

The Texas Natural Resource Conservation Commission (commission) adopts new §114.470, Definitions; §114.472, Control Requirements; §114.476, Reporting and Recordkeeping Requirements; §114.477, Exemptions; and §114.479, Affected Counties. The commission adopts these new sections in new Division 8, Houston/Galveston Heavy Equipment Fleets - Compression-Ignition Engines; Subchapter I, Non-road Engines; Chapter 114, Control of Air Pollution from Motor Vehicles, and revisions to the state implementation plan (SIP) in order to reduce ambient concentrations of ground-level ozone in the Houston/Galveston (HGA) ozone nonattainment area through the accelerated purchase of United States Environmental Protection Agency (EPA) certified Tier 2 and Tier 3 non-road equipment 50 horsepower (hp) and larger. These new sections are one element of the control strategy for the HGA Post-1999 Rate-of-Progress (ROP)/Attainment Demonstration SIP. Section 114.477 is adopted *with changes* to the proposed text as published in the August 25, 2000 issue of the *Texas Register* (25 TexReg 8230). Sections 114.470, 114.472, 114.476, and 114.479 are adopted *without changes* to the proposed text and will not be republished.

BACKGROUND AND SUMMARY OF THE FACTUAL BASIS FOR THE ADOPTED RULES

The HGA ozone nonattainment area is classified as Severe-17 under the Federal Clean Air Act (FCAA) Amendments of 1990 (42 United States Code (USC), §§7401 et seq.), and therefore is required to attain the one-hour ozone standard of 0.12 parts per million (ppm) by November 15, 2007. In addition, 42 USC, §7502(a)(2), requires attainment as expeditiously as practicable, and 42 USC, §7511a(d), requires states to submit ozone attainment demonstration SIPs for severe ozone nonattainment areas such as HGA. The HGA area, defined by Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties, has been working to develop a demonstration of attainment in

accordance with 42 USC, §7410. On January 4, 1995, the state submitted the first of its Post-1996 SIP revisions for HGA.

The January 1995 SIP consisted of urban airshed model (UAM) modeling for 1988 and 1990 base-case episodes, adopted rules to achieve a 9% ROP reduction in volatile organic compounds (VOC), and a commitment schedule for the remaining ROP and attainment demonstration elements. At the same time, but in a separate action, the State of Texas filed for the temporary nitrogen oxides (NO_x) waiver allowed by 42 USC, §7511a(f). The January 1995 SIP and the NO_x waiver were based on early base-case episodes which marginally exhibited model performance in accordance with EPA modeling performance standards, but which had a limited data set as inputs to the model. In 1993 and 1994, the commission was engaged in an intensive data-gathering exercise known as the COAST study. The state believed that the enhanced emissions inventory, expanded ambient air quality and meteorological monitoring, and other elements would provide a more robust data set for modeling and other analysis, which would lead to modeling results that the commission could use to better understand the nature of the ozone air quality problem in the HGA area.

Around the same time as the 1995 submittal, EPA policy regarding SIP elements and timelines went through changes. Two national programs in particular resulted in changing deadlines and requirements. The first of these programs was the Ozone Transport Assessment Group (OTAG). This group grew out of a March 2, 1995 memo from Mary Nichols, former EPA Assistant Administrator for Air and Radiation, that allowed states to postpone completion of their attainment demonstrations until an assessment of the role of transported ozone and precursors had been completed for the eastern half of

the nation, including the eastern portion of Texas. Texas participated in this study, and it has been concluded that Texas does not significantly contribute to ozone exceedances in the Northeastern United States. The other major national initiative that has impacted the SIP planning process is the revision to the national ambient air quality standard (NAAQS) for ozone. The EPA promulgated a final rule on July 18, 1997 changing the ozone standard to an eight-hour standard of 0.08 ppm. In November 1996, concurrent with the proposal of the standards, the EPA proposed an interim implementation plan (IIP) that it believed would help areas like HGA transition from the old to the new standard. In an attempt to avoid a significant delay in planning activities, Texas began to follow this guidance, and readjusted its modeling and SIP development timelines accordingly. When the new standard was published, the EPA decided not to publish the IIP, and instead stated that, for areas currently exceeding the one-hour ozone standard, that standard would continue to apply until it is attained. The FCAA requires that HGA attain the standard by November 15, 2007.

The EPA issued revised draft guidance for areas such as HGA that do not attain the one-hour ozone standard. The commission adopted on May 6, 1998 and submitted to the EPA on May 19, 1998 a revision to the HGA SIP which contained the following elements in response to the EPA guidance: UAM modeling based on emissions projected from a 1993 baseline out to the 2007 attainment date; an estimate of the level of VOC and NO_x reductions necessary to achieve the one-hour ozone standard by 2007; a list of control strategies that the state could implement to attain the one-hour ozone standard; a schedule for completing the other required elements of the attainment demonstration; a revision to the Post-1996 9% ROP SIP that remedied a deficiency that the EPA believed made the previous version of that SIP unapprovable; and evidence that all measures and regulations required by Subpart 2 of Title I

of the FCAA to control ozone and its precursors have been adopted and implemented, or are on an expeditious schedule to be adopted and implemented.

In November 1998, the SIP revision submitted to the EPA in May 1998 became complete by operation of law. However, the EPA stated that it could not approve the SIP until specific control strategies were modeled in the attainment demonstration. The EPA specified a submittal date of November 15, 1999 for this modeling. In a letter to the EPA dated January 5, 1999, the state committed to model two strategies showing attainment.

As the HGA modeling protocol evolved, the state eventually selected and modeled seven basic modeling scenarios. As part of this process, a group of HGA stakeholders worked closely with commission staff to identify local control strategies for the modeling. Some of the scenarios for which the stakeholders requested evaluation included options such as California-type fuel and vehicle programs, as well as an acceleration simulation mode equivalent motor vehicle inspection and maintenance program. Other scenarios incorporated the estimated reductions in emissions that were expected to be achieved throughout the modeling domain as a result of the implementation of several voluntary and mandatory state-wide programs adopted or planned independently of the SIP. It should be made clear that the commission did not propose that any of these strategies be included in the ultimate control strategy submitted to the EPA in 2000. The need for and effectiveness of any controls which may be implemented outside the HGA eight-county area will be evaluated on a county-by-county basis.

