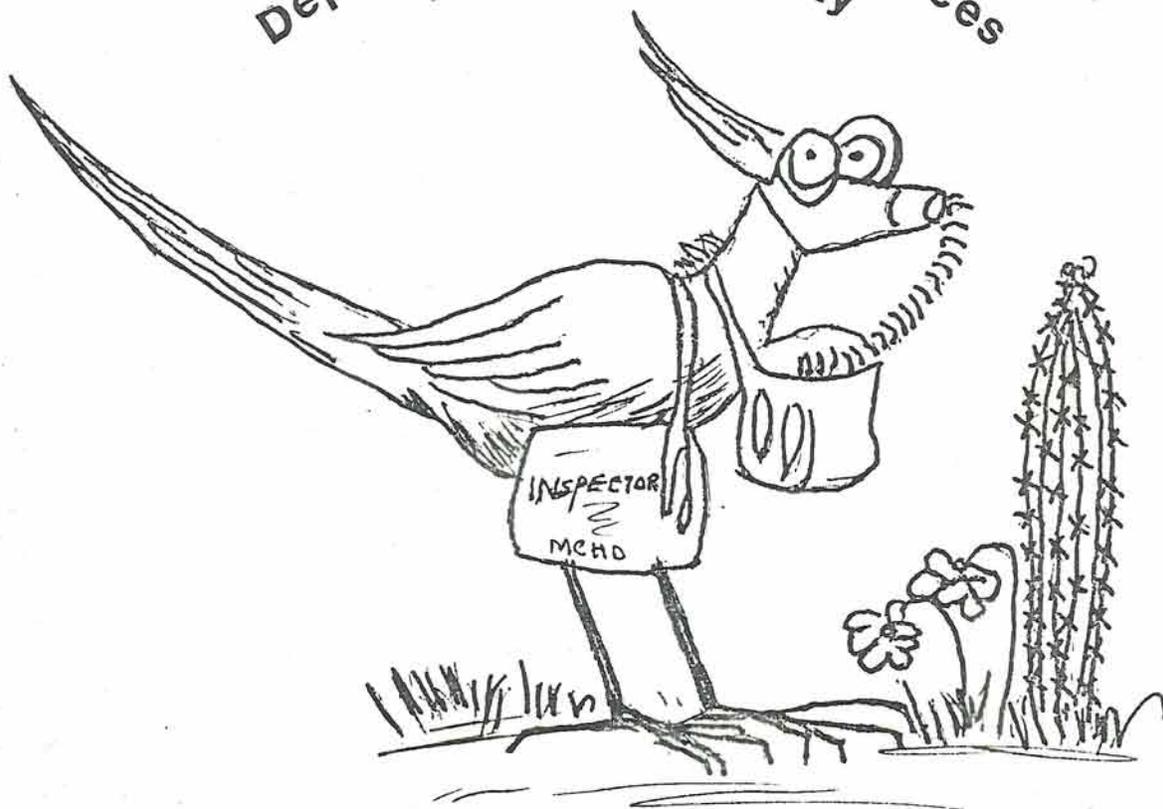


AIR POLLUTION
in
THE VALLEY OF THE SUN
an overview

BUREAU OF AIR POLLUTION CONTROL
Environmental Services Division
Department of Health Services
Maricopa County



MARICOPA COUNTY DEPARTMENT OF HEALTH SERVICES

BUREAU OF AIR POLLUTION CONTROL

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AMBIENT AIR QUALITY STANDARDS

| POLLUTANT | PARAMETER | FEDERAL PRIMARY STANDARD | | FEDERAL SECONDARY STANDARD | |
|--|---------------------------|--------------------------------|------|----------------------------------|------|
| | | ug/m ³ | ppm | ug/m ³ | ppm |
| Sulfur Oxides (Sulfur Dioxide) | Annual arithmetic mean | 80 | 0.03 | 60 | 0.02 |
| | 24 hr. avg. | 365 | 0.14 | 260 | 0.1 |
| | 3 hr. avg. | | | 1300 | 0.5 |
| Particulate Matter | Annual geometric mean | 75 | | 60 | |
| | 24 hr. avg. | 260 | | 150 | |
| Carbon Monoxide | 8 hr. running avg. | 10K | 9 | 10K | 9 |
| | 1 hr. avg. | 40K | 35 | 40K | 35 |
| Photochemical Oxidants | 1 hr. avg. | 160 | 0.08 | 160 | 0.08 |
| Nonmethane Hydrocarbons (used as a guide in achieving oxidants standard) | 3 hr. avg. (6-9 a.m.) | 160 | 0.24 | 160 | 0.24 |
| Nitrogen Dioxide | Annual arithmetic mean | 100 | 0.05 | 100 | 0.05 |

All measurements of air quality are corrected to a reference temperature of 25°C and to a reference pressure of 760 millimeters of mercury (1013.2 millibars).

MARICOPA COUNTY DEPARTMENT OF HEALTH SERVICES
BUREAU OF AIR POLLUTION CONTROL
MARICOPA COUNTY AIR POLLUTION CONTROL PROGRAM

As communities grow in population and industrial activity increases in extent and complexity, a parallel need for augmentation of air pollution control follows. A population explosion, particularly in the Phoenix area and the contiguous cities of Scottsdale, Tempe, Mesa, Glendale and other smaller communities, has created a metropolitan area which accounts for 98 percent of the approximately 1.2 million people in Maricopa County and more than half of the population of the State of Arizona. The air pollution problem generated by this population explosion is compounded by the unique meteorological and topographical characteristics of the valley area.

The following report enumerates the activities and structure of the Maricopa County Bureau of Air Pollution Control in the areas of legal authority, responsibility, organization, procedures, staff, actual and potential problems, objectives and comprehensive program.

I LEGAL AUTHORITY AND RESPONSIBILITY

Chapter 6, Title 36, Section 1, Article 8 of the Arizona Revised Statutes, adopted March 27, 1962, authorized the Maricopa County Board of Supervisors, (1) to investigate the causes, sources and extent of air pollution; (2) to adopt rules and regulations to correct, remove or prevent air pollution, and (3) to designate the Maricopa County Health Department to carry out the necessary investigations, inspections and enforcement of the rules and regulations. It also authorized the county health department to accept and expend federal grants for air pollution control.

Maricopa County Health Department was a prime mover in obtaining passage of this legislation, but was disappointed in that it limited activities at the state level to conducting "requested studies". Air pollution control regulations were written and adopted by Maricopa County and the necessary investigations, inspections and enforcement of these regulations were carried out by the Maricopa County Health Department.

Based on this legislation, Maricopa County Health Department applied for and obtained an air pollution grant under the Clean Air Act of December 1963. The grant was for a three year establishment air pollution control program commencing December 1, 1964. Program objectives outlined in this grant application proceeded on schedule. However, the limitation placed on air pollution control at the state level restricted control activities in certain areas, such as pollutants originating outside Maricopa County. Therefore, the county health department continued to work for the passage of a stronger and more encompassing state air pollution bill.

In September 1966, the Governor appointed a committee to draft a revised air pollution law which among other things would remove the limitation mentioned. The Maricopa County Health Department was represented on this committee and worked vigorously toward the development of the law.

In February 1967, Senate Bill 1 was adopted by the State Legislature and signed by the Governor giving needed authority to the state as well as to the counties. The new law went further establishing advisory and hearing boards, entities not included in the earlier law. Procedures for injunctive action and misdemeanor penalties against violators are provided. The State Health Department was authorized to establish a State Division of Air Pollution Control. This division is responsible for the development of state standards for air pollution control and many other duties which affect the functions of a county level air pollution control agency such as ours.

The new state law also provided authority to county boards of supervisors to establish a county air pollution advisory council and a county air pollution hearing board, which have been appointed by the Maricopa County Board of Supervisors.

Pursuant to Senate Bill 1, the then existing Maricopa County Air Pollution Control Regulations were repealed and new regulations were written. These new regulations were adopted August 12, 1968 by the Maricopa County Board of Supervisors.

Senate Bill 7 was enacted in March 1968 to provide income tax incentive of amortization on air pollution control devices and equipment.

Other additions and amendments to Senate Bill 1 were drafted by county and state air pollution control personnel and introduced as Senate Bill 98 to the 1969 legislature and signed into law by the Governor in April 1969.

The most significant changes in Senate Bill 98 included penalties for violations and authorized counties to set up a permit system.

New county regulations written to conform with the provisions of Senate Bill 98, including a permit system, were adopted on February 16, 1970.

Development of these regulations required considerable legal and technical research and the adopted regulations are the end result of many lengthy and arduous meetings with the Maricopa County Air Pollution Advisory Council, representatives of industry, municipal officials and concerned citizens. The regulations provide more effective means for enforcement and contain many more provisions for abating or controlling air contaminant sources.

A subsequent amendment to the State Air Pollution law was drafted and adopted by the Arizona State Legislature in 1970. This amendment (Senate Bill 1) signed by the Governor on May 18, 1970 provided the needed authority to the State Health Department as well as the counties to act in furtherance of the control of air pollution, provided for conditional permits, and defined areas of jurisdiction.

Senate Bill 1 provides that if an applicant for a permit does not comply with the regulations, the control officer shall deny the permit and the applicant may petition the Maricopa County Air Pollution Control Hearing Board for a conditional permit which allows such person to vary from certain requirements if the hearing board finds that additional time is needed and justified for compliance. A conditional permit may not exceed one year in duration and is not renewable.

Senate Bill 1 delegates original jurisdiction and control to the State Division of Air Pollution Control and the State Hearing Board in the following manner:

1. Major sources - (75 tons per day or more).
2. Air pollution generated by operations and activities of all agencies and departments of the state and its political subdivisions.
3. Air pollution by motor vehicles.
4. Air pollution by combustion engines, machinery and equipment which is operated in more than one county during the period of such permit.

Except as specified above, all other jurisdiction and control of air pollution shall be the responsibility of the county.

New county regulations written to conform with the provisions of Senate Bill 1 were drafted by the bureau staff with the advice and aid of the Maricopa County Air Pollution Control Advisory Council, and adopted by the Board of Supervisors on August 12, 1971, and additional amendments to the regulations in 1974, 1975 and 1977.

A list of State laws dealing with air pollution control is shown in EXHIBIT 1.

II ADMINISTRATIVE ORGANIZATION, PROCEDURES, FACILITIES, RESOURCES AND STAFF

The Maricopa County Air Pollution Control Program functions as one of three bureaus of the Division of Environmental Health Services of the County Health Department. The Bureau of Air Pollution Control consists of two sections designated as technical and enforcement.

