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

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
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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 (Revised.)

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 vehicle inspection/maintenance (I/M) program.

b. Geography and International Considerations

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), the Mexican Ministry of Environment, Natural Resources, and Fisheries (SMARNP), the Texas Natural Resource Conservation Commission (TNRCC), and the El Paso City-County Health Disrict (EPCCHD).

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 TNRCC and one site by the EPCCHD. In 1988, a fifth CO monitoring station was established by the EPCCHD. Locations of the monitor-

ing 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 EPCCHD 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.

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

1) Background

As part of the program to comply with the CO NAAQS, the TNRCC is required to compile certain CO emissions inventory data. The 1990 CO emissions inventory for El Paso County is a compilation of stationary and mobile source emissions. The EPA document Procedures For The Preparation of Emission Inventories For Carbon Monoxide and Precursors of Ozone, Volume I, EPA-450/4-91-016, May 1991, specifies the methods for states to use in the preparation of stationary source CO emissions inventories for SIP purposes. In addition, the EPA document Emission Inventory Requirements for

1990 Clean Air Act Amendments Carbon Monoxide State Implementation Plans, EPA-450/4-91-011, EPA, March 1991, was used in inventory planning and documentation preparation.

Moderate CO nonattainment areas with a design value of 12.7 ppm or less are required to compile only two types of inventories, a base year inventory and periodic inventories. The base year CO inventory for El Paso County addresses actual emissions during the peak CO season of December through February. All stationary point and area sources and on-road/nonroad mobile sources are included in the compilation.

Periodic inventories must be submitted initially by September 30, 1995 and every three years thereafter until the area is redesignated to attainment.

EPA guidelines recommend that the existing CO emissions inventory be modified for use in CO SIPs or that the states develop new base case CO inventories. The TNRCC elected to develop a new inventory based on actual emissions during the peak CO period of December 1989 through February 1990.

A summary of CO emissions in El Paso County for 1990 is shown in Table 9. A graphical representation of the data is presented in

Figure 4. The following discussion of emissions inventory development is divided into point, area, and mobile sources.

TABLE 9

1990 Summary of El Paso County CO Emissions (tons/day)

Year	Point	Area	Mobile	Total
1990	8	22	384	414

2) Point Sources

Point sources for the 1990 CO emissions inventory were selected through a search of the TNRCC Point Source Data Base (PSDB) for companies that had CO emissions equal to or greater than 100 tons per year. Consultations with the TNRCC El Paso Regional Office provided additional information regarding sources not currently in the PSDB. Selected companies were sent an emissions inventory

questionnaire with guidance on the proper procedures for data entry on the forms. Information describing the purpose of the inventory and for obtaining current CO factors was also provided. For El Paso County, five questionnaires were received and quality assured by Emissions Inventory staff. Emissions are summarized for each company in Table 10.

