

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
AGENDA ITEM REQUEST
for a Petition for Rulemaking

AGENDA REQUESTED: May 10, 2023

DATE OF REQUEST: April 21, 2023

INDIVIDUAL TO CONTACT REGARDING CHANGES TO THIS REQUEST, IF NEEDED: Gwen Ricco, Agenda Coordinator, (512) 239-2678

CAPTION: **Docket No. 2023-0392-PET.** Consideration of a petition for rulemaking under Section 20.15 of 30 TAC Chapter 20, Rulemaking.

The petition was filed with the Texas Commission on Environmental Quality (commission) on March 13, 2023 by Baker Botts LLP, on behalf of the Texas Industry Project. The petitioner requested that the commission revise 30 Texas Administrative Code Chapter 117 requirements for certain engines to remove the requirements for these engines to monitor nitrogen oxides emissions using continuous emissions monitoring systems, to adjust the applicable ammonia emission limit to be consistent with typical operation of diesel engines, and to remove the ammonia monitoring requirements for these engines. (Lindley Anderson, Amy Browning; Project No. 2023-127-PET-NR)

Richard Chism

Director

Donna Huff

Division Deputy Director

Gwen Ricco

Agenda Coordinator

Texas Commission on Environmental Quality

Interoffice Memorandum

To: Commissioners

Date: April 21, 2023

Thru: Laurie Gharis, Chief Clerk
Toby Baker, Executive Director

From: Richard Chism, Director *RCC*
Office of Air

Subject: Consideration of a Petition for Rulemaking

Docket No.: 2023-0392-PET

Project No.: 2023-127-PET-NR

Who Submitted the Petition:

On March 13, 2023, the Texas Commission on Environmental Quality (commission) received a petition from Baker Botts LLP, on behalf of the Texas Industry Project (TIP or petitioner).

What the Petitioner Requests:

The petitioner requested that the commission revise 30 Texas Administrative Code (TAC) Chapter 117 requirements for certain engines.

Federal Tier 4 Final emission standards require control of emissions from new and in-use non-road compression-ignition engines (40 Code of Federal Regulations (CFR) Part 1039, Subpart B). Tier 4 Final diesel engines are manufactured to require the use of selective catalytic reduction (SCR) with a chemical reagent such as urea or ammonia to reduce nitrogen oxides (NO_x) emissions. Chapter 117 rules for major sources in the Dallas-Fort Worth (DFW) and Houston-Galveston-Brazoria (HGB) ozone nonattainment areas that apply to stationary reciprocating internal combustion engines, include Tier 4 diesel engines, require any unit using a chemical reagent to control NO_x emissions be monitored with a qualified continuous emission monitoring system (CEMS) or predictive emissions monitoring system (PEMS) to monitor exhaust NO_x. The rules for major sources in the DFW and HGB areas, as well as other Chapter 117 rules, also require units that use ammonia or urea to control NO_x emissions comply with ammonia emission limits and monitoring requirements. However, Tier 4 diesel engine manufacturers currently do not produce engines with on-board CEMS or PEMS that meet the Chapter 117 requirements.

TIP proposes to amend Chapter 117 to remove the requirements for these engines to monitor NO_x using CEMS, to adjust the applicable ammonia emission limit to be consistent with typical operation of diesel engines, and to remove the ammonia monitoring requirements for these engines.

Recommended Action and Justification:

The executive director recommends approval of the petition.

The Chapter 117 requirement to monitor exhaust NO_x concentrations using CEMS or PEMS on units using a chemical reagent to reduce NO_x was included in the rule to ensure compliance with the applicable NO_x standards for units that rely on reagent-based

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emissions control systems that can be adjusted by the operator. As noted by the petitioner, manufacturer-certified Tier 4 engines are designed to meet certain federal NO_x emissions limits and as such include SCR systems designed to monitor several parameters over which the operator has no control. They are intended to be tamper-resistant and not subject to alteration. Tier 4 engines are not manufactured with pre-installed CEMS because these inherent design standards ensure NO_x emissions conform to the Tier 4 standards. Given that the control system cannot be manipulated and considering the significant cost of installing and operating a CEMS, the executive director agrees that a CEMS or PEMS is not necessary to provide reasonable assurance of compliance with the NO_x emission standards. The executive director recommends revising Chapter 117 to exempt these engines from the CEMS or PEMS requirements. The executive director also recommends approving the petitioners request to exempt diesel engines that use a chemical reagent for NO_x reduction from ammonia monitoring since these Tier 4 engines are intended to be tamper resistant and not subject to alteration.

