

The Texas Commission on Environmental Quality (commission) proposes amendments to §117.460 and §117.465, and corresponding revisions to the state implementation plan (SIP).

The amended sections are proposed to be submitted to the United States Environmental Protection Agency (EPA) as revisions to the SIP.

BACKGROUND AND SUMMARY OF THE FACTUAL BASIS FOR THE PROPOSED RULES

On April 19, 2000 the commission adopted rules, published in the May 5, 2000 issue of the *Texas Register* (25 TexReg 4101), that require water heaters, small boilers, and process heaters statewide to meet specific nitrogen oxides (NO_x) emission limits. These rules were part of a SIP control strategy for attainment with the ozone national ambient air quality standard (NAAQS).

Under the adopted rules manufacturers, distributors, retailers, and installers of natural gas-fired water heaters with a maximum rated capacity of no more than 75,000 British thermal units per hour (Btu/hr), designated as a "Type 0 unit" in the adopted rules, are required to meet the emission specifications in §117.465. Specifically, Type 0 units manufactured, distributed, sold, or installed on or after January 1, 2005 are required to meet a 10 nanogram per joule (ng/J) heat output limit.

Type 0 water heaters can be classified as conventional, power-vent, and direct-vent units. A power-vent unit is a unit that has a mechanically induced draft to vent flue gas to a side wall. A direct-vent unit is a unit that has a sealed combustion venting system that both draws combustion air from and vents combustion products to the outside air.

Since the adoption of the current rule, two American National Standards Institute (ANSI) standards (the flammable vapor ignition resistant (FVIR) standard and the lint, dirt, and oil (LDO) standard); the United States Department of Energy (DOE) energy efficiency standard; and the EPA insulation foam ban have been implemented. The ANSI standards for LDO and FVIR were effective on July 1, 2003 and were established for gas-fired water heater safety reasons. The DOE energy efficiency standard was effective on January 20, 2004. The EPA foam ban was effective on January 1, 2003 and affects gas-fired water heaters, as water heater manufacturers have historically used hydrochlorofluorocarbon as a blowing agent for creating foam insulation. The implementation of these standards has delayed the progression of the water heater technology and design for the commission's currently adopted rule's emission limits that require low-NO_x burners. A design has not been developed that meets both the 10 ng/J NO_x limit and maintains the current level of safety, efficiency, and reliability as required in the ANSI, DOE, and EPA standards.

The incorporation of the low-NO_x design development and subsequent testing will require a delay in the commission's adopted rule effective date of approximately one year for conventional water heaters with a capacity equal to or less than 50 gallons, and approximately two years for conventional water heaters with a capacity that exceeds 50 gallons. Water heaters with a capacity that exceeds 50 gallons will require further design development, because these units have differing design parameters such as air distribution controls (position of the burner), fuel and air mix, and efficiency. Current estimates show that approximately 98.82% of the gas water heaters that are sold annually in the State of Texas fit into the 50 gallon or less category. Therefore, the majority of the targeted NO_x reductions will only be delayed one year. Using Gas Appliance Manufacturers Association (GAMA) and American Gas

Association assumptions and considering the one- and two- year delays of the 10 ng/J NO_x standard, the commission estimates that the statewide NO_x emission reductions for conventional water heaters would be 1.07 ton per day (tpd) by 2007, 2.67 tpd by 2010, and 5.33 tpd by 2015. While the proposed rules incorporate a one- or two-year delay for conventional water heaters, the commission solicits comments on the alternative of exempting all conventional water heater units from the 10 ng/J standard upon adoption of the rules. In addition, the commission solicits comments on the consumer cost difference between conventional gas-fired water heaters that meet the 40 ng/J standard and water heaters that meet the 10 ng/J standard, excluding costs not associated with the low-NO_x technology, and the availability of conventional gas-fired water heaters to meet that standard. The commission also solicits comments on the following anticipated consumer costs of a conventional gas-fired water heater that meets the 10 ng/J standard compared to the costs of an equivalent hot-water production capacity electric water heater: purchase costs, installation costs, and annual operating costs (on a per gallon of hot water basis).