The technical section is comprised of a supervisory engineer, one public health engineer, one chemist, three technicians and one

statistical clerk. The staff is responsible for performing chemical evaluations and maintaining monitoring instruments at eight (8) permanent stations, one mobile laboratory, and fifteen (15) high volume sample sites.

The chemical laboratory is engaged in:

- (a) routine analysis of pollutants collected in monitoring programs;
- (b) advising and assisting in developing sampling techniques for the monitoring and enforcement sections;
- (c) engaging in research and development of new techniques in all parameters of air pollution;
- (d) performing analysis of special samples collected for the purpose of efficient control and evaluation;
- (e) making frequent evaluations of program as to value and effectiveness;
- (f) providing a comprehensive periodic report of section activities.

The responsibilities of ambient air quality monitoring are:

- (a) to maintain and operate all equipment necessary to determine the causes, sources, quantities and extent of air pollution;
- (b) to plan, develop, apply and evaluate procedure for control studies;
- (c) to compile and analyze data on past and current air pollution samplings;
- (d) to review, devise and modernize systems for collection of data and information pertinent to air pollution control;
- (e) to provide a comprehensive periodic report of section activities.

The staff of the enforcement section consists of a supervisor and ten full time field investigators, who are under the direction of the Air Pollution Director and his assistant.

Responsibilities of the enforcement section are:

- (a) to locate and assess all sources of air pollution in the county;
- (b) to initiate measures to eliminate or control sources in violation of the county air pollution control regulations;
- (c) to make continuing inspections of control devices or measures to assure optimum and effective operation;
- (d) to investigate and evaluate all complaints pertaining to air pollution sources;
- (e) to maintain continual surveillance of all actual and potential sources of air pollution;
- (f) to initiate legal actions or sanctions as required according to law;

- (g) to provide a comprehensive periodic report of section activities.

The implementation of the county wide permit system has placed more than ten thousand potential sources of air pollution under permit and close surveillance by the enforcement staff of the bureau. More than two thousand of these were required to initiate control programs that ranged from the installation of submerged fill pipes in petroleum storage tanks to reduce hydrocarbon emissions to complicated scrubber and baghouse collection systems in major plants that cost hundreds of thousands of dollars. All operations placed under permit must be in compliance with the state and county control regulations.

The enforcement staff of the bureau began citing air pollution violators directly into Justice Court for the first time in 1970. The sheriff's office also began citing violators of open burning into court and the double attack virtually reduced illegal burning to zero. A legal technicality in the wording of the state law made it necessary to take cases into Superior Court. This did not slow down the enforcement program as the county attorney assigned two deputy county attorneys to air pollution and more than a dozen cases have been filed in Superior Court against violators. These cases involved major polluters which included oil corporations, major contractors and a large metal salvage company. All but two of the cases were resolved in Superior Court with verdicts against the polluting companies accompanied by substantial fines.

In two instances, the cases went to the Supreme Court of Arizona. In the case of the metal salvage company who had been charged with emitting excessive visible emissions to the ambient air, the presiding Superior Court Judge issued instructions to the jury that they find the defendant innocent unless the jury found that such emissions were intentional. As it is obvious that such an interpretation of the air pollution control regulations would render them unenforceable, the two Deputy County Attorneys representing our bureau succeeded in having the case pulled out from the Superior Court Judge to the Supreme Court for a ruling on this interpretation. After perusal of many briefs from both the prosecution and the defense and extensive research of the intent and concept of the law, the State Supreme Court determined that it was not necessary to prove intent and that the commission of a violation of a regulation regardless of intent, knowledge of the act, negligence or malfunction was sufficient cause for prosecution, and overturned the ruling of the Superior Court Judge. The Supreme Court further upheld the constitutionality of the State Air Pollution Statute and the County Air Pollution Control Regulations and the use of the Ringelmann Chart as a valid and acceptable method of determining compliance through observation of visible emissions.

The second Supreme Court Ruling concerned the citation of a large construction company for altering an open area without taking all reasonable precautions to prevent particulate matter (dust) from becoming airborne or windborne; all in violation of Rule 31(a) of the Maricopa County Air Pollution Control Rules and Regulations and ARS 36-789.01 as amended in 1971, and ARS 36-782 as amended in 1970.

The defendant entered a plea of not guilty and filed a motion in Supreme Court to quash on the grounds that Regulation 3, Rule 31 (a) of the Maricopa County Air Pollution Control Regulations, is unconstitutionally indefinite (through the use of "all reasonable precautions" and other "effective means", leaving great and unconstitutional latitude to the control officer and his representative as to what constitutes a violation.

The Supreme Court ruled in favor of the bureau stating that additional wording in Regulation 31(a) suggesting control methods such as "wetting down, covering, landscaping, paving, treating with palliatives or by other effective means" allows the defendant a choice of "reasonable precautions".

These two landmark decisions have been of immeasurable value in carrying out our air pollution control program.

The services of the Maricopa County Hearing Board were utilized effectively for the first time under the 1969 State Statute and the 1970 County Regulations. Hearings were held and action was taken both on abatement and conditional permits. These included action against major companies and have resulted in substantial advances in air pollution control.

Three full time engineers are employed by the bureau. Under general supervision, with technical latitude, they perform professional engineering work in the office or in the field; make analyses and evaluations of air pollution sources, problems and permit plans; calculate emission inventories and develop emission control and reduction strategies and emergency episode plans; provide professional and technical advice; plan and conduct special studies; and assist in planning the air pollution control program.

All activities of the bureau are administered and coordinated by the bureau director and the assistant director. They plan, organize, and direct the professional, administrative, and technical activities of the air pollution control program; coordinate the program with local, state, regional, federal, and private agencies and organizations concerned with air pollution and related environmental activities; and evaluate program and personnel effectiveness and initiate improvements. The bureau also has the full time services of a secretary and two typists, and assigned legal assistance from the County Attorney.

III NATURE, EFFECTS AND EXTENT OF ACTUAL AND POTENTIAL AIR POLLUTION PROBLEMS

Air pollution concentrations are determined on a 24 hour per day basis at various monitoring stations strategically located with regard to meteorological and topographical characteristics in various communities in Maricopa County. Stations are operated in Central, South, West and North Phoenix, Glendale, Scottsdale and Mesa. Particulate sample sites are maintained in metropolitan and outlying areas.

The pollutants monitored and station and site locations are described by EXHIBITS II & III.

IV AIR QUALITY STANDARDS AND POLLUTANT CONCENTRATIONS AT VARIOUS LOCATIONS ARE SUMMARIZED IN EXHIBITS IV THROUGH VIII

It is the opinion of the bureau staff that ample data and information has been acquired to provide basic air quality and meteorological information on the air quality encompassing the metropolitan area of the valley.

The terrain in the metropolitan area slopes downward from the east end of the county and the valley to the west, and, with nocturnal cooling the air flows by gravity through the valley to the west. As the air warms in the morning hours, the flow changes and moves upstream toward the east resulting in the pollutants being moved back and forth across the valley.

Characteristic patterns and trends of the five gases monitored determined from accumulated data are:

1) Carbon Monoxide

Levels are low during summer months, with one hour average concentrations ranging from 0 to 5 ppm (0 to 5728 ug/m³). Levels rise during the winter months to the low 20 or mid 30 ppm (22,912-34,368 ug/m³) range between the hours of 7 P.M. and 9 A.M. The Federal Primary Standard of 35 ppm for one hour average concentration has not been exceeded since November 1973. The eight hour average concentration exceeded the Federal Primary Standard of 9 ppm, twenty-five (25) times during 22 days at the Central Phoenix station in 1978.

2) Photochemical oxidants

The highest oxidant concentration parallels available sunlight variation and consequently occur during the daylight hours in the summer months. Violations of the one hour average Federal Primary Standard of 0.08 ppm (160 ug/m³) occurred

81 times during 41 days at the Central Phoenix Station between the months of March and October of 1978. The highest concentration of 0.16 ppm (310 ug/m³) occurred on May 12, 1978.

3) Nitrogen Dioxide

The major source in the county is the automobile. Nitrogen dioxide increases with the traffic in the morning, drops close to zero during midday, rises with late afternoon traffic and tapers off during night hours. Levels in the adverse range have not been recorded at any station.

4) Hydrocarbons

Levels closely parallel carbon monoxide, but are lower in concentration. Again the main source is the automobile.

5) Sulfur Dioxide

Low levels were recorded on monitoring instruments at the Phoenix station for the entire period. Maximum levels were in the range of .05 ppm (131 ug/m³). Average SO₂ levels are approximately 0.0025 ppm (6.6 ug/m³).

Pollutant concentrations vary as a function of time and location, but in general the highest concentrations are observed at the Central Phoenix station with North Phoenix, Scottsdale, and Mesa taking turns for second place.

Suspended particulate matter are collected on filters for a 24 hour period, every sixth day of the year at all stations and sites.

A complete analysis of the particulate materials collected on the filters is made by the air pollution laboratory. This includes a determination of the organic content by soxhlet extraction and atmospheric levels of such metals as copper, lead, iron, zinc, cadmium and manganese by atomic absorption spectrophotometry.

A preliminary evaluation of particulate data from the National Air Sampling Network station established in Phoenix from 1957 to the present, and of particulate data obtained in the Phoenix metropolitan area since 1961, indicates a yearly decrease in micrograms per cubic meter loading from the adoption and implementation of the original Maricopa County Air Pollution Control Regulations in 1963. Particulate loadings prior to 1963 averaged in excess of 200 ug/m³. Levels for the past five years have shown a consistent drop and now average 120 ug/m³ at the Central station.

The processing and evaluation of data are proceeding well under the direction of an engineer. The meteorological data obtained from continuous monitoring at the main and satellite stations are of special

value when related to State meteorological studies in determining air sheds, the transport of pollutants originating outside of Maricopa County and the development or establishment of inter-county control of pollutants and air quality regions. Solar meter data became very important in recent years with the renewed interest in solar power and solar energy availability.

V PROGRAM OBJECTIVES

The long range objectives of the program are to carry out the intent of the State law to correct, remove or prevent air pollution in all its forms originating within the county, and to preserve, protect and improve the air resources in order to promote the health, safety and welfare, prevent injury to human health and plant and animal life, and to foster the comfort and convenience of its inhabitants.