1990 El Paso County

CO Emissions

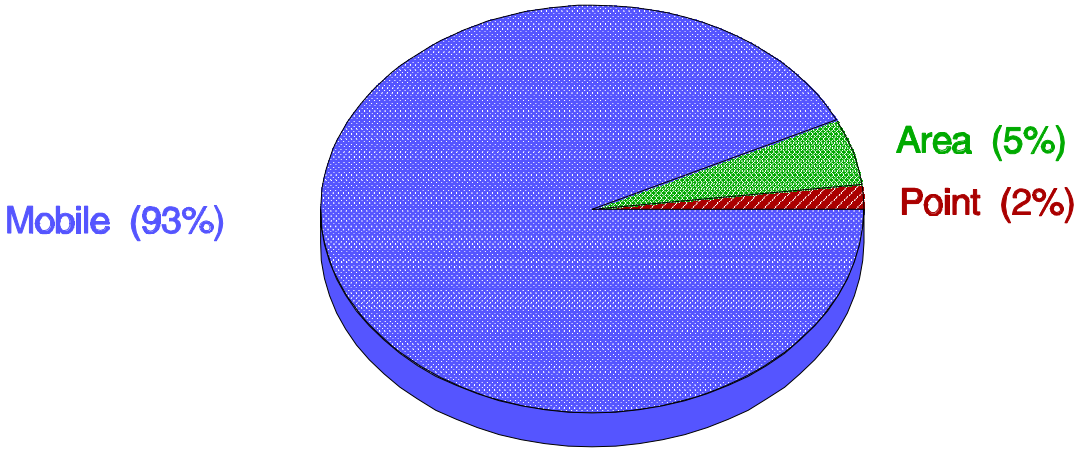


Table 10

1990 Point Source Summary of CO Emissions in El Paso County (tons/day)		
Account Number	**Company**	**Emissions**
EE-0015-H	Chevron USA, Inc.	1.23
EE-0029-T	El Paso Electric Company	1.57
EE-0076-L	Phelps Dodge refining Corporation	0.28
EE-0082-P	El Paso Refining Incorporated	3.99
EE-0188-V	Providence Memorial Hospital	0.52

Information from the questionnaires was audited for accuracy and completeness, and verified by comparison with data from field investigations and EPA CO emission factors. Detailed point source data for the inventoried facilities has been entered in the PSDB and will be made available for review upon request.

3) Rule Effectiveness

Two companies affected by the rule effectiveness program are Chevron USA, Incorporated and El Paso Refining, Incorporated. These companies have fluid catalytic cracking units (FCCU) and a CO boiler and are regulated by TNRCC Regulation IX, Control of Air Pollution from Carbon Monoxide. CO emissions from the FCCUs

were estimated with the CO boiler as the control device. To account

for rule effectiveness, 20 percent of the uncontrolled CO emissions were added to the controlled emission rates.

4) Area Sources

Area sources are combinations of many individual sources too numerous and too small to be individually recorded. Individually, their contribution of CO to the atmosphere is not significant. However, as a group, they contribute significantly. Emissions of CO from area sources are generated entirely from combustion.

The TNRCC estimated area source CO emissions by employing the guidance and/or emission factors from the two EPA publications: Procedures for Emissions Inventory Preparation, Volume III: Area Sources and Compilation of Air Pollutant Emission Factors (AP-42). Area source CO emissions were developed on a countywide annual basis and are reported in tons per day during the peak CO season for the following area source categories:

- fireplaces,
- trash burning,

- open burning,
- residential heating, and
- commercial heating.

Additional information describing the methodologies and procedures for estimating CO emissions from all area source categories in El Paso County is presented in Appendix AK. A summary of 1990 area source CO emissions by source category is presented in Table 11. The relative percentages of each category are shown in Figure 5.

