REVISION TO THE STATE IMPLEMENTATION PLAN
MOBILE SOURCE STRATEGIES

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
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TEXAS INSPECTION AND MAINTENANCE STATE IMPLEMENTATION PLAN REVISION

DOCKET NUMBER: 2009-1613-SIP
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CHAPTER 114

PROJECT NO. 2009-035-SIP-NR

Adoption

November 18, 2010

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EXECUTIVE SUMMARY

Section 1 of House Bill (HB) 715, 81st Texas Legislature, 2009, Regular Session, establishes a minimum vehicle emissions inspection limit for low-volume emissions inspection stations that will become effective on December 31, 2010. The vehicle emissions inspection limit for stations that only offer emissions inspections on 1996 and newer model-year vehicles has been a component of the inspection and maintenance (I/M) program in the Dallas-Fort Worth (DFW) and Houston-Galveston-Brazoria (HGB) ozone nonattainment areas since 2002. Currently, low-volume emissions inspection stations may perform up to 1,200 on-board diagnostics (OBD) vehicle emissions inspections per year. HB 715 revised Texas Transportation Code, §548.3075 to prevent the Texas Department of Public Safety (DPS), the agency that implements the I/M program along with the Texas Commission on Environmental Quality (TCEQ), from restricting low-volume emissions inspection stations to fewer than 150 OBD inspections per month.

On October 26, 2005, the commission adopted revisions to the I/M state implementation plan (SIP). These revisions required manufacturers of vehicle emissions inspection analyzer systems used in the I/M program to meet the requirements contained in the TCEQ's "Specifications for Vehicle Exhaust Gas Analyzer Systems for Use in the Texas Vehicle Emissions Testing Program," dated May 1, 2005, or in the TCEQ's "Specifications for On-Board Diagnostics II Analyzer for Use in the Texas Vehicle Emissions Testing Program," dated May 1, 2005. These documents are also referred to as the vehicle emissions testing analyzer specifications (TAS). Since October 2005, the TAS have been modified four times to improve oversight and enhance effectiveness of the I/M program but have not been incorporated into the I/M SIP. These minor non-programmatic modifications did not affect the vehicle emissions inspection procedure or the design and performance criteria for the vehicle emissions inspection analyzer. However, the minor non-programmatic modifications did include updates to accommodate new technology vehicles, enhancements to the method of collecting inspection data that is used to identify the occurrence of improper inspections, and updates to internal reference tables used to determine the applicable vehicle emissions inspection criteria.

This I/M SIP revision incorporates changes needed to comply with the requirements of HB 715. In addition, this revision will define the TAS as "the most recent version" resulting in a more streamlined process for minor non-programmatic modifications to the TAS and allow staff to implement minor non-programmatic modifications including updates to accommodate new technology vehicles, enhancements to the method of collecting inspection data, and updates to internal reference tables. No modification will be considered a minor non-programmatic modification if it results in additional costs to vehicle inspection station owners. Modifications to the I/M program design, performance criteria for the vehicle emissions inspection analyzer, or the vehicle emissions inspection procedure are considered programmatic modifications and will not be implemented unless commission approval is received through the SIP revision process.

This revision will also remove the "Specifications for Vehicle Exhaust Gas Analyzer Systems for Use in the Texas Vehicle Emissions Testing Program" as an appendix to the I/M SIP and modify its corresponding references while satisfying the requirements of 40 Code of Federal Regulations (CFR) §51.358(c) with the language contained in Chapter 8: *Test Procedures, Standards, and Test Equipment* of the I/M SIP. In addition, this revision will remove the "Specifications for On-Board Diagnostics II Analyzer for Use in the Texas Vehicle Emissions Testing Program" as an appendix to the I/M SIP and its corresponding references, as these TAS are no longer needed because the specifications for OBD-only vehicle inspection analyzers are duplicated in the "Specifications for Vehicle Exhaust Gas Analyzer Systems for Use in the Texas Vehicle Emissions Testing Program."

Listed below are specific revisions made in this I/M SIP:

- in Chapter 1: *General*,
  - revised the title,

- reorganized the content of Section 1.1: *Purpose*,
- reorganized content and added language regarding the low-volume emissions inspection station definition to Section 1.2: *Background*,
- added new subtitle with reorganized content and new language regarding health effects of ozone and carbon monoxide in Section 1.3: *Health Effects*, and
- reorganized content and added language regarding public hearings to Section 1.4: *Public Hearings Information*;

- in Chapter 2: *Applicability*,
  - added new subtitles with reorganized content in Section 2.1: *Legal Authority*, Section 2.3: *Performance Standard*,
  - added new subtitle with reorganized content and added language regarding nonattainment area designations and classifications in Section 2.2: *Area Designations*, Section 2.4.1: *Beaumont-Port Arthur*, Section 2.4.2: *Dallas-Fort Worth*, Section 2.4.3: *Houston-Galveston-Brazoria*, and Section 2.4.4: *El Paso*
  - added a new subtitle in Section 2.4: *Applicable Areas*, and
  - modified the definition of a low-volume emissions inspection station in Section 2.4.2: *Dallas-Fort Worth* and Section 2.4.3: *Houston-Galveston-Brazoria*;

- in Chapter 8: *Test Procedures, Standards, and Test Equipment*,
  - added new subtitles and language regarding inspection equipment specifications, acceptance test procedures, and certification requirements for the inspection equipment to Section 8.1: *General*, Section 8.4.1: *TSI and ASM Inspection Equipment*, Section 8.4.1.1: *Accuracy*, Section 8.4.1.2: *Repeatability*, Section 8.4.1.3: *Response Time*, Section 8.4.1.4: *Interference Effects*, Section 8.4.1.5: *Water Saturated Hot Air*, Section 8.4.1.6: *Electromagnetic Isolation and Interference Tests*, Section 8.4.1.7: *Dilution*, Section 8.4.1.8: *Dual Exhaust Probe System Flow Rate Test*; Section 8.4.2: *Dynamometer*, Section 8.4.2.1: *Load Cell Verification (if equipped)*, Section 8.4.2.2: *Speedometer Verification*, Section 8.4.2.3: *Verification of Parasitic Losses*, Section 8.4.2.4: *Verify Coast Down*, Section 8.4.3: *OBD Inspection Equipment*, Section 8.5: *Inspection Equipment Certification Requirements*, Section 8.6: *Detection Methods, Instrument Ranges, Accuracy, and Repeatability*, and Section 8.7: *References*,
  - revised the subtitle with reorganized content in Section 8.2: *Inspection Process and Standards*,
  - revised the subtitle in Section 8.3: *Inspection Equipment and Required Features*,
  - added new subtitles with reorganized content and added language regarding inspection equipment required features in Section 8.3.1: *General Information*, Section 8.3.2: *TSI Inspection Equipment*, Section 8.3.3: *ASM Inspection Equipment*, and Section 8.3.4: *OBD Inspection Equipment*,
  - added a new subtitle in Section 8.4: *Acceptance Test Procedures*, and
  - removed the reference to the "Specifications for On-Board Diagnostics II Analyzer for Use in the Texas Vehicle Emissions Testing Program," dated May 1, 2005, from Section 8.3.4: *OBD Inspection Equipment;*

- in Chapter 9: *Quality Control*,
  - reorganized content and added language modifying the reference to the inspection equipment specifications in Section 9.1: *Overview*, and
  - reorganized content in Section 9.2: *Equipment Calibration and Maintenance* and Section 9.3: *Document Security*;

- in Chapter 11: Motorist Compliance Enforcement,
  - added new subtitles with reorganized content in Section 11.1: *General*, Section 11.2: *Re-registration Denial*, and Section 11.4: *Additional Enforcement Activities*, and

- added new subtitle with reorganized content and added language modifying the reference to the inspection equipment specifications in Section 11.3: *Sticker-Based Enforcement*;

- in the *List of Commonly Used Terms*,
  - added candidate analyzer, non-programmatic changes, and Texas Department of Motor vehicles,
  - removed extended Dallas-Fort Worth program area, state implementation plan, and Texas Department of Transportation, and
  - modified acceleration simulation mode, Dallas-Fort Worth program area, gas cap integrity inspection, and low-volume emissions inspection station;

- removed the reference to the "Specifications for On-Board Diagnostics II Analyzer for Use in the Texas Vehicle Emissions Testing Program," dated May 1, 2005, and the "Specifications for Vehicle Exhaust Gas Analyzer Systems for Use in the Texas Vehicle Emissions Testing Program," dated May 1, 2005, from the list of appendices;

- added a *List of Acronyms*; and

- added a *List of Attachments*.

This I/M SIP revision also includes various non-substantive changes in each chapter to apply appropriate and consistent use of acronyms, section references, structure, formatting, and certain terminology.

SECTION V: LEGAL AUTHORITY

A. General

The Texas Commission on Environmental Quality (TCEQ) has the legal authority to implement, maintain, and enforce the National Ambient Air Quality Standards (NAAQS) and to control the quality of the state's air, including maintaining adequate visibility.

The first air pollution control act, known as the Clean Air Act of Texas, was passed by the Texas Legislature in 1965. In 1967, the Clean Air Act of Texas was superseded by a more comprehensive statute, the Texas Clean Air Act (TCAA), found in Article 4477-5, Vernon's Texas Civil Statutes. The Texas Legislature amended the TCAA in 1969, 1971, 1973, 1979, 1985, 1987, 1989, 1991, 1993, 1995, 1997, 1999, 2001, 2003, 2005, 2007, and 2009. In 1989, the TCAA was codified as Chapter 382 of the Texas Health and Safety Code.

Originally, the TCAA stated that the Texas Air Control Board (TACB) is the state air pollution control agency and is principal authority in the state on matters relating to the quality of air resources. In 1991, the Texas Legislature abolished the TACB effective September 1, 1993, and its powers, duties, responsibilities, and functions were transferred to the Texas Natural Resource Conservation Commission (TNRCC). With the creation of the TNRCC, the authority over air quality is found in both the Texas Water Code (TWC) and the TCAA. Specifically, the authority of the TNRCC is found in TWC, Chapters 5 and 7. TWC, Chapter 5, Subchapters A - F, H - J, and L, include the general provisions, organization, and general powers and duties of the TNRCC, and the responsibilities and authority of the executive director. This chapter also authorizes the TNRCC to implement action when emergency conditions arise, and to conduct hearings. TWC, Chapter 7 gives the TNRCC enforcement authority. In 2001, the 77th Texas Legislature continued the existence of the TNRCC until September 1, 2013, and changed the name of the TNRCC to the Texas Commission on Environmental Quality (TCEQ). In 2009, the 81st Texas Legislature, during a special session, amended §5.014 of the TWC, changing the expiration date of the TCEQ to September 1, 2011, unless continued in existence by the Texas Sunset Act.

