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FORT CARSON FUGITIVE DUST GENERATION AND TRANSPORT STUDY: LESSO--ETC(U)
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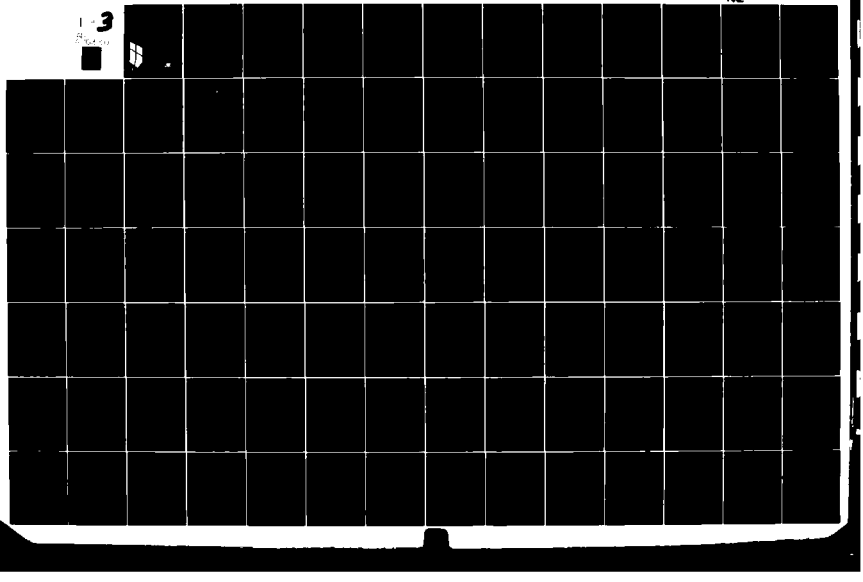

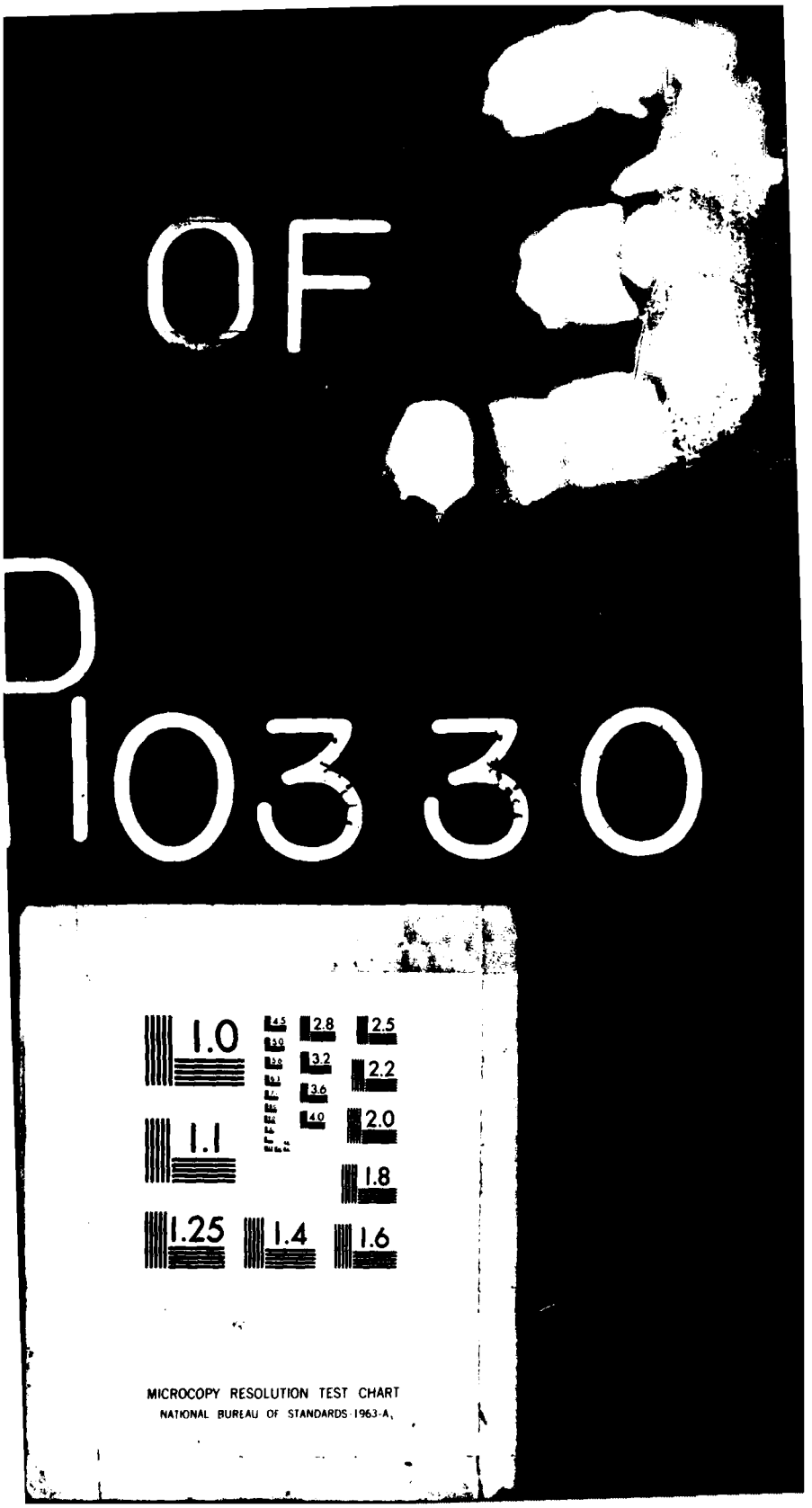
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TECHNICAL REPORT N-117
November 1981

