

REVISIONS TO THE STATE IMPLEMENTATION PLAN (SIP)  
FOR CARBON MONOXIDE (CO)

1992 CO SIP FOR MODERATE AREA - EL PASO

TEXAS AIR CONTROL BOARD  
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SEPTEMBER 1992

## CONTENTS

- D. CARBON MONOXIDE (CO) (Revised.)
  - 1. 1979 CARBON MONOXIDE (CO) STATE IMPLEMENTATION PLAN (SIP) REVISIONS FOR EL PASO COUNTY (No change.)
    - a. General
    - b. Air Quality
    - c. Emissions Reduction Requirement
    - d. Emissions Inventory
    - e. Management of New Source Growth
    - f. Proposed Control Strategy
  - 2. POST-1982 CO SIP REVISIONS FOR EL PASO COUNTY (No change.)
    - a. General
    - b. Local Participation
    - c. Air Quality Planning
    - d. Choice of Reduction Model
    - e. Emission Reduction Requirements
    - f. Emissions Inventory
    - g. Management of New Source Growth
    - h. El Paso County CO Control Strategy
    - i. Demonstration of Attainment and Associated Implications
    - j. Projection of Reasonable Further Progress
  - 3. 1992 CO SIP REVISIONS FOR MODERATE AREA EL PASO (New)
    - a. General
    - b. Geography and International Considerations
    - c. Air Quality Analysis
    - d. Emissions Inventory
    - e. Attainment Demonstration
    - f. Oxygenated Fuels
    - g. Inspection/Maintenance
    - h. New Source Review

D. CARBON MONOXIDE (CO) (Revised)

1. 1979 CO STATE IMPLEMENTATION PLAN (SIP) REVISIONS FOR  
EL PASO COUNTY

a.-f. (No change.)

2. POST-1982 CO SIP REVISIONS FOR EL PASO COUNTY

a.-j. (No change.)

3. 1992 CO SIP REVISIONS FOR MODERATE AREA EL PASO (New.)

a. General

On November 15, 1990, Congress passed the Federal Clean Air Act (FCAA) Amendments of 1990. Title I of the FCAA amendments revised the requirements for areas that have not attained the National Ambient Air Quality Standards (NAAQS) for CO. The FCAA created a new classification structure for CO nonattainment areas based on the severity of the problem. Two categories of non-attainment, "moderate" and "serious", were created. Moderate areas were further categorized as those having design values of 12.7 parts per million (ppm) and below, and those having design values greater than 12.7 ppm. Areas having design values greater than 12.7 ppm are subject to more stringent FCAA requirements. A