The TCAA specifically authorizes the TCEQ to establish the level of quality to be maintained in the state's air and to control the quality of the state's air by preparing and developing a general, comprehensive plan. The TCAA, Subchapters A - D, also authorize the TCEQ to collect information to enable the commission to develop an inventory of emissions; to conduct research and investigations; to enter property and examine records; to prescribe monitoring requirements; to institute enforcement proceedings; to enter into contracts and execute instruments; to formulate rules; to issue orders taking into consideration factors bearing upon health, welfare, social and economic factors, and practicability and reasonableness; to conduct hearings; to establish air quality control regions; to encourage cooperation with citizens' groups and other agencies and political subdivisions of the state as well as with industries and the federal government; and to establish and operate a system of permits for construction or modification of facilities.

Local government authority is found in Subchapter E of the TCAA. Local governments have the same power as the TCEQ to enter property and make inspections. They also may make recommendations to the commission concerning any action of the TCEQ that affects their territorial jurisdiction, may bring enforcement actions, and may execute cooperative agreements with the TCEQ or other local governments. In addition, a city or town may enact and enforce ordinances for the control and abatement of air pollution not inconsistent with the provisions of the TCAA and the rules or orders of the commission.

Subchapters G and H of the TCAA authorize the TCEQ to establish vehicle inspection and maintenance programs in certain areas of the state, consistent with the requirements of the federal Clean Air Act; coordinate with federal, state, and local transportation planning agencies to develop and implement transportation programs and measures necessary to attain and maintain the NAAQS; establish gasoline volatility and low emission diesel standards; and fund and

authorize participating counties to implement vehicle repair assistance, retrofit, and accelerated vehicle retirement programs.

B. Applicable Law

The following statutes and rules provide necessary authority to adopt and implement the State Implementation Plan (SIP). The rules listed below have previously been submitted as part of the SIP.

Statutes

All sections of each subchapter are included, unless otherwise noted.

TEXAS HEALTH and SAFETY CODE, Chapter 382 September 1, 2009

TEXAS WATER CODE September 1, 2009

Chapter 5: Texas Natural Resource Conservation Commission
Subchapter A: General Provisions
Subchapter B: Organization of the Texas Natural Resource Conservation Commission
Subchapter C: Texas Natural Resource Conservation Commission
Subchapter D: General Powers and Duties of the Commission
Subchapter E: Administrative Provisions for Commission
Subchapter F: Executive Director (except §§5.225, 5.226, 5.227, 5.2275, 5.231, 5.232, and 5.236)
Subchapter H: Delegation of Hearings
Subchapter I: Judicial Review
Subchapter J: Consolidated Permit Processing
Subchapter L: Emergency and Temporary Orders (§§5.514, 5.5145, and 5.515 only)
Subchapter M: Environmental Permitting Procedures (§5.558 only)

Chapter 7: Enforcement
Subchapter A: General Provisions (§§7.001, 7.002, 7.00251, 7.0025, 7.004, and 7.005 only)
Subchapter B: Corrective Action and Injunctive Relief (§7.032 only)
Subchapter C: Administrative Penalties
Subchapter D: Civil Penalties (except §7.109)
Subchapter E: Criminal Offenses and Penalties: §§7.177, 7.179-7.183

Rules

All of the following rules are found in Title 30, Texas Administrative Code, as of the following effective dates:

Chapter 7: Memoranda of Understanding, §7.110 and §7.119

December 13, 1996 and May 2, 2002

Chapter 19: Electronic Reporting March 1, 2007

Chapter 35, Subchapters A-C, K: Emergency and Temporary Orders and Permits; Temporary Suspension or Amendment of Permit Conditions July 20, 2006

Chapter 39: Public Notice, §§39.201; 39.401; 39.403(a) and (b)(8)-(10); 39.405(f)(1) and (g); 39.409; 39.411 (a), (b)(1)-(6) and (8)-(10), (c)(1)-(6), and (d); 39.413(9), (11), (12), and (14); 39.418(a) and (b)(3) and (4); 39.419(a), (b), (d), and (e); 39.420(a), (b) and (c)(3) and (4); 39.423 (a) and (b); 39.601-39.605 September 23, 1999 and March 29, 2006

SECTION VI. CONTROL STRATEGY

A. Introduction (No change)

B. Ozone (No change)

1. *Dallas-Fort Worth* (No change)
2. *Houston-Galveston-Brazoria* (No change)
3. *Beaumont-Port Arthur* (No change)
4. *El Paso* (No change)
5. *Regional Strategies* (No change)
6. *Northeast Texas* (No change)
7. *Austin Area* (No change)
8. *San Antonio Area* (No change)
9. *Victoria Area* (No change)

C. Particulate Matter (No change)

D. Carbon Monoxide (No change)

E. Lead (No change)

F. Oxides of Nitrogen (No change)

G. Sulfur Dioxide (No change)

H. Conformity with the National Ambient Air Quality Standards (No change)

I. Site Specific (No change)

J. Mobile Sources Strategies **(Revised)**

1. *Inspection/Maintenance* - **(Revised)**
2. *Transportation Control Measures* (No change)
3. *Vehicle Miles Traveled* (No change)
4. *Clean Gasoline* (No change)

K. Clean Air Interstate Rule (No change)

L. Transport (No change)

M. Regional Haze (No change)

LIST OF ACRONYMS

ASM	Acceleration Simulation Mode
BAR	Bureau of Automotive Repair
BPA	Beaumont-Port Arthur
CFR	Code of Federal Regulations
CO	Carbon Monoxide
DFW	Dallas-Fort Worth
DPS	Texas Department of Public Safety
EAC	Early Action Compact
EPA	United States Environmental Protection Agency
FCAA	Federal Clean Air Act
FTE	Full-Time Equivalent
GVWR	Gross Vehicle Weight Rating
HB	House Bill
HC	Hydrocarbon
H-GAC	Houston-Galveston Area Council
HGB	Houston-Galveston-Brazoria
I/M	Inspection and Maintenance
LIRAP	Low Income Repair and Assistance Program
METT	Mass Emissions Transient Testing
mph	miles per hour
NAAQS	National Ambient Air Quality Standard
NCTCOG	North Central Texas Council of Governments
NO_X	Nitrogen Oxides
OBD	On-Board Diagnostics
ppm	parts per million
QC	Quality Control
RPM	Revolutions per Minute
SAE	Society of Automotive Engineers
SB	Senate Bill
SIP	State Implementation Plan
TAC	Texas Administrative Code
TACB	Texas Air Control Board
TAS	Vehicle Emissions Testing Analyzer Specifications
TCAA	Texas Clean Air Act
TCEQ	Texas Commission on Environmental Quality (commission)
THSC	Texas Health and Safety Code
TIMS	Texas Information Management System
TMCP	Texas Motorist's Choice Program
TNRCC	Texas Natural Resource Conservation Commission
TSI	Two-Speed Idle
TTC	Texas Transportation Code
TTI	Texas Transportation Institute
TWC	Texas Water Code
TxDMV	Texas Department of Motor Vehicles
USC	United States Code
VID	Vehicle Identification Database
VIN	Vehicle Identification Number
VIR	Vehicle Inspection Report
VOC	Volatile Organic Compound
VRF	Vehicle Repair Form

LIST OF COMMONLY USED TERMS

Acceleration Simulated Mode (ASM) Inspection
An emissions inspection using a dynamometer (a set of rollers on which a test vehicle's tires rest) that applies an increasing load or resistance to the drive-train of a vehicle, thereby simulating actual tailpipe emissions of a vehicle as it is moving and accelerating. The ASM vehicle emissions inspection is comprised of two phases: (1) the 50/15 mode, where the vehicle is inspected on the dynamometer simulating the use of 50 percent of the vehicle's available horsepower to accelerate at a rate of 3.3 miles per hour (mph) at a constant speed of 15 mph, and (2) the 25/25 mode, where the vehicle is inspected on the dynamometer simulating the use of 25 percent of the vehicle's available horsepower to accelerate at a rate 3.3 mph at a constant speed of 25 mph.

Candidate Analyzer
Vehicle inspection equipment submitted by the manufacturer to the TCEQ's executive director for approval to be used in the vehicle emissions inspection and maintenance (I/M) program.

Dallas-Fort Worth (DFW) Program Area
In coordination with the commission, the Texas Department of Public Safety (DPS) administers the I/M program contained in the Texas I/M state implementation plan (SIP). This program area consists of the following counties: Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, and Tarrant.

El Paso Program Area
In coordination with the commission, the DPS administers the vehicle emissions I/M program contained in the Texas I/M SIP. This program area consists of El Paso County.

Emissions Tune-Up
A basic tune-up along with functional checks and any necessary replacement or repair of emissions control components.

Exhaust Gas Analyzer
A device used to measure the amount of emission gases in an exhaust sample.

Fleet Vehicle
Any motor vehicle operated as a member of a group of motor vehicles belonging to a single non-household entity; any state or local government motor vehicle, including a motor vehicle exempted from payment of a registration fee and issued a specially designated license plate; or any federal government motor vehicle, except for a tactical military vehicle.

Full-Time Equivalent (FTE) Employee
In this SIP revision, an FTE is calculated by adding the time each inspector spends on vehicle inspections, and dividing by 50 weeks per year. For example, if a station employed 25 individuals, but each employee only worked on vehicle inspections two weeks worth of time per year, this station employed one FTE.

Gas Cap Integrity Inspection
A fuel cap inspection that determines whether or not the vehicle's gas cap or gas caps are functioning as designed.

High Emitter
A vehicle whose measured tailpipe emissions levels exceed recommended testing standards.

Houston-Galveston-Brazoria (HGB) Program Area
In coordination with the commission, the DPS administers the vehicle emissions I/M program contained in the Texas I/M SIP. This program area consists of the following counties: Brazoria, Fort Bend, Galveston, Harris, and Montgomery.

I/M Program
A vehicle emissions inspection program as defined by the United States Environmental Protection Agency (EPA) that includes, but is not limited to, the use of computerized emissions analyzers, on-road testing, on-board diagnostic (OBD) inspections, and/or inspection of vehicle emissions devices.