TABLE 11

1990 Area Source CO Emissions El Paso County

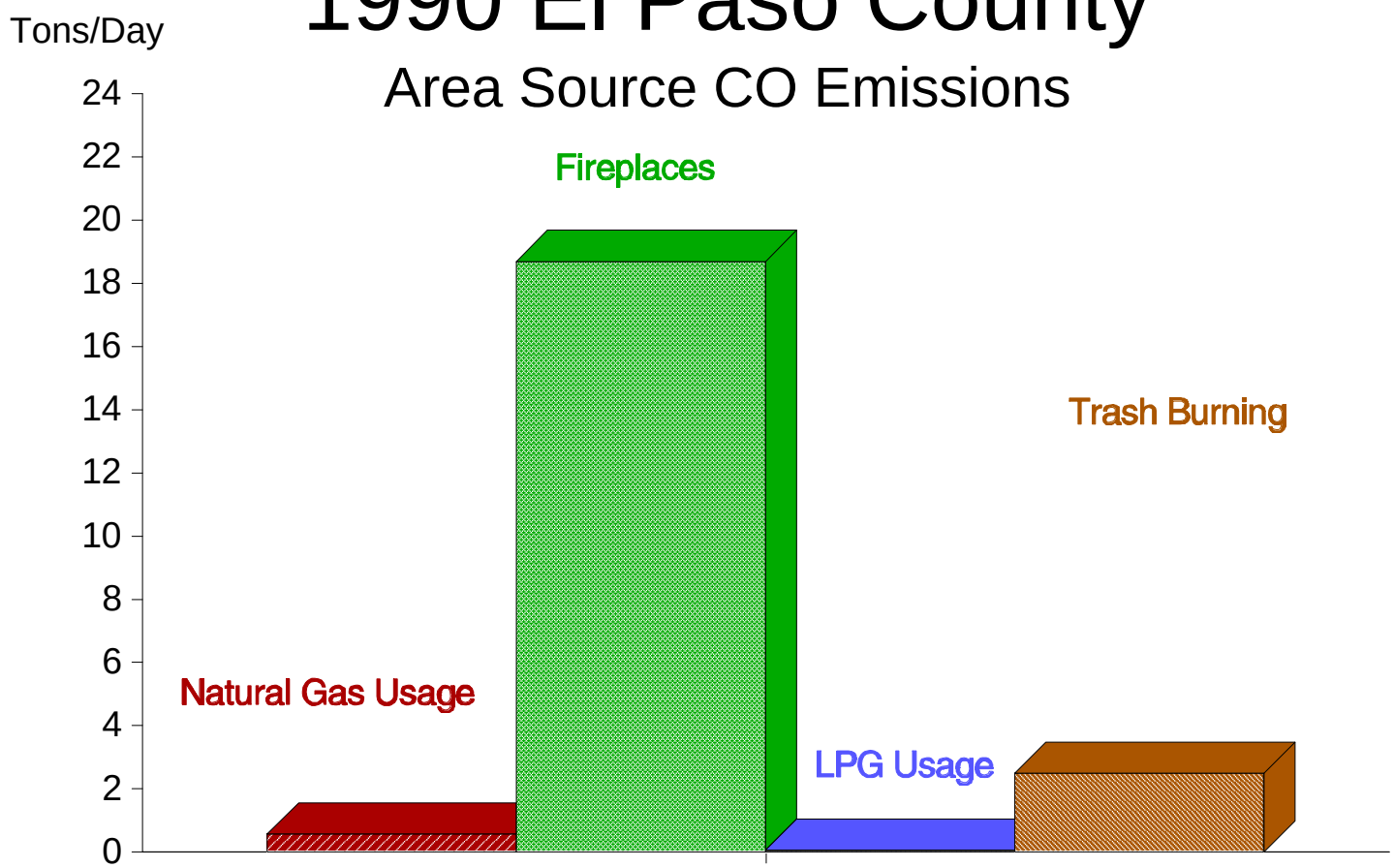
Natural Gas Combustion	Emissions (tons/day)
Residential	0.326
Commercial	0.255
Fireplaces	
City of El Paso	11.900
Colonias	6.800
Liquid Petroleum Gas Combustion	0.060
Trash Burning	2.500
TOTAL	21.800

a) Fireplaces

Population data furnished in the 1990 U.S. Census provided a surrogate to estimate the number of fireplaces within the City of El Paso. The TNRCC assumed that fireplace burning is primarily related to nonheating purposes such as parties and holiday activities.

1990 El Paso County

Area Source CO Emissions



Several communities in El Paso County are classified as colonias. The City and County of El Paso define a colonia as a community without one or more of the following utilities: water, electricity, and/or sewage system. Officials from both the EPCCHD and El Paso County provided information regarding population and location of the colonias. Approximately 68,300 people live in the five colonias in El Paso County. The source categories below are specifically defined for the colonias. The TNRCC staff conducted a visual survey of the residences in the colonias in El Paso County to determine the number of fireplaces or other wood burning devices with chimneys. It was assumed that if a residence had a chimney, they had a fireplace or other wood burning device used for heating only.

b) Trash Burning

A visual survey of the colonias was conducted to determine the incidence of trash burning. The survey revealed that many colonia residents burn their trash. However, a telephone survey of the commercial disposal companies in the area indicated that many residences subscribe to their services.

c) Open Burning

The EPCCHD, the County of El Paso, the Texas A & M Agricultural Extension Service (Extension Service), and the Rio Grande Council of Governments (COG) were contacted to determine the occurrence of open burning. The Extension Service and the Rio Grande COG both indicated that open burning of agricultural wastes had, for all practical purposes, been discontinued.

d) Natural Gas Combustion - Residential/ Commercial

Emissions from the combustion of residential natural gas were determined by using an average per capita consumption of 67,000 cubic feet obtained from the Texas Railroad Commission - Annual Report. This figure was multiplied by the population of El Paso and applied to the emission factors in AP-42 to get emission levels. (See Appendix AK.)