FORT CARSON FUGITIVE DUST GENERATION AND TRANSPORT STUDY: LESSONS LEARNED

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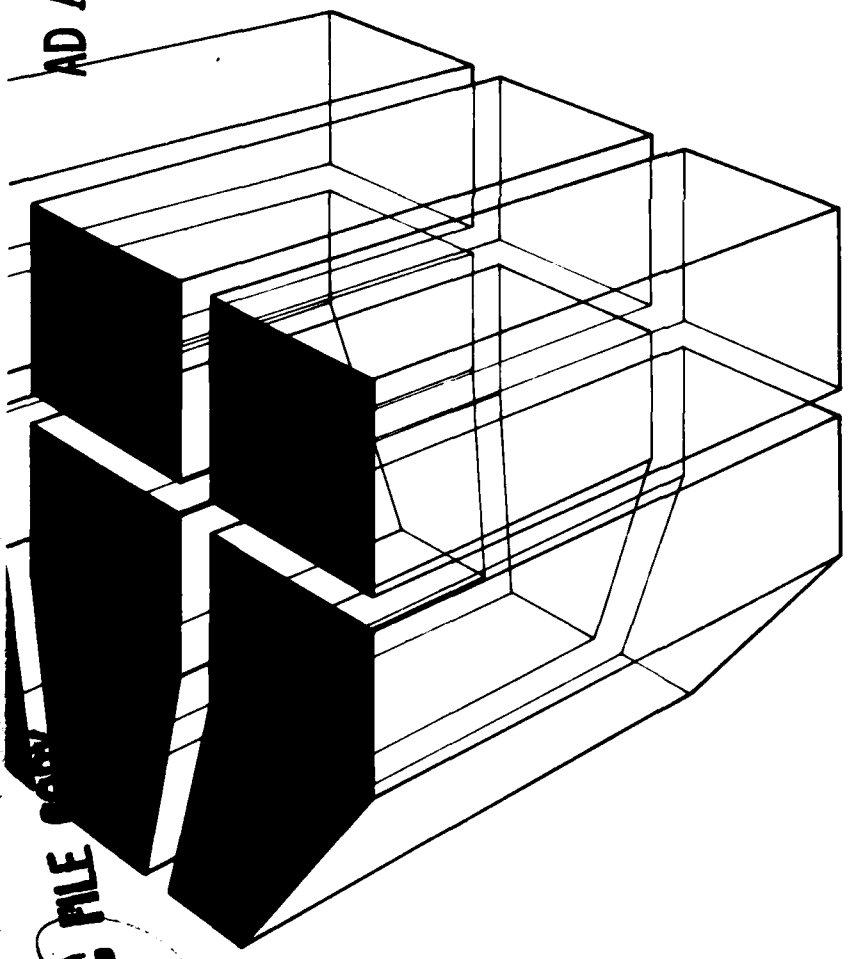