The SIP revision was adopted by the commission on October 27, 1999, submitted to the EPA by November 15, 1999, and contained the following elements: photochemical modeling of potential specific control strategies for attainment of the one-hour ozone standard in the HGA area by the attainment date of November 15, 2007; an analysis of seven specific modeling scenarios reflecting various combinations of federal, state, and local controls in HGA (additional scenarios H1 and H2 build upon Scenario VI(f)); identification of the level of reductions of VOC and NO_x necessary to attain the one-hour ozone standard by 2007; a 2007 mobile source budget for transportation conformity; identification of specific source categories which, if controlled, could result in sufficient VOC and/or NO_x reductions to attain the standard; a schedule committing to submit by April 2000 an enforceable commitment to conduct a mid-course review; and a schedule committing to submit modeling and adopted rules in support of the attainment demonstration by December 2000.

The April 19, 2000 SIP revision for HGA contained the following enforceable commitments by the state: to quantify the shortfall of NO_x reductions needed for attainment; to list and quantify potential control measures to meet the shortfall of NO_x reductions needed for attainment; to adopt the majority of the necessary rules for the HGA attainment demonstration by December 31, 2000, and to adopt the rest of the shortfall rules as expeditiously as practical, but no later than July 31, 2001; to submit a Post-99 ROP plan by December 31, 2000; to perform a mid-course review by May 1, 2004; and to perform modeling of mobile source emissions using the EPA mobile source emissions model (MOBILE6), to revise the on-road mobile source budget as needed, and to submit the revised budget within 24 months of the model's release. In addition, if a conformity analysis is to be performed between 12 months and

24 months after the MOBILE6 release, the state will revise the motor vehicle emissions budget (MVEB) so that the conformity analysis and the SIP MVEB are calculated on the same basis.

In order for the state to have an approvable attainment demonstration, the EPA indicated that the state must adopt those strategies modeled in the November submittal and then adopt sufficient controls to close the remaining gap in NO_x emissions. The modeling and other analysis supporting these rules and the HGA SIP indicate a gap of approximately an additional 91 tons per day (tpd) of NO_x reductions is necessary for an approvable attainment demonstration. The commission estimates that this measure will achieve a minimum of 12.2 tpd of NO_x reductions and is therefore a necessary measure to consider for closing the gap and successfully demonstrating attainment.

The emission reduction requirements included as part of this SIP revision represent substantial, intensive efforts on the part of stakeholder coalitions in the HGA area. These coalitions, involving local governmental entities, elected officials, environmental groups, industry, consultants, and the public, as well as the commission and the EPA, have worked diligently to identify and quantify potential control strategy measures for the HGA attainment demonstration. Local officials from the HGA area have formally submitted a resolution to the commission, requesting the inclusion of many specific emission reduction strategies.

This rule adoption is one element of the control strategy for the HGA SIP. Adoption and implementation of this control strategy is necessary in order for the HGA nonattainment area to comply with the requirements of the FCAA and achieve attainment for ozone. Additional elements of the

control strategy for the HGA SIP are being adopted concurrently in this issue of the *Texas Register*, or were included in the HGA SIP considered by the commission on December 6, 2000 and planned to be submitted to EPA by December 31, 2000.

The amount of NO_x reductions required for the area to attain the ozone NAAQS has been estimated by extensive use of sophisticated air quality grid modeling, which because of its scientific and statutory grounding, is the chief policy tool for designing emission reduction strategies. The FCAA, 42 USC, §7511a(c)(2), requires the use of photochemical grid modeling for ozone nonattainment areas designated serious, severe, or extreme. The modeling has been conducted with input from a technical oversight committee. Commission staff have continued to improve the air quality modeling technology and refine emission inventory data. Numerous emission control strategies were considered in developing the modeling. Varying degrees of reductions from point sources, on-road and non-road mobile sources, and area sources were analyzed in multiple iterations of modeling, to test the effectiveness of different NO_x reductions. The attainment demonstration modeling and other analysis submitted for public hearing and comment concurrently with the HGA SIP show that a significant amount of NO_x reductions practicably achievable are necessary from ozone control strategies in order for the HGA nonattainment area to achieve the ozone NAAQS by 2007, including reductions from surrounding counties included in the HGA consolidated metropolitan statistical area (CMSA).

Additionally, reductions associated from the ozone control strategies that will be implemented outside the HGA nonattainment area will benefit the HGA nonattainment area. This is due to the regional nature of air pollution, the contribution from mobile sources, and the economies of scale and associated

market advantages related to distribution networks for some strategies. At the time the 1990 FCAA Amendments were enacted, the focus on controlling ozone pollution was centered on local controls. However, for many years an ever increasing number of air quality professionals have concluded that ozone is a regional problem requiring regional strategies in addition to local control programs. As nonattainment areas across the United States prepared attainment demonstration SIPs in response to the 1990 FCAA Amendments, several areas found that modeling attainment was made much more difficult, if not impossible, due to high ozone and ozone precursor levels entering from the boundaries of their respective modeling domains, commonly called transport. Recent science indicates that regional approaches may provide improved control of ozone air pollution.

The current SIP revision contains rules, enforceable commitments, photochemical modeling analyses and calculation of the remaining NO_x reductions required to reach attainment (gap calculation) in support of the HGA ozone attainment demonstration. In addition, this SIP contains post-1999 ROP plans for the milestone years 2002 and 2005, and for the attainment year 2007. The SIP also contains enforceable commitments to implement further measures, if needed, in support of the HGA attainment demonstration, as well as a commitment to perform and submit a mid-course review.

The HGA ozone nonattainment area will need to ultimately reduce NO_x more than 750 tpd to reach attainment with the one-hour standard. In addition, a VOC reduction of about 25% will have to be achieved. Adoption of the accelerated purchase of federal Tier 2/Tier 3 non-road diesel equipment program will contribute to attainment and maintenance of the one-hour ozone standard in the HGA area.

The commission adopts these amendments to Chapter 114 and revisions to the SIP in order to control ground-level ozone in the HGA ozone nonattainment area, and the adopted rules are one element of the control strategy for the HGA Post-1999 ROP/Attainment Demonstration SIP. The purpose of these adopted rules is to establish the accelerated purchase and operation of cleaner non-road, compression-ignition fleet equipment within the HGA nonattainment area which will reduce NO_x and VOC emissions that are necessary for the counties included in the HGA nonattainment area to be able to demonstrate attainment with NAAQS.