Additionally, the proposed amendments to Chapter 117 would exempt power-vent and direct-vent units from the 10 ng/J standard. These units are already more expensive than conventional gas-fired water heaters, and the low-NO_x requirements could make them economically unfeasible for a consumer to purchase. Current estimates show that approximately 0.099% of the gas water heaters that are sold annually in the State of Texas are power-vent units. Similarly, estimates show that approximately 0.12% of the gas water heaters that are sold annually in the State of Texas are direct-vent units. Therefore, the exemption of direct-vent and power-vent units will have minimal impact on existing NO_x emissions when compared to the conventional units. The commission estimates that the statewide

emission reductions that would no longer be anticipated as a result of the proposed exemptions will be 0.002 tpd in 2007, 0.006 tpd in 2010, and 0.012 tpd in 2015. The commission will continue to evaluate the annual water heater sales estimates to ensure that any increased costs resulting from low-NO_x water heaters do not result in a significant market shift toward exempted units.

Subsequent to the initiation of this rulemaking proposal, the commission received a petition from GAMA on June 22, 2004 regarding the water heater rules. GAMA petitioned the commission to adopt a rule that amends §117.465 to delay implementation of the 10 ng/J NO_x emission limit for some categories of gas water heaters and to provide an exemption for two other specific categories of water heaters. For conventional water heaters with storage volumes of 50 gallons or less, the petitioners requested a delay in the implementation of the 10 ng/J NO_x emission limit from January 1, 2005 to January 1, 2006. For conventional water heaters with storage volumes greater than 50 gallons, the petitioners requested a delay in the implementation of the 10 ng/J NO_x emission limit from January 1, 2005 to January 1, 2007. In addition, the petitioners requested that power-vent and direct-vent water heaters be exempt from the 10 ng/J NO_x emission limit, but still require them to continue to comply with the current 40 ng/J NO_x emission limit. The GAMA petition requests are essentially equivalent to the changes being proposed in this rulemaking. GAMA formally withdrew the petition on July 2, 2004.

The proposed amendments would not impact the commission commitments to maintain the EPA reasonably available control measure requirements as specified in the Texas SIP. The commission solicits comments on the impacts of extending the compliance dates or exempting conventional gas-fired water heaters from the 10 ng/J emission standard on the SIPs for the Dallas/Fort Worth,

Houston/Galveston, and Beaumont/Port Arthur ozone nonattainment areas and the San Antonio, Austin/San Marcos, and Northeast Texas Early Action Compact areas. The commission also solicits comments on what alternatives are available to compensate for the loss of credit if the conventional water heater units were exempt from the 10 ng/J emission standard with a resulting loss of NO_x reduction credit for each SIP.

SECTION BY SECTION DISCUSSION

Section 117.460, Definitions

The proposed amendment to §117.460 would add definitions for power-vent and direct-vent units and would renumber the subsequent definitions accordingly. The proposed amendment to §117.460 would also correct the reference of the “TCAA” to “Texas Health and Safety Code, Chapter 382 (also known as the Texas Clean Air Act).” Finally, the proposed amendment would spell out the acronym terms and delete the acronyms where they are not used again in the definitions for “Type 0 unit,” “Type 1 unit,” “Type 2 unit,” and “Water heater.”

Section 117.465, Emission Specifications

The proposed amendment to §117.465 would remove the requirement that water heaters meet the 10 ng/J standard from §117.465(a) by specifying in subsection (a) that boilers and process heaters must meet the NO_x limits, and by adding a new subsection (b) specifying the requirements for water heaters. The commission solicits comments on the emission reductions that would be lost due to the one- and two-year delay for conventional water heaters. The commission estimates that the statewide loss would be 0.53 tpd. The commission also solicits comments on the impacts of extending the compliance dates

for conventional gas-fired water heaters from the 10 ng/J emission standard on the SIPs for the Dallas/Fort Worth, Houston/Galveston, and Beaumont/Port Arthur ozone nonattainment areas and the San Antonio, Austin/San Marcos, and Northeast Texas Early Action Compact areas.