Current and future objectives of the bureau are outlined as follows:

1. Monitoring the ambient air continuously and representatively to evaluate the extent and nature of air pollution within the county.
2. Conduct routine inspections of incinerators, fuel burning equipment, petroleum storage tanks and process equipment for compliance with air pollution rules and regulations.
3. Maintain county-wide surveillance for illegal open burning, excessive dust-producing operations and industries producing excessive emissions.
4. Conduct special investigations for odors, carbon monoxide and other toxic or irritating gases.
5. Continue to develop and update emission inventories and a source registry.
6. Initiate and carry through all necessary legal actions to secure compliance with all aspects of the State law and Maricopa County Air Pollution Control Rules and Regulations.
7. Maintain appropriate level of coordination with State and Federal Air Pollution Control authorities.
8. Meet and maintain all responsibilities and requirements of the State Implementation Plan assigned to county jurisdiction.
9. Collect, compile and evaluate data on all air pollutants in Maricopa County.

Current activities may be best described by a review of the past year's activities. The past year, bureau personnel inspected approximately 10,500 industrial, commercial and governmental establishments for pollution potential and/or violations. 8,920 of these were placed under annual operating permit. In addition, 3,852 earthmoving permits and 500 burning permits were issued with follow-up investigations as needed. Also, approximately 1,200 citizen complaints are received annually, investigated (sometimes with several follow-up visits) and resolved. The field inspectors also conduct more than 500 Carbon Monoxide investigations during winter months. The bureau now has total responsibility in this area and the load has greatly increased.

Monitoring for CO, methane, total HC, non-methane HC, NO₂, SO₂, Ox, nephelometer readings, solar energy, smoke and haze, and wind-speed and direction is conducted on a continuing basis but reported as hourly averages as follows:

| <u>Pollutant</u> | <u>Hourly Avg. Reported/Year</u> | <u>Pollutant</u> | <u>Hourly Avg. Reported/Year</u> |
|------------------|--------------------------------------|------------------|--------------------------------------|
| CO | 61,320 | Ox | 43,800 |
| Methane | 8,760 | Windspeed/wind | 70,080 |
| Total HC | 17,520 | direction | 70,080 |
| Non-methane HC | 8,760 | Nephelometer | 8,760 |
| NO ₂ | 17,520 | Solar energy | 8,760 |
| SO ₂ | 26,280 | Smoke & haze | 1,238 |

An NO₂ bubbler is operated 61 times/year and analyzed for dissolved NO₂. In addition, 720 Hi-Vol samples were taken during the year and analyzed for the following metals and anions and reported in micrograms/meter³.

Metals

Mn-Cd-Co-Cr-Cu-Fe-Mo-Ni-Pb-Sb-Sr-Zn

Anions

Sulfates - nitrates - chlorides - fluorides

VI COMPREHENSIVE PROGRAM

The publication, 40 CFR 51.12(e) of June 18, 1973, required the State of Arizona to identify those areas (counties, urbanized areas, standard metropolitan statistical areas (SMSA's, etc.); which, due to current air quality and/or projected growth rate, may have the potential for exceeding any national ambient air quality standard (NAAQS) within the subsequent ten (10) year period. In accordance with these requirements, Maricopa County was designated an air quality maintenance area (AQMA) for carbon monoxide and photochemical oxidants. The Environmental Protection Agency (EPA) approved Arizona's AQMA designation and added suspended particulates per publication 40 CFR 41942 of September 9, 1975.

In August 1977, amendments to the Clean Air Act necessitated changes in most states implementation plans by delaying new car emission standards and further codifying the requirements associated with those areas designated as attainment or nonattainment for the six criteria pollutants. The Act requires submittal of an approvable plan demonstrating attainment by 1982 and maintenance through the year 2000 of the National Ambient Air Quality Standards. In some instances, an extension until 1987 is available for the automobile related pollutants carbon monoxide and photochemical oxidants (ozone), but only if reasonable further progress toward attaining the standard is made as expeditiously as practicable.

In the absence of a state designating areas as either attainment or nonattainment by December 1977, EPA was required to make the designation. The State of Arizona was unable to officially designate nonattainment areas within the required timeframe; therefore, EPA, as in the earlier case of Air Quality Maintenance Areas, selected the entire county as a nonattainment area for carbon monoxide, photochemical oxidants (ozone) and total suspended particulates. The State has subsequently determined the nonattainment area for carbon monoxide and ozone should be the Maricopa Association of Governments metropolitan planning area of Phoenix and is currently in the process of submitting this redesignation to EPA. With regard to total suspended particulates, the State position is one of neither attainment or nonattainment but rather places particulates in an unclassified status.

Areas designated as attainment are subject to the provisions of prevention of significant deterioration (PSD). These entail specific, allowable, incremental increases in pollutant concentrations depending on the classification of the area. Class I areas, such as national parks, should maintain pristine air quality, Class II areas, which constitute the majority of the land mass, have a somewhat larger allowable incremental increase and Class III areas, those most appropriate for industrial siting, have the largest allowable increase, in some instances all the way up to the National Ambient Air Quality Standards. New sources seeking to locate in attainment or PSD areas will be required to install the best available control technology (BACT).

New industrial siting in nonattainment areas under the provisions of the Act becomes a complex, involved process requiring emission offsets prior to startup and application of control technology capable of the lowest achievable emission rate(LAER). With the exception of cotton gins, the great preponderance of major sources in the county are located within the metropolitan planning area. Although few new major sources are anticipated in the near future, over 100 are currently operating in Maricopa County. Inspection, emissions evaluation, compliance determination, source testing and reporting requirements for major sources involve significant bureau effort at all levels. Enforcement activities are also geared to the several thousand operating permits which must be renewed annually.

Current practices in the control of odors by the department follow a well defined procedure. The investigation is usually initiated by a telephone call from an irate citizen. The description of the odor problem is reduced in writing and given to the investigator who proceeds to the troubled area.

Arriving at the area, the investigator will attempt to determine the nature, offensiveness and strength of the odor, the source of the odor and make an evaluation of any possible serious health and nuisance effects. He will interview the person reporting the odor and make an assessment of the validity of the complaint. In the case of odors the normal procedure of enforcement changes somewhat. In many cases the investigator becomes an arbitrator between management and citizens because of the difficulty of forcing the abatement of the odor problem through air pollution regulations. Only when the odor can be measured as an air contaminant that is defined and regulated can direct action be taken. In our opinion this position must be changed to one of true enforcement through the establishment of more adequate methods of odor measurement. Otherwise, the current State Air Pollution Statute places odors in the area of a nuisance.

The county has one major source of odor that is very difficult to control and is responsible for the majority of odor complaints that our department receives. This source is cattle feeding operations. Most of the cattle feeding operations in the county were originally located some distance from any populated area. As municipalities grew and subdivisions developed the feed lots soon adjoined housing developments. Irate citizens began complaining about the odors and a number of civil lawsuits have ensued.

The problem is further complicated by the particular legal structure of the state laws concerning cattle feeding operations. Through an act of the State Legislature, the State Livestock Sanitary Board has complete jurisdiction in regulating the feed lots. This has made it very difficult for either municipalities or the health department to initiate any legal action. As a result legal action has been of a civil nature.

However, the State Air Pollution law includes the word, "odors" in the definition of air pollution and the Bureau of Air Pollution has been able to exert more pressure in the control of odors from feed lots.

Another significant source of odor that is again difficult to control and under the jurisdiction of a specifically created state agency is the application of agricultural pesticides and defoliants. Regulation of the application of agricultural pesticides and defoliants is under the jurisdiction of a State Pest Control Board.

Again our department has succeeded in obtaining joint investigative authority with the State Board.

Industries in the county are not for the most part of odor producing type. Our bureau has been successful in controlling and abating odors from industrial sources other than cattle and agriculture through our air pollution control regulations.

As was earlier stated the correction, removal or prevention of air pollution in all its forms originating within the county and to preserve, protect and improve the air resources in order to protect health, safety and welfare, prevent injury to human health and plant and animal life, and foster the comfort and convenience of its inhabitants, is the ultimate and overall objective of the Bureau of Air Pollution.

EXHIBIT I

LAWS DEALING WITH AIR POLLUTION CONTROL

| YEAR | ARIZONA STATE LEGISLATURE | YEAR | ARIZONA STATE LEGISLATURE |
|------|--|------|--|
| 1962 | (3-27-62) HOUSE BILL 7 | 1970 | (5-18-70) SENATE BILL 1 |
| | State Legislature granted authority to State Health Department and Boards of Supervisors to conduct air pollution studies. (This was enabling legislation to qualify for federal grant monies - research and the development of air quality criteria). Allowed counties to adopt rules and regulations to correct, remove and prevent air pollution. Allowed duly appointed personnel to investigate, inspect and enforce the adopted regulations. | | - Responsibility for control of pollution from major sources placed under jurisdiction of the state. |
| 1967 | (2-9-67) SENATE BILL 1 | | - Major sources defined as those capable of producing seventy-five tons or more of contaminants a day. |
| | - State Legislature granted authority to State Department of Health to establish a Division of Air Pollution Control responsible for the development of minimum state standards for air quality. | | - State authorized to assume jurisdiction of control over county or multi-county agency upon approval of the State Board of Health. |
| | - Law established a State Advisory Council and Air Pollution Control Hearing Board. | | - Legal time reduced for state to prosecute violators. |
| | - County Boards of Supervisors authorized to set up county air pollution advisory councils and air pollution control hearing boards. | | - Permit system established for anyone installing, replacing or altering machines, incinerators, device or other equipment required to obtain an "operating permit" from the state or county. |
| | - Jurisdiction for air pollution control was placed at local (region or county levels). | 1971 | (4-27-71) SENATE BILL 230 |
| | - Misdemeanor penalties defined and procedures for injunctive action established. | | - "Conditional permits" instituted whereby operator who cannot comply may be granted a "conditional permit" with maximum renewal of three years. |
| 1968 | (3-12-68) SENATE BILL 7 | | - Advisory council abolished. |
| | - Law enacted for income tax incentive of amortization on air pollution control devices and equipment. | | - Authorized state to set up a fuel volatility testing program. |
| 1969 | (4-1-69) SENATE BILL 98 | | (5-17-71) SENATE BILL 8 |
| | - Legislature provided immediate responsibility for abatement of air pollution remain with counties and regions but authorized state to assume jurisdiction when requested to do so by county. | | - Pollution control agencies no longer needed to prove criminal intent to obtain a conviction. |
| | - State Board of Health authorized to adopt rules and regulations and establish minimum air quality and emission standards including standards for vehicular emissions. | | - Judicial procedure streamlined and state agency empowered to appeal Air Pollution Control Hearing Board decisions to courts. |
| | - State Commissioner of Health authorized upon evidence of immediate or imminent danger to health from a specific source to request the attorney general to bring suit against the polluter. | 1972 | (5-22-72) HOUSE BILL 2001 |
| | - Provided that violators of air pollution control laws were guilty of a misdemeanor punishable by a fine of not less than \$50 and for contempt of court order, \$1,000 for each day of non-compliance. | | - Right to periodic inspections and request for detailed plans for corrective action given the state. |
| | | | - Maximum fine for a misdemeanor reduced from \$1,000 a day to \$300 at county level. |
| | | | - Additional weight awarded Air Pollution Control Hearing Board findings in cases for injunction. |
| | | | - Polluters permitted to obtain ninety-day "temporary permits" to operate under emergency conditions. |
| | | 1975 | (6-13-75) SENATE BILL 1098 |
| | | | - Authorized the establishment of prototype vehicular emissions testing stations in Maricopa and Pima Counties and appropriated \$1,082,178 for purchase of equipment, facilities, staffing and training of personnel. |
| | | | - "Conditional permits"-operator may appeal to Air Pollution Control Hearing Board when installation, temporary, conditional or operating permit denied. |

