit: If alternative fuel is fired for > 24 consecutive hours, report as a deviation, or conduct observation using Test Method 22. Report as a deviation if visible emissions are observed using Test Method 22 and opacity > 15% using Test Method 9.	
Periodic Monitoring Text: Record the type of fuel used by the unit. If an alternate fuel is fired, either alone or in combination with the specified gas, for a period greater than or equal to 24 consecutive hours it shall be considered and reported as a deviation or the permit holder shall conduct an observation of the stationary vent for each such period to determine if visible emissions are observed. Any time an alternate fuel is fired for a period of greater than 7 consecutive days then visible emissions observations will be conducted no less than once per week. Documentation of all observations shall be maintained. If visible emissions are present during the firing of an alternate fuel, the permit holder shall either list this occurrence as a deviation or the permit holder may determine the opacity consistent with Test Method 9. Any opacity readings that are above the opacity limit from the underlying applicable requirement shall be reported as a deviation.	

Permit Shield

Permit Shield 20

Permit Shield

The Executive Director of the TCEQ has determined that the permit holder is not required to comply with the specific regulation(s) identified for each emission unit, group, or process in this table.

Unit / Group / Process ID No.	Group / Inclusive Units	Regulation	Basis of Determination
AMDEA-T424	N/A	40 CFR Part 60, Subpart Kb	Capacity less than 19,800 gallons (75 cubic meters).
AMDEA-T425	N/A	40 CFR Part 60, Subpart Kb	Capacity less than 19,800 gallons (75 cubic meters).
CO-FUG	N/A	30 TAC Chapter 115, Fugitives Pet Ref B Counties	Not a petroleum refinery; a synthetic organic chemical, polymer, resin, or methyl-tert-butyl ether manufacturing process; or a natural gas/gasoline processing operation.
CO-FUG	N/A	40 CFR Part 60, Subpart DDD	Not involved in the manufacture of polypropylene, polyethylene, polystyrene, or poly (ethylene terephthalate).
CO-FUG	N/A	40 CFR Part 60, Subpart GGG	Not located in a petroleum refinery.
CO-FUG	N/A	40 CFR Part 60, Subpart KKK	Not located at an onshore natural gas processing plant.
CO-FUG	N/A	40 CFR Part 60, Subpart VV	Not a SOCMI process.
CO-FUG	N/A	40 CFR Part 61, Subpart V	Does not operate in VHAP service.
CO-FUG	N/A	40 CFR Part 63, Subpart H	Does not operate in OHAP service for 300 hours or more during the calendar year.
CO-FUG	N/A	40 CFR Part 63, Subpart I	Not a major source of HAPs as defined in section 112(a) of the CAA.
COLD FLARE	N/A	40 CFR Part 60, Subpart A	No potentially applicable sections of 40 CFR Parts 60 or 61 apply.
COLD FLARE	N/A	40 CFR Part 63, Subpart A	No potentially applicable sections of 40 CFR Part 63 applies.
CT	N/A	40 CFR Part 63, Subpart Q	Not operated with chromium-based water

Permit Shield

The Executive Director of the TCEQ has determined that the permit holder is not required to comply with the specific regulation(s) identified for each emission unit, group, or process in this table.

Unit / Group / Process ID No.	Group / Inclusive Units	Regulation	Basis of Determination
			treatment chemicals on or after 09/08/1994.
DEGREASER	N/A	30 TAC Chapter 115, Degreasing Processes	Degreaser is a remote reservoir cold cleaner using a solvent with a True Vapor Pressure of < 0.6 psia at 100ºF with a drain area < 16 in2, and the waste solvent is disposed of in enclosed containers.
DIESEL TANK	N/A	30 TAC Chapter 115, Storage of VOCs	Storage tank capacity is less than 1,000 gallons.
DIESEL TANK	N/A	40 CFR Part 60, Subpart Kb	Capacity less than 19,800 gallons (75 cubic meters).
HY-VENT	N/A	30 TAC Chapter 115, Vent Gas Controls	Process vent does not emit VOCs.
LOR-T5831	N/A	30 TAC Chapter 115, Storage of VOCs	Storage tank capacity is less than 1,000 gallons.
LOR-T5831	N/A	40 CFR Part 60, Subpart Kb	Capacity less than 19,800 gallons (75 cubic meters).
LORT-T5832	N/A	30 TAC Chapter 115, Storage of VOCs	Storage tank capacity is less than 1,000 gallons.
LORT-T5832	N/A	40 CFR Part 60, Subpart Kb	Capacity less than 19,800 gallons (75 cubic meters).
LOT-T6111	N/A	40 CFR Part 60, Subpart Kb	Capacity less than 19,800 gallons (75 cubic meters).
NH3-T2191	N/A	30 TAC Chapter 115, Storage of VOCs	Storage tank does not store VOCs. Tank contains inorganic liquid (aqueous ammonia) only.
SMR-FUG	N/A	30 TAC Chapter 115, Fugitives Pet Ref B Counties	Not a petroleum refinery; a synthetic organic chemical, polymer, resin, or methyl-tert-butyl ether manufacturing process; or a natural gas/gasoline processing operation.

Permit Shield

The Executive Director of the TCEQ has determined that the permit holder is not required to comply with the specific regulation(s) identified for each emission unit, group, or process in this table.

Unit / Group / Process ID No.	Group / Inclusive Units	Regulation	Basis of Determination
SMR-FUG	N/A	40 CFR Part 60, Subpart DDD	Not involved in the manufacture of polypropylene, polyethylene, polystyrene, or poly (ethylene terephthalate).
SMR-FUG	N/A	40 CFR Part 60, Subpart GGG	Not located in a petroleum refinery.
SMR-FUG	N/A	40 CFR Part 60, Subpart KKK	Not located at an onshore natural gas processing plant.
SMR-FUG	N/A	40 CFR Part 60, Subpart VV	Not a SOCMI process.
SMR-FUG	N/A	40 CFR Part 61, Subpart V	Does not operate in VHAP service.
SMR-FUG	N/A	40 CFR Part 63, Subpart H	Does not operate in OHAP service for 300 hours or more during the calendar year.
SMR-FUG	N/A	40 CFR Part 63, Subpart I	Not a major source of HAPs as defined in section 112(a) of the CAA.
SMR1	N/A	30 TAC Chapter 112, Sulfur Compounds	Not a solid fossil fuel-fired or liquid fuel-fired heater.
SMR1-STK	N/A	30 TAC Chapter 115, Vent Gas Controls	Combustion unit exhaust stream is exempt from this division as the unit is not being used as a control device for any vent gas stream which is subject to this division and which originates from a non-combustion source.
WARM FLARE	N/A	40 CFR Part 60, Subpart A	No potentially applicable sections of 40 CFR Parts 60 or 61 apply.
WARM FLARE	N/A	40 CFR Part 63, Subpart A	No potentially applicable sections of 40 CFR Part 63 applies.