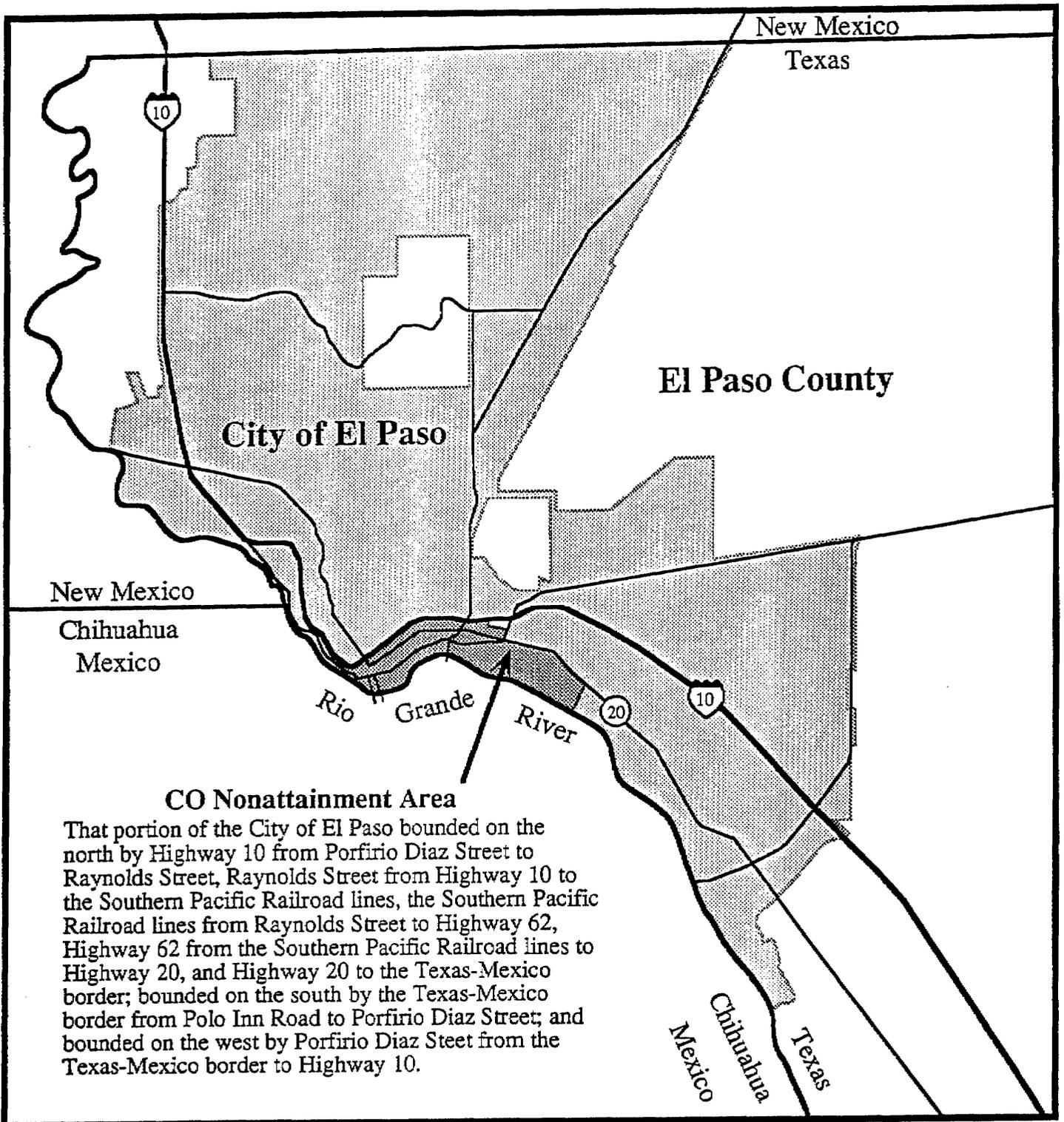
portion of El Paso is classified as a moderate CO nonattainment area with a design value of 12.7 ppm or below (see Figure 2). Under this classification, El Paso must attain the NAAQS by December 31, 1995 or face possible reclassification as a "serious" area.

Highlights of the 1992 SIP revision include a comprehensive 1990 base year emissions inventory (including the wintertime peak CO season), an oxygenated fuel program effective throughout El Paso County, new source review (NSR) provisions for major CO sources, and a commitment to make corrections to an existing vehicle inspection/maintenance (I/M) program. In a separate SIP submittal due November 15, 1993, TACB will propose contingency CO control measures if applicable to take effect should El Paso fail to attain the NAAQS for CO by December 31, 1995. The nature and scope of these contingency measures is being discussed with EPA in light of the recognized effect of Ciudad Juarez on El Paso pollutant levels.

Beginning September 30, 1995, TACB is committing to submit periodic emission inventories every three years until El Paso is redesignated as attainment for CO.

b. Geography and International Considerations

FIGURE 2



El Paso CO Nonattainment Area

El Paso and Ciudad Juarez, Mexico (Juarez) are adjacent cities separated only by the Rio Grande. The proximity of the cities and the surrounding mountains create a common air basin within which atmospheric dispersion is frequently limited, resulting in elevated concentrations of pollutants, including CO. Federal, state, and local air pollution agencies have recognized the situation as international in scope, and are consequently working cooperatively in an attempt to solve the problem.