Existing Chapter 117 rules require that ammonia emissions must not exceed 10 parts per million at 3.0% oxygen (O₂), dry, for all units that inject urea or ammonia into the exhaust stream for NO_x control. The executive director agrees with the petitioner that correcting ammonia concentrations to the 3.0% O₂ level currently required is inappropriate for diesel engines that operate at significantly higher excess air in the exhaust stream and recommends revising the rules to allow diesel engines to use the 15% O₂ correction consistent with the Chapter 117 standards for other equipment that also operates with higher O₂ in the exhaust gas.

Although the Chapter 117 ammonia standards are not part of the state implementation plan (SIP), both the NO_x and ammonia monitoring requirements are included as part of the SIP. Therefore, any rule changes would need to be submitted as part of the SIP. The requested exemptions are not expected adversely impact Texas's progress in attaining the eight-hour ozone National Ambient Air Quality Standard.

If the petition is approved by the commission, staff will initiate a rulemaking project for the commission's consideration to amend the appropriate sections of 30 TAC Chapter 117. Sections not specifically referenced by the petitioner may need to be amended to ensure consistency within the division in providing the requested exemption. Rule revisions for this petition are anticipated to be proposed with upcoming Chapter 117 rulemaking and SIP revisions associated with the 2008 and 2015 ozone national ambient air quality standards, which are tentatively scheduled for the commission's consideration for proposal in November 2023.

Applicable Law:

- Texas Government Code, §2001.021, which establishes the procedures by which an interested person may petition a state agency for the adoption of a rule;
- 30 Texas Administrative Code §20.15, which provides such procedures specific to the commission;
- Texas Water Code (TWC), §5.013, concerning General Jurisdiction of Commission;
- TWC, §5.102, concerning General Powers;

Commissioners

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- TWC, §5.103, concerning Rules;
- TWC, §5.105, concerning General Policy;
- Texas Health and Safety Code (THSC), §382.017, concerning Rules, which authorizes the commission to adopt rules consistent with the policy and purposes of the Texas Clean Air Act (TCAA);
- THSC, §382.002, concerning Policy and Purpose, which establishes the commission's purpose to safeguard the state's air resources, consistent with the protection of public health, general welfare, and physical property;
- THSC, §382.011, concerning General Powers and Duties, which authorizes the commission to control the quality of the state's air;
- THSC, §382.012, concerning State Air Control Plan, which authorizes the commission to prepare and develop a general, comprehensive plan for the proper control of the state's air.
- THSC, §382.016, concerning Monitoring Requirements; Examination of Records, that authorizes the commission to prescribe reasonable requirements for the measuring and monitoring of air contaminant emissions; and
- THSC, §382.021, concerning Sampling Methods and Procedures, that authorizes the commission to prescribe the sampling methods and procedures to determine compliance with its rules.

Agency Contacts:

Lindley Anderson, Project Manager, Air Quality Division, (512) 239-0003

Amy Browning, Staff Attorney, Environmental Law Division, (512) 239-0891

Gwen Ricco, Agenda Coordinator, (512) 239-2678

Attachment:

Petition

cc: Chief Clerk, 2 copies
Executive Director's Office
Jim Rizk
Morgan Johnson
Brody Burks
Office of General Counsel
Lindley Anderson
Amy Browning
Gwen Ricco

March 13, 2023

Ms. Erin Chancellor
Interim Executive Director
Texas Commission on Environmental Quality
PO Box 13087
Austin, Texas 78711-3087

Stephanie Bergeron Perdue
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stephanie.bergeron.perdue@bakerbotts.com

Re: Petition for Rulemaking

Dear Ms. Chancellor:

Pursuant to Texas Government Code § 2001.021 and 30 Texas Administrative Code (“TAC”) § 20.15, Baker Botts LLP, on behalf of the Texas Industry Project (“TIP”) hereby petitions the Texas Commission on Environmental Quality (“TCEQ”) for rulemaking to amend 30 TAC Chapter 117, *Control of Air Pollution from Nitrogen Compounds*. TIP petitions the agency to add new language to align state rules with the federal Tier 4 engine standard, which is designed to meet certain nitrogen oxide (“NOx”) emissions limits and is certified by engine manufacturers as meeting the Tier 4 standards, and to address units which inject urea or ammonia into the exhaust stream for NOx controls. Specifically, TIP petitions the agency to amend 30 TAC Sections 117.340(c)(2), *Houston-Galveston-Brazoria Ozone Nonattainment Area Major Sources, Continuous Demonstration of Compliance*; 117.440(c)(2), *Dallas-Fort Worth Eight-Hour Ozone Nonattainment Area Major Sources, Continuous Demonstration of Compliance*; 117.310(c)(2), *Emission Specifications for Attainment Demonstration*; 117.410(c)(2), *Emissions Specifications for Eight-Hour Attainment Demonstration*; 117.2010(i)(2), *HGB Minor Source Emissions Specifications*; 117.2110(h)(2), *DFW Minor Sources Emissions Specifications for Eight-Hour Attainment Demonstration*; and Section 117.8130, *Ammonia Monitoring*.

I. Name and Address of the Petitioner

Baker Botts LLP, on behalf of the Texas Industry Project
Attn: Stephanie Bergeron Perdue
401 S. First Street, Suite 1300
Austin, Texas 78704

II. Explanation for Petition

Federal Tier 4 Final emission standards require control of emissions from new and in-use non-road compression-ignition engines.¹ See 40 CFR Part 1039, Subpart B. Tier 4 Final diesel engines are manufactured to require the use of selective catalytic reduction (“SCR”) with a chemical reagent such as urea or ammonia. Under 30 TAC § 117.340(c)(1)(D)² and § 117.440(c)(1)(C)³, an engine using a chemical reagent must have a continuous emission monitoring system (“CEMS”) or predictive emissions monitoring system (“PEMS”) to monitor exhaust NOx. The CEMS must meet the requirements of 117.8100(a), which includes full compliance with new source performance standards (“NSPS”) specifications and NSPS App. F QA procedures. See 30 TAC §§ 117.340(f)(1) and 117.440(f). Under 30 TAC §§ 117.340(d) and 117.440(d), engines using ammonia must comply with ammonia monitoring requirements in §117.8130. However, engine manufacturers currently do not produce engines with on-board CEMS or PEMS that meet these requirements.

SCR is a NOx reduction technique by which diesel exhaust fluid (“DEF”) is injected into a decomposition chamber where it atomizes, and quickly decomposes in the hot exhaust gas. The result is ammonia and water vapor. The ammonia and water vapor then react with NOx within a catalyst bed. The ammonia (“NH₃”) reacts with nitric oxide (“NO”) or nitrogen dioxide (“NO₂”) to form nitrogen gas (“N₂”), and water. A certain amount of ammonia may potentially “slip” through the catalyst bed. This is preventable using slip catalysts. The SCR emits a clean exhaust of nitrogen gas, carbon dioxide (“CO₂”), and water.

Modern analyzers used as CEMS typically require enclosure in a climate-controlled building to protect sensitive electronics. There are no certified engines with pre-installed CEMS that meet federal Tier 4 standards or TCEQ requirements. Additionally, the capital cost of CEMS installation is on par with the cost of the Tier 4 engine itself.

TIP proposes to amend Sections 117.340(c)(2) and 117.440(c)(2) to add these types of engines to the list of units that are not required to install CEMS thereby aligning state rules with the federal Tier 4 engine standard, which is designed to meet certain NOx emissions limits and certified by engine manufacturers. Given their certified status, Tier 4 engines include SCR systems designed to monitor several parameters over which the operator has no control. They are intended to be tamper-resistant and not subject to alteration. Tier 4 engines are not manufactured with pre-installed CEMS because these inherent design standards ensure NOx emissions conform to the Tier 4 standards. Also, Tier 4 engines are generally designed and equipped with alert systems and/or to automatically shut down (de-rate) when they exceed certain parameters based on inherent monitoring of feed quantity and quality. Accordingly, based on the preceding federal Tier 4 engine

¹ Engines manufactured after 2014 must meet exhaust emission standards in 40 CFR § 1039.101(a)-(e) for engines greater than 56 kW (75 hp) but less than or equal to 560 kW (750 hp) of 0.40 g/kW-hr (approximately 0.30 g/hp-hr).