New Source Review Authorization References

New Source Review Authorization References 24

New Source Review Authorization References by Emission Unit 25

New Source Review Authorization References

The New Source Review authorizations listed in the table below are applicable requirements under 30 TAC Chapter 122 and enforceable under this operating permit.

Nonattainment (NA) Permits	
NA Permit No.: N220	Issuance Date: 12/28/2023
Title 30 TAC Chapter 116 Permits, Special Permits, and Other Authorizations (Other Than Permits By Rule, PSD Permits, or NA Permits) for the Application Area.	
Authorization No.: 133027	Issuance Date: 12/28/2023
Permits By Rule (30 TAC Chapter 106) for the Application Area	
Number: 106.261	Version No./Date: 11/01/2003
Number: 106.263	Version No./Date: 11/01/2001
Number: 106.265	Version No./Date: 09/04/2000
Number: 106.372	Version No./Date: 09/04/2000
Number: 106.452	Version No./Date: 09/04/2000
Number: 106.454	Version No./Date: 11/01/2001
Number: 106.478	Version No./Date: 09/04/2000

New Source Review Authorization References by Emissions Unit

The following is a list of New Source Review (NSR) authorizations for emission units listed elsewhere in this operating permit. The NSR authorizations are applicable requirements under 30 TAC Chapter 122 and enforceable under this operating permit.

Unit/Group/Process ID No.	Emission Unit Name/Description	New Source Review Authorization**
AMDEA-T424	AMDEA SOLVENT STORAGE TANK	133027, N220
AMDEA-T425	AMDEA SOLVENT PREP DRUM	133027, N220
CO-FUG	CO PRODUCTION EQUIPMENT FUGITIVES	133027, N220, 106.261/11/01/2003 [156138]
COLD FLARE	COLD FLARE	133027, N220
CT	COOLING TOWER	133027, N220
DEGREASER	DEGREASER	106.454/11/01/2001
DIESEL TANK	DIESEL FUEL TANK	106.478/09/04/2000
HY-VENT	HYDROGEN VENT	106.261/11/01/2003 [169208]
LOR-T5831	LUBE OIL RESERVOIR (LOR)	133027, N220
LORT-T5832	LUBE OIL RUNDOWN TANK (LORT)	133027, N220
LOT-T6111	LUBE OIL TANK (LOT)	133027, N220
NH3-T2191	AQUEOUS AMMONIA TANK	133027, N220
SMR-FUG	SMR PLANT FUGITIVES	133027, N220
SMR1	STEAM METHANE REFORMER	133027, N220
SMR1-STK	STEAM METHANE REFORMER STACK	133027, N220
WARM FLARE	WARM FLARE	133027, N220

**This column may include Permit by Rule (PBR) numbers and version dates, PBR Registration numbers in brackets, Standard Permit Registration numbers, Minor NSR permit numbers, and Major NSR permit numbers.

Alternative Requirement

Alternative Requirement..... 27

Jon Niermann, *Chairman*
Emily Lindley, *Commissioner*
Bobby Janecka, *Commissioner*
Kelly Keel, *Interim Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

December 18, 2023

MS STEPHANIE A ROHRBACH
AREA MANAGER
AIR PRODUCTS LLC
5503 W BAKER RD
BAYTOWN TX 77520-1611

Re: Alternative Method of Compliance (AMOC) No. 230
Chapter 117 Alternative Ammonia Monitoring
Steam Methane Reformer
Regulated Entity Number: RN108401332
Customer Reference Number: CN602299257
Associated Permit Numbers: 133027, N220, and O3991

Dear Ms. Rohrbach:

This correspondence is in response to Air Products LLC's October 26, 2023 request for Alternative Ammonia Monitoring for the Steam Methane Reformer (SMR) at the new Baytown 3 plant and use an AMOC to comply with 30 TAC § 117.8130.

We understand that Air Products has proposed to install and use a Siemens LDS6 continuous tunable diode laser (TDL) emission monitor and has provided information to show the analyzer meets the expectations of §117 for a continuous NH_3 monitoring system. The company has also provided a detailed monitor Quality Assurance Plan (QAP).

The Texas Commission on Environmental Quality (TCEQ) Executive Director has made a final decision to approve your AMOC request. You are reminded that approval of any AMOC shall not abrogate the Executive Director's authority or in any way prohibit later canceling the AMOC. By copy of this letter, we are informing the Environmental Protection Agency, Region 6, of this decision.

This AMOC approval may supersede certain requirements or representations in Permit Nos. 133027 and N220. To ensure effective and consistent enforceability, we request that Air Products incorporate this AMOC into the pending permit alteration (Project No. 160223).

This approval may also change applicable requirements for the site, which are identified in the site operating permit (SOP) O3991. The TCEQ recommends the submittal of a SOP administrative revision if any changes are necessary. Changes meeting the criteria for an administrative revision can be operated before issuance of the revision if a complete application is submitted to the TCEQ and this information is maintained with the SOP records at the site.

If you need further information or have any questions, please contact Ms. Anne Inman, P.E. at (512) 239-1276 or write to the Texas Commission on Environmental Quality, Office of Air, Air Permits Division, MC-163, P.O. Box 13087, Austin, Texas 78711-3087.