In October 1989, the U.S. and Mexican governments signed Annex V to the 1983 U.S. - Mexico Environmental Agreement. It was Annex V that formed the foundation for cooperation between the two governments for studying and attempting to resolve the air pollution problems in the El Paso/Juarez basin. Studies have focused on the gathering of comprehensive air quality, meteorological, and emissions data, as well as dispersion modeling. The Integrated Environmental Plan for the U.S. - Mexican Border, signed by President Bush in January 1992, will continue the cooperation between the two countries. Planned programs for the El Paso/Juarez basin will involve the U.S. Environmental Protection Agency (EPA), Secretaria de Desarrollo Social (SEDESOL), the Texas Air Control Board (TACB), and the El Paso City-County Health District (EPCCH).

c. Air Quality Analysis

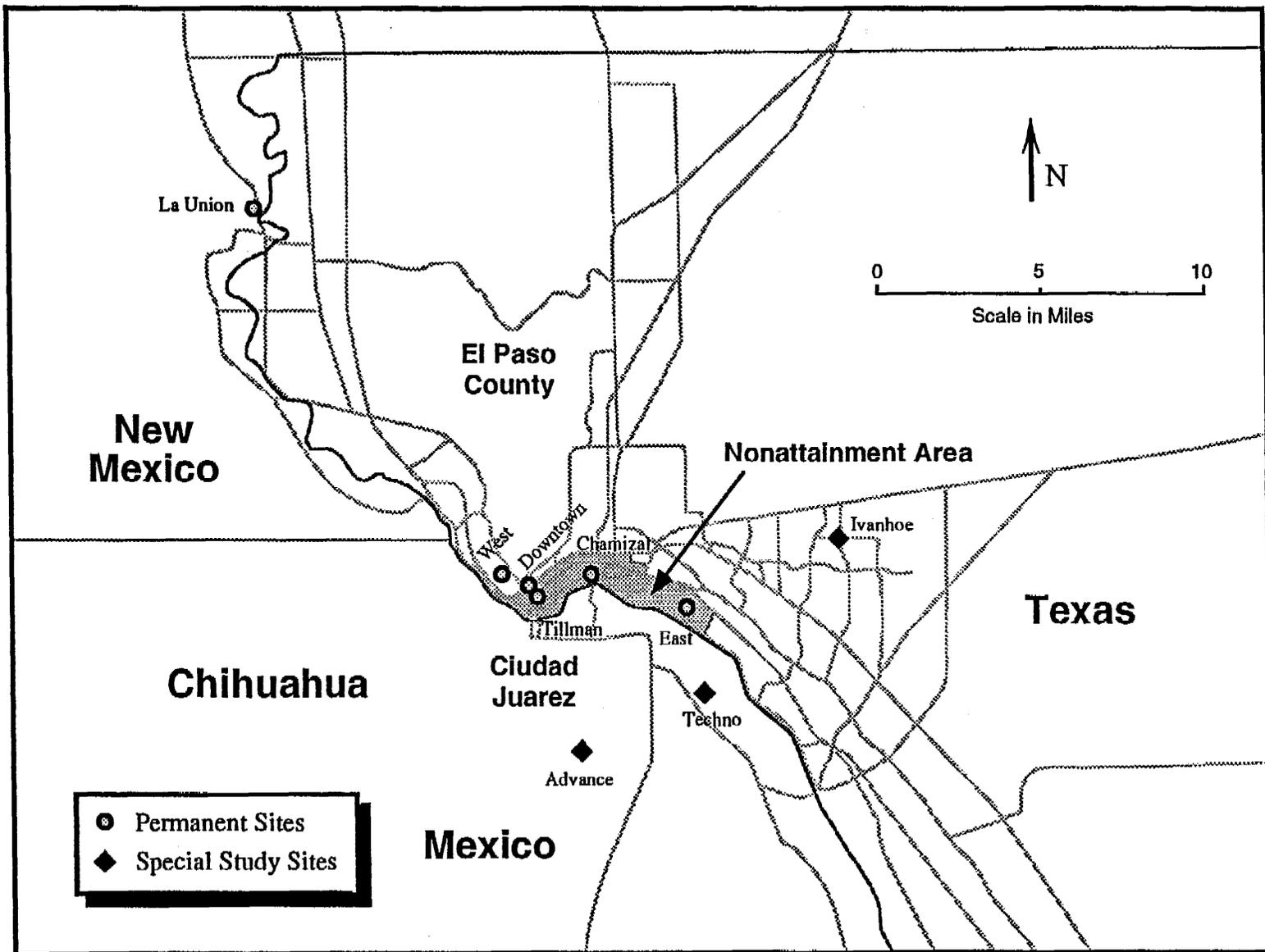
## 1) CO Monitoring Sites

Since 1985, CO has been measured continuously at four locations in El Paso County. Three of the sites are operated by the TACB and one site by the EPCCH. In 1988, a fifth CO monitoring station was established by the EPCCH. Locations of the monitoring sites are shown in Figure 3. Beginning in December 1990, a special study program was initiated which included three additional CO monitoring stations - one at the EPCCH Ivanhoe site and two in Juarez, Mexico.