I/M Program Areas
County or counties where the DPS, in coordination with the commission, administers the vehicle emissions I/M program contained in the Texas I/M SIP.

Low-Volume Emissions Inspection Station
A vehicle emissions inspection station that meets all criteria for obtaining a low-volume waiver from the DPS.

Minor Non-Programmatic Modifications
Minor non-programmatic modifications to the analyzer specifications include but are not limited to updates to accommodate new technology vehicles, enhancements to the method of collecting inspection data, and updates to internal reference tables. Modifications resulting in additional costs to vehicle inspection station owners will not be considered minor non-programmatic modifications.

On-Board Diagnostics (OBD)
The computer system installed in a vehicle by the manufacturer, which monitors the performance of the vehicle's emissions control equipment, fuel metering system, and ignition system for the purpose of detecting a malfunction or deterioration in performance that would be expected to cause the vehicle not to meet emissions standards.

Two-Speed Idle (TSI) Inspection
A measurement of the tailpipe exhaust emissions of a vehicle while the vehicle idles, first at a lower speed and then again at a higher speed.

Texas Department of Motor Vehicles
A state agency created by the 81st Texas Legislature, 2009, Regular Session from divisions formerly included in the Texas Department of Transportation.

Vehicle Emissions Inspection Station
A facility certified to conduct an emissions inspection for a vehicle and issue a certificate of emissions inspection.

Vehicle Identification Database (VID)
A database management system that maintains specified vehicle data and emissions inspection information.

Vehicle Inspection Report (VIR)
The printout created after an emissions inspection that displays inspection results, vehicle information, and pass/fail status.

Vehicle Repair Form (VRF)
A printout that includes a description of emissions repairs actually performed and emissions repairs that were recommended, but not performed. The VRF is the primary document used by any motorist seeking a waiver.

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CHAPTER 1: GENERAL
(Revised)

The October 26, 2005, Texas Inspection and Maintenance (I/M) state implementation plan (SIP) revision was used as the basis for this SIP revision, which includes a non-substantive reorganization of information, in addition to new information where noted. Language was added in this chapter regarding the low-volume emissions inspection station definition, public hearings, and health effects.

1.1 PURPOSE

The purpose of this document is to demonstrate that Texas has fulfilled its obligation under 40 Code of Federal Regulations (CFR) §51.350, Subpart S - Inspection/Maintenance Program Requirements, that states I/M programs are required in both ozone and carbon monoxide (CO) nonattainment areas depending upon population and attainment classification or design value.

Ozone, a highly reactive gas, is present both in the Earth's upper atmosphere (the stratosphere) and at ground level (the troposphere), and is also a main ingredient of urban smog. Tropospheric ozone is an air pollutant that is harmful to breathe and damages crops, trees, and other vegetation. The troposphere generally extends to a level about six miles above the Earth's crust, where it meets the second layer, the stratosphere. Ozone is formed naturally at high altitudes in the stratosphere where it acts beneficially to absorb potentially damaging ultraviolet solar radiation before it reaches the Earth's surface. Protection of stratospheric ozone is addressed under Title VI of the Federal Clean Air Act (FCAA).

Tropospheric ozone is usually not directly emitted to atmosphere but is instead produced at ground level by chemical reactions between nitrogen oxides (NO_X) and volatile organic compounds (VOC) in the presence of heat and sunlight. NO_X is produced primarily during the combustion of fossil fuels, such as gasoline, diesel, natural gas, and coal. Major sources of NO_X include motor vehicle exhaust, internal combustion engines such as those used in construction equipment, natural gas furnaces, and utility and industrial boilers. Anthropogenic emissions of VOC include gasoline vapors and industrial and commercial solvents. Additionally, vegetation emits significant amounts of biogenic VOC.

The I/M program reduces hydrocarbon (HC) emissions, some of which are VOC that can react with NO_X to form ground level ozone and visibility degradation. The I/M program reduces emissions of NO_X, including nitrogen dioxide and nitric oxide, that can react chemically in the air to form nitric acid. NO_X reductions are achieved by ensuring automotive emissions standards are met through on-board diagnostics (OBD) and acceleration simulation mode (ASM) inspecting or a vehicle emissions testing program that meets state implementation plan (SIP) emissions reduction requirements and is approved by the United States Environmental Protection Agency (EPA) in affected areas of the state. In addition, the I/M program reduces CO emissions, although all areas of Texas are monitoring compliance with the 1997 CO National Ambient Air Quality Standard (NAAQS).

1.2 BACKGROUND

Emissions inspections began in Texas on July 1, 1984, with the implementation of an anti-tampering check and parameter program in Harris County. The program involved an enhanced visual inspection of required emissions components and a tailpipe inspection for lead using plumtesmo test strips. On January 1, 1986, the parameter program was expanded to include El Paso County.

Beginning January 1, 1987, based on federal air quality standards, El Paso became the first county in Texas to use a vehicle exhaust emissions analyzer to inspect vehicle exhaust emissions. A Bureau of Automotive Repair (BAR)-84 low-speed idle four-gas analyzer was used to detect

CO and HC. At the same time, the parameter program expanded to include Dallas and Tarrant Counties. On April 1, 1990, Dallas and Tarrant Counties began inspecting vehicles for HC and CO using BAR-90 low speed idle four-gas analyzers.

The 73rd Texas Legislature, 1993, passed legislation requiring a loaded-mode IM 240 centralized emissions inspection, and as a result the Texas Department of Public Safety (DPS) ceased emissions inspections on December 31, 1994. The centralized emissions inspection program administered by the Texas Commission of Environmental Quality (TCEQ) started on January 1, 1995, but was terminated in early February 1995, by the 74th Texas Legislature, 1995.

Senate Bill (SB) 178, 74th Texas Legislature, 1995, required the TCEQ, in cooperation with the DPS, to establish and implement a decentralized vehicle emissions inspection program. The bill required the DPS to resume the previous emissions inspection program in Dallas, Tarrant, El Paso, Denton, Collin, and Harris Counties until such time that a new decentralized emissions program could be developed. On July 1, 1995, the DPS resumed the previous emissions inspection program in these counties. SB 178 also required the governor to adopt a new vehicle emissions inspection program after negotiating with the EPA. Based on modeling by the TCEQ and input by the DPS, the governor announced the details of the decentralized Texas Motorist's Choice Program (TMCP) in November 1995.

As the TMCP was being developed, the EPA finalized the I/M Flexibility Amendments on November 28, 1995. States were allowed flexibility in designing an I/M program that would meet one of the three program standards: a basic, low-enhanced, or high-enhanced performance standard. The rule also allowed nonattainment areas with an urbanized area of less than 200,000 people to opt out of the vehicle emissions testing program if the area could meet other FCAA requirements. In addition, the rule allowed states to authorize low-income time extensions more than once in the life of a vehicle and allowed some emissions-related repairs, performed 60 days or less prior to an initial emissions inspection failure, to be allowed in calculating costs for minimum expenditure waivers.

On July 1, 1996, the first component of the TCMP began in Dallas and Tarrant Counties. The first component of the program involved software upgrades to accommodate real-time communication with a vehicle inspection database. The full TCMP began in Dallas and Tarrant Counties on October 1, 1996. The program involved a low-speed and high-speed idle inspection known as two-speed idle (TSI), enhanced hardware and software, gas cap leak check, recognized emissions repair facilities, dial-up database verification of inspection history, and automated recording of safety inspections. On January 1, 1997, the TMCP expanded to include Harris and El Paso Counties.

In order to increase the emissions reductions for the I/M program, beginning May 1, 2002, Texas transitioned to a low-enhanced program using OBD inspections for 1996 and newer model-year vehicles, and ASM inspections for pre-1996 model-year vehicles in Collin, Dallas, Denton, Tarrant Counties in the Dallas-Fort Worth (DFW) area and Harris County in the Houston-Galveston-Brazoria (HGB) area. On May 1, 2003, the program was expanded to include Ellis, Johnson, Kaufman, Parker, and Rockwall Counties in the DFW area and Brazoria, Fort Bend, Galveston, and Montgomery Counties in the HGB area.

On January 1, 2007, El Paso County transitioned to a low-enhanced program using OBD inspections for 1996 and newer model-year vehicles and continued TSI inspections on pre-1996 model-year vehicles. Additionally, all vehicle emissions inspection stations in the El Paso area are required to offer both TSI and OBD inspections.

Beginning December 31, 2010, the vehicle emissions inspection limit for low-volume emissions inspection stations changes to comply with the requirements of Section 1 of House Bill (HB) 715, 81st Texas Legislature, 2009, Regular Session. The vehicle emissions inspection limit for stations that only offer emissions inspections on 1996 and newer model-year vehicles has been a

component of the I/M program in the DFW and HGB areas since 2002. Currently, low-volume emissions inspection stations may perform up to 1,200 OBD inspections per year. Section 1 of HB 715 revised Texas Transportation Code, §548.3075 to prevent the DPS from restricting low-volume emissions inspection stations to fewer than 150 OBD inspections per month.

1.3 HEALTH EFFECTS

In 1997, the EPA revised the NAAQS for ozone from a one-hour to an eight-hour standard. To support the 1997 eight-hour ozone standard, the EPA provided information indicating that health effects can occur at levels lower than the previous standard and at exposure times longer than one hour. High concentrations of one-hour ozone were not shown to correlate well with mortality. Exposure to ambient ozone can aggravate asthma in some people. Repeated exposures to ozone can make people more susceptible to respiratory infection and lung inflammation and can aggravate preexisting respiratory diseases, such as bronchitis and emphysema.

Ground level ozone is an irritant to the lungs that can impact children, older citizens, and others that may have decreased lung capacity. Children are at a relatively higher risk from exposure to ozone when compared to adults, since they breathe more air per pound of body weight than adults and because children's respiratory systems are still developing. Children also spend a considerable amount of time outdoors during summer and during the start of the school year (August - October) when high ozone levels are typically recorded. Adults most at risk to ozone exposure are people working or exercising outdoors and individuals with preexisting respiratory diseases.