EXHIBIT II

1. CENTRAL PHOENIX STATION
03-0600-002 (phone:258-6381)
1845 E. Roosevelt, Phoenix

Carbon Monoxide
Methane
Total Hydrocarbons
Nitrogen Dioxide
Sulfur Dioxide
Ozone
High Volume Air Sampler
Nephelometer
Solar Meter
Wind Speed & Direction

2. SOUTH PHOENIX STATION
03-0600-013
4732 S. Central Ave., Phoenix

Carbon Monoxide
Ozone
High Volume Air Sampler
Wind Speed & Direction

3. WEST PHOENIX STATION
03-0600-006
Grand Canyon College
3300 W. Camelback, Phoenix

Carbon Monoxide
Wind Speed & Direction

4. GLENDALE STATION
03-0320-001
Glendale Community College
6000 W. Olive, Glendale

Carbon Monoxide
Sulfur Dioxide
Ozone
High Volume Air Sampler
Wind Speed & Direction

5. NORTH PHOENIX STATION
03-0600-004
601 E. Butler, Phoenix

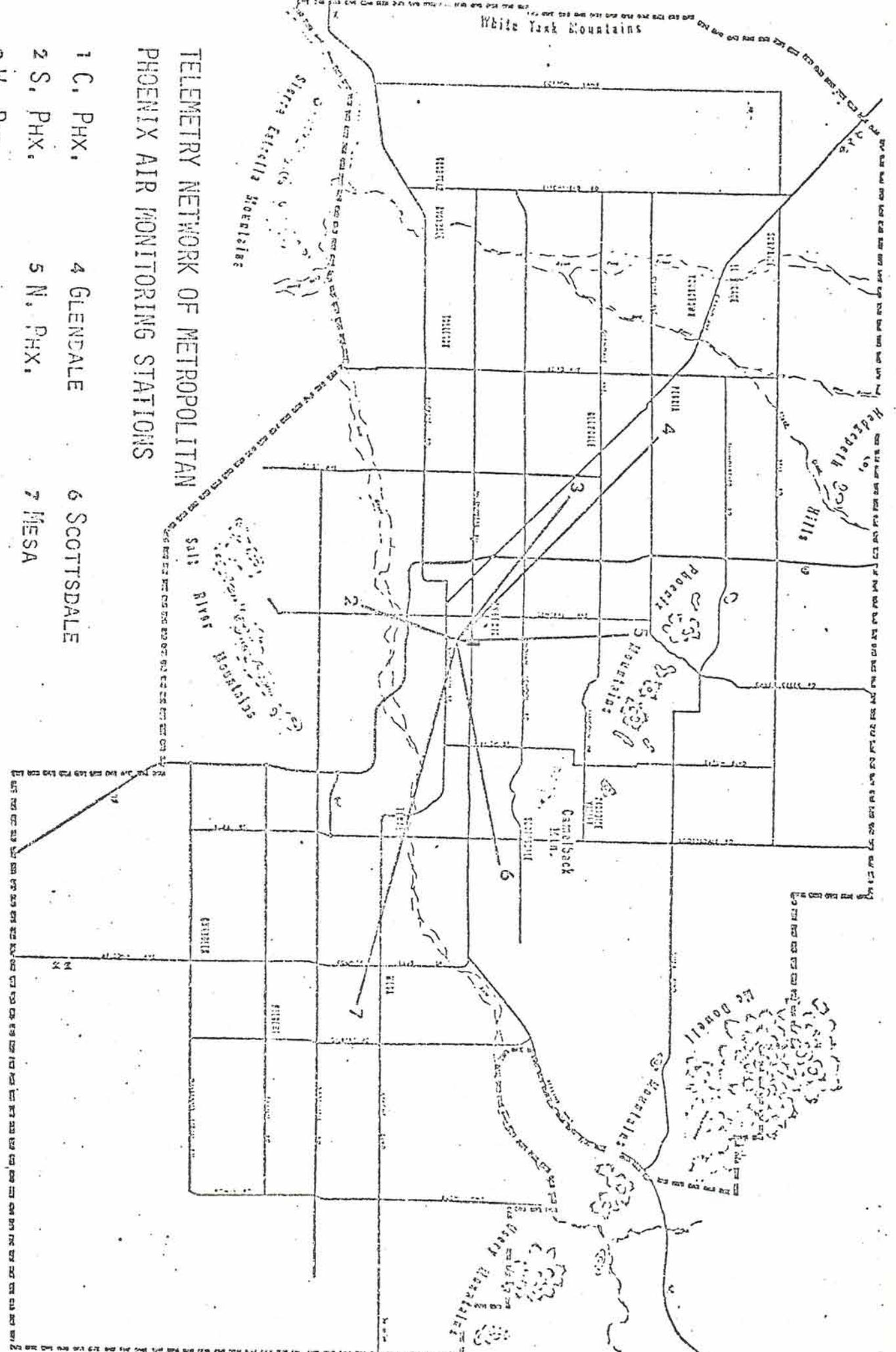
Carbon Monoxide
Ozone
Delta Temperature
High Volume Air Sampler
Wind Speed & Direction

6. SCOTTSDALE STATION
03-0740-003
2857 N. Miller Rd., Scottsdale

Carbon Monoxide
Nitrogen Dioxide
Ozone
Solar Meter
High Volume Air Sampler
Wind Speed & Direction

7. MESA STATION
03-0460-002
3rd Place & Center, Mesa

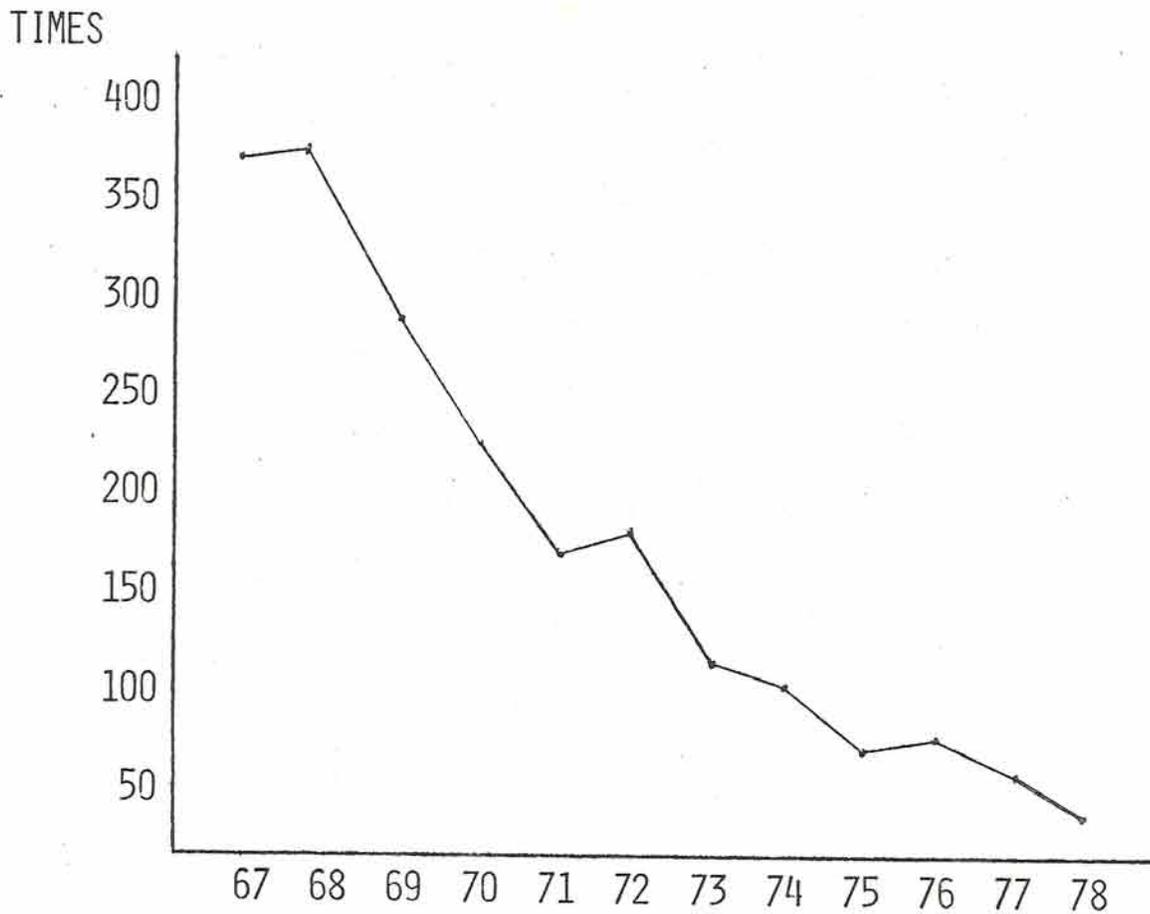
Carbon Monoxide
Sulfur Dioxide
High Volume Air Sampler
Wind Speed & Direction



TELEMETRY NETWORK OF METROPOLITAN PHOENIX AIR MONITORING STATIONS

- 1 C. PHX.
- 2 S. PHX.
- 3 W. PHX.
- 4 GLENDALE
- 5 N. PHX.
- 6 SCOTTSDALE
- 7 MESA

CARBON MONOXIDE VIOLATIONS
AT THE CENTRAL PHOENIX STATION



EIGHT HOUR CARBON MONOXIDE
CONCENTRATIONS AT THE
CENTRAL PHOENIX STATION
(mg/m³)

| <u>YEAR</u> | <u>HIGHEST CONCENTRATION</u> | <u>SECOND HIGHEST CONCENTRATION</u> |
|-------------|----------------------------------|---|
| 1978 | 15.6 | 15.3 |
| 1977 | 24.2 | 22.9 |
| 1976 | 20.9 | 20.6 |
| 1975 | 25.6 | 23.9 |
| 1974 | 24.9 | 22.5 |
| 1973 | 27.8 | 25.6 |
| 1972 | 42.5 | 35.1 |
| 1971 | 31.1 | 29.4 |
| 1970 | 40.8 | 38.1 |
| 1969 | 47.3 | 46.4 |
| 1968 | 45.3 | 43.5 |
| 1967 | 51.4 | 51.0 |