² Section 117.340, adopted in 2007 and amended in 2009, addresses continuous demonstration requirements for Houston-Galveston-Brazoria ozone nonattainment area major sources.

³ Section 117.440, adopted in 2007 and amended in 2015, addresses continuous demonstration requirements for the Dallas-Fort Worth eight-hour ozone nonattainment area major sources.

standards, is not necessary to demonstrate continuous compliance with emissions standards., Likewise, backsliding will not result from the proposed rule revisions.

Similarly, Section 117.310(c)(2) requires that ammonia emissions must not exceed 10 ppm at 3.0% O₂, dry, for all units that inject urea or ammonia into the exhaust stream for NO_x control. This threshold is inappropriate for engines that operate at significantly higher excess air (closer to gas turbines and gas-fired engines (~15% O₂)). However, there is no specific O₂ correction for diesel engines and they therefore default to 3%. To address this limitation, TIP recommends amending Section 117.310(c)(2), 117.410(c)(2), 117.2010(i)(2) and 117.2110(h)(2) to require diesel engines to meet the ammonia limit at 15% O₂. Consistent with the preceding discussion of Tier 4 design and manufacturer certifications, TIP further recommends that Section 117.8130 be amended to exempt diesel engines that use a chemical reagent for NO_x reduction from ammonia monitoring procedures based on the same considerations as presented with continuous emissions monitoring systems, namely that Tier 4 engines are intended to be tamper resistant and not subject to alteration.

III. Proposed Revisions to 30 TAC Chapter 117

Amend Sections 117.340, *Houston-Galveston-Brazoria Ozone Nonattainment Area Major Sources*;

(c) NO_x monitors.

(2) The following are not required to install CEMS or PEMS under this subsection:

(A) for purposes of 117.305 of this title, units listed §117.303(b)(3)-(5) and (8)-(10) of this title; ~~and~~

(B) units subject to the NO_x CEMS requirements of 40 CFR Part 75; and

(C) engines equipped with SCR systems using a reductant other than the engine's fuel with a diagnostic system that monitors reductant quality and tank levels and alerts operators to the need to refill the reductant tank before it is empty, or to replace the reductant if it does not meet applicable concentration specifications. If the SCR uses input from an exhaust NO_x sensor (or other sensor) to alert operators when reductant quality is inadequate, reductant quality does not need to be monitored separately. The reductant tank level must be monitored in all cases in accordance with the manufacturer's design to demonstrate compliance with this subsection.

Amend 117.440, *Dallas-Fort Worth Eight-Hour Ozone Nonattainment Area Major Sources* as follows:

(c) NO_x monitors.

(2) Units subject to the NO_x CEMS requirements of 40 CFR Part 75 The following are not required to install CEMS or PEMS under this subsection:

(A) units subject to the NO_x CEMS requirements of 40 CFR Part 75; and

(B) engines equipped with SCR systems using a reductant other than the engine's fuel with a diagnostic system that monitors reductant quality and tank levels and alerts operators to the need to refill the reductant tank before it is empty, or to replace the reductant if it does not meet applicable concentration specifications. If the SCR uses input from an exhaust NO_x sensor (or other sensor) to alert operators when reductant quality is inadequate, reductant quality does not need to be monitored separately. The reductant tank level must be monitored in all cases in accordance with the manufacturer's design to demonstrate compliance with this subsection.

Amend Section 117.310, *Emission Specifications for Attainment Demonstration* as follows:

(c) Related emissions. No person shall allow the discharge into the atmosphere from any unit subject to subsection (a) of this section, emissions in excess of the following, except as provided in §117.325 of this title (relating to Alternative Case Specific Specifications) or paragraph (3) or (4) of this subsection.