Re: Permit Numbers: 133027, N220, and O3991

Sincerely,



Samuel Short, Deputy Director
Air Permits Division
Office of Air
Texas Commission on Environmental Quality

cc: Air Section Manager, Region 12 - Houston
Jesse E. Chacon, P.E., Manager, Operating Permits Section, Air Permits Division, OA: MC-163
Kristyn Campbell, Manager, Energy New Source Review Permits Section, Air Permits Division, OA: MC-163
Air Permits Section Chief, New Source Review Section (6PD-R), U.S. Environmental Protection Agency, Region 6, Dallas

Project Number: 365725

Appendix A

Acronym List 30

Acronym List

The following abbreviations or acronyms may be used in this permit:

ACFM ..... actual cubic feet per minute
AMOC ..... alternate means of control
ARP ..... Acid Rain Program
ASTM ..... American Society of Testing and Materials
B/PA ..... Beaumont/Port Arthur (nonattainment area)
CAM ..... Compliance Assurance Monitoring
CD ..... control device
CEMS ..... continuous emissions monitoring system
CFR ..... Code of Federal Regulations
COMS ..... continuous opacity monitoring system
CVS ..... closed vent system
D/FW ..... Dallas/Fort Worth (nonattainment area)
EP ..... emission point
EPA ..... U.S. Environmental Protection Agency
EU ..... emission unit
FCAA Amendments ..... Federal Clean Air Act Amendments
FOP ..... federal operating permit
gr/100 scf ..... grains per 100 standard cubic feet
HAP ..... hazardous air pollutant
H/G/B ..... Houston/Galveston/Brazoria (nonattainment area)
H_2S ..... hydrogen sulfide
ID No. ..... identification number
lb/hr ..... pound(s) per hour
MACT ..... Maximum Achievable Control Technology (40 CFR Part 63)
MMBtu/hr ..... Million British thermal units per hour
NA ..... nonattainment
N/A ..... not applicable
NADB ..... National Allowance Data Base
NESHAP ..... National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)
NO_x ..... nitrogen oxides
NSPS ..... New Source Performance Standard (40 CFR Part 60)
NSR ..... New Source Review
ORIS ..... Office of Regulatory Information Systems
Pb ..... lead
PBR ..... Permit By Rule
PEMS ..... predictive emissions monitoring system
PM ..... particulate matter
ppmv ..... parts per million by volume
PRO ..... process unit
PSD ..... prevention of significant deterioration
psia ..... pounds per square inch absolute
SIP ..... state implementation plan
SO_2 ..... sulfur dioxide
TCEQ ..... Texas Commission on Environmental Quality
TSP ..... total suspended particulate
TVP ..... true vapor pressure
U.S.C. ..... United States Code
VOC ..... volatile organic compound

Appendix B

Major NSR Summary Table 32

Major NSR Summary Table

Permit Number: 133027 and N220			**Issuance Date: December 28, 2023**				
Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates *		Monitoring and Testing Requirements	Recordkeeping Requirements	Reporting Requirements
			lb/hr (4)	TPY (5)	Spec. Cond.	Spec. Cond.	Spec. Cond.
1	Steam Methane Reformer	NO_X	43.44	33.10	4, 13, 14, 15, 16	4, 7, 13, 14, 15, 16, 20, 21	13, 14
		NO_X (MSS)	106.18				
		CO	6.58	25.56			
		CO (MSS)	45.20				
		VOC	2.24	8.27			
		VOC (MSS)	2.96				
		PM_{10}	9.82	35.97			
		$PM_{2.5}$	9.82	35.97			
		SO_2	7.45	4.92			
		SO_2 (MSS)	9.07				
		NH_3	4.89	17.84			
		HAPS	0.83	3.03			
2	Warm Flare	NO_X	3.96	6.98	5, 6	5, 6, 7, 8, 20, 21	
		NO_X (MSS)	118.74				
		CO	12.42	21.22			
		CO (MSS)	148.33				
		VOC	0.01	0.05			
		VOC (MSS)	0.02				
		SO_2	<0.01	<0.01			
3	Cold Flare	NO_X	0.02	0.14	5, 6	5, 6, 7, 8, 20, 21	
		NO_X (MSS)	5.40				
		CO	0.13	1.21			
		CO (MSS)	46.28				
		VOC	0.01	0.05			
		SO_2	<0.01	<0.01			

Permit Number: 133027 and N220			Issuance Date: December 28, 2023				
Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates *		Monitoring and Testing Requirements	Recordkeeping Requirements	Reporting Requirements
			lb/hr (4)	TPY (5)	Spec. Cond.	Spec. Cond.	Spec. Cond.
4	Cooling Tower	PM	1.96	8.59	9, 17	9, 17, 20, 21	17
		PM_{10}	1.48	6.47			
		$PM_{2.5}$	0.60	2.65			
5	MDEA Unit CO_2 Vent	CO	5.31	19.39		20, 21	
		VOC	0.36	1.32			
		NH_3	0.05	0.17			
6	Routine Boiler Blowdown	VOC	1.26	2.75		20, 21	
		CH_3OH	1.10	2.41			
		NH_3	0.49	1.07			
7-MSS	Process Waste Water	CO	10.16	0.37		20	
		VOC	2.67	0.10			
		CH_3OH	2.18	0.08			
		NH_3	0.19	<0.01			
SMR-FUG	SMR Plant Fugitives (6)	CO	0.50	2.20	10, 11	10, 11, 20, 21	
		VOC	0.07	0.30			
		NH_3	0.24	1.06			
CO-FUG	CO Production Equipment Fugitives (6)	CO	2.30	10.09		20	
		VOC	0.94	4.10			

(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
CH_3OH - methanol
HAP - hazardous air pollutant as listed in § 112(b) of the Federal Clean Air Act or Title 40 Code of Federal Regulations Part 63, Subpart C
(4) Planned maintenance, startup, and shutdown (MSS) lbs/hour emissions for all pollutants are authorized even if not specifically identified as MSS. During any

clock hour that includes one or more minutes of planned MSS, that pollutant's maximum hourly emission rate shall apply during that clock hour.

(5) Compliance with annual emission limits (tons per year) is based on a 12-month rolling period. Annual emission rates for each source include planned MSS emissions.

(6) Emission rate is an estimate and is enforceable through compliance with the applicable special condition(s) and permit application representations.