The current one- and eight-hour CO NAAQS are currently under review by the EPA. Carbon monoxide binds to blood hemoglobin, which decreases the oxygen-carrying capacity of the blood. This condition can aggravate underlying cardiovascular conditions and can decrease exercise tolerance in persons with cardiovascular problems. Individuals with angina and coronary heart disease are particularly susceptible to CO toxicity. Other populations at potential risk are individuals with pre-existing respiratory diseases, e.g., chronic obstructive pulmonary disease (COPD), anemia, or diabetes. Also, infants, fetuses, and the elderly are particularly susceptible to CO poisoning. Some emissions from motor vehicles include VOC such as benzene, formaldehyde, and 1,3-butadiene, which are air toxins that may cause cancer and have other adverse health effects.

1.4 PUBLIC HEARINGS INFORMATION

The commission offered public hearings on the proposed I/M SIP revision and associated rulemaking at the following times and locations:

CITY	DATE	TIME	LOCATION
Fort Worth	July 20, 2010	2:00 p.m.	Texas Commission on Environmental Quality 2309 Gravel Road
Austin	July 21, 2010	10:00 a.m.	Texas Commission on Environmental Quality 12100 Park 35 Circle Building E, Room 201S
Houston	July 22, 2010	3:00 p.m.	Houston-Galveston Area Council 3555 Timmons Lane Conference Room A

The hearings were not officially opened because no party indicated a desire to give comment. The comment period opened on June 18, 2010, and closed on July 26, 2010. Written comments were accepted via mail, fax, or through the TCEQ eComments system. One written comment was received from the EPA. A summary of the EPA's comments and TCEQ's response are included as part of this I/M SIP revision.

Copies of the adopted SIP revision and all appendices can be obtained from the TCEQ's Web site at http://www.tceq.state.tx.us/implementation/air/sip/sipplans.html.

1.5 SOCIAL AND ECONOMIC CONSIDERATIONS

For a detailed explanation of the social and economic issues involved, please refer to the preamble that precedes the proposed rule package accompanying this SIP revision.

1.6 FISCAL AND MANPOWER RESOURCES

The TCEQ has determined that its fiscal and manpower resources are adequate and will not be adversely affected through implementation of this plan.

CHAPTER 2: APPLICABILITY
(Revised)

The October 26, 2005, Texas Inspection and Maintenance (I/M) state implementation plan (SIP) revision was used as the basis for this SIP revision, which includes a non-substantive reorganization of information, in addition to new information where noted. The definition of the low-volume emissions inspection station in this chapter was modified to comply with the requirements of House Bill 715, 81st Texas Legislature, 2009, Regular Session, and language was added regarding nonattainment area designations and classifications.

2.1 LEGAL AUTHORITY

The legal authority for the commission and the Texas Department of Public Safety (DPS) to implement the I/M program is granted by the Texas Health and Safety Code, §§382.202 - 382.208, and the Texas Transportation Code, Chapters 502 and 548. This authority is not limited by Sunset provisions.

2.2 AREA DESIGNATIONS

The Federal Clean Air Act (FCAA) and 40 Code of Federal Regulations (CFR), Part 51, as amended, require an enhanced vehicle emissions inspection program in ozone nonattainment areas classified as serious, severe, or extreme nonattainment, or in carbon monoxide (CO) nonattainment areas classified moderate or serious. Official designations can be found at 40 CFR, Part 81. Maintenance plans to prevent anti-backsliding would be developed to ensure continued attainment with the ozone and CO National Ambient Air Quality Standards (NAAQS) when an nonattainment area is subsequently reclassified as an attainment area.

2.3 PERFORMANCE STANDARD

40 CFR §51.351 allows areas that can meet the reasonable further progress requirements with a less stringent I/M program to develop a program that is more responsive to motorists' concerns. Texas elected to implement a low-enhanced I/M program in each area that would meet or exceed the United States Environmental Protection Agency's (EPA) low-enhanced performance standard. The EPA's low-enhanced performance standard consists of annual centralized or decentralized two-speed idle (TSI) inspections, and visual inspections of emissions control devices for all subject light-duty vehicles and trucks up to 8,500 pounds gross vehicle weight rating (GVWR). Additional credit may be given for acceleration simulation mode (ASM) inspections, on-board diagnostics (OBD) inspections, remote sensing, and a technician training and certification program. In addition, OBD inspections are required by FCAA, §182(c)(3)(vii) and §202(m)(3), in addition to 40 CFR Parts 51 and 85.

2.4 APPLICABLE AREAS

2.4.1 Beaumont-Port Arthur

Under the one-hour ozone NAAQS, Beaumont-Port Arthur (BPA) was classified as a serious ozone nonattainment area with an urbanized population of less than 200,000. Under the 1997 eight-hour ozone NAAQS, BPA was classified as a marginal ozone nonattainment area, and then reclassified as a moderate ozone nonattainment area, with an urbanized population of less than 200,000. The EPA's I/M flexibility amendments dated September 16, 1995, allow areas with an urbanized population of less than 200,000 to demonstrate a plan to reduce air pollution without using a vehicle emissions inspection program. The BPA area continues to meet this criterion, so no vehicle emissions inspection program has been required.

2.4.2 Dallas-Fort Worth

Under the one-hour ozone NAAQS, Dallas-Fort Worth (DFW) was classified as a serious ozone nonattainment area. Under the 1997 eight-hour ozone NAAQS, DFW was classified as a

moderate ozone nonattainment area. The EPA proposed to reclassify DFW as a serious ozone nonattainment area on August 9, 2010.

On May 1, 2002, Collin, Dallas, Denton, and Tarrant Counties in the Dallas-Fort Worth (DFW) area transitioned from an I/M program using TSI inspections to a low-enhanced I/M program consisting of OBD inspections for 1996 and newer model-year vehicles and ASM inspections for pre-1996 model-year vehicles. The low-enhanced I/M program expanded on May 1, 2003, to include Ellis, Johnson, Kaufman, Parker, and Rockwall Counties in the DFW area.

All vehicle emissions inspection stations in the DFW I/M program area are required to offer both ASM and OBD inspections to the public, except low-volume emissions inspection stations which are only required to offer OBD inspections. A low-volume emissions inspection station is a vehicle emissions inspection station that has met all criteria for obtaining a low-volume waiver from the DPS.

2.4.3 Houston-Galveston-Brazoria

Under the one-hour ozone NAAQS, Houston-Galveston-Brazoria (HGB) was classified as a severe-17 ozone nonattainment area. Under the 1997 eight-hour ozone NAAQS, HGB was classified as a moderate ozone nonattainment area and then reclassified as a severe ozone nonattainment area.

On May 1, 2002, Harris County in the Houston-Galveston-Brazoria (HGB) area transitioned from an I/M program using TSI inspections to a low-enhanced I/M program consisting of OBD inspections for 1996 and newer model-year vehicles and ASM inspections for pre-1996 model-year vehicles. The low-enhanced I/M program expanded on May 1, 2003, to include Brazoria, Fort Bend, Galveston, and Montgomery Counties in the HGB area.

All vehicle emissions inspection stations in the HGB I/M program areas are required to offer both ASM and OBD inspections to the public, except low-volume emissions inspection stations which are only required to offer OBD inspections. A low-volume emissions inspection station is a vehicle emissions inspection station that has met all criteria for obtaining a low-volume waiver from the DPS.

2.4.4 El Paso

Under the one-hour ozone NAAQS, El Paso was classified as a serious ozone nonattainment area. Under the 1997 eight-hour ozone NAAQS, El Paso was classified as an ozone attainment area.

Under the eight-hour CO NAAQS, El Paso was classified as a moderate CO nonattainment area and reclassified as a CO attainment area in the August 4, 2008, issue of the *Federal Register* (73 *FR* 45162).

On January 1, 2007, El Paso County continued emissions inspections on pre-1996 model-year gasoline-powered motor vehicles using TSI inspections and began emissions inspections on all 1996 and newer model-year vehicles using OBD inspections. Additionally, all vehicle emissions inspection stations in the El Paso area are required to offer both TSI and OBD inspections.

CHAPTER 3: INSPECTION AND MAINTENANCE PERFORMANCE STANDARDS

(No Revision)

CHAPTER 4: NETWORK TYPE AND PROGRAM EVALUATION

(No Revision)

CHAPTER 5: ADEQUATE TOOLS AND RESOURCES

(No Revision)

CHAPTER 6: TEST FREQUENCY AND CONVENIENCE

(No Revision)

CHAPTER 7: VEHICLE COVERAGE

(No Revision)

CHAPTER 8: TEST PROCEDURES, STANDARDS, AND TEST EQUIPMENT
(Revised)

The October 26, 2005, Texas Inspection and Maintenance (I/M) state implementation plan (SIP) revision was used as the basis for this SIP revision, which includes a non-substantive reorganization of information, in addition to new information where noted.

The references to the "Specifications for Vehicle Exhaust Gas Analyzer Systems for Use in the Texas Vehicle Emissions Testing Program" in this chapter were modified to indicate the new location of the specifications, which were formerly included as an appendix to the I/M SIP. In addition, the "Specifications for On-Board Diagnostics II Analyzer for Use in the Texas Vehicle Emissions Testing Program" were removed as an appendix to the I/M SIP and its corresponding references in this chapter were modified to indicate the new location. The specifications for on-board diagnostics (OBD)-only vehicle inspection analyzers are no longer needed because the requirements are duplicated in the "Specifications for Vehicle Exhaust Gas Analyzer Systems for Use in the Texas Vehicle Emissions Testing Program." Language regarding acceptance test procedures, required features, certification requirements for the inspection equipment was added in this chapter to satisfy the requirements of 40 Code of Federal Regulations (CFR) §51.358(c).

8.1 GENERAL

This chapter identifies the requirements contained in 40 CFR §51.358 *Test Equipment*, (c), *SIP Requirements*, which indicates that the SIP must include written technical specifications for all inspection equipment used in the program and that the specifications must describe the inspection process, the necessary inspection equipment, the required features, and written acceptance testing procedures.

8.2 INSPECTION PROCESS AND STANDARDS

Owners of all subject gasoline-powered vehicles that are two through 24 years old that are annually inspected through the Texas Department of Public Safety (DPS) certified safety inspection stations are required to have an applicable emissions inspection performed. Vehicles less than two years or greater than 24 years old are exempt from the I/M program requirements. Texas implemented annual vehicle emissions inspections in:

- Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall and Tarrant Counties in the Dallas-Fort Worth (DFW) area;
- Brazoria, Fort Bend, Galveston, Harris, and Montgomery Counties in the Houston-Galveston-Brazoria (HGB) area; and
- El Paso County in the El Paso area.