The EPA has been regulating highway (on-road) cars and trucks since the early 1970s and continues to set increasingly stringent emissions standards for such vehicles. After making considerable progress in controlling the emissions from on-road vehicles, the EPA turned its attention to non-road engines, which also contribute significantly to air pollution.

Diesel engines, also referred to as compression-ignition engines, dominate the large non-road engine market. Examples of non-road equipment that use diesel engines include: agricultural equipment such as tractors, balers, and combines; construction equipment such as backhoes, graders, and bulldozers; general industrial equipment such as concrete/industrial saws, crushing equipment, and scrubber/sweepers; lawn and garden equipment such as garden tractors, rear engine mowers, and chipper/grinders; material handling equipment such as heavy forklifts; and utility equipment such as generators, compressors, and pumps.

The EPA adopted regulations in 40 Code of Federal Regulations Part 89 (40 CFR 89), Control of Emissions from New and In-use Nonroad Engines, as effective June 17, 1994. Under 40 CFR 89, compression-ignition engines greater than 50 hp must comply with Tier 1 emissions standards that are being phased in between calendar years 1996 and 2000, depending on the size of the engine. Under the Tier 1 standards, the EPA projects that NO_x emissions from new non-road, compression-ignition equipment will be reduced by over 30% from uncontrolled levels of unregulated engines. The Tier 1 standards do not apply to engines used in underground mining equipment, locomotives, and marine vessels. The Mine Safety and Health Administration is responsible for setting requirements for underground mining equipment. Locomotives and marine vessels are covered by separate EPA programs.

On October 23, 1998, the EPA revised 40 CFR 89 and adopted more stringent emission standards for NO_x, hydrocarbons (HC, which are also called VOC), and particulate matter (PM) for new non-road, compression-ignition engines. Engines used in underground mining equipment, locomotives, and marine vessels over 50 hp are not included. This comprehensive new program phases in more stringent Tier 2 standards for all engine sizes from the model years 2001 to 2006, and yet more stringent Tier 3 standards from the model years 2006 to 2008. The following figure, which was extracted from the Table 1-1 of the “Final Regulatory Impact Analysis: Control of Emissions from Non-road Diesel Engines,” (EPA 420-R-98-016, dated August 1998) shows the emission standards adopted by EPA in 40 CFR, §89.112. Also, the new program includes a voluntary program called the “Blue Sky Series” engine program to encourage the production of advanced, very low-emitting engines. Under these new standards, the EPA projects that emissions from new non-road, compression-ignition equipment will be

further reduced by 60% for NO_x and 40% for PM compared to the emission levels of engines meeting the Tier 1 standards.

Figure 1: 30 TAC Chapter 114 - Preamble

Emission Standards					
In grams per kilowatt-hour (g/kW-hr) and grams per horsepower-hour (g/hp-hr)					
Engine Power	Tier	Model Year	Non-Methane Hydrocarbons plus NO _x	Carbon Monoxide	Particulate Matter
kW < 8 (hp < 11)	Tier 1	2000	10.5 (7.8)	8.0 (6.0)	1.0 (0.75)
	Tier 2	2005	7.5 (5.6)	8.0 (6.0)	0.80 (0.60)
8 ≤ kW < 19 (11 ≤ hp < 25)	Tier 1	2000	9.5 (7.1)	6.6 (4.9)	0.80 (0.60)
	Tier 2	2005	7.5 (5.6)	6.6 (4.9)	0.80 (0.60)
19 ≤ kW < 37 (25 ≤ hp < 50)	Tier 1	1999	9.5 (7.1)	5.5 (4.1)	0.80 (0.60)
	Tier 2	2004	7.5 (5.6)	5.5 (4.1)	0.60 (0.45)
37 ≤ kW < 75 (50 ≤ hp < 100)	Tier 2	2004	7.5 (5.6)	5.0 (3.7)	0.40 (0.30)
	Tier 3	2008	4.7 (3.5)	5.0 (3.7)	
75 ≤ kW < 130 (100 ≤ hp < 175)	Tier 2	2003	6.6 (4.9)	5.0 (3.7)	0.30 (0.22)
	Tier 3	2007	4.0 (3.0)	5.0 (3.7)	
130 ≤ kW < 225 (175 ≤ hp < 300)	Tier 2	2003	6.6 (4.9)	3.5 (2.6)	0.20 (0.15)
	Tier 3	2006	4.0 (3.0)	3.5 (2.6)	
225 ≤ kW < 450 (300 ≤ hp < 600)	Tier 2	2001	6.4 (4.8)	3.5 (2.6)	0.20 (0.15)
	Tier 3	2006	4.0 (3.0)	3.5 (2.6)	
450 ≤ kW ≤ 560 (600 ≤ hp ≤ 750)	Tier 2	2002	6.4 (4.8)	3.5 (2.6)	0.20 (0.15)
	Tier 3	2006	4.0 (3.0)	3.5 (2.6)	
kW > 560 (hp > 750)	Tier 2	2006	6.4 (4.8)	3.5 (2.6)	0.20 (0.15)

As part of the attainment demonstration SIP for the Dallas/Fort Worth (DFW) ozone nonattainment area, the commission adopted accelerated non-road, compression-ignition fleet rules (§§114.410, 114.412, 114.416, 114.417, and 114.419). The adopted new rules apply requirements identical to the existing DFW rules in the eight-county HGA ozone nonattainment counties.

Non-road equipment covered by these rules only includes equipment that is used exclusively for non-road purposes because the federal Tier2/Tier 3 standards only apply to non-road engines. In other words, the rules cover non-road equipment that do not have a license plate and cannot be used on roads. Dump trucks and other equipment that are used both on-road and off-road are not subject to the requirements of these rules.