## 2) Summary of Measured CO Concentrations

There are two NAAQS for CO: a 1-hour NAAQS of 35 ppm and an 8-hour NAAQS of 9 ppm, neither of which is to be exceeded more than once per calendar year. The 1-hour NAAQS has not been exceeded in El Paso, but the 8-hour NAAQS has been exceeded at four of the five permanent monitoring sites. Table 8 lists the annual number of 8-hour excursions above the NAAQS for the period 1985 through 1991, along with the high and second high 1-hour and 8-hour CO measurements. The number of hours monitored for each of the permanent monitoring sites is also shown. Summary data from the 1990 special study sites were not available for inclusion in this document.

FIGURE 3



Location of El Paso Area CO Monitoring Sites

### 3) Effect of Topography and Meteorology on CO Measurements

The metropolitan El Paso-Juarez area lies along the Rio Grande valley in a gap between the Franklin Mountains to the north and the Juarez Mountains to the southwest. The surrounding area to the east and west is a broad flat desert basin. The Rio Grande has carved a channel about 200 feet deep and a few miles wide through the surrounding basin. The channel is about 2,000 feet or more lower than the nearby mountain peaks in Texas and Mexico. Since the river channel contains the lowest elevations in the area, it serves as a channel for cold air drainage and inversion formation at night when cloud cover is minimal.

The nearby mountains to the north and southwest of downtown El Paso cause major effects on the wind flow in the area. Since the mountains extend as much as 3,000 to 5,000 feet above the surrounding basin, they force the large scale wind flow to deflect over and around the higher elevations. As a result, the wind in the downtown El Paso area is generally forced to flow either from the west through northwest or from the east through southeast. Locations adjacent to the mountains experience a blockage of winds from the direction of the mountains, except during periods of nighttime downslope cold air drainage flows.

The importance of local meteorology and terrain features becomes evident when the occurrence of high CO concentrations is examined. All of the high CO episodes measured in the El Paso area have occurred at night in conjunction with light winds, cold temperatures, clear or partly cloudy skies, and strong ground-based temperature inversions which are enhanced by the local topography. With these conditions, atmospheric mixing and transport is very limited and pollutants emitted near ground level are quickly accumulated in a shallow layer adjacent to the ground. Most of the episodes begin near sunset at about 5 p.m. to 7 p.m. and extend beyond midnight into the early morning hours. The greatest frequency of episodes occurs in November and December, with occasional episodes in October and January. Rarely, episodes of CO exceeding the NAAQS have occurred in September, February, and March. No episodes of CO exceeding the NAAQS have ever been recorded from April through August.

d. Emissions Inventory

A comprehensive draft inventory of CO emissions in El Paso was submitted to EPA for review in August, 1992. Once the review is complete and any necessary corrections made, TACB will submit the inventory as a SIP revision by November 15, 1992 or at a later date as authorized by EPA.

e. Attainment Demonstration

In accordance with Section 187a of the 1990 FCAA amendments, a CO attainment demonstration is not specifically required for El Paso by November 15, 1992 since the design value at the time of enactment of the FCAA amendments was 12.6 ppm. Attainment demonstrations must be conducted by November 15, 1992 only for areas having a design value greater than 12.7 ppm.

However, based on requirements in Section 818 of the FCAA amendments, the TACB will conduct dispersion modeling in an attempt to demonstrate that El Paso will be in attainment of the CO NAAQS by December 31, 1995 based on U.S. emissions alone. As per Section 186(b)(2) of the FCAA amendments, this attainment demonstration will be prepared in order to avoid the reclassification of El Paso to a "serious" category for CO. The effect of planned control strategies on emissions (e.g., oxygenated fuels and enhanced I/M) will be considered in the modeling.