An acceleration simulation mode (ASM), two-speed idle (TSI), or OBD inspection, and a gas cap integrity inspection are performed on all subject vehicles as part of the annual safety and emissions inspection. In addition, as a part of the annual safety and emissions inspection, vehicles are subject to anti-tampering checks including:

- the exhaust gas recirculation system;
- the evaporative emissions control system;
- the positive crankcase ventilation system;
- the thermostatic air cleaner;
- the air injection system; and
- the catalytic converter for selected model-years.

Evaporative system purge testing is not performed in the I/M program. Unsafe vehicles or vehicles with missing or leaky exhausts that are presented for emissions inspections are rejected.

OBD inspections for 1996 and newer model-year vehicles and ASM inspections for pre-1996 model-year vehicles began on May 1, 2002, in Collin, Dallas, Denton, Tarrant Counties in the DFW area and Harris County in the HGB area. On May 1, 2003, these inspection requirements were expanded to include Ellis, Johnson, Kaufman, Parker, and Rockwall Counties in the DFW area and Brazoria, Fort Bend, Galveston, and Montgomery Counties in the HGB area.

On January 1, 2007, El Paso County continued emissions inspections on pre-1996 model-year vehicles using TSI and began emissions inspections on all 1996 and newer model-year vehicles using OBD inspections.

The vehicle emissions inspection begins when the vehicle identification number, license plate, make, model, model-year, and other relevant vehicle information have been entered into the inspection analyzer. Pre-existing data, based on the registration database and the prior vehicle emissions inspection history of the subject vehicle, are retrieved. The inspector confirms the vehicle information from the vehicle identification database (VID) with the subject vehicle presented for emissions inspection. If no match or contact occurs with the VID, the inspector manually enters the vehicle information into the vehicle emissions inspection analyzer. All emissions inspection results are electronically sent via modem to the Texas Information Management System host computer immediately following the completion of each inspection. A copy of the inspection results can be obtained from any inspection station within 13 months of the inspection. All emissions inspection results are accessible to the Texas Commission on Environmental Quality (TCEQ) and the DPS.

An official inspection, once initiated, is performed in its entirety regardless of the intermediate outcomes, except in cases of invalid inspection conditions, unsafe conditions, or fast pass/fail algorithms. Inspections involving measurements are performed with program-approved equipment that has been calibrated. Emissions standards are applicable to all vehicles subject to the I/M program and repairs are required for failure of any standard. The commission may adjust standards as necessary to maintain a passing rate of at least 80 percent. If a vehicle fails the emissions inspection, the vehicle is to be reinspected for all pollutants. A second failure of any pollutant level results in a second failure of the vehicle. Vehicles will fail visual inspections of subject emissions control devices if such devices are part of the original certified configuration and are found to be missing, modified, disconnected, improperly connected, or found to be incorrect for the certified vehicle configuration under inspection.

30 Texas Administrative Code (TAC) Chapter 114, Control of Air Pollution from Motor Vehicles, outlines requirements for engine replacement, removal and installation of emissions control components, and tampering. Additionally, the DPS Administrative Rule 37 TAC §23.93, Vehicle Emissions Inspection Requirements, gives guidance on engine switching. The DPS is responsible for enforcing engine switching and vehicle tampering requirements.

The DPS uses remote sensing to identify high-emitting vehicles operating in the DFW, HGB, and El Paso program areas. Remote sensing may also be used as a quality assurance tool for randomly selected or suspect vehicle emissions facilities. Remote sensing screening is conducted according to reliable engineering practices to assure the accuracy of the inspection.

8.3 INSPECTION EQUIPMENT AND REQUIRED FEATURES

8.3.1 General Information

All equipment must meet acceptance testing criteria and receive a notice of approval from the TCEQ's executive director or designee prior to use in the Texas I/M program. Emissions inspection equipment has the capability to simultaneously sample dual-exhaust vehicles. In addition, all vehicle emissions inspection analyzers contain lock-out provisions for equipment tampering, equipment failure to conduct or pass calibration or leak checks, prevention of unauthorized access, and provide for automatic data collection that cannot be altered by the emissions inspection facility.

All emissions inspection equipment is incorporated with gas cap integrity inspection equipment. The gas cap integrity inspection equipment meets the specifications and procedures required by the United States Environmental Protection Agency (EPA). In addition, all emissions inspection equipment is required to include a laser printer, a two-dimensional bar code scanner, and a mechanism for sending and receiving inspection data.

The commission may update emissions inspection equipment specifications to accommodate new technology vehicles and changes to the I/M program as necessary to meet the criteria specified in this section.

8.3.2 TSI Inspection Equipment

The TSI emissions inspection equipment consists of a computerized exhaust gas analyzer. The TSI inspection comprises two phases: (1) a high speed inspection where the vehicle engine speed is between 2,200 and 2,800 revolutions per minute (RPM); and (2) an inspection at idle where the vehicle engine speed is between 350 and 1,200 RPM. Steady-state idle inspection procedures are conducted according to 40 CFR Part 51, Appendix B to Subpart S - Test Procedures and steady-state idle inspection equipment specifications consistent with 40 CFR Part 51, Appendix D to Subpart S - Steady State Short Test Equipment. The most recent version of specifications for TSI equipment is available at the TCEQ's central office or at http://www.tceq.state.tx.us/assets/public/implementation/air/ms/IM/txvehanlspecs.pdf. Vehicle emissions cut-points used for the TSI inspections are located in Appendix A of the TCEQ's "Specifications for Vehicle Exhaust Gas Analyzer Systems for Use in the Texas Vehicle Emissions Testing Program."

8.3.3 ASM Inspection Equipment

ASM inspection equipment consists of a computerized exhaust gas analyzer and a dynamometer. A dynamometer is a set of rollers used to simulate acceleration by applying resistance or increasing load to the drive wheels of the vehicle. In addition, ASM inspection equipment is required to include an augmented braking feature in the dynamometer and a driver's aid that displays the status of the ASM equipment and inspection criteria including the required speed, actual vehicle speed and engine RPM, and number of seconds elapsed during the inspection.

The ASM vehicle emissions inspection comprises two phases: (1) the 50/15 mode, where the vehicle is inspected on the dynamometer simulating the use of 50 percent of the vehicle's available horsepower to accelerate at a rate of 3.3 miles per hour (mph)/second at a constant speed of 15 mph; and (2) the 25/25 mode, where the vehicle is inspected on the dynamometer simulating the use of 25 percent of the vehicle's available horsepower to accelerate at a rate 3.3 mph/second at a constant speed of 25 mph. Applicable vehicles that cannot undergo an ASM inspection such as, but not limited to, vehicles that exceed 8,500 pounds gross vehicle weight rating or that are all-wheel drive, will receive a TSI inspection. The most recent version of specifications for ASM equipment is available at the TCEQ's central office or at http://www.tceq.state.tx.us/assets/public/implementation/air/ms/IM/txvehanlspecs.pdf. Vehicle emissions cut-points used for ASM inspections are located in Appendix S of the TCEQ's "Specifications for Vehicle Exhaust Gas Analyzer Systems for Use in the Texas Vehicle Emissions Testing Program."

8.3.4 OBD Inspection Equipment

OBD inspection equipment design and operation meets all federal requirements contained in 40 CFR §§85.2207 - 85.2231 and recommended practices contained in the J1962, J1978, and J1979 published by the Society of Automotive Engineers (SAE). The OBD inspection equipment is tethered to the emissions analyzer. The most recent version of specifications for OBD equipment is available at the TCEQ's central office or at http://www.tceq.state.tx.us/assets/public/implementation/air/ms/IM/txvehanlspecs.pdf.

8.4 ACCEPTANCE TEST PROCEDURES

8.4.1 TSI and ASM Inspection Equipment

The acceptance test procedures contained in this section apply to the exhaust gas analyzer component of the TSI and ASM inspection equipment. Inspection equipment seeking approval from the executive director will be referred to in this section as the candidate analyzer. The acceptance criteria for each test procedure is contained in the EPA's guidance document, "Acceleration Simulation Mode Test Procedures, Emissions Standards, Quality Control Requirements, and Equipment Specifications" (EPA, 2004) or EPA's applicable update to this document.

8.4.1.1 Accuracy

The accuracy test described in this section confirms the ability of the candidate analyzer to read various concentrations of gases within acceptable tolerances. The accuracy test compares the response of the instrument within the candidate analyzer with that of standard instruments and estimates the uncertainty of the readings.

The candidate analyzer must be calibrated first using zero gas and then calibrated using the high range calibration gas specified in the EPA's guidance document, "Acceleration Simulation Mode Test Procedures, Emissions Standards, Quality Control Requirements, and Equipment Specifications" (EPA, 2004) or EPA's applicable update to this document. The instrument within the candidate analyzer must be tested using propane as the surrogate for hydrocarbons (HC), carbon monoxide (CO), carbon dioxide (CO_2), and nitric oxide (NO) with a certified accuracy of +/- 1 percent in the following concentrations: 0 percent, 10 percent, 20 percent, 30 percent, 40 percent, 50 percent, 60 percent, 70 percent, 80 percent, and 90 percent of full scale for the analyzers. Full scale is defined as at least 9,999 parts per million (ppm) HC as hexane, 14.00 percent CO, 18.0 percent CO_2, 5,000 ppm NO, and 25.0 percent oxygen (O_2). The accuracy test is performing by completing the following sequence of steps.

1) Introduce the gases in ascending order of concentrations beginning with the zero gas. Record the readings of the standard instruments and the candidate analyzer for each concentration value.

2) After the highest concentration has been introduced and recorded, introduce the same gases to the standard instruments and the candidate analyzer in descending order, including the zero gas. Record the readings of the candidate analyzer for each gas, including negatives.

3) Repeat steps one and two four more times for the candidate analyzer, which means that the candidate analyzer will have conducted this sequence a total of five times.

4) Use the following sequence of steps to complete the accuracy test calculations that will determine the uncertainty of the candidate analyzer.

   (i) Calculate the average value of each concentration for the readings of the standard instruments.

   (ii) Calculate the mean and standard deviation of each candidate analyzer's readings for each concentration. Include both upscale and downscale readings for the same gas concentration. All calculations may not be possible for zero concentrations.

   (iii) For each concentration, calculate the difference between the mean and the standard average of the candidate analyzer.

   (iv) For each concentration, compute the Y_1 and Y_2 using the following formula.