EXCEEDENCES OF THE EIGHT HOUR CARBON MONOXIDE STANDARD
of 10,000 ug/m³
AT THE CENTRAL PHOENIX STATION

| MONTH | 1978 | | 1977 | | 1976 | | 1975 | | 1974 | | 1973 | | 1972 | | 1971 | | 1970 | | 1969 | | 1968 | | 1967 | |
|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|
| | DAYS | TIMES |
| JAN. | 10 | 12 | 8 | 9 | 16 | 24 | 12 | 16 | 14 | 18 | 14 | 18 | 19 | 25 | 26 | 41 | 21 | 32 | 27 | 48 | 29 | 58 | 29 | 63 |
| FEBR. | 3 | 4 | 10 | 13 | 2 | 2 | 4 | 4 | 15 | 21 | 2 | 2 | 17 | 22 | 11 | 14 | 16 | 26 | 20 | 28 | 22 | 35 | 20 | 34 |
| MARCH | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 6 | 7 | 0 | 0 | 14 | 17 | 22 | 29 | 6 | 7 | 14 | 20 | 16 | 21 | 24 | 36 |
| APRIL | 0 | 0 | 5 | 5 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 7 | 8 | 13 | 12 | 16 | 16 | 15 | 17 | 12 | 17 | 14 | 19 |
| MAY | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | 1 | 2 | 2 | 5 | 5 | 4 | 4 | 3 | 5 | 15 | 24 | 17 | 22 | 11 | 15 |
| JUNE | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 4 | 5 | 1 | 1 | 11 | 6 | 6 | 6 | 11 | 13 | 18 | 30 | 9 | 10 |
| JULY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 0 | 0 | 2 | 2 | 6 | 6 | 2 | 2 |
| AUG. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | 2 | 2 | 2 | 3 | 3 | 12 | 15 | 3 | 3 |
| SEPT. | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 2 | 3 | 3 | 6 | 8 | 16 | 21 | 4 | 5 | 15 | 20 | 16 | 21 | 19 | 27 | 12 | 14 |
| OCT. | 6 | 6 | 4 | 4 | 5 | 6 | 7 | 10 | 4 | 6 | 15 | 24 | 14 | 17 | 9 | 13 | 33 | 33 | 22 | 40 | 26 | 42 | 28 | 54 |
| NOV. | 1 | 1 | 14 | 16 | 18 | 24 | 15 | 18 | 24 | 38 | 18 | 23 | 23 | 33 | 17 | 24 | 43 | 43 | 24 | 34 | 27 | 46 | 30 | 61 |
| DEC. | 0 | 0 | 14 | 20 | 17 | 22 | 14 | 22 | 6 | 6 | 20 | 30 | 19 | 33 | 10 | 13 | 42 | 42 | 22 | 40 | 28 | 51 | 28 | 58 |
| TOTAL | 22 | 25 | 57 | 69 | 59 | 79 | 59 | 77 | 75 | 102 | 83 | 114 | 139 | 186 | 130 | 174 | 153 | 232 | 191 | 290 | 232 | 370 | 210 | 369 |

EXCEEDENCES OF THE EIGHT HOUR
CARBON MONOXIDE STANDARD OF 10,000 $\mu\text{g}/\text{m}^3$
AT THE CENTRAL PHOENIX STATION

1974 through 1978

| MONTH | TOTAL | % | MON. | TUES. | WED. | THURS. | FRI. | SAT. | SUN. |
|------------------|-------|------|------|-------|------|--------|------|------|------|
| JAN. | 79 | 22.0 | 11 | 10 | 8 | 15 | 16 | 11 | 8 |
| FEB. | 44 | 12.5 | 5 | 5 | 2 | 7 | 12 | 9 | 4 |
| MAR. | 12 | 3.4 | 1 | 3 | 4 | 1 | 1 | 2 | 0 |
| APR. | 7 | 2.0 | 0 | 1 | 2 | 1 | 2 | 1 | 0 |
| MAY | 3 | 0.9 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| JUNE | 2 | 0.6 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| JULY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| AUG. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SEPT. | 6 | 1.7 | 1 | 2 | 0 | 0 | 1 | 1 | 1 |
| OCT. | 32 | 9.1 | 1 | 5 | 1 | 7 | 7 | 3 | 8 |
| NOV. | 97 | 27.6 | 16 | 16 | 17 | 12 | 14 | 12 | 10 |
| DEC. | 70 | 19.9 | 7 | 12 | 15 | 5 | 12 | 12 | 7 |
| TOTAL | 352 | 99.7 | 44 | 54 | 49 | 49 | 66 | 52 | 38 |
| PERCENT OF TOTAL | | | 12.5 | 15.3 | 13.9 | 13.9 | 18.8 | 14.8 | 10.8 |

EXCEEDENCES OF THE EIGHT HOUR
 CARBON MONOXIDE STANDARD OF 10 mg/m³ or 9 ppm
 AT THE CENTRAL PHOENIX STATION DURING 1978

| MONTH | TOTAL | % | MON. | TUES. | WED. | THURS. | FRI. | SAT. | SUN. |
|------------------|-------|-------|------|-------|------|--------|------|------|------|
| JAN. | 12 | 48.0 | 2 | 1 | 0 | 2 | 2 | 3 | 2 |
| FEB. | 4 | 16.0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 |
| MAR. | 1 | 4.0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| APR. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| JUNE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| JULY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| AUG. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SEPT. | 1 | 4.0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| OCT. | 6 | 24.0 | 1 | 1 | 1 | 0 | 1 | 0 | 2 |
| NOV. | 1 | 4.0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| DEC. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 25 | 100.0 | 3 | 2 | 1 | 5 | 4 | 6 | 4 |
| PERCENT OF TOTAL | | | 12.0 | 8.0 | 4.0 | 20.0 | 16.0 | 24.0 | 16.0 |

EXCEEDENCES OF THE EIGHT HOUR
 CARBON MONOXIDE STANDARD OF 10 mg/m³ or 9 ppm
 AT THE CENTRAL PHOENIX STATION DURING 1977

| MONTH | TOTAL | % | MON. | TUES. | WED. | THURS. | FRI. | SAT. | SUN. |
|------------------|-------|------|------|-------|------|--------|------|------|------|
| JAN. | 9 | 13.0 | 2 | 2 | 1 | 1 | 0 | 1 | 2 |
| FEB. | 13 | 18.8 | 2 | 2 | 0 | 2 | 4 | 2 | 1 |
| MAR. | 2 | 2.9 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| APR. | 5 | 7.2 | 0 | 0 | 2 | 1 | 1 | 1 | 0 |
| MAY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| JUNE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| JULY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| AUG. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SEPT. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| OCT. | 4 | 5.8 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| NOV. | 16 | 23.2 | 2 | 2 | 2 | 3 | 3 | 2 | 2 |
| DEC. | 20 | 29.0 | 1 | 1 | 3 | 1 | 3 | 7 | 4 |
| TOTAL | 69 | 99.9 | 7 | 9 | 9 | 8 | 12 | 14 | 10 |
| PERCENT OF TOTAL | | | 10.1 | 13.6 | 13.0 | 11.6 | 17.4 | 20.3 | 14.5 |

EXCEEDENCES OF THE EIGHT HOUR
 CARBON MONOXIDE STANDARD OF 10 mg/m³ or 9 ppm
 AT THE CENTRAL PHOENIX STATION DURING 1976

| MONTH | TOTAL | % | MON. | TUES. | WED. | THURS. | FRI. | SAT. | SUN. |
|------------------|-------|-------|------|-------|------|--------|------|------|------|
| JAN. | 24 | 30.4 | 2 | 2 | 4 | 6 | 5 | 3 | 2 |
| FEB. | 2 | 2.5 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| MAR. | 1 | 1.3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| APR. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| JUNE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| JULY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| AUG. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SEPT. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| OCT. | 6 | 7.6 | 0 | 1 | 0 | 0 | 2 | 1 | 2 |
| NOV. | 24 | 30.4 | 4 | 8 | 4 | 2 | 2 | 3 | 1 |
| DEC. | 22 | 27.8 | 2 | 5 | 6 | 1 | 4 | 2 | 2 |
| TOTAL | 79 | 100.0 | 8 | 16 | 15 | 9 | 14 | 10 | 7 |
| PERCENT OF TOTAL | | | 10.1 | 20.3 | 19.0 | 11.4 | 17.7 | 12.7 | 8.9 |

VIOLATION OF THE EIGHT HOUR
CARBON MONOXIDE STANDARD OF 10 mg/m³ OR 9 PPM
AT THE CENTRAL PHOENIX STATION DURING 1975

| DAY OF WEEK | TOTAL | % | VIOLATIONS | | | | | | | | | | | |
|------------------|-------|-------|------------|------|------|------|-----|------|------|------|------|------|------|------|
| | | | JAN. | FEB. | MAR. | APR. | MAY | JUNE | JULY | AUG. | SEP. | OCT. | NOV. | DEC. |
| MON. | 11 | 14.3 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 4 |
| TUES. | 11 | 14.3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 5 |
| WED. | 9 | 11.7 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 4 |
| THUR. | 8 | 10.4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 1 |
| FRI. | 19 | 24.7 | 5 | 2 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 2 | 3 | 4 |
| SAT. | 12 | 15.6 | 3 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 3 |
| SUN. | 7 | 9.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 1 |
| TOTAL | 77 | 100.1 | 16 | 4 | 1 | 1 | 2 | 1 | 0 | 0 | 2 | 10 | 18 | 22 |
| PERCENT OF TOTAL | | | 20.8 | 5.2 | 1.3 | 1.3 | 2.6 | 1.3 | 0 | 0 | 2.6 | 13.0 | 23.4 | 28.6 |