In accordance with the intent of Annex V to the 1983 U.S. Mexico Environmental Agreement, the TACB will work in cooperation with EPA, SEDESOL, and the EPCCHD to develop control strategies which will result in attainment of the CO NAAQS over the entire El Paso/Juarez basin. This task may require modeling of both U.S. and Mexico emissions utilizing highly complex modeling techniques. The TACB's ability to carry out modeling of the

El Paso/Juarez air basin will depend on the availability of appropriate air quality, meteorological, and emissions data for Juarez, as well as adequate funding.

The TACB anticipates that modeling will be initiated during fiscal year 1993. A detailed work plan and modeling protocol will be prepared and submitted to EPA prior to initiation of the modeling.

f. Oxygenated Fuels

1) General

The 1990 FCAA amendments require the SIP revisions for CO non-attainment areas to include a program to regulate the oxygen content of gasoline sold or dispensed during the winter season. The program must include provisions for the regulation of affected facilities and the administration and enforcement by the state in accordance with EPA guidance.

In October 1991, the City of El Paso implemented an oxygenated fuels program as a proactive measure in anticipation of the federal requirements. This program required that gasoline sold or distributed within the city limits of El Paso during the period of October 1 through March 31 have a minimum oxygen content of 2.0 percent by weight beginning in 1991. The oxygen

content is required to be increased to 2.7 percent by weight during the control period in 1992 and all subsequent years.

In this SIP revision, the TACB is amending Chapter 114 of the Texas Administrative Code (TAC), concerning Control of Air Pollution from Motor Vehicles, to supplement and extend the oxygenated fuels program throughout El Paso County and to establish additional administrative procedures. The requirements for the implementation of this program are consistent with EPA implementation guidelines issued November 19, 1991.

## 2) Regulatory Requirements

A new §114.13, concerning Oxygenated Fuels, provides control requirements, recordkeeping requirements, and other procedures which each affected facility must implement to ensure that composition of all gasoline sold or dispensed within the control area during the control period conforms to EPA requirements and that the blending of gasoline and oxygenate occur within the gasoline distribution network.

### a) Oxygen Content of Gasoline

The specified oxygen content of gasoline is a minimum of 2.7 percent by weight. This minimum becomes effective October 1, 1992 and remains in force during the control period for each

subsequent year. Blending of oxygenate into gasoline may be accomplished at various points within the marketing process, but must be completed prior to final distribution to the consumer.

b) Control Period

Peak carbon monoxide levels in El Paso are normally reached during winter months. The control period is that portion of the year during which only oxygenated fuel must be available for use by motorists. Based on historical ambient monitoring information, October 1 through March 31 has been designated as the control period for El Paso County.

c) Facility Registration

All gasoline storage, refining, and blending facilities; terminal and bulk plants; and gasoline transporters affected by this program are required to register with the TACB and to provide and update specific information by September 1 of each year.

d) Recordkeeping

Each affected facility will be required to maintain specified records sufficient to provide complete and accurate documentation the oxygen content and quantity of fuels processed, transferred, and dispensed by the facility. This information must be suffi-

cient for state-authorized personnel to determine compliance with the regulations and to track associated potential violations at upstream and downstream facilities.

e) Oxygen Credit/Averaging/Banking/Trading

No averaging, banking, or trading of oxygen credits will be allowed until an acceptable mechanism for the reporting and tracking of the credits is established by the TACB. TACB is working to establish this program.

3) Administrative Requirements

EPA guidance regarding oxygenated fuels programs also identifies specific measures which each state must administer to ensure that regulatory provisions are effectively implemented. These measures must ensure a proper review of the effectiveness of the program, define investigation procedures and enforcement mechanisms, and establish other support activities.

a) Data Processing

The TACB will establish a computerized system to obtain, maintain, and track data associated with the administration, implementation, and enforcement of the provisions of the oxygenated fuels program.

(i) The TACB will require registration of specified facilities involved in the oxygenated fuel programs, including refiners, blenders, transporters, and marketers within the control area during the control period. The TACB will develop a data base which contains information necessary to provide a complete and accurate characterization of each facility. This data base will be used to ensure the ongoing tracking of compliance with program requirements. Registration will also enable the TACB to contact affected facilities as necessary to investigate potential violations and distribute information.