1. $Y_1 = x + K_{sd}$

2. $Y_2 = x - K_{sd2}$

Where:

K_{sd} = Standard deviation * 3.5 for zero and the highest concentration value

K_{sd2} = Standard deviation * 2.5 for all other concentration values

x = Mean (arithmetic average) of the set of candidate analyzer readings

(v) Compute the uncertainty (U_1 and U_2) of the calibration curve for each concentration using the following formula and the Y_1 and Y_2 values computed in step (iv).

(a) U_1 = Concentration value - Y_1

(b) U_2 = Concentration value - Y_2

Acceptance Criteria:

1) For each concentration, the differences calculated in Step (iii) must not be greater than the accuracy tolerances specified in Section 8.6: *Detection Methods, Instrument Ranges, Accuracy, and Repeatability* for each instrument within the candidate analyzer.

2) For each concentration, the uncertainties, (U_1 and U_2) must not be greater than the accuracy tolerances required in Section 8.6: *Detection Methods, Instrument Ranges, Accuracy, and Repeatability*.

8.4.1.2 Repeatability

The repeatability test characterizes the ability of the instrument within the candidate analyzer to give consistent readings when repeatedly sampling the same gas concentration. The repeatability test is performed by completing the following sequence of steps.

1) Introduce the high range span gas through the calibration port. Record the readings.

2) Purge the candidate analyzer with ambient air for at least 30 seconds but no more than 60 seconds.

3) Repeat steps one and two above four more times.

4) Repeat steps one and two introducing the gas through the sample probe.

Acceptance Criteria: The differences between the highest and lowest readings from both ports must not exceed the values specified in Section 8.6: *Detection Methods, Instrument Ranges, Accuracy, and Repeatability.*

8.4.1.3 Response Time

The response time test determines the speed of response of the instrument within the candidate analyzer when a sample is introduced at the sample probe. The response time test is performed by completing the following sequence of steps.

1) Calibrate the gas measuring instrument within the candidate analyzer per the manufacturer's instructions.

2) Using a solenoid valve or equivalent selector system, remotely introduce a high range span gas to the sample cell inlet or inlet port. The gas pressure at the entrance to the port must be equal to room ambient.

3) Measure the elapsed time required for the candidate analyzer display to read 90 percent and 95 percent of the final stabilized readings for HC, CO, CO_2, and NO. Alternatively the bench outputs may be recorded against a time base to determine response time. In addition, measure the time required for the O_2 value to read 0.1% O_2. Record all times in seconds.

4) Switch the solenoid valve to purge with zero air for at least 40 seconds, but no more than 60 seconds.

5) Measure the elapsed time required for the candidate analyzer's display for NO to read 10 percent of the stabilized reading in step three.

6) Repeat steps one, two, and three two more times to obtain three sets of readings.

Acceptance Criteria: The individual response times, which includes the drop time for O_2 and NO, and the rise time for HC, CO, CO_2, and NO, from the port to the display for HC, CO, and CO_2 must not exceed eight seconds for 90 percent of a step change in input and not exceed 12 seconds to 95 percent of a step change in input. The response time for a step change in O_2 from 20.9 percent to 0.1 percent O_2 must be no longer than 40 seconds. For candidate analyzers equipped to measure NO, the response time must not exceed 12 seconds for 90 percent of a step change in input. The response time for a step change in NO from a stabilized reading to 10 percent of that reading must be no longer than 12 seconds.

8.4.1.4 Interference Effects

The interference effects test is performed to determine if the candidate analyzer readings for one gas adversely affect the readings of other gases. The following acceptance test procedure must be performed at 45, 75, and 105 degrees Fahrenheit (°F).

1) Calibrate the instrument within the candidate analyzer using zero gas and then calibrate using the high and low range calibration gases specified in the EPA's guidance document, "Acceleration Simulation Mode Test Procedures, Emissions Standards, Quality Control Requirements, and Equipment Specifications" (EPA, 2004) or EPA's applicable update to this document.

2) Sample the following gases for at least one minute. Record the response for HC, CO, CO_2, NO, and O_2 to the presence of the each of the following gases:

   (i) 16 percent CO_2 in nitrogen;

   (ii) 1,600 ppm hexane in nitrogen;

   (iii) 10 percent CO in nitrogen;

   (iv) 3,000 ppm NO in nitrogen;

   (v) 75 ppm sulfur dioxide in nitrogen; and

   (vi) 75 ppm hydrogen sulfide in nitrogen

Acceptance Criteria: The interference effects from non-interest gases must not exceed +/- 4 ppm for HC, +/- 0.02 percent for CO, +/- 0.2 percent for CO2, and +/- 20 ppm for NO.

8.4.1.5 Water Saturated Hot Air

The water saturated hot air test determines the effect of hot humid air on the candidate analyzer and is performed using the following description. Water saturated hot air must be drawn through the probe from the top of a sealed vessel partially filled with water through which ambient air will be bubbled. The water saturated hot air must be flowed for at least one minute. The water must be maintained at a temperature of 122°F +/- 9°F. The water saturated hot air test must be performed at only the 75 and 105°F conditions.

Acceptance Criteria: The interference effects from non-interest gases must not exceed +/- 4 ppm for HC, +/- 0.02 percent for CO, +/- 0.2 percent for CO2, and +/- 20 ppm for NO.

8.4.1.6 Electromagnetic Isolation and Interference Tests

The electromagnetic isolation and interference test, which is comprised of five individual tests, measures the ability of the candidate instrument to withstand electromagnetic fields that could exist in vehicle testing and repair facilities. For all tests described below, low range calibration gas specified in the EPA's guidance document, "Acceleration Simulation Mode Test Procedures, Emissions Standards, Quality Control Requirements, and Equipment Specifications" (EPA, 2004) or EPA's applicable update to this document at atmospheric pressure is introduced through the sample probe of the candidate analyzer. The readings from the candidate analyzer are recorded during the test periods.

1) Radio Frequency Interference Test:

The radio frequency interference test determines the effect of radio frequencies on the readings from the candidate analyzer and is performed using the following sequence of steps.

(i) Use a test vehicle with an engine having a high energy ignition system (or equivalent), a solid core coil wire, and a 3/8 inch air gap. Leave engine off.

(ii) Locate the candidate analyzer within five feet of the ignition coil. Calibrate the gas measuring instrument within the candidate analyzer per the manufacturer's instructions.

(iii) Introduce the sample gas specified above. Wait 20 seconds and record candidate analyzer readings.

(iv) Start the engine. With the hood open and sample gas flowing to the candidate analyzer, cycle the engine from idle through 25 mph on the dynamometer at the ASM load specific to the test vehicle and record the candidate analyzer readings.

(v) Relocate the candidate analyzer to within six inches of one side of the vehicle near the engine compartment. Follow the procedure described in step (iv) and record the candidate analyzer readings.

(vi) Relocate the instrument to within six inches of the other side of the vehicle near the engine compartment. Follow the procedure described in step (iv) and record the candidate analyzer readings.

Acceptance Criteria: The candidate analyzer readings must not exceed +/- 0.5 percent full scale.

2) Induction Field Test:

The induction field test determines the effect of magnetic induction on the readings from the candidate analyzer and is performed using the following description. Use a variable

speed commutator type hand drill having a plastic housing and rated at three amps or more. While the candidate analyzer is sampling the gas as specified, vary the drill speed from zero to maximum while moving from the front to the sides of the instrument at various heights. Record the readings and note any change in readings.

Acceptance Criteria: The candidate analyzer readings must not exceed +/- 0.5 percent full scale.

3) Line Interference Test:

The line interference test determines the effect of power line interference on the readings from the candidate analyzer and is performed using the following description. Plug in the drill used for the induction field test into one outlet of a sixteen gauge, three conductor wire extension cord approximately 20 feet long. Connect the candidate analyzer into the other outlet of the extension cord. Repeat the drill speed variations and movements in the same manner described in the induction field test.

Acceptance Criteria: The candidate analyzer readings must not exceed +/- 0.5 percent full scale.

4) Very High Frequency Band Interference Test:

The very high frequency band interference test determines the effect of very high frequency band interference on the readings from the candidate analyzer and is performed using the following description. Locate both a citizens' ban radio with an output equivalent to the Federal Communications Commission's legal maximum and a highway patrol transmitter (or equivalent) within 50 feet of the candidate analyzer. While the candidate analyzer is sampling the gas, press and release transmit button of both radios several times. Record the readings and note any change in readings.

Acceptance Criteria: The candidate analyzer readings must not exceed +/- 0.5 percent full scale.

5) Ambient Conditions Test:

The ambient conditions test determines the accuracy of the instruments within the candidate analyzer used to measure humidity, barometric pressure, and temperature and is performed using the following description. Place the master weather station within three feet of the candidate analyzer. Display the ambient conditions on the candidate analyzer and a master weather station. Allow five minutes for the readings to stabilize and compare the readings from each system.

Acceptance Criteria: The candidate analyzer readings must not exceed +/- 0.5 percent full scale.

8.4.1.7 Dilution

The dilution test determines the candidate analyzer's ability to accurately measure actual vehicle exhaust gases and is performed using the following sequence of steps.

1) Set a vehicle with a 1.6 liter maximum engine displacement at the factory recommended idle speed. The vehicle must have the original equipment manufacturer configuration exhaust system, transmission in neutral, and the hood up. A fan may be used to cool the engine, if needed. The vehicle's idle speed must be set to 900 RPM with a tolerance of +/- 20 RPM.

2) With a laboratory grade analyzer, sample the exhaust at 40 centimeters depth with a flow sample rate below 320 liters per hour. Allow sufficient time for the readings to stabilize. Record all HC, CO, NO, CO_2, and O_2 readings. A chart recorder or electronically stored data may be used to detect the point of stable readings.

3) While operating the candidate analyzer in a mode which has the same flow rate as the official inspection mode, record the levels of HC, CO, NO, CO_2, and O_2. Ensure that the probe is installed correctly.

4) Repeat step two.

5) If the difference of the readings between step two and four exceed 5 percent of the average of step two and step four, then repeat steps two, three, and four; otherwise average the readings from steps two and four and compare with the readings from step three.

Acceptance Criteria: The readings from step three must be within 10 percent of the average of steps two and four.

8.4.1.8 Dual Exhaust Probe System Flow Rate Test

The dual exhaust probe system flow rate test determines the candidate analyzer's ability to measure sample gases using the candidate analyzer's dual sample probe system and is performed using the following sequence of steps.