The adopted rules will require persons in the HGA nonattainment area which own or operate certain non-road equipment powered by compression-ignition engines 50 hp and up to meet the following requirements. For the portion of the fleet that is 50 hp up to 100 hp, the owner or operator must ensure that such equipment will consist of 100% Tier 2 non-road equipment by the end of the calendar year 2007. For the portion of the fleet that is 100 hp up to 750 hp, the owner or operator must ensure that such equipment consist of a minimum of 50% Tier 3 non-road equipment and the remainder Tier 2 non-road equipment by the end of the calendar year 2007. Finally, for the portion of the fleet that is greater than 750 hp, the owner or operator must ensure that such equipment consist of 100% Tier 2 engines by the end of calendar year 2007. This will accelerate the turnover rate of compression-ignition, engine-powered, non-road equipment that would occur as a result of the federal Tier 2/Tier 3 program. Alternatively, an affected person may be exempted from these requirements if an emission reduction

plan is developed that will achieve emissions reductions equivalent to the full implementation of these rules. As part of this plan an owner or operator may achieve these reductions, in whole or in part, by obtaining emission reduction credits (ERC), mobile emission reduction credits (MERC), discrete emission reduction credit (DERC), or mobile discrete emission reduction credit (MDERC) in accordance with adopted new §114.477 and 30 TAC Chapter 101, General Air Rules, §101.29, Emission Credit Banking and Trading. In concurrent rulemaking (rule log number 1998-089-101-AI), the emission credit banking and trading rules are being moved to Chapter 101, Subchapter H, Emissions Banking and Trading, Division 1, Emission Credit Banking and Trading and Division 4, Discrete Emission Credit Banking and Trading.

The HGA area needs emissions reductions earlier than what the natural turnover would allow; therefore, these adopted rules will require that Tier 2 and Tier 3 equipment be purchased at an accelerated rate once they become available under the EPA schedule outlined in 40 CFR 89. The adopted rules exempt non-road engines used in locomotives, underground mining equipment, marine application, aircraft, airport ground support equipment (GSE), equipment used solely for agricultural and/or logging purposes, emergency equipment, and freezing weather equipment.

The rules will affect non-road diesel equipment 50 hp and larger such as construction, industrial, commercial, and lawn and garden equipment. Examples of equipment used in construction applications include bore/drill rigs, cement and mortar mixers, concrete/industrial saws, cranes, crawler tractors, crushing/processing equipment, dumpers/tenders, excavators, graders, off-highway tractors, off-highway trucks, pavers, paving equipment, plate compactors, rollers, rough terrain forklifts, rubber-tire

dozers, rubber-tire loaders, scrapers, signal boards/light plants, skid-steer loaders, surfacing equipment, tampers/rammers, tractors/loaders/backhoes, and trenchers. Examples of equipment used in industrial applications include aerial lifts, forklifts, general industrial equipment, material handling equipment, refrigeration/air conditioning units, scrubber/sweepers, and terminal tractors. Examples of equipment used in lawn and garden applications include chippers/stump grinders, commercial turf equipment, lawn and garden tractors, and leafblowers/vacuums. Examples of equipment used in commercial applications include air compressors, gas compressors, generator sets, pressure washers, pumps, and welders.

The costs of meeting the new federal emission standards are expected to add about 1.0% to the purchase price of typical new non-road, compression-ignition equipment, although for some equipment the standards may cause price increases on the order of 2.0% to 3.0%. However, the cost of this program is the cost of having to replace the non-road, compression-ignition fleet on an accelerated schedule, not the cost of Tier 2 and Tier 3 engines. The cost of Tier 2 and Tier 3 engines is already accounted for in the EPA regulations, not as a result of these rules. The program is expected to cost between \$30 million to \$42 million average annual cost.

The commission solicited comment on additional flexibilities relating to rule content and implementation which have not been addressed in this or other concurrent rulemakings. These flexibilities may be available for both mobile and stationary sources. Additional flexibilities may also be achieved through innovative and/or emerging technology which may become available in the future. Additional sources of funds for incentive programs may become available to substitute for some of the

measures considered here. There were 19 comments received regarding flexibilities which are addressed in the ANALYSIS OF TESTIMONY section of this preamble.

SECTION-BY-SECTION DISCUSSION

Rules regarding an accelerated purchase of federal Tier 2 and Tier 3 non-road diesel equipment were adopted for the DFW ozone nonattainment area on April 19, 2000. These rules were adopted in Chapter 114, Subchapter I, Division 2, §114.410, Definitions; §114.412, Control Requirements; §114.416, Reporting and Recordkeeping Requirements; §114.417, Exemptions; and §114.419, Affected Counties. This rulemaking action adopts identical requirements which apply to the eight-county HGA ozone nonattainment area.

The adopted new §114.470 adds definitions for Blue Sky Series engine, compression-ignition engine, fleet, non-road engine, non-road equipment, Tier 2 engine, and Tier 3 engine.

The adopted new §114.472 requires persons in the affected counties listed in §114.479, which own or operate non-road equipment powered by compression-ignition engines to use non-road equipment powered by Tier 2 and Tier 3 compression engines. The phase-in schedule specified in these rules accelerates the natural turnover of non-road equipment. To ensure the equipment is available, the phase-in schedule specified in these rules is set up so that compliance dates come after the implementation dates of the new federal standard as specified in the federal rules in 40 CFR §89.112, as amended on October 23, 1998. For the portion of the non-road fleets powered by compression-ignition engines greater than or equal to 100 hp, but less than or equal to 750 hp, the rule requires a

gradually increased percentage of Tier 2 and Tier 3 equipment required, so that by the end of calendar year 2007, at least 50% of the affected portion of the fleet shall meet Tier 3 standards and the remainder of the affected fleet shall meet Tier 2 standards. For the portion of the fleet greater than or equal to 50 hp, but less than 100 hp, the adopted rule requires that 100% of the equipment meet Tier 2 standards by the end of calendar year 2007. For engines greater than 750 hp, the adopted rule requires that 100% of the affected fleet be Tier 2 engines by the end of calendar year 2007. The rule also allows the non-road engines designated as "Blue Sky Series" engines to be counted toward the percentage requirements as either Tier 2 or Tier 3 engines. The "Blue Sky Series" engine program is a voluntary EPA program that allows for earlier introduction of cleaner engines. The emission standards for the Blue Sky Series program are the same as Tier 3 emission standards. Finally, the adopted rule will allow an EPA-certified retrofit of newly purchased engines, in order to meet the Tier 2 or Tier 3 emission standards, be allowed to meet the percentage requirements. This retrofit allowance is adopted because some newly purchased engines may be able to meet the Tier 2 and Tier 3 emission standards by being retrofitted. Therefore, for an affected entity to meet the percentage requirements, they may purchase new equipment or retrofit existing engines if there is an EPA-certified retrofit available.