by
Gary W. Schanche
Martin J. Savoie

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REPORT DOCUMENTATION PAGE	READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER: CERL-TR-N-117	2. GOVT ACCESSION NO.: AD-A110 330
3. RECIPIENT'S CATALOG NUMBER	
4. TITLE *(and Subtitle)*: FORT CARSON FUGITIVE DUST GENERATION AND TRANSPORT STUDY: LESSONS LEARNED	5. TYPE OF REPORT & PERIOD COVERED: FINAL
	6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s): Gary W. Schanche, Martin J. Savoie	8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS: U.S. ARMY CONSTRUCTION ENGINEERING RESEARCH LABORATORY P.O. Box 4005, Champaign, IL 61820	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS: 4A762720A896-B-033
11. CONTROLLING OFFICE NAME AND ADDRESS	12. REPORT DATE: November 1981
	13. NUMBER OF PAGES: 190
14. MONITORING AGENCY NAME & ADDRESS*(if different from Controlling Office)*	15. SECURITY CLASS. *(of this report)*: Unclassified
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT *(of this Report)*

Approved for public release; distribution unlimited.

17. DISTRIBUTION STATEMENT *(of the abstract entered in Block 20, if different from Report)*

18. SUPPLEMENTARY NOTES

Copies are obtainable from the National Technical Information Service
Springfield, VA 22151

19. KEY WORDS *(Continue on reverse side if necessary and identify by block number)*

Fort Carson, CO
air pollution
dust

20. ABSTRACT *(Continue on reverse side if necessary and identify by block number)*

The State of Colorado considered Fort Carson and its training and combat readiness activities major contributors to the noncompliant Total Suspended Particulate (TSP) levels of the San Isabel Air Quality Control Region (AQCR4). This study was performed to determine Fort Carson's effect on the TSP levels in the communities surrounding the installation, to identify and quantify significant TSP-producing activities on Fort Carson, and to recommend measures to control TSP.

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The results of the study demonstrated that Fort Carson had little or no effect on TSP concentrations in the surrounding communities. Fort Carson's training and maneuver activities did not create TSP levels significantly different from the ambient background (23 $\mu g/m^3$ geometric mean). Fort Carson's cantonment activities created TSP levels which complied with both primary and secondary Federal and State ambient TSP standards. The study did show that the metropolitan areas of Colorado Springs, Security/Widefield, and Pueblo had a compliance problem, but the data strongly indicated that this may be due to improperly located samplers.

The study also indicated that Fort Carson has a highly localized TSP problem in areas next to unpaved roads and parking/staging areas, and in heavily used artillery firing ranges. These problem areas were a nuisance to persons occupying adjacent buildings, a safety problem to personnel and equipment in convoy on unpaved roads, and a training effectiveness problem for personnel using the artillery firing range.

To control TSP, the report recommends various techniques of dust suppression, and changes in the scheduling of training exercises and the movement of convoys.

FOREWORD

This investigation was done by the Environmental Division (EN), U.S. Army Construction Engineering Research Laboratory (CERL) for the Directorate of Military Programs, Office of the Chief of Engineers (OCE), under Project 4A762720A896, "Environmental Quality Technology"; Technical Area B, "Source Reduction, Control, and Treatment"; Work Unit 033, "Control Techniques for Air Pollution Residues and Fugitive Dusts." The study was also performed as a reimbursable effort for the Facilities Engineer at Fort Carson, CO, under Intra-Army Order FC 29-77 dated 27 December 1977, and Change 1 dated 31 January 1978. The OCE Technical Monitor was B. Wasserman, DAEN-MPO-U.

The assistance of the following people is gratefully acknowledged: from CERL -- Sharen Kloster, Art Miekowski, Jane Heaton, Veda Scarpetta, Brenda Griffin, and Ron Webster; from Fort Carson -- Mike Halla, CPT Tom Todd, and SGT G. Ramsey; from Pueblo County Health Department -- Emit Hance; and from El Paso County Health Department -- Don Stone and John James.

Dr. Ravinder Jain is Chief of EN. COL Louis J. Circeo is Commander and Director of CERL, and Dr. L. R. Shaffer is Technical Director.

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FORT CARSON FUGITIVE DUST GENERATION AND TRANSPORT STUDY: LESSONS LEARNED

1 INTRODUCTION

Background

The metropolitan areas of Colorado Springs and Pueblo are the only areas in the San Isabel Air Quality Control Region (AQCR4) of Colorado which are not now in compliance with Federal or State ambient air quality standards for total suspended particulates (TSP). Fort Carson, because of its location between these metropolitan areas and its extensive field training and combat readiness activities, was thought to be a major non-point source of suspended particulates in this region. To document the extent of Fort Carson's contribution to the TSP problem, the U.S. Army Construction Engineering Research Laboratory (CERL) was asked to perform a study of on-post, TSP-producing activities and off-post TSP transport.