Texas Commission on Environmental Quality
Air Quality Permit

A Permit Is Hereby Issued To
Air Products LLC
Authorizing the Construction and Operation of
Air Products Baytown 3 Facility
Located at **Baytown, Chambers County, Texas**
Latitude 29.7523 Longitude -94.9079

Permit: 133027 and N220

Revision Date: December 28, 2023

Expiration Date: June 24, 2026

For the Commission

1. **Facilities** covered by this permit shall be constructed and operated as specified in the application for the permit. All representations regarding construction plans and operation procedures contained in the permit application shall be conditions upon which the permit is issued. Variations from these representations shall be unlawful unless the permit holder first makes application to the Texas Commission on Environmental Quality (commission) Executive Director to amend this permit in that regard and such amendment is approved. [Title 30 Texas Administrative Code (TAC) Section 116.116 (30 TAC § 116.116)] [1]
2. **Voiding of Permit**. A permit or permit amendment is automatically void if the holder fails to begin construction within 18 months of the date of issuance, discontinues construction for more than 18 months prior to completion, or fails to complete construction within a reasonable time. Upon request, the executive director may grant an 18-month extension. Before the extension is granted the permit may be subject to revision based on best available control technology, lowest achievable emission rate, and netting or offsets as applicable. One additional extension of up to 18 months may be granted if the permit holder demonstrates that emissions from the facility will comply with all rules and regulations of the commission, the intent of the Texas Clean Air Act (TCAA), including protection of the public's health and physical property; and (b)(1)the permit holder is a party to litigation not of the permit holder's initiation regarding the issuance of the permit; or (b)(2) the permit holder has spent, or committed to spend, at least 10 percent of the estimated total cost of the project up to a maximum of $5 million. A permit holder granted an extension under subsection (b)(1) of this section may receive one subsequent extension if the permit holder meets the conditions of subsection (b)(2) of this section. [30 TAC § 116.120]
3. **Construction Progress**. Start of construction, construction interruptions exceeding 45 days, and completion of construction shall be reported to the appropriate regional office of the commission not later than 15 working days after occurrence of the event. [30 TAC § 116.115(b)(2)(A)]
4. **Start-up Notification**. The appropriate air program regional office shall be notified prior to the commencement of operations of the facilities authorized by the permit in such a manner that a representative of the commission may be present. The permit holder shall provide a separate notification for the commencement of operations for each unit of phased construction, which may involve a series of units commencing operations at different times. Prior to operation of the facilities authorized by the permit, the permit holder shall identify the source or sources of allowances to be utilized for compliance with Chapter 101, Subchapter H, Division 3 of this title (relating to Mass Emissions Cap and Trade Program). [30 TAC § 116.115(b)(2)(B)]
5. **Sampling Requirements**. If sampling is required, the permit holder shall contact the commission's Office of Compliance and Enforcement prior to sampling to obtain the proper data forms and procedures. All sampling and testing procedures must be approved by the executive director and coordinated with the regional representatives of the commission. The permit holder is also responsible for providing sampling facilities and conducting the sampling operations or contracting with an independent sampling consultant. [30 TAC § 116.115(b)(2)(C)]
6. **Equivalency of Methods.** The permit holder must demonstrate or otherwise justify the equivalency of emission control methods, sampling or other emission testing methods, and monitoring methods proposed as alternatives to methods indicated in the conditions of the permit. Alternative methods shall be applied for in writing and must be reviewed and approved by the executive director prior to their use in fulfilling any requirements of the permit. [30 TAC § 116.115(b)(2)(D)]
7. **Recordkeeping.** The permit holder shall maintain a copy of the permit along with records containing the information and data sufficient to demonstrate compliance with the permit, including production records and

operating hours; keep all required records in a file at the plant site. If, however, the facility normally operates unattended, records shall be maintained at the nearest staffed location within Texas specified in the application; make the records available at the request of personnel from the commission or any air pollution control program having jurisdiction in a timely manner; comply with any additional recordkeeping requirements specified in special conditions in the permit; and retain information in the file for at least two years following the date that the information or data is obtained. [30 TAC § 116.115(b)(2)(E)]

8. **Maximum Allowable Emission Rates**. The total emissions of air contaminants from any of the sources of emissions must not exceed the values stated on the table attached to the permit entitled "Emission Sources--Maximum Allowable Emission Rates." [30 TAC § 116.115(b)(2)(F)] [1]
9. **Maintenance of Emission Control**. The permitted facilities shall not be operated unless all air pollution emission capture and abatement equipment is maintained in good working order and operating properly during normal facility operations. The permit holder shall provide notification in accordance with 30 TAC §101.201, 101.211, and 101.221 of this title (relating to Emissions Event Reporting and Recordkeeping Requirements; Scheduled Maintenance, Startup, and Shutdown Reporting and Recordkeeping Requirements; and Operational Requirements). [30 TAC§ 116.115(b)(2)(G)]
10. **Compliance with Rules**. Acceptance of a permit by an applicant constitutes an acknowledgment and agreement that the permit holder will comply with all rules and orders of the commission issued in conformity with the TCAA and the conditions precedent to the granting of the permit. If more than one state or federal rule or regulation or permit condition is applicable, the most stringent limit or condition shall govern and be the standard by which compliance shall be demonstrated. Acceptance includes consent to the entrance of commission employees and agents into the permitted premises at reasonable times to investigate conditions relating to the emission or concentration of air contaminants, including compliance with the permit. [30 TAC § 116.115(b)(2)(H)]
11. **This** permit may not be transferred, assigned, or conveyed by the holder except as provided by rule. [30 TAC § 116.110(e)]
12. **There** may be additional special conditions attached to a permit upon issuance or modification of the permit. Such conditions in a permit may be more restrictive than the requirements of Title 30 of the Texas Administrative Code. [30 TAC § 116.115(c)]
13. **Emissions** from this facility must not cause or contribute to "air pollution" as defined in Texas Health and Safety Code (THSC) §382.003(3) or violate THSC § 382.085. If the executive director determines that such a condition or violation occurs, the holder shall implement additional abatement measures as necessary to control or prevent the condition or violation.
14. **The** permit holder shall comply with all the requirements of this permit. Emissions that exceed the limits of this permit are not authorized and are violations of this permit. [1]

[1] Please be advised that the requirements of this provision of the general conditions may not be applicable to greenhouse gas emissions.