5) Mobile Sources - Nonroad

Two EPA documents: Nonroad Engine and Vehicle Emission Study-Report, EPA 21A-2001, November 1991, and Nonroad Engine and Vehicle Emission Study-Appendices, EPA 21A-2001, November 1991, provided guidance for CO emissions estimations from the following categories:

- lawn and garden,
- recreational,
- industrial,
- agricultural.
- airport service,
- light commercial,
- construction, and

A description of the types of service and/or equipment in each of these sources is presented in Table 12. Figure 6 shows the relative proportion of CO emissions each category contributes to the total nonroad emissions.

a) Railroads

Diesel locomotives are the primary source of emissions associated with railroads. All switching yards and through routes are included in this category. Emissions are based on miles of track data obtained from the Texas Railroad Commission.

b) Aviation

Aviation activities in El Paso County occur primarily at the El Paso International Airport. There are also aircraft activities conducted at Fort Bliss Military Reservation. However, these activities are minimal.

Aviation is grouped into three categories: commercial, general, and military. CO emissions from commercial aircraft were estimated using a computer program designed by the Federal Aviation Administration based on the number of landings and takeoffs (LTOs) performed at the airport. This program uses an extensive data base on most commercial aircraft and engine characteristics to provide emission levels for hydrocarbons, CO, oxides of nitrogen, and toxics. General and military aircraft are not included in the program.

General and military aircraft CO emissions were based on the number of LTO cycles performed. Each LTO is considered to be a single operation. Although emissions were calculated for each category, they were totaled for the county and reported as peak CO season tons per day.

6) On-Road Mobile Sources

Motor vehicles operated on the roads and highways of El Paso account for the great majority of CO emissions in this inventory. Figure 7 graphically shows the relationship of on-road to off-road mobile source emissions. The CO emissions inventory for on-road mobile sources addresses on-road vehicles using gasoline and diesel fuels. The emission estimates in the inventory are for a typical weekday during the winter CO season.