Proposed §117.465(b) would add the emission specifications and effective dates for water heaters. These emission specifications incorporate a one-year delay for the 10 ng/J standard for Type 0 units with storage volumes of 50 gallons or less and a two-year delay for Type 0 units with storage volumes greater than 50 gallons. The proposed amendment also reflects that the direct-vent and power-vent units would not be subject to the 10 ng/J standard. The commission solicits comment on the possibility of a shift in consumer products from conventional water heaters to power-vent and direct-vent units as they are exempt from the 10 ng/J standard and would not require the additional cost of a low-NO_x design. The commission also solicits comments on the consequences of exempting conventional gas-fired water heaters from the 10 ng/J standard on the SIPs for the Dallas/Fort Worth, Houston/Galveston, and Beaumont/Port Arthur ozone nonattainment areas and the San Antonio, Austin/San Marcos, and Northeast Texas Early Action Compact areas. The commission is soliciting comments on what alternatives are available to compensate for the loss of credit if the conventional water heater units were exempt from the 10 ng/J emission standard with a resulting loss of NO_x reduction credit for the SIP.

Finally, the proposed amendment to §117.465 would make administrative changes from “shall” to “must” throughout the section to conform to the drafting guidelines in the *Texas Legislative Council Drafting Manual*, October 2002.

FISCAL NOTE: COSTS TO STATE AND LOCAL GOVERNMENT

Jeffrey Horvath, Analyst, Strategic Planning and Grants Management Section, determined that for the first five-year period the proposed amendments are in effect, no fiscal implications are anticipated for units of state or local government.

The proposed amendments apply to natural gas-fired water heaters with a maximum rated capacity of no more than 75,000 Btu/hr, designated as "Type 0 units" under current rules.

The proposed rules would exempt power-vent and direct-vent Type 0 units from the existing 10 ng/J emission specifications in Chapter 117, Subchapter D, Division 1. The proposed rules would also extend the existing emissions compliance date by one year (from January 1, 2005 to January 1, 2006) for conventional Type 0 units with storage volumes of 50 gallons or less and by two years (from January 1, 2005 to January 1, 2007) for conventional Type 0 units with storage volumes greater than 50 gallons.

Because the proposed rules extend the compliance dates for certain water heaters, and exempt others from current emissions requirements, no fiscal implications are expected for units of state or local government. The extended compliance dates may result in approximately 0.53 tpd of lost NO_x reductions for calendar year 2005.

PUBLIC BENEFITS AND COSTS

Mr. Horvath also determined that for each year of the first five years the proposed amendments are in effect, the public benefit anticipated from the enforcement of and compliance with the proposed amendments would be the assurance that affected water heaters would be able to meet all applicable standards while meeting the commission's current emissions limits that require low-NO_x burners.

No significant fiscal implications are expected for businesses or individuals as a result of the implementation of the proposed amendments.

The proposed rules would exempt power-vent and direct-vent Type 0 units from the existing 10 ng/J emission specification. The proposed rules would also extend the existing compliance date for emissions specifications by one year for conventional Type 0 units with storage volumes of 50 gallons or less and by two years for conventional Type 0 units with storage volumes greater than 50 gallons.

Units of government, industry, and consumers in general who purchase water heaters will not be affected by the proposed amendments. Manufacturers of the affected water heaters would gain one or two years in order to design water heaters that meet all applicable standards and implement the low-NO_x standard. In addition, manufacturers may realize some cost savings in that research and design costs for power-vent and direct-vent units will no longer be necessary. Current estimates show that approximately 0.099% of the gas water heaters that are sold annually in the State of Texas are power-vent units. Similarly, estimates show that approximately 0.12% of the gas water heaters that are sold annually in the State of Texas are direct-vent units. Therefore, this category of products will have

minimal impact on existing NO_x emissions when compared to the conventional units. The commission will continue to evaluate the annual water heater sales estimates to ensure that this exemption does not result in a shift in products consumed from conventional water heaters to power-vent and direct-vent units, as the future cost of these units will not increase as a result of a low-NO_x design.