Common Acronyms in Air Permits

°C = Temperature in degrees Celsius
°F = Temperature in degrees Fahrenheit
°K = Temperature in degrees Kelvin
µg = microgram
$\mu g/m^3$ = microgram per cubic meter
acfm = actual cubic feet per minute
AMOC = alternate means of control
AOS = alternative operating scenario
AP-42 = Air Pollutant Emission Factors, 5th edition
APD = Air Permits Division
API = American Petroleum Institute
APWL = air pollutant watch list
BPA = Beaumont/ Port Arthur
BACT = best available control technology
BAE = baseline actual emissions
bbl = barrel
bbl/day = barrel per day
bhp = brake horsepower
BMP = best management practices
Btu = British thermal unit
Btu/scf = British thermal unit per standard cubic foot or feet
CAA = Clean Air Act
CAM = compliance-assurance monitoring
CEMS = continuous emissions monitoring systems
cfm = cubic feet (per) minute
CFR = Code of Federal Regulations
CN = customer ID number
CNG = compressed natural gas
CO = carbon monoxide
COMS = continuous opacity monitoring system
CPMS = continuous parametric monitoring system
DFW = Dallas/ Fort Worth (Metroplex)
DE = destruction efficiency
DRE = destruction and removal efficiency
dscf = dry standard cubic foot or feet
dscfm = dry standard cubic foot or feet per minute
ED = (TCEQ) Executive Director
EF = emissions factor
EFR = external floating roof tank
EGU = electric generating unit
EI = Emissions Inventory
ELP = El Paso
EPA = (United States) Environmental Protection Agency
EPN = emission point number
ESL = effects screening level
ESP = electrostatic precipitator
FCAA = Federal Clean Air Act
FCCU = fluid catalytic cracking unit
FID = flame ionization detector
FIN = facility identification number
ft = foot or feet
ft/sec = foot or feet per second
g = gram
gal/wk = gallon per week
gal/yr = gallon per year
GLC = ground level concentration
GLC_{max} = maximum (predicted) ground-level concentration
gpm = gallon per minute
gr/1000scf = grain per 1000 standard cubic feet
gr/dscf = grain per dry standard cubic feet
H_2CO = formaldehyde
H_2S = hydrogen sulfide
H_2SO_4 = sulfuric acid
HAP = hazardous air pollutant as listed in § 112(b) of the Federal Clean Air Act or Title 40 Code of Federal Regulations Part 63, Subpart C
HC = hydrocarbons
HCl = hydrochloric acid, hydrogen chloride
Hg = mercury
HGB = Houston/Galveston/Brazoria
hp = horsepower
hr = hour
IFR = internal floating roof tank
in H_2O = inches of water
in Hg = inches of mercury
IR = infrared
ISC3 = Industrial Source Complex, a dispersion model
ISCST3 = Industrial Source Complex Short-Term, a dispersion model
K = Kelvin; extension of the degree Celsius scaled-down to absolute zero
LACT = lease automatic custody transfer
LAER = lowest achievable emission rate
lb = pound
lb/day = pound per day
lb/hr = pound per hour
lb/MMBtu = pound per million British thermal units
LDAR = Leak Detection and Repair (Requirements)
LNG = liquefied natural gas
LPG = liquefied petroleum gas
LT/D = long ton per day
m = meter
m^3 = cubic meter
m/sec = meters per second
MACT = maximum achievable control technology
MAERT = Maximum Allowable Emission Rate Table
MERA = Modeling and Effects Review Applicability
mg = milligram
mg/g = milligram per gram
mL = milliliter
MMBtu = million British thermal units
MMBtu/hr = million British thermal units per hour
MSDS = material safety data sheet
MSS = maintenance, startup, and shutdown
MW = megawatt
NAAQS = National Ambient Air Quality Standards
NESHAP = National Emission Standards for Hazardous Air Pollutants
NGL = natural gas liquids
NNSR = nonattainment new source review
NO_x = total oxides of nitrogen
NSPS = New Source Performance Standards

PAL = plant-wide applicability limit
PBR = Permit(s) by Rule
PCP = pollution control project
PEMS = predictive emission monitoring system
PID = photo ionization detector
PM = periodic monitoring
PM = total particulate matter, suspended in the atmosphere, including PM_{10} and $PM_{2.5}$, as represented
$PM_{2.5}$ = particulate matter equal to or less than 2.5 microns in diameter
PM_{10} = total particulate matter equal to or less than 10 microns in diameter, including $PM_{2.5}$, as represented
POC = products of combustion
ppb = parts per billion
ppm = parts per million
ppmv = parts per million (by) volume
psia = pounds (per) square inch, absolute
psig = pounds (per) square inch, gage
PTE = potential to emit
RA = relative accuracy
RATA = relative accuracy test audit
RM = reference method
RVP = Reid vapor pressure
scf = standard cubic foot or feet
scfm = standard cubic foot or feet (per) minute
SCR = selective catalytic reduction
SIL = significant impact levels
SNCR = selective non-catalytic reduction
SO_2 = sulfur dioxide
SOCMI = synthetic organic chemical manufacturing industry
SRU = sulfur recovery unit
TAC = Texas Administrative Code
TCAA = Texas Clean Air Act
TCEQ = Texas Commission on Environmental Quality
TD = Toxicology Division
TLV = threshold limit value
TMDL = total maximum daily load
tpd = tons per day
tpy = tons per year
TVP = true vapor pressure
VOC = volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1
VRU = vapor recovery unit or system

Special Conditions

Permit Numbers 133027 and N220

1. This permit authorizes emissions only from those emission points listed in the attached table entitled "Emission Sources - Maximum Allowable Emission Rates," (MAERT) and the facilities covered by this permit are authorized to emit subject to the emission rate limits on that table and other operating conditions specified in this permit. Also, this permit authorizes the emissions from planned maintenance, startup and shutdown (MSS).

Steam Methane Reformer (SMR) - Emission Standards and Operating Specifications

2. During normal operation the SMR [Emission Point Number (EPN): 1], excluding periods of MSS, shall not exceed the following limitations:

   A. Nitrogen Oxides (NO_x) – 0.010 pounds per million British thermal units (lb/MMBtu) on a rolling 24-hour average and 0.0062 lb/MMBtu on a rolling 12-month average.

   B. Ammonia (NH_3) – 10 parts per million (ppm) corrected to 3 % oxygen (O_2) on a rolling 24-hour average.

   C. Startup and shutdown (SS) emissions as defined by this Special Condition are excluded from the limits listed above.

      (1) A planned startup is defined as the period that begins with fuel introduction to the SMR and ends when Pressure Swing Absorbers (PSA) purge gas is introduced as a fuel to the SMR and ammonia injection is introduced prior to the SCR unit. A planned startup shall not exceed 36 hours per event. **(10/18)**

      (2) A planned shutdown is defined as the period that begins when PSA purge gas is removed as a fuel to the SMR and ammonia injection prior to the SCR unit stopped and ends when all fuel firing to the SMR is stopped. A planned shutdown shall not exceed 6 hours per event. **(10/18)**

   D. Emissions from planned maintenance activities (Special Condition No. 18) are excluded.

3. The SMR (EPN: 1) shall not exceed 1097 MMBtu per hour (MMBtu/hr).

4. The opacity from the SMR (EPN: 1) shall not exceed five percent averaged over a six-minute period. During periods of MSS operations the opacity shall not exceed 15 percent averaged over a six minute period. The permit holder shall demonstrate compliance with this Special Condition in accordance with the following procedures:

   A. Visible emission observations shall be conducted and recorded at least once during each calendar quarter while the facilities are in operation, unless the emission unit is not operating for the entire calendar quarter.