The adopted new §114.476 requires persons subject to §114.472 to submit annual fleet reports. The adopted rule also requires them to maintain copies of the submitted reports for a minimum of three years.

The adopted new §114.477 exempts locomotives, underground mining equipment, marine engines, aircraft engines, airport GSE, and agricultural equipment. Locomotives, underground mining

equipment, marine engines, and aircraft engines are exempt from these adopted rules because they are not regulated by the EPA non-road rule. Airport GSE is exempt from these rules because it is being regulated by another strategy being adopted concurrently. The exemption for airport GSE is intended to cover all equipment that is used to service aircraft during passenger and/or cargo loading and unloading, maintenance, and other ground-based operations. Exemptions from this equipment category which may exist in other rules or agreements, such as freezing weather equipment or leased equipment, do not apply here. Agricultural equipment is exempt from the adopted rules because of its small contribution (less than 1.0%) to non-road emissions, and because it is operated primarily in rural areas. Also, the commission adopts an exemption for equipment used exclusively for emergency operations and for equipment used exclusively for freezing weather operations due to their low impact on air quality during the ozone season. In response to comments received the commission clarified the language to make clear that logging uses are exempt.

In the rulemaking for the DFW area construction equipment operating restrictions rules, the commission specifically requested comment on allowing the use of added controls such as catalytic converters or other after-market devices, or the use of EPA-certified cleaner equipment, to exempt such equipment from the operating restrictions of these rules. In response to the DFW exemption comments and other comments to those rules concerning the difficulty in complying with these rules, the commission adopts §114.477(b). This subsection allows owners or operators to be exempt from the requirements of these rules if they submit an emissions reduction plan by May 31, 2002, that is approved by the executive director and the EPA by May 31, 2003. The executive director may allow plans to be submitted after May 31, 2002. In any event, a plan must be approved prior to the use of

that plan for compliance with the requirements of this division. The commission anticipates that by offering this exemption, the entities affected by these rules, the trade associations representing these entities, and the manufacturers will be encouraged to accelerate the research and development of emissions-reducing technology for equipment that will enable affected entities to meet the exemption. Each plan must describe in detail how the owner or operator will modify the equipment fleet to reduce NO_x emissions by June 1, 2005 by a target amount equivalent to the total reductions achieved by implementation of these rules. If equipment subject to these rules is also subject to the HGA construction equipment operating restrictions rules, and the owner or operator would like to be exempt from both sets of rules, then the plan must reduce NO_x emissions by a target amount equivalent to the total reductions achieved by both sets of rules. If the plan demonstrates that these reductions will occur by June 1, 2005, the reductions will be considered equivalent for purposes of timing. The commission will apply emissions inventory factors for equipment used in the modeling to develop these rules to quantify the emissions reductions resulting from the fleet modifications. The commission will develop a guidance document to assist operators in developing their plans. The guidance document will contain both the target emissions amount operators must meet, as well as emission factors for each type of equipment affected by the rules, and will offer guidance on how to calculate total emissions reductions for an equipment fleet. The commission made changes to the language in this subsection (b) to clarify and make the language consistent with that in the HGA construction equipment operating restrictions rules, §114.487 of this title (relating to Exemptions).

The commission is requiring submission of the emission reduction plans by May 31, 2002 to allow sufficient time to review and quantify the collective emissions reductions the plans propose. The

commission will complete the reviews by May 31, 2003, which coincides with the planned mid-course review of all control measures included in the SIP. After reviewing the plans, the commission will determine whether the collective emissions reductions adopted by the plans are equivalent to the reductions achieved from implementing both these rules.

The adopted new §114.479 specifies the counties that are subject to the new requirements. The counties included in the eight-county HGA nonattainment area are Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller.

FINAL REGULATORY IMPACT ANALYSIS DETERMINATION

The commission reviewed the rulemaking action in light of the regulatory analysis requirements of Texas Government Code, §2001.0225, and has determined that the rulemaking meets the definition of a “major environmental rule” as defined in that statute. “Major environmental rule” means a rule of which the specific intent 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, a sector of the economy, productivity, competition, jobs, the environment, or the public health and safety of the state or a sector of the state.

These adopted rules do not meet any of the four applicability criteria for requiring a regulatory analysis of “major environmental rule” as defined in the Texas Government Code. Section 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.

As discussed earlier in this preamble, this rule adoption is one element of the control strategy for the HGA SIP. Adoption and implementation of this control strategy is necessary in order for the HGA nonattainment area to comply with the requirements of the FCAA and achieve attainment for ozone. Additional elements of the control strategy for the HGA SIP are being adopted concurrently in this issue of the *Texas Register*, or were included in the HGA SIP considered by the commission on December 6, 2000, and planned to be submitted to EPA by December 31, 2000.

The rules are intended to protect the environment or reduce risks to human health from environmental exposure to ozone and will affect in a material way, the economy, a sector of the economy, productivity, competition, jobs, the environment, or the public health and safety of the state or a sector of the state. The rules would require units of state and local government, businesses, and persons in the eight-county HGA ozone nonattainment area which own or operate non-road equipment powered by compression-ignition equipment to meet the following requirements. For the portion of the fleet that is 50 hp up to 100 hp, owners and operators must ensure that such equipment will consist of 100% Tier 2 non-road equipment by the end of the calendar year 2007. For the portion of the fleet that is 100 hp up to 750 hp, owners and operators must ensure that such equipment consist of a minimum of 50% Tier 3 non-road equipment and the remainder Tier 2 non-road equipment by the end of the calendar year 2007.

Finally, for the portion of the fleet that is greater than 750 hp, owners and operators must ensure that such equipment consist of 100% Tier 2 engines by the end of calendar year 2007.

This air pollution control program is part of the strategy to reduce NO_x emissions necessary for the counties included in the HGA ozone nonattainment area to be able to demonstrate attainment with the ozone NAAQS. This is based on the analysis provided in the rule proposal preamble which was published in the August 25, 2000 issue of the *Texas Register*, including the discussion in the Public Benefit and Costs section.