SMALL BUSINESS AND MICRO-BUSINESS ASSESSMENT

No adverse fiscal implications are anticipated for small or micro-businesses as a result of implementation of the proposed amendments.

LOCAL EMPLOYMENT IMPACT STATEMENT

The commission reviewed this proposed rulemaking action and determined that a local employment impact statement is not required because the proposed rulemaking does not adversely affect a local economy in a material way for the first five years that the proposed rulemaking is in effect.

DRAFT REGULATORY IMPACT ANALYSIS DETERMINATION

The commission reviewed the proposed rulemaking action in light of the regulatory analysis requirements of Texas Government Code, §2001.0225, and determined that the rulemaking action does not meet the definition of a “major environmental rule” as defined in that statute. A “major environmental rule” is a rule the specific intent of which is to protect the environment or reduce risks to human health from environmental exposure and that may adversely affect in a material way the economy, productivity, competition, jobs, the environment, or the public health and safety of the state or a sector of the state. The primary purpose of this proposed rulemaking action is to extend the

compliance date for the 10 ng/J NO_x emission standard relating to the manufacture, distribution, and sale of conventional water heaters with a maximum rated capacity of no more than 75,000 Btu/hr from January 1, 2005 to January 1, 2006 for water heaters 50 gallons or smaller, and to January 1, 2007 for water heaters greater than 50 gallons. Another purpose of this proposed rulemaking action is to exempt power-vent and direct-vent water heaters from the 10 ng/J standard. All water heaters must still meet the 40 ng/J emission standard in the existing rules. The original rules, adopted on April 19, 2000, did not constitute a major environmental rulemaking action, and the proposed amendments to the existing rules are minor in nature. Therefore, the proposed rulemaking does not constitute a major environmental rule, and thus not subject to a formal regulatory analysis.

In addition, this proposed rulemaking does not meet any of the four applicability criteria of a “major environmental rule” as defined in the Texas Government Code. Texas Government Code, §2001.0225 applies only to a major environmental rule the result of which is to: 1) exceed a standard set by federal law, unless the rule is specifically required by state law; 2) exceed an express requirement of state law, unless the rule is specifically required by federal law; 3) exceed a requirement of a delegation agreement or contract between the state and an agency or representative of the federal government to implement a state and federal program; or 4) adopt a rule solely under the general powers of the agency instead of under a specific state law.

The rulemaking action, which extends certain compliance dates and includes two minor exemptions *vis a vis* previously adopted rules, implements requirements of 42 United States Code (USC). More detailed discussions on the application of federal law to the substantive water heater rules are contained

in the REGULATORY IMPACT ANALYSIS DETERMINATION section of the proposed and adopted versions of the previous rulemaking action pertaining to water heaters (*Texas Register* (24 TexReg 12007) and (25 TexReg 4101) respectively). Furthermore, there is no contract or delegation agreement that covers the topic that is the subject of this action. Finally, this rulemaking action was not developed solely under the general powers of the agency, but is authorized by specific sections of Texas Health and Safety Code, Chapter 382 (also known as the Texas Clean Air Act), and the Texas Water Code, which are cited in the STATUTORY AUTHORITY section of this preamble, including Texas Health and Safety Code, §§382.011, 382.012, and 382.017. Therefore, the proposed rulemaking does not exceed a standard set by federal law, exceed an express requirement of state law, exceed a requirement of a delegation agreement, nor is adopted solely under the general powers of the agency.

Based upon the foregoing, this rulemaking action is not subject to the regulatory analysis provisions of Texas Government Code, §2001.0225. The commission invites public comment on the draft RIA determination.