EXCEEDENCES OF THE EIGHT HOUR
CARBON MONOXIDE STANDARD OF 10,000 ug/m³

1978

| MONTH | CENTRAL PHOENIX | | NORTH PHOENIX | | SOUTH PHOENIX | | GLENDALE | | SCOTTSDALE | | MESA | | NORTH SCOTTSDALE | | WEST PHOENIX | |
|-------|-----------------|-------|---------------|-------|---------------|-------|----------|-------|------------|-------|------|-------|------------------|-------|--------------|-------|
| | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES |
| JAN. | 10 | 12 | 0 | 0 | 0 | 0 | NR | NR | 1 | 1 | NR | NR | 0 | 0 | 9 | 12 |
| FEBR. | 3 | 4 | 0 | 0 | 0 | 0 | NR | NR | 0 | 0 | NR | NR | 0 | 0 | 2 | 3 |
| MAR. | 1 | 1 | 0 | 0 | 0 | 0 | NR | NR | 0 | 0 | NR | NR | 0 | 0 | 0 | 0 |
| APR. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| JUNE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| JULY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| AUG. | 0 | 0 | 0 | 0 | 0 | 0 | NR | NR | 0 | 0 | NR | NR | 0 | 0 | 1 | 1 |
| SEPT. | 1 | 1 | 0 | 0 | 0 | 0 | NR | NR | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| OCT. | 6 | 6 | 0 | 0 | 0 | 0 | NR | NR | 0 | 0 | 0 | 0 | 0 | 0 | NR | NR |
| NOV. | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 10 |
| DEC. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 6 | 10 |
| TOTAL | 22 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 28 | 37 |

EXCEEDENCES OF THE EIGHT HOUR

CARBON MONOXIDE STANDARD OF 10,000 ug/m³

1977

| MONTH | CENTRAL PHOENIX | | NORTH PHOENIX | | SOUTH PHOENIX | | GLENDALE | | SCOTTSDALE | | MESA | | NORTH SCOTTSDALE | | WEST PHOENIX | |
|-------|-----------------|-------|---------------|-------|---------------|-------|----------|-------|------------|-------|------|-------|------------------|-------|--------------|-------|
| | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES |
| JAN. | 8 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | - |
| FEBR. | 10 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NR | NR | 5 | 5 |
| MAR. | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| APR. | 5 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| JUNE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| JULY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| AUG. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SEPT. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| OCT. | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 |
| NOV. | 14 | 16 | 0 | 0 | 1 | 1 | 0 | 0 | 10 | 10 | 2 | 2 | NR | NR | 11 | 17 |
| DEC. | 14 | 20 | 1 | 1 | 1 | 1 | 0 | 0 | 8 | 9 | 5 | 5 | 0 | 0 | 20 | 32 |
| TOTAL | 57 | 69 | 1 | 1 | 2 | 2 | 0 | 0 | 19 | 20 | 7 | 7 | 0 | 0 | 42 | 60 |

EXCEEDENCES OF THE EIGHT HOUR

CARBON MONOXIDE STANDARD OF 10,000 $\mu\text{g}/\text{m}^3$

1976

| MONTH | CENTRAL PHOENIX | | NORTH PHOENIX | | SOUTH PHOENIX | | GLENDALE | | SCOTTSDALE | | MESA | | NORTH SCOTTSDALE | |
|-------|-----------------|-------|---------------|-------|---------------|-------|----------|-------|------------|-------|------|-------|------------------|-------|
| | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES |
| JAN. | 16 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| FEBR. | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 4 | 0 | 0 |
| MAR. | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| APR. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| JUNE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| JULY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| AUG. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SEPT. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| OCT. | 5 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 0 | 0 |
| NOV. | 18 | 24 | 2 | 2 | 0 | 0 | 0 | 0 | 4 | 5 | 1 | 1 | 0 | 0 |
| DEC. | 17 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 7 | 3 | 3 | 0 | 0 |
| TOTAL | 59 | 79 | 2 | 2 | 0 | 0 | 0 | 0 | 13 | 14 | 10 | 11 | 0 | 0 |

Based on a maximum of three per day.

EXCEEDENCES OF THE EIGHT HOUR
CARBON MONOXIDE STANDARD OF 10,000 ug/m³

1975

| MONTH | CENTRAL PHOENIX | | NORTH PHOENIX | | SOUTH PHOENIX | | GLENDALE | | SCOTTSDALE | | MESA | |
|-------|-----------------|-------|---------------|-------|---------------|-------|----------|-------|------------|-------|------|-------|
| | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES |
| JAN. | 12 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 |
| FEB. | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAR. | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| APR. | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAY | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| JUNE | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| JULY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| AUG. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SEPT. | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| OCT. | 7 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| NOV. | 15 | 18 | 2 | 2 | 1 | 1 | 1 | 1 | 7 | 7 | 9 | 9 |
| DEC. | 14 | 22 | 2 | 2 | 4 | 4 | 0 | 0 | 3 | 4 | 3 | 3 |
| TOTAL | 59 | 77 | 4 | 4 | 5 | 5 | 1 | 1 | 13 | 14 | 14 | 14 |

Based on a maximum of three per day.

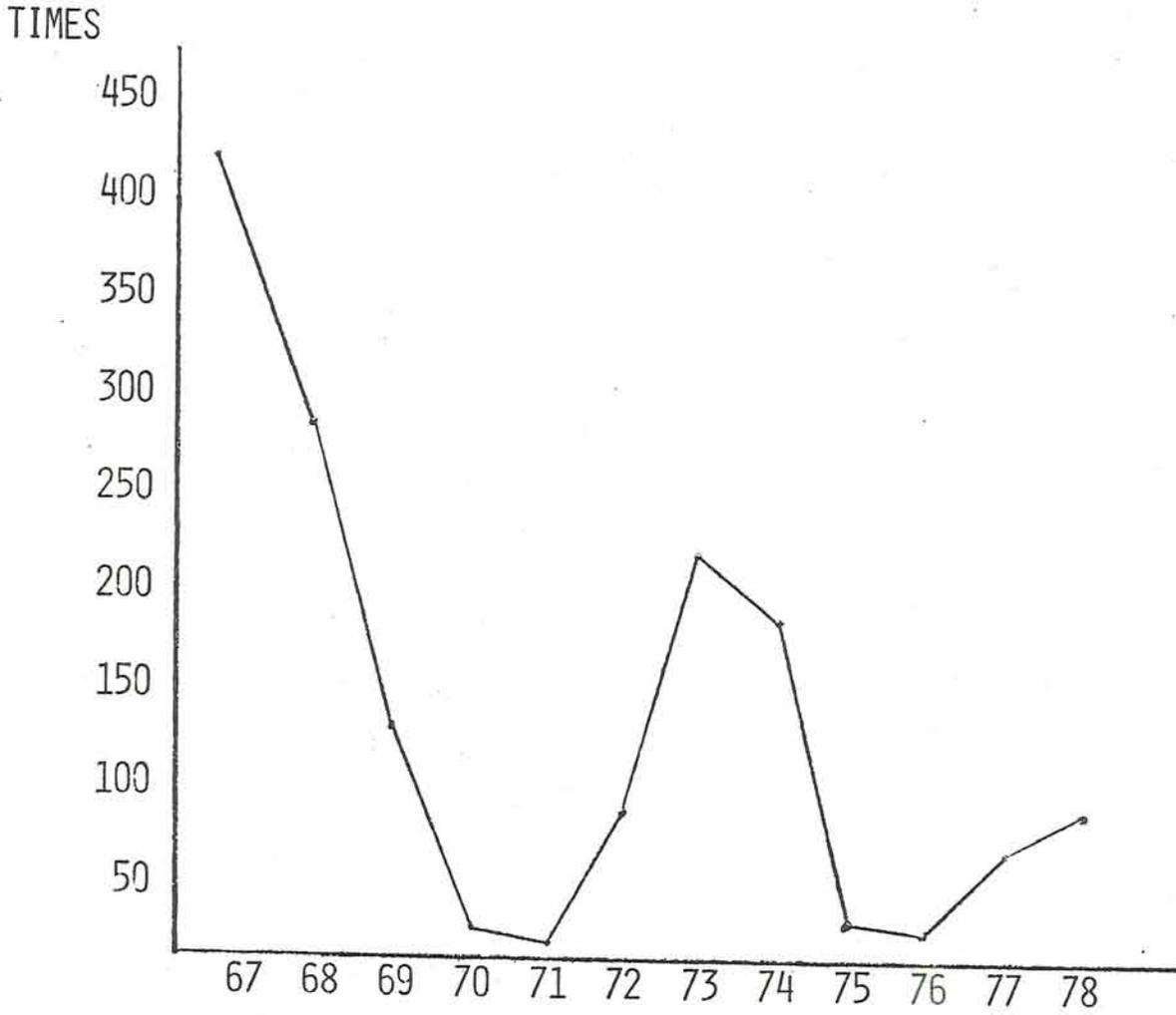
ONE HOUR CARBON MONOXIDE
CONCENTRATIONS AT THE
CENTRAL PHOENIX STATION
(mg/m³)

| <u>YEAR</u> | <u>HIGHEST CONCENTRATION</u> | <u>SECOND HIGHEST CONCENTRATION</u> |
|-------------|----------------------------------|---|
| 1978 | 22 | 22 |
| 1977 | 31 | 30 |
| 1976 | 29 | 27 |
| 1975 | 34 | 34 |
| 1974 | 39 | 37 |
| 1973 | 40 | 39 |
| 1972 | 52 | 48 |
| 1971 | 46 | 44 |
| 1970 | 63 | 56 |
| 1969 | 57 | 57 |
| 1968 | 57 | 50 |
| 1967 | 64 | 60 |

EXCEEDENCES OF THE ONE HOUR
CARBON MONOXIDE STANDARD OF 40 mg/m³
AT THE CENTRAL PHOENIX STATION

| MONTH | 1978 | | 1977 | | 1976 | | 1975 | | 1974 | | 1973 | | 1972 | | 1971 | | 1970 | | 1969 | | 1968 | | 1967 | |
|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|
| | DAYS | TIMES |
| JAN. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 4 | 5 | 2 | 2 | 8 | 13 | 14 | 39 | 17 | 52 |
| FEBR. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 2 | 4 | 7 | 4 | 6 | 4 | 8 |
| MARCH | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 4 | 9 |
| APRIL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| JUNE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 5 | 8 | 0 | 0 |
| JULY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| AUG. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SEPT. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| OCT. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 3 | 9 | 0 | 0 | 8 | 15 |
| NOV. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 8 | 1 | 1 | 10 | 27 | 3 | 5 | 3 | 7 | 17 | 72 |
| DEC. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 8 | 0 | 0 | 11 | 18 | 10 | 32 | 8 | 32 | 13 | 40 |
| TOTAL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 10 | 19 | 6 | 7 | 26 | 54 | 29 | 68 | 35 | 94 | 63 | 196 |