(ii) The TACB will maintain a complete and accurate record of the compliance record of each affected facility.

(iii) The TACB will maintain a complete and accurate record of data obtained during periodic investigations, QA audits, sampling and testing reports, and recordkeeping reviews. This data will be used to assess and monitor the compliance of each facility and the overall effectiveness of the oxygenated fuels program. Quantitative measures will be developed, whenever possible, to evaluate the program.

(iv) The TACB will study the feasibility of establishing a procedure for effectively monitoring and administering a program for the averaging and trading of oxygen credits.

Such a mechanism would allow affected facilities greater flexibility in achieving compliance. Adoption of an averaging and trading program may be considered at such time that an effective procedure can be identified and necessary resources are made available for adequate administration and oversight.

b) Clerical Reviews

The TACB will review an adequate sampling of the records required to be maintained for all affected facilities as necessary to ensure compliance throughout the control period. If feasible, the review will utilize computer assisted quality control and assurance checks. Such records will include, but are not limited to, blending records, transfer documents, and testing reports.

c) Field Inspections

The TACB and the El Paso City-County Health District (EPCCH) will inspect at least 20% of the affected facilities during each control period. These inspections will focus primarily on oxygenate blending facilities and retail/wholesale distribution facilities and will include an inspection of records and pump labels, as well as physical sampling.

(i) Facility records will be reviewed

to ensure that proper documentation exists to monitor the specifications of each batch of gasoline at each point within the production and distribution network. Violations identified at any facility should be traceable to the responsible party.

(ii) Pump labels will be inspected to ensure proper location, legibility, and wording.

(iii) A sample of gasoline will be obtained from each storage tank containing each separate grade of gasoline offered at a facility using approved sampling methodologies. An appropriate chain of custody procedure shall be instituted for the transfer, testing, and reporting of gasoline samples for use in enforcement proceeding.

d) Laboratory Testing

The TACB will ensure the proper testing and reporting of gasoline samples taken to determine compliance with the minimum oxygen content limit.

(i) The TACB will have gasoline sample analyses performed at either its own laboratory facilities, at an independent, qualified laboratory, or through the use of an approved field analysis device. Cost, turnaround time, and availability of services may be considered.

(ii) The following test methods will be used for conducting gasoline analyses:

(A) gasoline sampling methodology described in 40 Code of Federal Regulations, Part 80, Appendix D,

(B) American Society for Testing and Materials Method D4815 for the control periods beginning in 1992 and thereafter, or

(C) U. S. Environmental Protection Agency (EPA) OFID Test method, or

(D) other test methods approved by EPA beginning in 1995 and thereafter.

e) Enforcement

The Texas Clean Air Act provides the TACB the authority to enforce any rules or regulations adopted by the Board. Violations of these regulations may result in administrative penalties of up to \$10,000 per violation and civil penalties of up to \$25,000 per violation.

(i) Upon detection of an apparent violation of any applicable rule or regulation, the TACB will issue a

notice of violation to the affected facility and will initiate a further investigation to determine the extent to which the violation may impact other facilities.

(ii) At fuel dispensing facilities, further dispensing of noncomplying gasoline will be prohibited, and a notice will be placed on any pump which has been determined to provide fuel with less than 2.7 percent oxygen. This notice will obscure the required label regarding oxygenated fuels and will read, "The gasoline dispensed from this pump does NOT comply with the state regulations for oxygen content and must NOT be used in motor vehicles."

(iii) At fuel blending, storage, or transfer facilities, further sale or distribution of noncomplying gasoline will be prohibited, downstream facilities which may have received noncomplying gasoline will be immediately notified of the possibility that violations may exist, and a compliance plan and schedule will be provided to the TACB within two working days demonstrating how the violation at the affected facility and all downstream facilities will be rectified.

(iv) A penalty schedule will be developed which establishes appropriate penalties for facilities violating the oxygenated fuels regulations taking into account the severity

nouncements, informational brochures, and a hotline to receive inquiries and complaints regarding the oxygenated fuels program.