TAKINGS IMPACT ASSESSMENT

The commission completed a takings impact assessment for the proposed rulemaking action under Texas Government Code, §2007.043. The primary purpose of this proposed rulemaking action is to extend the compliance date for the 10 ng/J NO_x emission standard relating to the manufacture, distribution, and sale of conventional water heaters with a maximum rated capacity of no more than 75,000 Btu/hr from January 1, 2005 to January 1, 2006 for water heaters 50 gallons or smaller, and to January 1, 2007 for water heaters greater than 50 gallons. Another purpose of this proposed

rulemaking action is to exempt power-vent and direct-vent water heaters from the 10 ng/J standard. All water heaters must still meet the 40 ng/J emission standard in the existing rules.

The commission completed a takings impact assessment for the previously adopted water heater rules, and the proposed amendments would not cause an additional burden on private real property. The proposed amendments would not affect private property in a manner that restricts or limits an owner's right to the property that would otherwise exist in the absence of a governmental action. Therefore, the proposed amendments do not constitute a taking under Texas Government Code, Chapter 2007.

CONSISTENCY WITH THE COASTAL MANAGEMENT PROGRAM

The commission reviewed the proposed rulemaking action and found that the proposal is an action identified in Coastal Coordination Act Implementation Rules, 31 TAC §505.11, or will affect an action/authorization identified in §505.11, and therefore will require that applicable goals and policies of the Coastal Management Program (CMP) be considered during the rulemaking process.

The commission determined that under 31 TAC §505.22, the proposed rulemaking action is consistent with the applicable CMP goals and policies. The CMP goal applicable to this rulemaking action is the goal to protect, preserve, and enhance the diversity, quality, quantity, functions, and values of coastal natural resource areas (31 TAC §501.12(l)). Ozone levels will ultimately be reduced as a result of the proposed rulemaking, although the reduction will be delayed by one to two years. The CMP policy applicable to this rulemaking action, in conjunction with the previously adopted rules to be amended through the current proposal, is the policy that commission rules comply with regulations in Title 40

Code of Federal Regulations, to protect and enhance air quality in the coastal area (31 TAC §501.14(q)). This rulemaking action complies with Title 40 Code of Federal Regulations. Therefore, in compliance with 31 TAC §505.22(e), this rulemaking action is consistent with CMP goals and policies. Interested persons may submit comments regarding the consistency of the proposed rule amendments with the CMP during the public comment period.

EFFECT ON SITES SUBJECT TO THE FEDERAL OPERATING PERMIT PROGRAM

Chapter 117 is an applicable requirement under 30 TAC Chapter 122; therefore, owners or operators subject to the federal operating permit program must, consistent with the revision process in Chapter 122, revise their operating permits to include the amended Chapter 117 requirements for each emission unit affected by the amendments to Chapter 117 at their sites.

ANNOUNCEMENT OF HEARING

A public hearing for this proposed rulemaking has been scheduled for September 14, 2004, 2:00 p.m., Texas Commission on Environmental Quality, 12100 North I-35, Building C, Room 131E, Austin. The hearing will be structured for the receipt of oral or written comments by interested persons. Registration will begin 30 minutes prior to the hearing. Individuals may present oral statements when called upon in order of registration. A time limit may be established at the hearing to assure that enough time is allowed for every interested person to speak. There will be no open discussion during the hearing; however, commission staff members will be available 30 minutes before the hearing to discuss the proposal and will answer questions before and after the hearing.

Persons planning to attend the hearing who have special communication or other accommodation needs, should contact the Office of Environmental Policy, Analysis, and Assessment at (512) 239-4900.

Requests should be made as far in advance as possible.

SUBMITTAL OF COMMENTS

Written comments may be submitted to Patricia Durón, MC 205, Office of Environmental Policy, Analysis, and Assessment, Texas Commission on Environmental Quality, P.O. Box 13087, Austin, Texas 78711-3087 or faxed to (512) 239-4808. All comments should reference Rule Project Number 2004-076-117-AI. Comments must be received by 5:00 p.m., September 14, 2004. For further information, please contact Karen Hill of the Environmental Planning and Implementation Division at (512) 239-2968 or Alan Henderson, of the Policy and Regulations Division, at (512) 239-1510.