1) With a laboratory grade analyzer flow measurement system, allow ambient air to flow through the probes from the dual exhaust probe system.

2) Set the flow rate to the normal flow rate generated by the sample system pump.

3) Measure the flow rate in each leg of the dual probe system.

4) Set the flow rate equal to the onset of the low flow condition of the analyzer.

5) Measure the flow rate in each leg of the dual probe system.

Acceptance Criteria: The flow rate of the higher leg of the dual exhaust sample probe system must not exceed 15 percent of the flow rate of the lower leg. However, the flow rate in each leg of the dual probe system is expected to be equal.

8.4.2 Dynamometer

The acceptance test procedures contained in this section apply to the dynamometer component of the ASM inspection equipment. The acceptance criteria for each test procedure in this section is contained in the EPA's guidance document, "Acceleration Simulation Mode Test Procedures, Emissions Standards, Quality Control Requirements, and Equipment Specifications" (EPA, 2004) or EPA's applicable update to this document.

8.4.2.1 Load Cell Verification (if equipped)

This load cell verification test confirms the proper operation of the dynamometer load cell and associated systems and is performed using the following sequence of steps. Weights in the proper range must be supplied by the manufacturer of the candidate analyzer. Weights must be National Institute of Standards and Technology traceable to 0.1 percent of point.

1) Calibrate the load cell according to the candidate analyzer manufacturer's direction.

2) Using a dead weight method, load the test cell to 20 percent, 40 percent, 60 percent, and 80 percent (in ascending order) of the range used for ASM emissions inspections. Record the readings for each weight. Remove the weights in descending order using the same steps and record the results.

3) Perform steps one and two above two more times to collect a total of three readings for each weight. Calculate the average value for each weight. Multiply each average weight by the length of the torque arm.

Acceptance Criteria: The difference for each reading from the weight must not exceed 1 percent of full scale.

8.4.2.2 Speedometer Verification

The speedometer verification test confirms the accuracy of the dynamometer's speedometer and is performed using the following description. Set the dynamometer speed to 15 mph. Independently measure and record dynamometer speed. Repeat at 25 mph.

Acceptance Criteria: The difference for each reading from set dynamometer speed must not exceed 0.2 mph.

8.4.2.3 Verification of Parasitic Losses

The verification of parasitic losses test verifies the dynamometer's parasitic losses in horsepower at 25 and 15 mph and is performed using the procedures and equations described in the EPA's guidance document, "Acceleration Simulation Mode Test Procedures, Emissions Standards, Quality Control Requirements, and Equipment Specifications" (EPA, 2004) or EPA's applicable update to this document. Time data from an independent source, such as a stopwatch, and speed data from the analyzer must be used to externally calculate the value of the parasitic losses at 25 and 15 mph. The indicated horsepower must be set to zero for the tests.

Acceptance Criteria: The difference between the externally calculated value and the machine calculated value must not exceed 10 percent of the independently measured value.

8.4.2.4 Verify Coast Down

The coast down verification test confirms that the dynamometer can accurately coast down from 30 to 20 mph and from 20 to 10 mph within the expected time limits and is performed using the following sequence of steps.

1) Use the coast down procedures and equations described in the EPA's guidance document, "Acceleration Simulation Mode Test Procedures, Emissions Standards, Quality Control Requirements, and Equipment Specifications" (EPA, 2004) or EPA's applicable update to this document to verify the coast down at 25 mph.

2) Use the coast down procedures and equations described in the EPA's guidance document, "Acceleration Simulation Mode Test Procedures, Emissions Standards, Quality Control Requirements, and Equipment Specifications" (EPA, 2004) or EPA's applicable update to this document to verify the coast down at 15 mph.

Acceptance Criteria: The measured 30 to 20 mph coast down time and the 20 to 10 mph coast down time must be inside the window bounded by the calculated coast down time in seconds with a tolerance of +/- 7 percent.

8.4.3 Acceptance Test Procedures for OBD Inspection Equipment

The acceptance test procedures for OBD inspection equipment apply only to the OBD communication components, which must meet all federal requirements contained in 40 CFR §§85.2207 - 85.2231 and recommended practices contained in the J1962, J1978, and J1979

published by the SAE. The acceptance test procedures and acceptance criteria are contained in the EPA's guidance document, "Performing Onboard Diagnostic System Checks as Part of a Vehicle Inspection and Maintenance Program" (EPA, 2001) or EPA's applicable update to this document.

8.5 INSPECTION EQUIPMENT CERTIFICATION REQUIREMENTS

Inspection equipment must be approved by the TCEQ prior to being used in the I/M program. A more detailed description of the certification requirements is available at the TCEQ's central office or at http://www.tceq.state.tx.us/assets/public/implementation/air/ms/IM/txvehanlspecs.pdf. In order to obtain approval from the TCEQ, the manufacturers shall:

- submit a letter to the TCEQ stating that an analyzer model sold or leased by the manufacturer or its authorized representatives satisfies all required design and performance criteria;
- provide documentation to demonstrate conformance with the design and performance criteria, including a complete description of all hardware components, the results of appropriate performance testing conducted by an independent laboratory, and a point-by-point response to specific requirements;
- place the most recent version of analyzer software source codes and other pertinent technical information in an escrow placement approved by the TCEQ; and
- furnish a performance bond to the TCEQ that must remain valid for the entire time period that the manufacturer participates in the I/M program.

8.6 DETECTION METHODS, INSTRUMENT RANGES, ACCURACY, AND REPEATABILITY

HC analysis must be determined by a non-dispersive infrared (NDIR) analyzer and must cover at least the range of 0 - 9,999 ppm HC, where ppm HC is ppm of HC volume as hexane. The accuracy of the instrument from 0 - 2,000 ppm HC must be +/- 3 percent of point or 4 ppm hexane, whichever is greater. The accuracy of the instrument between 2,001 - 5,000 ppm HC must be at least +/- 5 percent of point. The accuracy of the instrument between 5,001 - 9,999 ppm HC must be at least +/- 10 percent of point.

CO analysis must be determined by an NDIR analyzer and must cover at least the range of 0.00 - 14.00 percent CO, where percent CO is percent volume CO. The accuracy of the instrument between 0.01 - 10.00 percent CO must be +/- 3 percent of point or 0.02 percent CO, whichever is greater. The accuracy of the instrument between 10.01 - 14.00 percent must be at least +/-5 percent of point.

CO_2 analysis must be determined by an NDIR analyzer and must cover at least the range of 0.0 - 18.0 percent CO_2. The accuracy of the instrument between 0.01 - 16.00 percent CO_2 must be +/- 3 percent of point or 0.3 percent CO_2, whichever is greater. The accuracy of the instrument between 16.01 - 18.00 percent CO_2 must be at least +/- 5 percent of point.

NO analysis must cover at least the range of 0 - 5,000 ppm NO. The accuracy of the instrument between 0 - 4,000 ppm must be at least +/- 4 percent of point or 25 ppm NO, whichever is greater. The accuracy of the instrument between 4,001 - 5,000 ppm must be at least +/- 8 percent of point.

O_2 analysis must cover at least the range of 0.0 - 25.0 percent O_2. The accuracy of the instrument over this range must be at least 5 percent of point or +/- 0.1 percent O_2, whichever is greater.

For HC, the repeatability for the analyzer in the range of 0 - 1,400 ppm HC must be 2 percent of point or 3 ppm HC absolute, whichever is greater. In the range of 1,400 - 2,000 ppm HC, the

repeatability must be 3 percent of point. For CO, the repeatability for the analyzer in the range of 0 - 7.00 percent CO must be 2 percent of point or 0.02 percent CO absolute, whichever is greater. In the range of 7.00 - 10.00 percent CO, the repeatability must be 3 percent of point. For CO_2, the repeatability for the analyzer in the range of 0 - 10.00 percent CO_2 must be 2 percent of point or 0.1 percent CO_2 absolute, whichever is greater. In the range of 10.00 - 16.00 percent CO_2, the repeatability must be 3 percent of point. For NO, the repeatability of the analyzer must be 3 percent of point or 20 ppm NO, whichever is greater. For O_2, the repeatability of the O_2 analyzer must be 3 percent of point or 0.1 percent O_2, whichever is greater.

Rounding of reading values must follow the standard mathematical practice of going to the next higher number for any numerical value of five or more. For example, if 2.00 percent CO passes and 2.01 percent CO fails, and the reading is 2.0049 percent, the value must be rounded down and decision must be a pass. If the reading is 2.0050, the value must be rounded up and the decision must be a fail. The value displayed and printed on the inspection report must be consistent with the value used for the pass/fail decision.

8.7 REFERENCES

EPA, 2001. Performing Onboard Diagnostic System Checks as Part of a Vehicle Inspection and Maintenance Program, EPA420-R-01-015, June 2001, http://www.epa.gov/OMS/regs/im/obd/r01015.pdf

EPA, 2004. Acceleration Simulation Mode Test Procedures, Emissions Standards, Quality Control Requirements, and Equipment Specifications, EPA420-B-04-011, July 2004, http://www.epa.gov/oms/regs/im/420b04011.pdf

CHAPTER 9: QUALITY CONTROL
(Revised)

The October 26, 2005, Texas Inspection and Maintenance (I/M) state implementation plan (SIP) revision was used as the basis for this SIP revision, which includes a non-substantive reorganization of information, in addition to new information where noted. The reference to the inspection equipment specifications in this chapter was modified to indicate the new location.

9.1 OVERVIEW

Quality control (QC) measures are implemented by the Texas Department of Public Safety (DPS) to ensure that Texas meets its commitment to provide motorists with consistent and accurate vehicle emissions inspection results. Vehicle inspection site personnel ensure that emissions measurement equipment is calibrated and maintained properly and that inspection records, calibration records, and control charts or graphs are accurately created, recorded, and maintained. Calibration practices and procedures for two-speed idle (TSI) and acceleration simulation mode (ASM) inspection equipment are performed in accordance with requirements specified by Appendix A of Subpart S of 40 Code of Federal Regulations (CFR), Part 51 and may incorporate the United States Environmental Protection Agency's (EPA) policy or subsequent policies and/or procedures. The most recent versions of TSI and ASM inspection equipment specifications, formerly referenced in the appendices of the I/M SIP, are now available at the TCEQ's central office or at http://www.tceq.state.tx.us/assets/public/implementation/air/ms/IM/txvehanlspecs.pdf.