   B. This determination shall be made by first observing for visible emissions while each facility is in operation. Observations shall be made at least 15 feet and no more than 0.25 miles from the emission point(s). Up to three emissions points may be read concurrently, provided that all three emissions points are within a 70 degree viewing sector or angle in front of the observer such that the proper sun position (at the observer's back) can be maintained for all three emission points. A certified opacity reader is not required for these visible emission observations.

C. If visible emissions are observed from an emission point, then the opacity shall be determined and documented within 24 hours for that emission point using 40 Code of Federal Regulation (CFR) Part 60, Appendix A, Test Method 9. If a follow up opacity observation is not conducted, the visible emission shall be deemed greater than 5 percent and is a violation.

D. If the opacity exceeds five percent, corrective action to eliminate the source of visible emissions shall be taken promptly and documented within one week of first observation. Observations of a facility shall not occur during its startup or shutdown.

Flare Operating Specifications

5. The Warm Flare (EPN: 2) and the Cold Flare (EPN: 3) shall be designed and operated in accordance with the following requirements:

A. The flares shall be operated with a flame present at all times and/or each have a constant pilot flame. Each pilot flame shall be continuously monitored by a thermocouple, or the flare tip monitored by 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. **(10/18)**

B. The combined natural gas and waste stream to the flare tips shall be greater than 200 British thermal unit per standard cubic feet and less than 122 meter per sec (400 feet/second) under normal flow conditions. Normal flow conditions do not include the following:

(1) Start-up and shutdown

(2) Unit purging.

(3) Flow associated with maintenance or troubleshooting activities.

(4) Flaring due to sudden change in external customer demand.

(5) Alternative and transitional modes of operation

C. Flare testing per may be requested by the Texas Commission on Environmental Quality (TCEQ) Houston Regional Office to demonstrate compliance with these conditions.

6. There shall be no visible emissions from the flares except for periods not to exceed a total of five minutes during any two consecutive hours. The permit holder shall demonstrate compliance with this Special Condition in accordance with the following procedures:

A. Visible emission observations shall be conducted and recorded at least once during each calendar quarter while the facilities are in operation, unless the emission unit is not operating for the entire calendar quarter. Observations of a facility shall not occur during its startup or shutdown.

B. This determination shall be made by first observing for visible emissions while each facility is in operation. Observations shall be made at least 15 feet and no more than 0.25 miles from the emission point(s). Up to three emissions points may be read concurrently, provided that all three emissions points are within a 70 degree viewing sector or angle in front of the observer such that the proper sun position (at the observer's back) can be maintained for all three emission points. A certified opacity reader is not required for these visible emission observations.

C. If visible emissions are observed other than for the time period specified in this Special Condition, the visible emission shall be determined and documented within twenty four hours for that emission point using 40 CFR Part 60, Appendix A, Test Method 22.

D. If visible emissions are present, corrective action to eliminate the source of visible emissions shall be taken promptly and documented within one week of first observation.

Fuel Specifications

7. Fuel for the SMR (EPN:1) and the flares (EPNs: 2 and 3) shall be limited to the following:

   A. Natural gas containing no more than 5 grains total sulfur per 100 standard cubic feet. Compliance may be demonstrated through a current valid purchase contract.

   B. PSA purge gas

   C. Cold Box fuel gas

   D. Methyldiethanolamine (MDEA) Unit Flash gas

   E. Syngas

8. Pilot gas fuel for the flares (EPNs: 2 and 3) shall be limited to natural gas containing no more than 5 grains total sulfur per 100 standard cubic feet. Compliance may be demonstrated through a current valid purchase contract.

General Operating Specifications

9. The cooling tower water shall not exceed a total dissolved solids (TDS) concentration of 14,000 parts per million by weight (ppmw).

Aqueous Ammonia (NH_3)

10. The permit holder shall maintain prevention and protection measures for the NH_3 storage system. The NH_3 storage tank area will be marked and protected so as to protect the NH_3 storage area from accidents that could cause a rupture.

11. The permit holder shall maintain the piping and valves in NH_3 service as follows:

   A. Audio, visual, and olfactory (AVO) checks for NH_3 leaks shall be made and recorded once per day.

   B. Immediately, but no later than 24 hours upon detection of a leak, following the detection of a leak, plant personnel shall take one or more of the following actions:

      (1) Locate and isolate the leak, if necessary.

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

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

Initial Determination of Compliance

12. Sampling ports and platform(s) shall be incorporated into the design of the stack according to the specifications set forth in the attachment entitled “Chapter 2, Stack Sampling Facilities.” Alternate sampling facility designs may be submitted for approval by the TCEQ Houston Regional Director.

13. The holder of this permit shall perform stack sampling and other testing as required to establish the actual quantities of air contaminants being emitted into the atmosphere from the SMR (EPN: 1) to determine initial compliance with all emission limits established in this permit.

    A. Sampling shall be conducted in accordance with the appropriate procedures of the TCEQ Sampling Procedures Manual and in accordance with the appropriate Environmental Protection Agency Reference Methods to be determined during the pretest meeting.

    B. Air contaminants emitted from the reformer furnaces to be tested for include (but are not limited to) NO_x, carbon monoxide (CO), volatile organic compounds (VOC), particulate matter (PM_{10}), and sulfur dioxide (SO_2).

       Fuel sampling may be conducted in lieu of stack sampling for SO_2. If fuel sampling is used, SO_2 limits shall be based on 100 percent conversion of the sulfur in the fuel to SO_2. Any deviations from those procedures must be approved by the Executive Director of the TCEQ prior to sampling. The TCEQ Executive Director or a designated representative shall be afforded the opportunity to observe all such sampling.

    C. The SMR and all associated equipment shall operate within 90% of the maximum firing rate. Primary operating parameters that enable determination of the firing rate shall be monitored and recorded during the stack test. These parameters are to be determined at the pretest meeting. If the equipment is unable to operate at the required firing rate during testing, then additional stack testing may be required when higher firing rates are achieved. The requirement to re-test at the higher firing rates is not applicable to pollutants monitored by a continuous emission monitoring system (CEMS).

    D. The TCEQ Houston Regional Office shall be contacted as soon as testing is scheduled but not less than 45 days prior to sampling to schedule a pretest meeting.