(ii) A mechanics training program will be implemented to improve the understanding of area repair technicians regarding the effects of the oxygenated fuels program, the types of complaints to be expected from motorists, and common problems and their solutions. This program may be incorporated into the training program to be implemented in conjunction with the vehicle I/M program.

#### 4) Resources

The TACB staff will prepare a detailed estimate of the resource requirements of implementing the oxygenated fuels program. This estimate will be presented with the agency's fiscal year 1994 budget request to the Legislature.

#### 5) Benefits

As the name would imply, oxygenated gasoline contains a greater weight percentage of oxygen than non-oxygenated gasoline. This

of the violations, intent, frequency of the violations, and deterrent effect.

f) Training

(i) The TACB will be responsible for providing training to enforcement personnel assigned to monitor and regulate the facilities affected by the oxygenated fuels program. TACB also encourages the establishment of quality assurance programs throughout the gasoline distribution network to monitor blending and sampling procedures.

(ii) The TACB will also provide assistance to personnel at affected facilities responsible for complying with the regulations. Workshops, guidance materials, brochures, or other technical information may be provided by the TACB on the proper handling of the product, teaching approved testing and sampling methods for use in QA programs, handling customer complaints related to oxygenated gasoline for mechanics, and developing effective filing systems for the records required by the regulations.

g) Public Information

(i) The TACB will institute a public education program consisting of news releases, public service an-

additional oxygen allows the fuel to be more completely burned or oxidized. CO is oxidized into non-toxic carbon dioxide (CO<sub>2</sub>). Enhanced fuel combustion resulting from the use of cleaner-burning oxygenated gasoline has been demonstrated to reduce CO emissions from motor vehicles significantly.

a) Information provided in EPA guidance documents suggest that the 2.7 percent oxygen content by weight required by the oxygenated fuels program should result in approximately a 17 percent reduction in highway CO emissions. Specifically, EPA analysis indicates a 17.7 percent reduction from non-catalyst equipped vehicles, a 25.5 percent reduction from oxidation catalyst equipped vehicles, and a 15.6 percent reduction from three-way catalyst/closed loop technology vehicles.

b) In the 1988 emissions inventory for El Paso County, mobile source emissions contributed approximately 96 percent of the CO emissions within the area. An anticipated reduction of 17 percent would result in an estimated 18,345 tons per year decrease in CO emissions. While the final 1990 emissions inventory, expected to be released in November 1992, may alter these figures somewhat, the air quality benefits of the oxygenated fuels program are clear.

g. Inspection/Maintenance

The El Paso Metropolitan Statistical Area has an existing I/M Program that was adopted to address CO nonattainment. The 1990 FCAA Amendments require basic I/M programs in areas that (1) had a design value of less than 12.7 ppm for CO, (2) were designated marginal or moderate for ozone, or (3) were designated serious or above for ozone and had an urbanized population of 200,000 or less. Enhanced I/M programs were required in areas that (1) had a design value of greater than 12.7 ppm for CO or (2) were designated serious or above for ozone and had an urbanized population exceeding 200,000. El Paso is designated as a serious ozone nonattainment area and has an urbanized population exceeding 200,000 and therefore will be required to implement an enhanced I/M program.

The El Paso program will be phased in beginning in 1994 with full implementation by 1996. An additional SIP revision to specifically address the vehicle I/M program requirements and commitments will be submitted to EPA prior to the statutory November 15, 1992 deadline. The TACB will also submit a SIP revision covering the use of onboard diagnostics for automobiles within two years of receiving guidelines from EPA.

#### h. New Source Review

The construction of new industrial facilities or the modification of existing facilities may affect CO emission rates. Since 1972,

all new or modified stationary emission sources in Texas have been required to apply best available control technology to control emissions. Since 1979, new major sources in CO non-attainment areas have been required to control emissions to the lowest achievable emission rate (LAER) as defined in the FCAA and are subject to new source review as specified under Part D of the FCAA. In addition, CO emissions from new facilities emitting more than 100 tons per year (or modification of existing facilities that result in a net gain of this emission level) must be offset according to the requirements of TACB Regulation VI, Control of Air Pollution By Permits For New Construction or Modification, §116.3(a)(11) and (12). The offset ratio remains at greater than 1 to 1. Operators of new sources will be required to obtain offsets for the new source and to comply with the LAER.