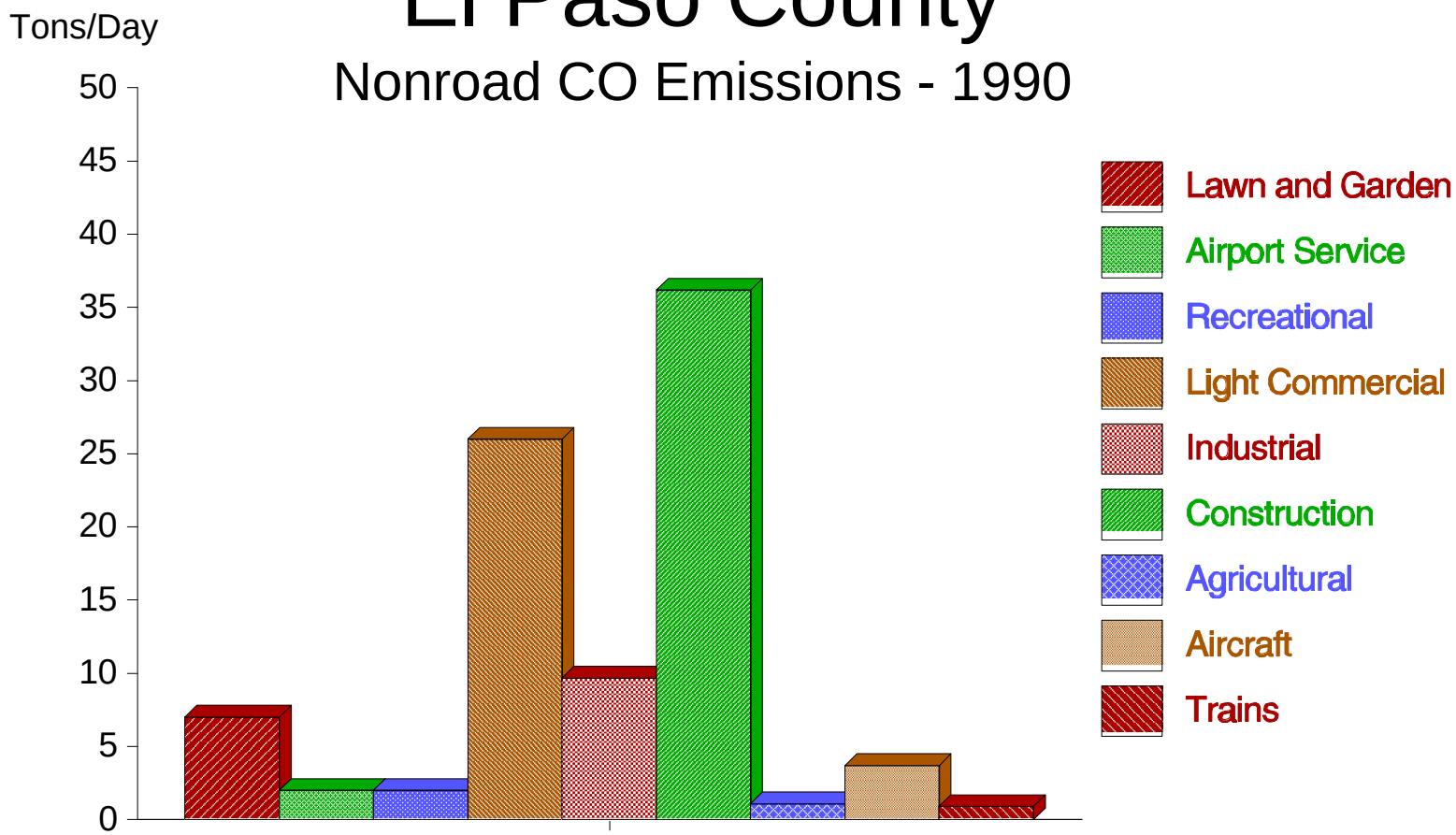
TABLE 12

Nonroad Mobile Source Equipment Categories		
Equipment	**Examples of Included Types of Equipment**	**Emissions (tons/day)**
*Lawn and Garden	Lawnmowers, trimmers, tillers	7.00
*Airport Service	Aircraft and baggage towing tractors, airport service vehicles	2.00
*Recreational	All terrain vehicles, off-road motorcycles, golf carts	2.00
*Light Commercial	Air and gas compressors, welders, generator sets, pumps	26.00
Industrial	Aerial lifts, forklifts, self-propelled elevating platforms, sweepers	9.67
Construction	Asphalt pavers, rollers, scrapers, rubber-tire dozers	36.18
Agricultural	Agricultural tractors, combines, balers, harvesters	1.07
Aircraft	Commercial, general, and military aviation	2.70
Trains	Class 1 railroads	0.90
	Total	**87.52**

* CO emissions from these categories were averaged from both inventories A and B in the EPA document: Nonroad Engine and Vehicle Emission Study-Appendices, EPA 21A-2001, November 1991.

El Paso County

Nonroad CO Emissions - 1990



The Texas Department of Transportation and the Texas Transportation Institute at Texas A & M University provided various necessary data to the TNRCC emissions inventory staff to estimate on-road vehicle emissions.

The FCAA requires the states to use the Highway Performance Monitoring System to estimate their average vehicle miles traveled on all functional classes (roadway classifications) by area type (urban and rural) throughout the state. There are six functional classes for urban areas and a corresponding six classes for rural areas:

- interstate,
- other principal arterials,
- minor arterials,
- major collectors,
- minor collectors, and
- local.