       (1) The notice shall include:

       (2) Date for pretest meeting.

       (3) Date sampling will occur.

       (4) Name of firm conducting sampling.

       (5) Type of sampling equipment to be used.

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

       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 submitting the test reports.

       A written proposed description of any deviation from sampling procedures specified in permit conditions or the TCEQ or EPA sampling procedures shall be made available to the TCEQ prior to the pretest meeting. The TCEQ Houston Regional Director shall approve or disapprove of any deviation from specified sampling procedures.

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 or equivalent procedure proposals for New Source Performance Standards (NSPS) testing which must have the EPA approval shall be submitted to the EPA and copied to the TCEQ Air Permits Division in Austin.

E. Sampling as required by this condition shall occur within 60 days after achieving the maximum firing rate at which the SMR will be operated, but no later than 180 days after initial start-up of the unit. Additional sampling may be required by TCEQ or EPA.

F. Within 60 days after the completion of the testing and sampling required herein, one copy of the sampling report shall be distributed to the TCEQ Houston Regional Office.

Continuous Demonstration of Compliance

14. The holder of this permit shall install, calibrate, maintain, and operate a CEMS to measure and record the concentrations of NO_x and oxygen (O_2) in the SMR (EPN: 1).

A. Monitored NO_x concentrations shall be corrected and reported in dimensional units corresponding to the emission rate and concentration limits established in this permit.

B. The CEMS data shall be used to demonstrate compliance with the emission limitations established in this permit and the MAERT.

C. 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, 40 CFR Part 60, Appendix B. If there are no applicable performance specifications in 40 CFR Part 60, Appendix B, contact the TCEQ Air Permits Division in Austin for requirements to be met.

D. 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 are not required on weekends and plant holidays if instrument technicians are not normally scheduled on those days.

E. Each monitor shall be quality-assured at least quarterly using cylinder gas audits (CGA) in accordance with 40 CFR Part 60, Appendix F, Procedure 1, Section 5.1.2, with the following exception: a relative accuracy test audit is not required once every four quarters (i.e., four successive quarterly CGA may be conducted) unless the CEM is subject to the requirements of 40 CFR Part 60. An equivalent quality assurance method approved by the TCEQ may also be used. Successive quarterly audits shall occur no closer than two months.

F. All CGA exceedances of ±15 percent accuracy and any CEM downtime greater than 5% of operating hours shall be reported to the appropriate TCEQ Houston Regional Director, and necessary corrective action shall be taken. Supplemental stack concentration measurements may be required at the discretion of the TCEQ Houston Regional Director.

G. The monitoring data shall be reduced to hourly average concentrations at least once every day, using a minimum of one data points from each 15 minute quadrant of the one-hour period except for hours where calibration occurs which require a minimum of two data points. The individual average concentrations shall be reduced to units of the permit allowable emission rate in pound per hour at least once every week.

H. The reporting requirements of Title 30 of Texas Administrative Code § 117.345 may be substituted for the reporting requirements previously stated in this permit condition if the CEM is not subject to the requirements of 40 CFR Part 60.

15. The permit holder shall additionally install, calibrate, maintain, and operate a continuous monitoring system to monitor and record the fuel usage of the SMR (EPN: 1). A computer that collects, sums, and stores electronic data from continuous fuel flow meters is an acceptable totalizer. The monitoring device shall be accurate to ± 5 %, maintained, calibrated, and operated in accordance with the manufacturer's specifications. The monitoring device shall be calibrated in accordance with the manufacturer's recommendations or at least annually. **(10/18)**

16. To determine NH_3 emission the permit holder may install and operate a second NO_x CEMS probe located between the outlet of the SMR and the inlet of the Selective Catalytic Reduction (SCR) unit. NH_3 emissions are calculated as the difference between the input NH_3, measured by the NH_3 injection rate, and the NH_3 reacted, measured by the differential NO_x upstream and downstream of the SCR unit. This condition shall not be construed to set a minimum NO_x reduction efficiency on the SCR unit.

A. Calculate the concentration of ammonia, corrected to 3 percent oxygen, in the stack exhaust as follows:

$$NH_3 \ @ \ 3\% \ O_2 = \left[\left(\frac{a}{b} \times 10^6\right) - c\right] \times d$$

where,

a = NH_3 injection rate (lbmol/hr)

b = dry exhaust flow rate (lbmol/hr)

c = change in measured NO_x concentration across catalyst (@ 3% O_2)

d = correction factor based on measured versus calculated NH_3 slip

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

C. Install an ammonia CEMS as approved by Alternative Method of Compliance (AMOC) No. 230 and meeting the following requirements: (**12/23**)

(1) Initial Performance Test Sampling shall be conducted in accordance with EPA Conditional Test Method 27 (CTM-027), modified as follows: the NH3 RATA samples shall be collected from three sample points located from one sample port. The points shall be those identified in Performance Specification 2 (16.7, 50.0, and 83.3% of the inside diameter). The samples shall be collected isokinetically for seven minutes at each of the three points for a total individual test time of twenty-one minutes. The NH3 data from the three, one-hour compliance runs shall also be used for the first three RATA runs. Subsequent tests will be twenty-one minutes in duration. The relative accuracy must be equal to or less than 20 percent of the mean value of the reference method test data.

(2) As part of the Initial Performance Test the ammonia CEMS shall be calibrated with the TÜV and MCERTS add-on provided by Siemens according to the operating instructions.

(3) Zero drift in the calibration of the LDS6 shall be continuously assured by absence of an alarm condition. The alarm condition is defined by + 10% error in the automatic correlation verification.

(4) Quality-assured (or valid) data must be generated when the Reformer EPN: 1 is operating. Loss of valid data due to periods of monitor break down, out-of-control operation, repair, maintenance, or calibration may be exempted provided it does not exceed 10 percent of the time that the Reformer EPN: 1 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 Director.

17. The holder of this permit shall demonstrate compliance with the TDS concentration limit in this permit the hourly and annual PM emission limits for the cooling tower in the MAERT as follows.

A. Use a conductivity meter to measure and record the conductivity of the cooling water at a fixed monitoring point in the recirculation loop of each cooling tower at least weekly.

B. Calculate TDS using a conductivity-to-TDS conversion factor. The conversion factor shall be established and maintained as follows.

(1) Use a conservative default conversion factor of 0.80 parts per million by weight per microsiemens per centimeter initially until a site-specific measured value is determined.