The commission solicits comments on the consumer cost difference between conventional gas-fired water heaters that meet the 40 ng/J standard and water heaters that meet the 10 ng/J standard, excluding costs not associated with the low-NO_x technology.

The commission solicits comments on the following anticipated consumer costs of a conventional gas-fired water heater that meets the 10 ng/J standard compared to the costs of an equivalent hot-water production capacity electric water heater: purchase costs, installation costs, and annual operating costs (on a per gallon of hot water basis).

The commission solicits comments on the possibility of a shift in consumer products from conventional gas-fired water heaters to electric resistance water heaters that are not covered by this rule, or to power-vent and direct-vent units as they are exempt from the 10 ng/J standard and would not require the additional cost of a low-NO_x design.

The commission solicits comments on the emission reductions that would be lost due to the one- and two-year delay for conventional water heaters.

The commission solicits comments on the consequences of exempting conventional gas-fired water heaters from the 10 ng/J standard.

The commission solicits comments on the impacts of extending the compliance dates or exempting conventional gas-fired water heaters from the 10 ng/J emission standard on the SIPs for the Dallas/Fort Worth, Houston/Galveston, and Beaumont/Port Arthur ozone nonattainment areas and the San Antonio, Austin-San Marcos, and Northeast Texas Early Action Compact areas.

The commission solicits comments on what alternatives are available to compensate for the loss of credit if the compliance dates for conventional water heater were extended or the water heaters were exempt from the 10 ng/J emission standard with a resulting loss of NO_x reduction credit for the SIP.

SUBCHAPTER D: SMALL COMBUSTION SOURCES

DIVISION 1: WATER HEATERS, SMALL BOILERS, AND PROCESS HEATERS

§117.460, §117.465

STATUTORY AUTHORITY

The amendments are proposed under Texas Water Code, §5.102, concerning General Powers, §5.103, concerning Rules, and §5.105, concerning General Policy, that authorize the commission to adopt rules necessary to carry out its powers and duties under the Texas Water Code; and under Texas Health and Safety Code, §382.017, concerning Rules, that authorizes the commission to adopt rules consistent with the policy and purposes of the Texas Health and Safety Code, Chapter 382 (also known as the Texas Clean Air Act). The amendments are also proposed under Texas Health and Safety Code, §382.002, concerning Policy and Purpose, that establishes the commission's purpose to safeguard the state air resources, consistent with the protection of public health, general welfare, and physical property; §382.011, concerning General Powers and Duties, that authorizes the commission to control the quality of the state's air; and §382.012, concerning State Air Control Plan, that authorizes the commission to prepare and develop a general, comprehensive plan for the control of the state's air. The new rules are proposed under federal mandates contained in 42 United States Code, §7410, that require states to introduce pollution control measures in order to reach specific air quality standards in particular areas of the state.

The proposed amendments implement Texas Health and Safety Code, §§382.002, 382.011, and 382.012.

§117.460. Definitions.

Unless specifically defined in Texas Health and Safety Code, Chapter 382 (also known as the Texas Clean Air Act) [the TCAA] or in the rules of the commission, the terms used by the commission have the meanings commonly used in the field of air pollution control. In addition to the terms which are defined by Texas Health and Safety Code, Chapter 382 [the TCAA], the following terms, when used in this division, [shall] have the following meanings, unless the context clearly indicates otherwise. Additional definitions for terms used in this division are found in §101.1 of this title (relating to Definitions), §3.2 of this title (relating to Definitions), and §117.10 of this title (relating to Definitions).

(1) **Direct-vent unit** - A water heater that has a sealed combustion venting system that both draws combustion air from and vents combustion products to the outside air.

(2) [(1)] **Heat output** - The product H_o obtained when a Type 0, 1, or 2 unit is tested according to Section 9.3 of the South Coast Air Quality Management District Protocol: *Nitrogen Oxides Emissions Compliance Testing for Natural Gas-Fired Water Heaters and Small Boilers* (January 1998).