These rules do not exceed an express standard set by federal law, since they implement requirements of the FCAA. Under 42 USC, §7410, states are required to adopt a SIP which provides for “implementation, maintenance, and enforcement” of the primary NAAQS in each air quality control region of the state. These rules were specifically developed as part of an overall control strategy to meet the ozone NAAQS set by the EPA under 42 USC, §7409. While 42 USC, §7410 does not require specific programs, methods, or reductions in order to meet the standard, state SIPs must include “enforceable emission limitations and other control measures, means or techniques (including economic incentives such as fees, marketable permits, and auctions of emissions rights), as well as schedules and timetables for compliance as may be necessary or appropriate to meet the applicable requirements of this chapter,” (meaning 42 USC, Chapter 85, Air Pollution Prevention and Control). It is true that the FCAA does require some specific measures for SIP purposes, like the inspection and maintenance program, but those programs are the exception, not the rule, in the SIP structure of the FCAA. The provisions of the FCAA recognize that states are in the best position to determine what programs and

controls are necessary or appropriate in order to meet the NAAQS. This flexibility allows states, affected industry, and the public, to collaborate on the best methods for attaining the NAAQS for the specific regions in the state. Even though the FCAA allows states to develop their own programs, this flexibility does not relieve a state from developing a program that meets the requirements of 42 USC, §7410. In order to avoid federal sanctions, states are not free to ignore the requirements of 42 USC, §7410 and must develop programs to assure that the nonattainment areas of the state will be brought into attainment on schedule. Thus, while specific measures are not prescribed, both a plan and emission reductions are required to assure that the nonattainment areas of the state will be able to meet the attainment deadlines set by the FCAA. The EPA has provided the criteria for both the submission and evaluation of attainment demonstrations developed by states to comply with the FCAA. This criteria requires states to provide, in addition to other information, photochemical modeling and an analysis of specific emission reduction strategies necessary to attain the NAAQS. The commission's photochemical modeling and other analysis indicate that substantial emission reductions from both mobile and point source categories are necessary in order to demonstrate attainment. In this case, this rulemaking is intended to achieve emission reductions in the HGA nonattainment area. Specifically, as noted elsewhere in this rule preamble, the emission reductions associated with these rules are a necessary element of the attainment demonstration required by the FCAA.

In addition, 42 USC, §7502(a)(2), requires attainment as expeditiously as practicable, and 42 USC, §7511a(d), requires states to submit ozone attainment demonstration SIPs for severe ozone nonattainment areas such as HGA. By policy, the EPA requires photochemical grid modeling to demonstrate whether the 42 USC, §7511a(f), NO_x measures would contribute to ozone attainment. The

commission has performed photochemical grid modeling which predicts that NO_x emission reductions, such as those required by these rules, will result in reductions in ozone formation in the HGA ozone nonattainment area and help bring HGA into compliance with the air quality standards established under federal law as NAAQS for ozone. The 42 USC, §7511a(f), exemption from NO_x measures for HGA expired on December 31, 1997. The expiration of the exemption under 42 USC, §7511a(f), was based on the finding that NO_x reductions in HGA are necessary for attainment of the ozone standard. Therefore, the adopted amendments are necessary components of and consistent with the ozone attainment demonstration SIP for HGA, required by 42 USC, §7410.

During the 75th Legislative Session, Senate Bill (SB) 633 amended the Texas Government Code to require agencies to perform a regulatory impact analysis (RIA) of certain rules. The intent of SB 633 was to require agencies to conduct an RIA of extraordinary rules. With the understanding that this requirement would seldom apply, the commission provided a cost estimate for SB 633 that concluded “based on an assessment of rules adopted by the agency in the past, it is not anticipated that the bill will have significant fiscal implications for the agency due to its limited application.” The commission also noted that the number of rules that would require assessment under the provisions of the bill was not large. This conclusion was based, in part, on the criteria set forth in the bill that exempted proposed rules from the full analysis unless the rule was a major environmental rule that exceeds a federal law. As previously discussed, 42 USC does not require specific programs, methods, or reductions in order to meet the NAAQS; thus, states must develop programs for each nonattainment area to ensure that area will meet the attainment deadlines. Because of the ongoing need to address nonattainment issues, the commission routinely proposes and adopts SIP rules. The legislature is presumed to understand this

federal scheme. If each rule proposed for inclusion in the SIP was considered to be a major environmental rule that exceeds federal law, then every SIP rule would require the full RIA contemplated by SB 633. This conclusion is inconsistent with the conclusions reached by the commission in its cost estimate and by the Legislative Budget Board (LBB) in its fiscal notes. Because the legislature is presumed to understand the fiscal impacts of the bills it passes, and that presumption is based on information provided by state agencies and the LBB, the commission believes that the intent of SB 633 was only to require the full RIA for rules that are extraordinary in nature. While the SIP rules will have a broad impact, that impact is no greater than is necessary or appropriate to meet the requirements of the FCAA.

The commission has consistently applied this construction to its rules since this statute was enacted in 1997. Since that time, the legislature has revised the Texas Government Code but left this provision substantially unamended. It is presumed that “when an agency interpretation is in effect at the time the legislature amends the laws without making substantial change in the statute, the legislature is deemed to have accepted the agency’s interpretation.” *Central Power & Light Co. v. Sharp*, 919 S.W.2d 485, 489 (Tex. App.–Austin 1995), *writ denied with per curiam opinion respecting another issue*, 960 S.W.2d 617 (Tex. 1997); *Bullock v. Marathon Oil Co.*, 798 S.W.2d 353, 357 (Tex. App.–Austin 1990, no writ). *Cf. Humble Oil & Refining Co. v. Calvert*, 414 S.W.2d 172 (Tex. 1967); *Sharp v. House of Lloyd, Inc.*, 815 S.W.2d 245 (Tex. 1991); *Southwestern Life Ins. Co. v. Montemayor*, 24 S.W.3d 581 (Tex. App.–Austin 2000, *pet. denied*); and *Coastal Indust. Water Auth. v. Trinity Portland Cement Div.*, 563 S.W.2d 916 (Tex. 1978).

The commission's interpretation of the RIA requirements is also supported by a change made to the Texas Administrative Procedure Act (APA) by the legislature in 1999. In an attempt to limit the number of rule challenges based upon APA requirements, the legislature clarified that state agencies are required to meet these sections of the APA against the standard of "substantial compliance." Texas Government Code, §2001.035. The legislature specifically identified Texas Government Code, §2001.0225 as falling under this standard. The commission has substantially complied with the requirements of §2001.0225.