VIOLETIONS OF THE PHOTOCHEMICAL OXIDANT
STANDARD AT THE CENTRAL PHOENIX STATION



ONE HOUR OZONE
CONCENTRATIONS AT THE
CENTRAL PHOENIX STATION
(ug/m³)

| <u>YEAR</u> | <u>HIGHEST CONCENTRATION</u> | <u>SECOND HIGHEST CONCENTRATION</u> |
|-------------|----------------------------------|---|
| 1978 | 310 | 279 |
| 1977 | 310 | 300 |
| 1976 | 259 | 240 |
| 1975 | 298 | 251 |
| 1974 | 294 | 294 |
| 1973 | 373 | 314 |
| 1972 | 236 | 236 |
| 1971 | 255 | 236 |
| 1970 | 216 | 216 |
| 1969 | 294 | 275 |
| 1968 | 707 | 687 |
| 1967 | 491 | 491 |

EXCEEDENCES OF THE ONE HOUR TOTAL OXIDANTS
FEDERAL PRIMARY STANDARD OF 160 ug/m³
AT THE CENTRAL PHOENIX STATION

| MONTH | 1978 | | 1977 | | 1976 | | 1975 | | 1974 | | 1973 | | 1972 | | 1971 | | 1970 | | 1969 | | 1968 | | 1967 | |
|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|
| | DAYS | TIMES |
| JAN. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 3 | 0 | 0 | 6 | 20 |
| FEBR. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 23 | 0 | 0 | 0 | 1 | 2 | 4 | 12 | 1 | 4 | 8 | 36 |
| MARCH | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 64 | 1 | 1 | 24 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 17 | 78 | 18 | 114 |
| APRIL | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 78 | 6 | 12 | 13 | 2 | 2 | 0 | 0 | 3 | 6 | 7 | 37 | 17 | 86 | |
| MAY | 6 | 11 | 2 | 6 | 0 | 0 | 1 | 3 | 4 | 9 | 11 | 39 | 14 | 1 | 1 | 0 | 0 | 9 | 38 | 13 | 59 | 7 | 25 | |
| JUNE | 12 | 22 | 6 | 19 | 1 | 4 | 1 | 1 | 0 | 0 | 7 | 23 | 1 | 1 | 4 | 0 | 0 | 12 | 29 | 13 | 42 | 14 | 43 | |
| JULY | 14 | 34 | 6 | 15 | 0 | 0 | 3 | 8 | 4 | 16 | 10 | 47 | 12 | 1 | 2 | 1 | 1 | 5 | 9 | 6 | 19 | 9 | 22 | |
| AUG. | 3 | 4 | 7 | 12 | 3 | 6 | 7 | 13 | 4 | 7 | 11 | 35 | 3 | 3 | 3 | 10 | 5 | 5 | 13 | 1 | 2 | 8 | 21 | |
| SEPT. | 1 | 2 | 4 | 9 | 1 | 2 | 1 | 1 | NR | NR | 9 | 26 | 6 | 0 | 0 | 6 | 17 | 3 | 7 | 2 | 4 | 6 | 13 | |
| OCT. | 2 | 3 | 2 | 3 | 4 | 12 | 0 | 0 | 3 | 9 | 8 | 20 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 13 | 33 | 10 | 30 | |
| NOV. | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | NR | NR | 4 | 10 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 4 | 6 | 4 | 9 | |
| DEC. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NR | NR | 2 | 4 | 0 | 0 | 1 | 1 | 0 | 2 | 2 | 3 | 7 | 1 | 1 | |
| TOTAL | 41 | 81 | 27 | 64 | 10 | 25 | 13 | 26 | 46 | 187 | 70 | 219 | 41 | 97 | 10 | 20 | 11 | 25 | 53 | 128 | 80 | 291 | 108 | 420 |

EXCEEDENCES OF THE TOTAL OXIDANT
STANDARD OF 160 ug/m³ AT THE
CENTRAL PHOENIX STATION

1975 through 1978

| MONTH | TOTAL | % | MON. | TUES. | WED. | THURS. | FRI. | SAT. | SUN. |
|------------------|-------|-------|------|-------|------|--------|------|------|------|
| JAN. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FEB. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAR. | 3 | 1.5 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| APR. | 2 | 1.0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| MAY | 20 | 10.2 | 1 | 6 | 1 | 3 | 6 | 2 | 1 |
| JUNE | 46 | 23.5 | 1 | 17 | 7 | 4 | 10 | 5 | 2 |
| JULY | 57 | 29.1 | 3 | 15 | 10 | 13 | 12 | 4 | 0 |
| AUG. | 35 | 17.9 | 5 | 7 | 4 | 4 | 8 | 7 | 0 |
| SEPT. | 14 | 7.1 | 0 | 0 | 5 | 9 | 0 | 0 | 0 |
| OCT. | 18 | 9.2 | 3 | 10 | 4 | 0 | 0 | 0 | 1 |
| NOV. | 1 | 0.5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| DEC. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 196 | 100.0 | 13 | 57 | 31 | 33 | 36 | 18 | 8 |
| PERCENT OF TOTAL | | | 6.6 | 29.1 | 15.8 | 16.8 | 18.4 | 9.2 | 4.1 |

EXCEEDENCES OF THE TOTAL OXIDANT
STANDARD OF 160 ug/m³ AT THE
CENTRAL PHOENIX STATION DURING 1978

| MONTH | TOTAL | % | MON. | TUES. | WED. | THURS. | FRI. | SAT. | SUN. |
|------------------|-------|-------|------|-------|------|--------|------|------|------|
| JAN. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FEB. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAR. | 3 | 3.7 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| APR. | 2 | 2.5 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| MAY | 11 | 13.6 | 1 | 1 | 1 | 0 | 6 | 1 | 1 |
| JUNE | 22 | 27.2 | 1 | 4 | 4 | 2 | 8 | 1 | 2 |
| JULY | 34 | 42.0 | 2 | 9 | 6 | 6 | 9 | 2 | 0 |
| AUG. | 4 | 4.9 | 0 | 1 | 0 | 0 | 0 | 3 | 0 |
| SEPT. | 2 | 2.5 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| OCT. | 3 | 3.7 | 0 | 3 | 0 | 0 | 0 | 0 | 0 |
| NOV. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| DEC. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 81 | 100.1 | 4 | 19 | 11 | 10 | 23 | 7 | 7 |
| PERCENT OF TOTAL | | | 4.9 | 23.5 | 13.6 | 12.3 | 28.4 | 8.6 | 8.6 |

EXCEEDENCES OF THE TOTAL OXIDANT
STANDARD OF 160 ug/m³ AT THE
CENTRAL PHOENIX STATION DURING 1977

| MONTH | TOTAL | % | MON. | TUES. | WED. | THURS. | FRI. | SAT. | SUN. |
|------------------|-------|-------|------|-------|------|--------|------|------|------|
| JAN. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FEB. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAR. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| APR. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAY | 6 | 9.4 | 0 | 5 | 0 | 0 | 0 | 1 | 0 |
| JUNE | 19 | 29.7 | 0 | 9 | 3 | 2 | 1 | 4 | 0 |
| JULY | 15 | 23.4 | 0 | 2 | 4 | 7 | 0 | 2 | 0 |
| AUG. | 12 | 18.8 | 1 | 4 | 4 | 1 | 2 | 0 | 0 |
| SEPT. | 9 | 14.1 | 0 | 0 | 3 | 6 | 0 | 0 | 0 |
| OCT. | 3 | 4.7 | 0 | 0 | 2 | 0 | 0 | 0 | 1 |
| NOV. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| DEC. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 64 | 100.1 | 1 | 20 | 16 | 16 | 3 | 7 | 1 |
| PERCENT OF TOTAL | | | 1.6 | 31.3 | 25.0 | 25.0 | 4.7 | 10.9 | 1.6 |

EXCEEDENCES OF THE TOTAL OXIDANT
STANDARD OF 160 $\mu\text{g}/\text{m}^3$ AT THE
CENTRAL PHOENIX STATION DURING 1976

| MONTH | TOTAL | % | MON. | TUES. | WED. | THURS. | FRI. | SAT. | SUN. |
|------------------|-------|-------|------|-------|------|--------|------|------|------|
| JAN. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FEB. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAR. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| APR. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| JUNE | 4 | 16.0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| JULY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| AUG. | 6 | 24.0 | 0 | 2 | 0 | 3 | 1 | 0 | 0 |
| SEPT. | 2 | 8.0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| OCT. | 12 | 48.0 | 3 | 7 | 2 | 0 | 0 | 0 | 0 |
| NOV. | 1 | 4.0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| DEC. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 25 | 100.0 | 3 | 14 | 4 | 3 | 1 | 0 | 0 |
| PERCENT OF TOTAL | | | 12.0 | 56.0 | 16.0 | 12.0 | 4.0 | 0 | 0 |

VIOLATIONS OF THE TOTAL OXIDANT STANDARD OF $160 \mu\text{g}/\text{m}^3$ AT THE CENTRAL PHOENIX STATION DURING 1975

| DAY OF WEEK | TOTAL | % | VIOLATIONS | | | | | | | | | | | | |
|------------------|-------|-------|------------|------|------|------|------|------|------|------|------|------|------|------|---|
| | | | JAN. | FEB. | MAR. | APR. | MAY | JUNE | JULY | AUG. | SEP. | OCT. | NOV. | DEC. | |
| MONDAY | 5 | 19.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 0 |
| TUESDAY | 4 | 15.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| WNSDAY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| THRSDAY | 4 | 15.4 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| FRIDAY | 9 | 34.6 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 5 | 0 | 0 | 0 | 0 | 0 |
| SATURDAY | 4 | 15.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| SUNDAY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 26 | 100.0 | 0 | 0 | 0 | 0 | 3 | 1 | 8 | 13 | 1 | 0 | 0 | 0 | 0 |
| PERCENT OF TOTAL | | | 0 | 0 | 0 | 0 | 11.5 | 3.8 | 30.7 | 50.0 | 3.8 | 0 | 0 | 0 | 0 |

EXCEEDENCES OF THE TOTAL OXIDANTS

FEDERAL PRIMARY STANDARD

OF 160 $\mu\text{g}/\text{m}^3$

1978

| MONTH | CENTRAL PHOENIX | | NORTH PHOENIX | | SOUTH PHOENIX | | GLENDALE | | SCOTTSDALE | |
|-------|-----------------|-------|---------------|-------|---------------|-------|----------|-------|------------|-------|
| | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES |
| JAN. | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 |
| FEBR. | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | NR | NR |
| MAR. | 2 | 3 | 0 | 0 | 0 | 0 | 3 | 5 | 0 | 0 |
| APR. | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAY | 6 | 11 | 4 | 8 | 1 | 4 | 4 | 7 | 3 | 8 |
| JUNE | 12 | 22 | 13 | 25 | 1 | 1 | 10 | 21 | 11 | 20 |
| JULY | 14 | 34 | 10 | 19 | 5 | 10 | 9 | 24 | 9 | 17 |
| AUG. | 3 | 4 | 5 | 7 | 0 | 0 | 7 | 12 | 6 | 9 |
| SEPT. | 1 | 2 | 2 | 4 | 1 | 2 | 4 | 9 | 0 | 0 |
| OCT. | 2 | 3 | 5 | 6 | 1 | 1 | 8 | 14 | 1 | 1 |
| NOV. | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 2 | 0 | 0 |
| DEC. | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| TOTAL | 41 | 81 | 40 | 70 | 11 | 22 | 48 | 96 | 30 | 55 |