(3) **Power-vent unit** - A water heater that has a mechanically induced draft in the venting of flue gas to a side wall.

(4) [(2)] **Type 0 unit** - Any water heater, boiler, or process heater with a maximum rated capacity of no more than 75,000 British thermal units per hour [(Btu/hr)].

(5) [(3)] **Type 1 unit** - Any water heater, boiler, or process heater with a maximum rated capacity greater than 75,000 [Btu/hr], but no more than 400,000 British thermal units per hour [Btu/hr].

(6) [(4)] **Type 2 unit** - Any water heater, boiler, or process heater with a maximum rated capacity greater than 400,000 [Btu/hr], but no more than 2.0 million British thermal units [Btu] per hour [(MMBtu/hr)].

(7) [(5)] **Water heater** - A closed vessel in which water is heated by combustion of gaseous fuel and is withdrawn for use external to the vessel at pressures not exceeding 160 pounds per square inch gauge [(psig)], including the apparatus by which the heat is generated and all controls and devices necessary to prevent water temperatures from exceeding 210 degrees Fahrenheit.

§117.465. Emission Specifications.

(a) Natural gas-fired Type 0, 1, and 2 boiler or process heater units sold, distributed, installed, or offered for sale within the State of Texas must [shall] meet the following limits for nitrogen oxides (NO_x, calculated as nitrogen dioxide (NO₂)).

(1) Type 0 units manufactured on or after July 1, 2002, but no later than December 31, 2004, must [shall] not exceed:

(A) 40 nanograms per joule (ng/J) of heat output; or

(B) 55 parts per million by volume (ppmv) at 3.0% oxygen (O₂), dry.

(2) Type 0 units manufactured on or after January 1, 2005 must [shall] not exceed:

(A) 10 ng/J of heat output; or

(B) 15 ppmv at 3.0% O₂, dry.

(3) Type 1 units manufactured on or after July 1, 2002 must [shall] not exceed:

(A) 40 ng/J of heat output; or

(B) 55 ppmv at 3.0% O₂, dry.

(4) Type 2 units manufactured on or after July 1, 2002 must [shall] not exceed:

(A) 30 ppmv at 3.0% O₂, dry; or

(B) 0.037 pound per million British thermal units (lb/MMBtu) of heat input.

(b) Natural gas-fired Type 0, 1, and 2 water heater units sold, distributed, installed, or offered for sale within the State of Texas must meet the following limits for NO_x, calculated as NO₂.

(1) All Type 0 units with storage volumes of 50 gallons or less and manufactured on or after July 1, 2002, but no later than December 31, 2005, must not exceed:

(A) 40 ng/J of heat output; or

(B) 55 ppmv at 3.0% O₂, dry.

(2) Type 0 units, except power-vent and direct-vent units, with storage volumes of 50 gallons or less and manufactured on or after January 1, 2006 must not exceed:

(A) 10 ng/J of heat output; or

(B) 15 ppmv at 3.0% O₂, dry.

(3) All Type 0 units with storage volumes greater than 50 gallons and manufactured on or after July 1, 2002, but no later than December 31, 2006, must not exceed:

(A) 40 ng/J of heat output; or

(B) 55 ppmv at 3.0% O₂, dry.

(4) Type 0 units, except power-vent and direct-vent units, with storage volumes greater than 50 gallons and manufactured on or after January 1, 2007 must not exceed:

(A) 10 ng/J of heat output; or

(B) 15 ppmv at 3.0% O₂, dry.

(5) Type 1 units manufactured on or after July 1, 2002 must not exceed:

(A) 40 ng/J of heat output; or

(B) 55 ppmv at 3.0% O₂, dry.

(6) Type 2 units manufactured on or after July 1, 2002 must not exceed:

(A) 30 ppmv at 3.0% O₂, dry; or

(B) 0.037 lb/MMBtu of heat input.