Therefore, in addition to not exceeding an express standard set by federal law, these rules do not exceed state requirements, and are not adopted solely under the general powers of the agency because the provisions of the Texas Clean Air Act (TCAA), §§382.011, 382.012, 382.017, 382.019, and 382.039 authorize the commission to implement a plan for the control of the states air quality, including measures necessary to meet federal requirements. The remaining applicability criteria, pertaining to exceeding a delegation agreement or contract between the state and the federal government does Texas Government Code, §2001.0225.

The commission solicited public comment on the draft regulatory impact analysis and received six comments. These comments are addressed in the ANALYSIS OF TESTIMONY section of this preamble.

TAKINGS IMPACT ASSESSMENT

The commission evaluated this rulemaking action and performed an analysis of whether the rules are subject to Texas Government Code, Chapter 2007. The following is a summary of that analysis. The specific purpose of the adopted rulemaking action would require persons in the eight-county HGA nonattainment area which own or operate non-road, compression-ignition equipment to meet the following requirements. For the portion of the fleet that is 50 hp up to 100 hp, the owner or operator must ensure that such equipment will consist of 100% Tier 2 non-road equipment by the end of the calendar year 2007. For the portion of the fleet that is 100 hp up to 750 hp, the owner or operator must ensure that such equipment consist of a minimum of 50% Tier 3 non-road equipment and the remainder Tier 2 non-road equipment by the end of the calendar year 2007. Finally, for the portion of the fleet that is greater than 750 hp, the owner or operator must ensure that such equipment consist of 100% Tier 2 engines by the end of calendar year 2007. This adopted rulemaking action will act as an air pollution control strategy to reduce NO_x emissions necessary for the eight counties included in the HGA ozone nonattainment area to be able to demonstrate attainment with the ozone NAAQS. Promulgation and enforcement of this rule will not burden private, real property. Also, Texas Government Code, §2007.003(b)(13), states that Chapter 2007 does not apply to an action that: 1) is taken in response to a real and substantial threat to public health and safety; 2) is designed to significantly advance the health and safety purpose; and 3) does not impose a greater burden than is necessary to achieve the health and safety purpose. Although the adopted rules do not directly prevent a nuisance, or prevent an immediate threat to life or property, they do prevent a real and substantial threat to public health and safety, and partially fulfill a federal mandate under 42 USC, §7410. In addition, §2007.003(b)(4) provides that Chapter 2007 does not apply to these adopted rules since it is reasonably taken to fulfill an obligation

mandated by federal law. This action is taken in response to the HGA area exceeding the NAAQS for ground-level ozone, which adversely affects public health, primarily through irritation of the lungs. The action significantly advances the health and safety purpose by reducing ambient NO_x and ozone levels in HGA. Attainment of the ozone standard will eventually require substantial NO_x reductions. Any NO_x reductions resulting from the current rulemaking are no greater than what the best scientific research indicates is necessary to achieve the desired ozone levels. However, this rulemaking is only one step among many necessary for attaining the ozone standard. Specifically, the emissions limitations and delays within the adopted rule were developed in order to meet the ozone NAAQS set by the EPA under 42 USC, §7409. States are primarily responsible for ensuring attainment and maintenance of the NAAQS, once the EPA has established them. Under 42 USC, §7410, and related provisions, states must submit, for EPA approval, SIPs that provide for the attainment and maintenance of NAAQS through control programs directed to sources of the pollutants involved. Therefore, the purpose of these rules is to implement a cleaner-burning, non-road, compression-ignition fleet program necessary for the HGA nonattainment area to meet the air quality standards established under federal law as NAAQS. Consequently, the exemption which applies to this rulemaking action is that of an action reasonably taken to fulfill an obligation mandated by federal law. The commission has included elsewhere in this preamble its reasoned justification for adopting this strategy and has explained why it is a necessary component of the SIP, which is federally mandated. This discussion, as well as the HGA SIP which is being adopted concurrently, explains in detail that every rule in the HGA SIP package is necessary and that none of the reductions in those packages represent more than is necessary to bring the area into attainment with the NAAQS. Therefore, these adopted rules will not constitute a takings under Texas Government Code, Chapter 2007.

CONSISTENCY WITH THE COASTAL MANAGEMENT PROGRAM

The commission determined that the adopted rulemaking relates to an action or actions subject to the Texas Coastal Management Program (CMP) in accordance with the Coastal Coordination Act of 1991, as amended (Texas Natural Resources Code, §§33.201 et seq.), and the commission rules in 30 TAC Chapter 281, Subchapter B, concerning Consistency with the CMP. As required by 30 TAC §281.45(a)(3) and 31 TAC §505.11(b)(2), relating to actions and rules subject to the CMP, commission rules governing air pollutant emissions must be consistent with the applicable goals and policies of the CMP. The commission reviewed this action for consistency with the CMP goals and policies in accordance with the rules of the Coastal Coordination Council, and determined that the 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(1)). No new sources of air contaminants will be authorized and NO_x air emissions will be reduced as a result of these rules. The CMP policy applicable to this rulemaking action is the policy that commission rules comply with regulations in 40 CFR, to protect and enhance air quality in the coastal area (31 TAC §501.14(q)). This rulemaking action complies with 40 CFR 50, National Primary and Secondary Ambient Air Quality Standards, and 40 CFR 51, Requirements for Preparation, Adoption, and Submittal Of Implementation Plans. Therefore, in compliance with 31 TAC §505.22(e), this rulemaking action is consistent with CMP goals and policies.

The commission solicited comments on the consistency of the proposed rules with the CMP during the public comment period and received no comments.