(2) For units that inject urea or ammonia into the exhaust stream for NO_x control, ammonia emissions must not exceed 10 ppmv at 3.0% O₂, dry, for boilers and process heaters; 15% O₂, dry, for stationary gas turbines (including duct burners used in turbine exhaust ducts), gas-fired lean-burn engines, ~~and~~, lightweight aggregate kilns, and diesel engines; 0.0% O₂, dry, for fluid catalytic cracking units (including CO boilers, CO furnaces, and catalyst regenerator vents); 7.0% O₂, dry, for BIF units that were regulated as existing facilities in 40 CFR Part 266, Subpart H (as was in effect on June 9, 1993), wood-fired boilers, and incinerators; and 3.0% O₂, dry, for all other units, based on:

(A) a block one-hour averaging period for units not equipped with a CEMS or PEMS for ammonia; or

(B) a rolling 24-hour averaging period for units equipped with CEMS or PEMS for ammonia.

Amend Section 117.410, *Emission Specifications for Eight-Hour Attainment Demonstration*, as follows:

(c) Related emissions. No person shall allow the discharge into the atmosphere from any unit subject to subsection (a) of this section, emissions in excess of the following, except as provided in §117.425 of this title (relating to Alternative Case Specific Specifications) or paragraph (3) or (4) of this subsection.

(2) For units that inject urea or ammonia into the exhaust stream for NO_x control, ammonia emissions must not exceed 10 ppmv at 3.0% O₂, dry, for boilers and process heaters; 15% O₂, dry, for stationary gas turbines (including duct burners used in turbine exhaust ducts), ~~and~~ gas-fired lean-burn engines and diesel engines; 7.0% O₂, dry, for incinerators; and 3.0% O₂, dry, for all other units, based on:

(A) a block one-hour averaging period for units not equipped with a CEMS or PEMS for ammonia; or

(B) a rolling 24-hour averaging period for units equipped with CEMS or PEMS for ammonia.

Amend Section 117.2010, *Emissions Specifications*, as follows:

(i) No person shall allow the discharge into the atmosphere from any unit subject to NO_x emission specifications in subsection (c) of this section, emissions in excess of the following, except as provided in §117.2025 of this title (relating to Alternative Case Specific Specifications):

(2) for units that inject urea or ammonia into the exhaust stream for NO_x control, ammonia emissions of 10 ppmv at 3.0% O₂, dry, for boilers and-process heaters; 15% O₂, dry, for stationary gas turbines (including duct burners used in turbine exhaust ducts), gas-fired lean-burn engines, and diesel engines; and 3.0% O₂, dry, for all other units, based on:

(C) a block one-hour averaging period for units not equipped with a CEMS or PEMS for ammonia; or

(D) a rolling 24-hour averaging period for units equipped with CEMS or PEMS for ammonia.

Amend Section 117.2110, *Emissions Specifications for Eight-Hour Attainment Demonstrations*, as follows:

(h) No person shall allow the discharge into the atmosphere from any unit subject to NO_x emission specifications in subsection (a) of this section, emissions in excess of the following, except as provided in §117.2125 of this title (relating to Alternative Case Specific Specifications):

(2) for units that inject urea or ammonia into the exhaust stream for NO_x control, ammonia emissions of 10 ppmv at 15% O₂, dry, for gas-fired lean-burn engines and diesel engines; and 3.0% O₂, dry, for all other units, based on:

(E) a block one-hour averaging period for units not equipped with a CEMS or PEMS for ammonia; or

(F) a rolling 24-hour averaging period for units equipped with CEMS or PEMS for ammonia.

Amend Section 117.8130, *Ammonia Monitoring* as follows:

(a) Except as provided by subsection (b), ~~When~~ when required by this chapter, one of the following ammonia monitoring procedures must be used to demonstrate compliance with the applicable ammonia emission specifications of this chapter for gas-fired or liquid-fired units that inject urea or ammonia into the exhaust stream for nitrogen oxides (NO_x) control.

(1) – (4) Text not restated

(b) Diesel engines are exempt from the ammonia monitoring procedures under this section.

IV. Statement of the Authority for the Proposed Rule

Statutory Authority for this petition for rulemaking is provided under Texas Water Code (TWC), §5.013, concerning General Jurisdiction of Commission; TWC, §5.102, concerning General Powers; TWC, §5.103, concerning Rules; and TWC, §5.105, concerning General Policy.