(2) Measure conductivity and TDS in the cooling water in each of the three calendar months following the start of commercial operation of the SMR. Sample and analyze in accordance with “Standard Methods for the Examination of Water and Wastewater,” Method 2510 for conductivity, and Method 2540 for TDS. Calculate the average conversion factor and the standard deviation based on the three values. Summarize the results in a report and submit a copy of the report within 30 days after completion of the sampling to the Regional Office of the TCEQ.

(3) After establishing the initial measured conductivity-to-TDS conversion factor, continue measuring conductivity and TDS at least quarterly, using the methods in (2) above to quality assure and maintain or update the conversion factor.

C. If monitoring indicates an exceedance of the TDS limit of this permit conduct an evaluation, take corrective action, and document the results within 24 hours.

D. Maintain records of the date, time and location of the monitoring, the conductivity, and the TDS, identifying whether the TDS is calculated from the conductivity or directly measured.

Maintenance

18. This permit authorizes maintenance emissions associated with the activities described in the attachments and emission calculations submitted with the permit application dated June 6, 2015 including:

A. Purge out of piping and equipment for standby or maintenance service.

B. Depressurization of vessels, piping, and equipment for maintenance.

C. Refractory dry-out and curing procedures.

Nonattainment New Source Review (NNSR) - NO_x

19. 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.

    A. The permit holder shall use 52.3 tons per year (tpy) of NO_x credits to offset the 40.2 tpy NO_x project emission increase for the facilities authorized by this permit at a ratio of 1.3 to 1.0.

    B. 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.

    C. In addition to, or in place of, using credits as described in paragraph A and B above, the permit holder may use up to 43.03 tpy of Mass Emission Cap and Trade (MECT) allowances to offset the 33.10 tpy NO_x project emission increase for the following MECT facilities authorized by this permit at a ratio of 1.3 to 1.0.

    D. Each MECT facility is identified below using the EPN and/or FIN from the MAERT:

EPN	Source	tpy
1	Steam Methane Reformer	33.10
	Total	33.10

Recordkeeping Requirements

20. The following records shall be kept at the plant or in readily accessible electronic format for the life of the permit. All records required in this permit shall be made available at the request of personnel from the TCEQ, EPA, or any air pollution control agency with jurisdiction:

    A. A copy of this permit.

    B. Permit application dated June 6, 2015, and subsequent representations submitted to the TCEQ.

    C. A complete copy of the testing reports and records of the initial performance testing to demonstrate initial compliance.

    D. Stack sampling results or other air emissions testing (other than CEMS data) that may be conducted on units authorized under this permit after the date of issuance of this permit.

21. 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 available upon request to representatives of the TCEQ, EPA, or any local air pollution control program having jurisdiction:

    A. The CEMS data of NO_x, and O_2 emissions from EPNs: 1 to demonstrate compliance with the emission rates listed in the MAERT and Special Conditions.

B. Raw data files of all CEMS data including calibration checks, adjustments, spanning and zeroing, and maintenance performed on these systems in a permanent form suitable for inspection.

C. Records of fuel flow to steam methane reformer.

D. Records of calibration checks, adjustments, maintenance performed on fuel flow meter.

E. Records of thermocouple or infrared monitor operation indicating when a flame is not present.

F. Records of flaring related to the MSS including the date, time, and duration of the event along with emission calculations for the event.

G. Records of visible emissions, opacity observations and any corrective actions taken.

H. Records of AVO checks and maintenance performed to any piping and valves in NH_3 service, accidental releases, spills, or venting of NH_3 and the corrective action taken.

I. Records of NH_3 emissions monitoring.

J. Records of conductivity readings and TDS concentrations, and any corrective actions taken.

K. Records of monitored or calculated maintenance emissions.

Date: December 28, 2023

Emission Sources - Maximum Allowable Emission Rates

Permit Numbers 133027 and N220

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 (4)	TPY (5)
1	Steam Methane Reformer	NO_x	43.44	33.10
		NO_x (MSS)	106.18	-
		CO	6.58	25.56
		CO (MSS)	45.20	-
		VOC	2.24	8.27
		VOC (MSS)	2.96	-
		PM_{10}	9.82	35.97
		$PM_{2.5}$	9.82	35.97
		SO_2	7.45	4.92
		SO_2 (MSS)	9.07	-
		NH_3	4.89	17.84
		HAPS	0.83	3.03
2	Warm Flare	NO_x	3.96	6.98
		NO_x (MSS)	118.74	-
		CO	12.42	21.22
		CO (MSS)	148.33	-
		VOC	0.01	0.05
		VOC (MSS)	0.02	-
		SO_2	<0.01	<0.01
3	Cold Flare	NO_x	0.02	0.14
		NO_x (MSS)	5.40	-
		CO	0.13	1.21
		CO (MSS)	46.28	-
		VOC	0.01	0.05
		SO_2	<0.01	<0.01

Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour (4)	TPY (5)
4	Cooling Tower	PM	1.96	8.59
		PM_{10}	1.48	6.47
		$PM_{2.5}$	0.60	2.65
5	MDEA Unit CO_2 Vent	CO	5.31	19.39
		VOC	0.36	1.32
		NH_3	0.05	0.17
6	Routine Boiler Blowdown	VOC	1.26	2.75
		CH_3OH	1.10	2.41
		NH_3	0.49	1.07
7-MSS	Process Waste Water	CO	10.16	0.37
		VOC	2.67	0.10
		CH_3OH	2.18	0.08
		NH_3	0.19	<0.01
SMR-FUG	SMR Plant Fugitives (6)	CO	0.50	2.20
		VOC	0.07	0.30
		NH_3	0.24	1.06
CO-FUG	CO Production Equipment Fugitives (6)	CO	2.30	10.09
		VOC	0.94	4.10

(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
CH_3OH - methanol
HAP - hazardous air pollutant as listed in § 112(b) of the Federal Clean Air Act or Title 40 Code of Federal Regulations Part 63, Subpart C

Emission Sources - Maximum Allowable Emission Rates

(4) Planned maintenance, startup, and shutdown (MSS) lbs/hour emissions for all pollutants are authorized even if not specifically identified as MSS. During any clock hour that includes one or more minutes of planned MSS, that pollutant's maximum hourly emission rate shall apply during that clock hour.
(5) Compliance with annual emission limits (tons per year) is based on a 12-month rolling period. Annual emission rates for each source include planned MSS emissions.
(6) Emission rate is an estimate and is enforceable through compliance with the applicable special condition(s) and permit application representations.

Date: October 26, 2018