Analyzer manufacturers for TSI, ASM, and on-board diagnostics (OBD) inspection equipment prepare a manual of QC procedures, periodic maintenance schedules, and calibration procedures to be followed by vehicle emissions inspection site personnel to ensure that all equipment is properly calibrated. This manual is submitted to the Texas Commission on Environmental Quality (TCEQ) for approval prior to the sale of any equipment for use in the I/M program. Analyzer manufacturers ensure an extended service contract is available upon the expiration of the manufacturer's original warranty period.

The vehicle emissions inspection analyzer specifications include, at a minimum, durability and functional requirements to ensure accurate measurements and processing and recording of emissions inspection samples under a wide range of adverse ambient conditions. In addition, emissions inspection analyzers are:

- automated to the highest degree commercially available to minimize the potential for intentional fraud and/or human error;
- secure from tampering and/or abuse;
- based upon written specifications; and
- capable of simultaneously sampling dual-exhaust vehicles.

Preventative maintenance is performed at least quarterly on all analyzer equipment necessary to ensure accurate and repeatable operation. Preventative maintenance refers to any upkeep practices used to slow a component's deterioration associated with frequent use and aging.

9.2 EQUIPMENT CALIBRATION AND MAINTENANCE

Emissions inspection analyzer equipment is maintained according to demonstrated good engineering practices to assure emissions inspection accuracy. Vehicle emissions inspection stations are required to use calibration gases meeting the specifications set forth in 40 CFR Part 51, Appendix A to Subpart S - Calibrations, Adjustments, and Quality Control. Any modification of these requirements by the manufacturer will not be implemented without approval from the executive director. In addition, the TCEQ will obtain the EPA's approval for any alternative calibrations and maintenance procedures.

Complete records on repairs, software modifications, and calibration of all emissions inspection analyzer equipment will be kept on file by the manufacturer during the original warranty and subsequent service contract agreement period. Each analyzer contains a historical database, which automatically records QC information, lockouts, and attempted tampering. The analyzer housing is constructed to protect the analyzer bench and electrical components from ambient temperatures and humidity fluctuations that exceed the range of the analyzers. Maintenance procedures are used to maintain the gas cap integrity inspection equipment in accordance with demonstrated good engineering practices in order to assure inspection accuracy.

9.3 DOCUMENT SECURITY

All vehicle inspection certificates are printed with a unique serial number, an official state seal, and are counterfeit resistant. Each vehicle inspection station secures the inspection certificates under lock and key at all times and ensures the certificates are placed on and issued to vehicles.

An inspection certificate is not issued until a vehicle passes all components of the safety and emissions inspection. Inspection certificates are affixed to the inside of the lower portion of the windshield on the driver's side to prevent theft or removal. Removal of an inspection certificate by breaking into a vehicle is a felony offense.

CHAPTER 10: WAIVERS AND TIME EXTENSIONS

(No Revision)

CHAPTER 11: MOTORIST COMPLIANCE ENFORCEMENT
(Revised)

The October 26, 2005, Texas Inspection and Maintenance (I/M) state implementation plan (SIP) revision was used as the basis for this SIP revision, which includes a non-substantive reorganization of information, in addition to new information where noted. The reference to "Specifications for Vehicle Exhaust Gas Analyzer Systems for Use in the Texas Vehicle Emissions Testing Program," in this chapter was modified to indicate the new location.

11.1 GENERAL

Compliance is ensured through a re-registration denial and a sticker-based enforcement system. The I/M program is expected to achieve a compliance rate of 96 percent. Results from a safety inspection compliance survey in Dallas, Tarrant, Harris, and El Paso Counties indicates 95 percent compliance without the additional program enhancements. Results are located in Appendix J: *Texas Department of Transportation, Vehicle Titles and Registration Division, 2000 Summer Research Project Parking Lot Survey Report, March 2003*.

The ultimate enforcement is denial of vehicle re-registration for those vehicles registered in a county with an I/M program that do not comply with vehicle inspection requirements. Although, the Texas Department of Public Safety (DPS) and other law enforcement agencies have the authority to issue misdemeanor citations to a motorist operating a vehicle in violation of certain provisions of Texas Transportation Code (TTC), Chapter 548, which includes emissions-related inspections.

11.2 RE-REGISTRATION DENIAL

To implement re-registration denial as an enforcement tool, the Texas Commission on Environmental Quality (TCEQ) compares the registration and the inspection databases to identify subject vehicles that are registered in the affected area, but have failed to comply with the I/M program. Letters are sent to registered owners of vehicles that meet the subject criteria for inspection and fail an initial inspection, but never pass a subsequent inspection, receive a waiver, or otherwise comply with the I/M program requirements. Vehicle owners that do not comply are flagged in the Texas Department of Motor Vehicles' registration database and are denied re-registration until the vehicles have complied with the I/M program requirements.

11.3 STICKER-BASED ENFORCEMENT

Registration certificates, which are affixed on the windshield immediately above the safety inspection certificate, have markings that indicate a vehicle is registered in an I/M program area. The safety inspection program uses a windshield certificate indicating the subject vehicle is in compliance with both the emissions and the safety inspection program. Law enforcement officials can visually compare the county of registration and the county of inspection.

Inspection certificates have a DPS seal, a unique number, and tear when removed. Additional security features are routinely added to deter counterfeiters. The DPS tracks inspection certificate numbers with assistance from the vehicle identification database (VID) and the TCEQ's "Specifications for Vehicle Exhaust Gas Analyzer Systems for Use in the Texas Vehicle Emissions Testing Program," which were formerly referenced in the appendices of the I/M SIP and are now available at the TCEQ's central office or at http://www.tceq.state.tx.us/assets/public/implementation/air/ms/IM/txvehanlspecs.pdf.

Motorists are issued citations by local and state law enforcement officials for driving a vehicle with an expired or invalid inspection certificate or for evading the emissions inspection or inspection outside of the affected area. These violations of the TTC, §548.602 (Class C misdemeanor) and §548.603 (Class B misdemeanor) are punishable by a fine starting at $200 and

not exceeding $2,000 for each occurrence. The owner is subject to an additional citation every time the vehicle is driven. Violators are given notification that they shall comply with the I/M program requirements. Noncompliance will result in delivery of additional citations and fines that may accumulate to more than the expense of a minimum expenditure waiver. Continual noncompliance will result in denial of re-registration.

Fines for motorists involved in bribery or fraud are substantially higher and may also result in incarceration. Under TTC, §548.603 (Class B misdemeanor), a motorist suspected of obtaining an inspection certificate in a neighboring county to avoid the emissions portion of the inspection may be charged with willful purchase of a fraudulent inspection certificate.

11.4 ADDITIONAL ENFORCEMENT ACTIVITIES

The TCEQ may use vehicle identification number decoder software to search for vehicles that have changed the fuel type designation from gasoline to diesel on the vehicle registration record to avoid emissions inspection requirements. In addition, records that have had the fuel type designation changed will be flagged in the VID. The commission will analyze this data for abuse.

Owners of subject gasoline-powered vehicles two through 24 years old that are identified as failing the emissions standards set for remote sensing are required to comply with the vehicle emissions inspection requirements of the affected area. Registered owners are given notification that they shall submit their vehicle for an emissions inspection within 30 days. Noncompliance will result in delivery of citations and continual noncompliance will result in denial of re-registration.

Vehicles that are titled or registered in counties without an I/M program and then resold (change of ownership) into a county with an I/M program are not eligible for title receipt or registration unless proof is presented that the vehicle has passed a vehicle emissions inspection within 90 days before title transfer. The buyer shall submit to the county tax assessor-collector or their deputy proof in the form of the following documents:

- a vehicle inspection report; or
- another proof of compliance as authorized by the DPS.

The test-on-resale requirement does not apply to 1996 and newer model-year vehicles with less than 50,000 miles.

CHAPTER 12: ENFORCEMENT PROGRAM OVERSIGHT

(No Revision)

CHAPTER 13: QUALITY ASSURANCE

(No Revision)

CHAPTER 14: ENFORCEMENT AGAINST CONTRACTORS, STATIONS, AND INSPECTORS

(No Revision)

CHAPTER 15: DATA COLLECTION

(No Revision)

CHAPTER 16: DATA ANALYSIS AND REPORTING

(No Revision)

CHAPTER 17: INSPECTOR LICENSING AND CERTIFICATION

(No Revision)

CHAPTER 18: PUBLIC INFORMATION AND CONSUMER PROTECTION

(No Revision)

CHAPTER 19: IMPROVING REPAIR EFFECTIVENESS

(No Revision)

CHAPTER 20: COMPLIANCE WITH RECALL NOTICES

(No Revision)

CHAPTER 21: ON-ROAD TESTING

(No Revision)

CHAPTER 22: STATE IMPLEMENTATION PLAN SUBMISSION

(No Revision)

Appendices are available upon request. Please contact:

Mobile Source Programs Team
Air Quality Planning Section
Texas Commission on Environmental Quality
Phone: (512) 239-1459
E-mail: aqp@tceq.state.tx.us

RESPONSE TO COMMENTS RECEIVED REGARDING THE INSPECTION AND MAINTANANCE (I/M) STATE IMPLEMENTATION PLAN (SIP) REVISION

Public hearings for this proposed I/M SIP revision were offered on July 20, 2010, at 2:00 p.m. at the Texas Commission on Environmental Quality (TCEQ), Region 4 Office, Dallas-Fort Worth Public Meeting Room, on 2309 Gravel Road in Fort Worth; on July 21, 2010, at 10:00 a.m. at the TCEQ, Building E, Room 201S, on 12100 Park 35 Circle in Austin; and on July 22, 2010, at 3:00 p.m. at the Houston-Galveston Area Council, Conference Room A, on 3555 Timmons Lane in Houston. A question and answer session was held 30 minutes prior to each hearing. The hearings were not officially opened because no party indicated a desire to give comment.

The comment period opened on June 18, 2010, and closed on July 26, 2010. The commission received one comment from the United States Environmental Protection Agency (EPA).

The EPA expressed support for the proposed I/M SIP revision and expressed continued support for the I/M program and the Low Income Repair and Replacement Assistance Program (LIRAP).

The commission appreciates the EPA's support for the proposed I/M SIP revision, the I/M program, and the LIRAP. No changes were made to the I/M SIP based on this comment.