EXCEEDENCES OF THE TOTAL OXIDANTS

FEDERAL PRIMARY STANDARD

OF 160 $\mu\text{g}/\text{m}^3$

1977

| MONTH | CENTRAL PHOENIX | | NORTH PHOENIX | | SOUTH PHOENIX | | GLENDALE | | SCOTTSDALE | |
|-------|-----------------|-------|---------------|-------|---------------|-------|----------|-------|------------|-------|
| | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES |
| JAN. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FEBR. | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 2 | 0 | 0 |
| MAR. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| APR. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAY | 2 | 6 | 1 | 2 | 0 | 0 | 1 | 3 | 3 | 4 |
| JUNE | 6 | 19 | 3 | 3 | 2 | 3 | 3 | 5 | 2 | 4 |
| JULY | 6 | 15 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 4 |
| AUG. | 7 | 12 | 5 | 8 | 1 | 1 | 10 | 17 | 2 | 2 |
| SEPT. | 4 | 9 | 2 | 5 | 1 | 1 | 3 | 5 | 1 | 1 |
| OCT. | 2 | 3 | 1 | 1 | 0 | 0 | 5 | 13 | 0 | 0 |
| NOV. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| DEC. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 27 | 64 | 15 | 22 | 4 | 5 | 23 | 45 | 11 | 15 |

EXCEEDENCES OF THE TOTAL OXIDANTS

FEDERAL PRIMARY STANDARD

OF 160 $\mu\text{g}/\text{m}^3$

1976

| MONTH | CENTRAL PHOENIX | | NORTH PHOENIX | | SOUTH PHOENIX | | GLENDALE | | SCOTTSDALE | |
|-------|-----------------|-------|---------------|-------|---------------|-------|----------|-------|------------|-------|
| | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES |
| JAN. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FEBR. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAR. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| APR. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAY | 0 | 0 | 3 | 5 | 0 | 0 | 3 | 4 | 0 | 0 |
| JUNE | 1 | 4 | 2 | 3 | 0 | 0 | 2 | 2 | 0 | 0 |
| JULY | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 |
| AUG. | 3 | 6 | 7 | 8 | 0 | 0 | 1 | 1 | 0 | 0 |
| SEPT. | 1 | 2 | 3 | 9 | 0 | 0 | 3 | 7 | 0 | 0 |
| OCT. | 4 | 12 | 2 | 4 | 2 | 4 | 3 | 7 | 0 | 0 |
| NOV. | 1 | 1 | 0 | 0 | 0 | 0 | 3 | 4 | NR | NR |
| DEC. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 10 | 25 | 17 | 29 | 2 | 4 | 16 | 27 | 0 | 0 |

EXCEEDENCES OF THE TOTAL OXIDANTS

FEDERAL PRIMARY STANDARD

OF 160 ug/m³

1975

| MONTH | CENTRAL PHOENIX | | NORTH PHOENIX | | SOUTH PHOENIX | | GLENDALE | | SCOTTSDALE | |
|-------|-----------------|-------|---------------------|-------|--------------------|-------|----------|-------|------------|-------|
| | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES | DAYS | TIMES |
| JAN. | 0 | 0 | | | | | 2 | 2 | 0 | 0 |
| FEBR. | 0 | 0 | | | | | NR | NR | 0 | 0 |
| MAR. | 0 | 0 | Start June, 1975 | | Start April, 75 | | NR | NR | 0 | 0 |
| APR. | 0 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 |
| MAY | 1 | 3 | | | 0 | 0 | 4 | 6 | 0 | 0 |
| JUNE | 1 | 1 | 3 | 4 | 0 | 0 | NR | NR | 1 | 1 |
| JULY | 3 | 8 | 3 | 3 | 0 | 0 | 3 | 5 | 0 | 0 |
| AUG. | 7 | 13 | 4 | 6 | 0 | 0 | NR | NR | 0 | 0 |
| SEPT. | 1 | 1 | 0 | 0 | 0 | 0 | NR | NR | 0 | 0 |
| OCT. | 0 | 0 | 0 | 0 | 0 | 0 | NR | NR | 0 | 0 |
| NOV. | 0 | 0 | 0 | 0 | 0 | 0 | NR | NR | 0 | 0 |
| DEC. | 0 | 0 | 0 | 0 | 0 | 0 | NR | NR | 0 | 0 |
| TOTAL | 13 | 26 | 10 | 13 | 0 | 0 | 9 | 13 | 1 | 1 |

EXHIBIT VI

AVERAGE NITROGEN DIOXIDE CONCENTRATION
 AT THE CENTRAL PHOENIX STATION
 (Micrograms per Cubic Meter)

| MONTH | YEARS | | | | | | | | | | | |
|-----------|-------|-------|------|------|-------|------|-------|------|------|------|-------|-------|
| | 1978 | 1977 | 1976 | 1975 | 1974 | 1973 | 1972 | 1971 | 1970 | 1969 | 1968 | 1967 |
| January | 70.7 | 86.5 | 63.4 | 65.1 | 83.0 | 80.2 | 64.3 | 92.7 | 73.6 | 39.6 | 127.0 | NR |
| February | 50.4 | 93.5 | 61.5 | 74.9 | 74.4 | 98.6 | 101.5 | 73.6 | 72.1 | 36.4 | 88.0 | 81.2 |
| March | 40.6 | 36.5 | 67.8 | 58.0 | 70.9 | 50.6 | 72.1 | 59.3 | 55.7 | 25.3 | 68.1 | 70.7 |
| April | nr | 62.6 | 57.7 | 42.6 | 103.5 | 58.6 | 52.2 | 72.0 | 68.7 | 30.4 | 44.1 | 77.8 |
| May | nr | 56.6 | 49.8 | 62.8 | 80.2 | 66.1 | 92.0 | 55.2 | 27.4 | 31.4 | 45.2 | 62.7 |
| June | 44.9 | 54.4 | 48.4 | 68.2 | 49.4 | 75.1 | 61.3 | 50.7 | 25.6 | 42.0 | 45.8 | 47.1 |
| July | 40.6 | 41.1 | 34.2 | 33.2 | 73.3 | 57.4 | 58.0 | 37.0 | 21.6 | 37.8 | 36.8 | 29.3 |
| August | 41.0 | 41.5 | 48.4 | 45.1 | 62.1 | 57.1 | 73.9 | 35.3 | 29.8 | 48.6 | 46.1 | 43.7 |
| September | 33.4 | 49.0 | 62.0 | 25.4 | 61.0 | 76.2 | 77.6 | 49.9 | 64.9 | 50.6 | 66.0 | 62.0 |
| October | 35.8 | 64.6 | 90.1 | 83.4 | 62.6 | 70.4 | 85.5 | 51.9 | 66.8 | 53.3 | 103.6 | 95.9 |
| November | 40.7 | 88.1 | 60.6 | 81.9 | 101.9 | 65.9 | 137.1 | 91.9 | 60.4 | 54.5 | 58.7 | 109.6 |
| December | 44.5 | 101.0 | 69.6 | 66.9 | 86.2 | 88.4 | 91.4 | 44.5 | 84.1 | 78.1 | 48.6 | 128.3 |
| ANNUAL | 44.4 | 64.8 | 59.8 | 62.1 | 74.9 | 70.1 | 80.5 | 59.1 | 53.8 | 43.9 | 67.4 | 73.8 |

EXHIBIT VII

AVERAGE SULFUR DIOXIDE CONCENTRATIONS
 AT THE CENTRAL PHOENIX STATION
 (Micrograms per Cubic Meter)

| MONTH | 1978 | 1977 | 1976 | 1975 | 1974 | 1973 | 1972 | 1971 | 1970 | 1969 | 1968 |
|--------|------|------|------|------|------|------|------|------|------|------|------|
| Jan. | 3.4 | 34.6 | 13.7 | NR | 6.9 | 13.3 | 15.6 | 26.6 | 26.5 | 29.4 | NR |
| Febr. | 1.2 | 25.4 | 8.8 | NR | 10.5 | 9.4 | 20.0 | 11.8 | 19.2 | 21.6 | 2.5 |
| March | 1.5 | 10.6 | 7.0 | NR | 6.6 | 4.5 | 14.7 | 13.5 | 12.3 | 20.3 | 0.5 |
| April | 2.5 | 14.2 | 3.2 | 6.2 | 5.7 | 6.9 | 5.0 | 5.9 | 4.8 | 9.3 | 1.1 |
| May | 4.3 | 24.0 | 11.3 | 30.1 | 4.6 | 5.8 | 0.7 | 4.9 | 8.9 | 13.0 | 1.1 |
| June | 4.1 | 23.8 | 15.2 | 26.8 | 3.5 | 8.0 | 2.6 | 5.6 | 7.7 | 15.0 | 0.5 |
| July | 5.3 | 20.5 | 9.2 | 24.3 | 8.9 | 5.4 | 1.5 | 7.4 | 4.4 | 9.8 | NR |
| August | NR | 14.7 | 2.2 | 31.1 | 16.5 | 10.0 | 3.5 | 8.5 | 5.9 | 12.5 | NR |
| Sept. | NR | 24.1 | 1.5 | 8.8 | NR | 9.5 | 8.1 | 9.7 | 9.9 | 17.5 | 18.2 |
| Oct. | NR | 29.2 | 4.5 | 2.9 | 12.3 | 8.7 | 6.7 | 11.9 | 15.4 | 13.7 | 24.4 |
| Nov. | NR | NR | 9.4 | 1.2 | NR | 9.8 | 11.2 | 18.9 | 27.6 | 15.4 | 18.0 |
| Dec. | NR | 5.3 | NR | 14.2 | NR | 14.9 | 17.0 | 17.4 | 19.6 | 20.4 | 27.0 |
| ANNUAL | 3.0 | 21.0 | 7.4 | 15.1 | 8.0 | 8.9 | 9.0 | 11.8 | 13.5 | 16.4 | 9.9 |