HEARINGS AND COMMENTERS

The commission held public hearings on this proposal at the following locations: September 18, 2000, in Conroe and Lake Jackson; September 19, 2000 in Houston (two hearings); September 20, 2000, in Katy and Pasadena; September 21, 2000, in Beaumont, Amarillo, and Texas City; September 22, 2000, in Dayton, El Paso, and Arlington; and September 25, 2000, in Austin and Corpus Christi. The comment period closed at 5:00 p.m. on September 25, 2000. The following entities and 40 individuals provided oral testimony and/or submitted written testimony: American Road & Transportation Builders Association (ARTBA); Associated Builders & Contractors of Greater Houston (ABC); Associated General Contractors of America, Houston Chapter (AGC-Houston); Associated General Contractors of Texas (AGC-Texas); Baker Botts; Lloyd, Gosselink, Blevins, Rochelle, Baldwin & Townsend, P.C. on behalf of BFI Waste Systems of North America, Inc. (BFI); Brazoria County Criminal District Attorney Jeri Yenne on behalf of Brazoria County Commissioners Court (Brazoria County); Brett & Wolff LLC (Brett & Wolff); British Petroleum-Amoco (BP); Business Coalition for Clean Air (BCCA); Chambers County Judge Jimmy Sylvia (Chambers County); City of Lake Jackson (Lake Jackson); City of Missouri City (Missouri City); City of Simonton (Simonton); City of Spring Valley (Spring Valley); Dow Chemical Company (Dow); Neal Gerber & Eisenberg on behalf of Engine Manufacturers Association (EMA); Environmental Defense (ED); ExxonMobil Corporation (ExxonMobil); Galveston-Houston Association for Smog Prevention (GHASP); Harris County Judge Robert Eckels (Harris County); Hispanic Community for Texas Citizens for a Solid Economy (TCSE-HC); Benthul & Kean on behalf of Houston Construction Industry Coalition (HCIC); Houston Metropolitan Planning Organization's Transportation Policy Council (Houston MPO); League of Women Voters of the Houston area (LWV-Houston); League of Women Voters of Texas (LWV-TX); Liberty County Sheriff

Gregg Arthur (Liberty County-Sheriff); RMT, Inc. on behalf of Montgomery County (Montgomery Co.); Mothers for Clean Air (MCA); National Aeronautics and Space Administration (NASA); Pamela Berger on behalf of Lee Brown, Mayor of Houston (Mayor of Houston); Phillips 66 Company (Phillips 66); Port of Houston Authority (PHA); Public Citizen; Reliant Energy, Inc. (REI); SEED Coalition (SEED); Sierra Club Houston Regional Group (Sierra-Houston); Texas City Mayor Carlos Garza (Texas City); Texas Department of Transportation (TxDOT); Texas Forestry Association (TFA); Texas Logging Council (TLC); EPA; and Waste Management (WM). The following entities and 11 individuals generally supported the proposal: BP, GHASP, Lake Jackson, LWV-Houston, LWV-TX, Missouri City, Public Citizen, and SEED. The following entities and 16 individuals generally opposed the proposal: ABC, AGC-Texas, ARTBA, Baker Botts, BCCA, BFI, Brazoria County, Chambers County, Dow, EMA, ExxonMobil, Harris County, HCIC, TCSE-HC, AGC-Houston, Liberty County-Sheriff, Montgomery Co., PHA, Phillips 66, REI, Simonton, Spring Valley, TFA, TLC, and WM. The following entities and 13 individuals suggested changes to the proposal as stated in the ANALYSIS OF TESTIMONY section of this preamble: ABC, AGC-Texas, ARTBA, BCCA, Baker Botts, BFI, Brett & Wolff, Chambers County, Mayor of Houston, Dow, ED, EMA, EPA, ExxonMobil, Harris County, HCIC, AGC-Houston, Sierra-Houston, Lake Jackson, Liberty County-Sheriff, MCA, Missouri City, Montgomery Co., NASA, PHA, Simonton, Spring Valley, Texas City, TFA, TLC, Houston MPO, TxDOT, and WM.

Phillips 66, REI, Dow, ExxonMobil, and one individual supported the comments submitted by BCCA; therefore references to BCCA should be read to include these commenters. The Mayor of Houston supported the comments submitted by Harris County; therefore references to Harris County should be

read to include the Mayor of Houston. Harris County supported the comments submitted by the Houston MPO; therefore references to the Houston MPO should be read to include Harris County and the Mayor of Houston. Public Citizen supported the comments submitted by ED; therefore references to ED should be read to include Public Citizen.

ANALYSIS OF TESTIMONY

Legal Issues

AGC-Texas, ARTBA, BCCA, BFI, ExxonMobil, PHA, Phillips 66, and WM commented on the draft RIA and stated that the proposed rules were not evaluated in accordance with the analysis requirements for a major environmental rule. The commenters stated that Texas Government Code, §2001.0225, requires an RIA for certain major environmental rules. The commenters stated that the commission must consider the benefits and costs of the proposed rules in relationship to state agencies, local governments, the public, the regulated community, and the environment. The commenters stated further that the commission must also incorporate aspects of this analysis into the fiscal note in the proposed rules, e.g., identify the costs and the benefits; describe reasonable alternative methods for achieving the purpose of the rules considered by the agency; provide the reasons for rejecting those alternatives; and identify the data and methodology used in performing the analysis. The commenters stated that under §2001.0225(d) the commission must also find that "compared to the alternative proposals considered and rejected, the rule will result in the best combination of effectiveness in obtaining the desired results and of economic costs not materially greater than the costs of any alternative regulatory method considered."

The commenters stated that the rule proposal preamble statement, that the rules are exempt from the RIA requirement because federal law mandates the rules, is a legally flawed effort to avoid an RIA and may render the rules invalid. The commenters stated that federal law does not mandate the control requirements, emission rates, and use restrictions contained in the proposal and asserted that many of the proposed rules exceed specific federal rules and standards applicable to the same sources.

BFI commented that the commission failed to comply with its statutory obligations to prepare a complete and accurate fiscal note and perform a meaningful RIA. AGC-Texas and ExxonMobil commented that these rules exceed a standard set by federal law, exceeds an expressed requirement of state law, and are adopted solely under the general powers of the agency. ExxonMobil commented further that the commission must incorporate aspects of this analysis into the fiscal note and that such analysis should at least include: 1) identification of the costs and the benefits; 2) reasonable alternative methods for achieving the purpose of the rule considered; 3) reasoning for rejecting those alternatives; and 4) identification of the data and methodology used in performing the analysis. ExxonMobil commented that the commission must find that these rules will result in the “. . . best combination of effectiveness in obtaining the desired results and economic costs not materially greater than the costs of any alternative regulatory method considered.” AGC-Texas expanded on this in that they state that the proposed rules will not result in the “best combination of effectiveness in obtaining the desired result and economic costs not materially greater than the costs of any alternative regulatory method considered.” They commented that many of the non-road control measures being considered as alternatives are projected to cost between \$3,000 and \$15,000 per ton of NO_x reduced. Furthermore, ARTBA, ExxonMobil, and WM commented that they do not agree with the commission claim that