Statutory authority for this petition is also established in Texas Health and Safety Code (THSC), §382.017, concerning Rules, which authorizes the commission to adopt rules consistent with the policy and purposes of the Texas Clean Air Act (TCAA); THSC, §382.002, concerning Policy and Purpose, which establishes the commission's purpose to safeguard the state's air resources, consistent with the protection of public health, general welfare, and physical property; THSC, §382.011, concerning General Powers and Duties, which authorizes the commission to control the quality of the state's air; THSC, §382.012, concerning State Air Control Plan, which authorizes the commission to prepare and develop a general, comprehensive plan for the proper control of the state's air.

V. Injury or Inequity that May Result from the Failure to Revise 30 TAC Chapter 117

Texas's monitoring requirements for control of NOx from non-road diesel engines are currently more stringent than the federal standard. Thus, TIP recommends that the commission revise 30 TAC Chapter 117 as outlined in this petition to help ensure that the regulated community is not placed at a serious and costly economic disadvantage in Texas as compared to other states. A typical CEMS analyzer with a dedicated building can cost 500,000 dollars, which typically exceeds the cost of the equipment it is monitoring. Additionally, PEMS analyzers typically rely on monitoring of process variables to which a stationary source would not have access. Specifying a diesel engine with a CEMS or PEMS would require customization of design that would significantly increase cost over the typical "off-the-shelf" units produced by manufacturers to meet Tier 4 Final standards.⁴

Because Tier 4 Final engines do not meet the CEMS requirements, regulated entities are forced to turn to the older Tier 3 or Tier 4 Interim engines. This raises two concerns:

1. The utilization of older Tier 3 and Tier 4 Interim engines will result in higher NOx emissions for an area designated as nonattainment for ozone; and

⁴ Current market dynamics result in many regulated entities leasing Tier 4 Final engines from rental companies, who are in direct contact with original equipment manufacturers ("OEMs"). Consequently, regulated entities typically have minimum or no influence on final design of non-road diesel engines or their monitoring equipment and housing.

2. As Tier 3 and Tier 4 engines age, they are phased out of the available pool resulting in lack of availability of engines capable of demonstrating continuous compliance with Sections 117.340(c), and 117.440(c).

With regard to ammonia emissions limits, the O₂ correction limit is inappropriate for engines that operate at significantly higher excess air and are closer to gas turbines and gas-fired engines (~15% O₂).

VI. Conclusion

TIP appreciates the TCEQ's consideration of this petition and requests that the commission initiate a rulemaking.

If you have any questions or comments about the information presented in this petition for rulemaking, please do not hesitate to contact me at 512.322.2544 or stephanie.bergeron.perdue@bakerbotts.com.

Respectfully,



Stephanie Bergeron Perdue

Texas Commission on Environmental Quality



DECISION OF THE COMMISSION REGARDING THE PETITION FOR RULEMAKING FILED BY TEXAS INDUSTRY PROJECT

Docket No. 2023-0392-PET
Rule Project No. 2023-127-PET-NR

On May 10, 2023, the Texas Commission on Environmental Quality (Commission) considered the petition for rulemaking filed by the Texas Industry Project. The petitioner filed the request on March 13, 2023 and requests that the commission revise 30 Texas Administrative Code Chapter 117, Control of Air Pollution from Nitrogen Compounds, to update requirements for certain engines subject to federal requirements in 40 Code of Federal Regulations Part 1039, Subpart B.

IT IS THEREFORE ORDERED BY THE COMMISSION, pursuant to Administrative Procedure Act, Texas Government Code, § 2001.021, Texas Water Code, §§ 5.013, 5.102, 5.103, and 5.105, and Texas Health and Safety Code §§ 382.002, 382.011, 382.012, 382.016, 382.017, and 382.021, to initiate rulemaking concerning the issues raised in the petition.

This Decision constitutes the decision of the Commission required by the Texas Government Code, § 2001.021(c).

TEXAS COMMISSION ON
ENVIRONMENTAL QUALITY

Jon Niermann, Chairman

Date Signed