Vehicles are also classified into certain categories:

- LDGV - light-duty gasoline vehicles,
- LDGT1 - light-duty gasoline trucks less than 6,500 pounds,

- LDGT2 - light-duty gasoline trucks greater than 6,500 pounds, but less than 8,500 pounds,
- HDGV - heavy-duty gasoline vehicles,
- LDDV - light-duty diesel vehicles,
- LDDT - light-duty diesel trucks,
- HDDV - heavy duty diesel vehicles, and
- MC - motorcycles.

CO emissions are shown in Table 13 for each of the roadway classifications and vehicle types. Refer to Appendix AL for a complete discussion on the methodology used for estimating these emissions.

7) Quality Assurance

A major component of the emissions inventory effort was the development and implementation of a quality assurance (QA) program. The purpose of this program is to define a systematic pattern of activities that will provide confidence that the resulting emissions inventory will be of such quality to meet the requirements of EPA, and to be the basis for reliable control strategy planning and attainment demonstration. The QA program was designed to ensure the development of an emissions inventory that is complete, accurate, and in compliance with the content and reporting requirements outlined in the Procedures For The

Preparation Of Emission Inventories For Precursors Of Ozone, Volume I, EPA-450/4-88-021, Third Edition, EPA, December 1988. The following sections describe elements of the QA program followed by the TNRCC staff during the course of preparing this inventory.

TABLE 13

1990 On-Road Mobile Vehicle
CO Emissions (tons/day)

Roadway Types	Vehicle Categories								
	LDGV	LDGT1	LDGT2	HDGV	LDDV	LDDT	HDDV	MC	TOTAL
RURAL									
Interstates	13.60	3.90	2.30	1.96	0.01	0.00	0.28	0.20	**22.25**
Other Principal Arterials	2.29	0.90	0.31	0.30	0.00	0.00	0.01	0.02	**3.83**
Minor Arterials	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
Major Collectors	4.04	1.59	0.55	0.69	0.00	0.00	0.02	0.03	**6.92**
Collectors	0.50	0.19	0.07	0.11	0.00	0.00	0.00	0.00	**0.87**
Locals	0.78	0.30	0.11	0.16	0.00	0.00	0.01	0.01	**1.37**
URBAN									
Interstates	23.86	6.84	4.04	6.2	0.04	0.01	1.06	0.35	**42.40**
Other Principal Arterials	12.24	4.83	1.68	1.66	0.01	0.01	0.05	0.10	**20.58**
Minor Arterials	42.03	16.66	5.78	7.33	0.05	0.03	0.25	0.31	**72.44**
Major Collectors	18.18	7.24	2.51	3.13	0.02	0.01	0.11	0.13	**31.33**
Minor Collectors	8.62	3.44	1.19	1.48	0.01	0.01	0.05	0.06	**14.86**
Locals	45.73	18.19	6.30	7.90	0.05	0.03	0.26	0.33	**78.79**
TOTAL	**171.87**	**64.08**	**24.84**	**30.92**	**0.19**	**0.10**	**2.10**	**1.54**	**295.64**

a) completeness

EPA guidance materials were followed to ensure that all emissions-producing categories were included in the inventory. As noted in the section describing point sources, a concerted effort was made by the TNRCC staff to ensure that all potential point sources were identified. This was accomplished through exhaustive research into the existing point source inventory and data available from manufacturing guides, TNRCC regional offices, and other state agencies.

b) Accuracy

A systematic method of uniformly performing reasonableness checks on point source estimates was accomplished by the TNRCC Emissions Inventory Division staff. In order to prevent errors from occurring in the emissions data base, a procedure was set in place whereby each inventory was cross-checked by different staff members after each stage of the inventory process. This procedure included randomly rechecking emissions calculations. A research program was established for developing a more accurate list of area source categories based upon demographic information from various sources. This research is an ongoing process, with

data from each category being compared to per capita emission factors for accuracy.

c) Compliance with EPA Content and Reporting Requirements

EPA guidance documents were used whenever possible for inventory development activities.

e. Attainment Demonstration

Section 187a of the 1990 FCAA amendments did not require a CO attainment demonstration for El Paso in November 15, 1992 since the design value at the time of enactment of the FCAA amendments was 12.6 ppm. The FCAA required attainment demonstrations 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 , the TNRCC conducted dispersion modeling to demonstrate that El Paso would 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 was 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 I/M) was considered in the modeling.

TNRCC used two models to project CO concentrations. A Gaussian plume model determines the worst case meteorological conditions and the urban background CO level. The CAL3QHC model, which was developed by the state of California for projecting CO levels from automobile traffic determines the CO concentration at intersections where the volume of traffic would be expected to elevate CO levels. These two figures are added to obtain a projected concentration for this CO "hotspot". TNRCC evaluated six major intersections using this method and obtained a maximum projected CO concentration of 4.0 parts per million (ppm) for 1996. The CO standard is 9 ppm.

TNRCC also analyzed the expected CO concentrations assuming there would be no reduction credit from an enhanced I/M program. Under this condition, El Paso would still meet the NAAQS for CO through the attainment year.

The analysis of atmospheric transport of CO emphasizes the importance of Juarez emissions. TNRCC studied the trajectories of air parcels during a Dec. 7-9, 1990 CO exceedence and found that they had originated in Ciudad Juarez. Measuring sites with

trajectories originating in El Paso showed lower concentrations. A separate modeling report is included with this SIP revision. In accordance with the intent of Annex V to the 1983 U.S. - Mexico Environmental Agreement, the TNRCC will work in cooperation with EPA, SMARNP, 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 ability of TNRCC 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.

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 1992 the TNRCC amended 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 §114.7, concerning Oxygenated Fuels, was being added to TAC Chapter 114 to include 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 federal requirements.

a) Oxygen Content of Gasoline

The specified oxygen content of gasoline is a minimum of 2.7 percent by weight. This minimum became 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 TNRCC 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 a complete and accurate characterization of the composition and quantity of fuels processed, transferred, and dispensed by the facility. This information must be sufficient 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 TNRCC.

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 TNRCC 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 TNRCC 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 TNRCC 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 TNRCC to contact affected facilities as necessary to investigate potential violations and distribute information.

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

(iii) The TNRCC 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 TNRCC 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 TNRCC 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 TNRCC will ensure that on-site inspection of a statistically valid sample of affected facilities distributed throughout the control area is performed during each control period. These periodic audits 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 TNRCC will ensure the proper testing and reporting of gasoline samples taken to determine compliance with the minimum oxygen content limit.

(i) The TNRCC will have gasoline sample analyses performed at either its own laboratory facilities or at an independent, qualified laboratory. Cost, turnaround time, and availability of services may be considered.

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

(A) American Society for Testing and Materials (ASTM) Method exclusively until the end of the 1993-1994 control period,

(B) either the ASTM method or the new EPA test method beginning with the 1994-1995 control period, or

(C) other oxygenated fuels test methods approved in accordance with EPA-approved certification procedures.

e) Enforcement

The Texas Clean Air Act provides the TNRCC 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 TNRCC 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 TNRCC within ten 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 of the violations, intent, frequency of the violations, and deterrent effect.

f) Training

(i) The TNRCC will be responsible for providing training to enforcement personnel assigned to monitor and regulate the facilities affected by the oxygenated fuels program.

(ii) The TNRCC 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 TNRCC 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 TNRCC will institute a public education program consisting of news releases, public service announcements, 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 TNRCC 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. Necessary funding may be

allocated from the dedicated air quality fee fund partially supported by a $2.00 fee attached to the annual safety inspection fee assessed on all vehicles in Texas.

5) Benefits

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.

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 12.6 ppm or less 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 12.7 ppm or more for CO or (2) were designated serious or above for ozone and had an urbanized population exceeding 200,000.

In December 1994, the Texas Legislature directed the TNRCC to develop I/M options that would be more convenient to the public. The TNRCC is working with the Governor's office to develop these options and determine the emission reduction credits. A final decision on the I/M program option will be made by the Governor.

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 this emission level) must be offset according to the requirements of TNRCC 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. However, due to the relatively small contribution of stationary sources to CO emissions in El Paso, EPA will allow exemptions from the offset requirement on an individual case basis.