The State of Colorado required Fort Carson to submit empirical data documenting the effects of its mission activities on the ambient air quality of the region. Fort Carson attempted to use computer simulations of TSP emissions, but the results were rejected by the State because existing modeling techniques did not take into account the atypical air flow patterns resulting from Fort Carson's nearness to the Rocky Mountains. Colorado asked Fort Carson to conduct ambient particulate monitoring in existing training and cantonment areas to document the ambient air quality effects. If the monitoring data confirmed that Fort Carson was a major cause of the region's noncompliance, the State would require the installation to pave all major tank routes -- a $54 million expense.

CERL was asked to assist Fort Carson in performing a long-term monitoring program to assess Fort Carson's TSP contribution to the region. CERL was to determine the actual monitoring requirements of the State of Colorado, identify the areas to be monitored, identify the parameters to be monitored in addition to dust loading, establish procedures so that Fort Carson personnel could conduct the sampling program, train Fort Carson personnel in the operation and maintenance of sampling equipment, supply sampling equipment, and provide data analytical services and consultation throughout the sampling program.

Research was begun in February 1977 with the investigation of historical air-quality monitoring data from State monitoring sites in the Fort Carson area, review of topographic information available from the U.S. Geological Survey (USGS), review of weather information from the National Weather Service for airports in Pueblo and Colorado Springs, examination of soils information available from the Soil Conservation Service (SCS), and review of the regulatory and monitoring requirements of Federal, State, and local agencies. In April 1977, Fort Carson was sent four alternative study proposals for the study of fugitive dust. Each proposal contained a detailed description of the study approach, the location of monitoring points, the monitoring parameters, the equipment required, the mechanism of data collection, and the data

analysis routines. A discussion of how the research results could be applied and a detailed breakdown of labor and equipment costs were also included.

In August 1977, Fort Carson decided to perform a study combining two of the alternatives. The first portion was a study to determine Fort Carson's effect on the TSP levels in the south-central section of Colorado Springs, the western section of Security, and the northwestern section of Pueblo. The second study was to identify significant sources of TSP on Fort Carson and to determine the relative strength of each. The sampling program was designed, equipment was bought, and personnel were trained in the operation and maintenance of monitoring equipment. The sampling program ran from February 1978 through January 1979. The research was concluded with transmittal of the final results to Fort Carson in August 1979.

Purpose

The objectives of this study were (1) to determine Fort Carson's effect on the TSP levels in the communities surrounding the installation, (2) to identify and quantify significant TSP-producing activities on Fort Carson, (3) to determine the extent of TSP problems of U.S. Army Training and Doctrine Command and U.S. Army Forces Command installations, and (4) to recommend measures to control TSP.

Approach

The contribution of Fort Carson to the TSP levels in Colorado Springs, Security, and Pueblo was determined by simultaneous monitoring of source strength and receptor TSP levels. Source strength determinations were made by an omnidirectional, high-volume sampler in the middle of the cantonment area at the Community Services Building, and on Range 143 at the southern edge of Tank Table VII. Receptor TSP levels were monitored by omnidirectional, high-volume samplers at Health Department monitoring stations on Tejon Street in Colorado Springs, at the Security Volunteer Fire Department, and at the Health Department on Central Main Street in Pueblo. Contributions from Fort Carson to the receptor TSP monitoring stations were determined by a directional, high-volume sampler set-up at each of the Health Department sites, and a directional, high-volume sampler at the north installation boundary on top of the Confinement Facility, Building 8010, and at the south installation boundary at the Department of Energy VHF radio repeater site on a ridge top in the southeast corner of Fort Carson. Comparisons between the source-strength monitors and the background station (in the Rod and Gun Club area of Fort Carson) indicated the significance of each area. Data from the omnidirectional and directional high-volume samplers at the Health Department sites allowed CERL to assess the significance of the TSP from Fort Carson's direction by comparing that amount with overall measured TSP levels. Finally, comparisons of readings of the boundary directional high-volume samplers with the Health Departments' directional high-volume samplers indicated both the strength of TSP levels being transported off-post and the existence of any intervening TSP sources.

2 SAMPLING PROGRAM DESIGN

Monitored Parameters

This study primarily monitored the TSP concentrations in Colorado Springs, Security, Pueblo, the cantonment area of Fort Carson, and the southern training area of Fort Carson -- near Pueblo. Omnidirectional samplers were used to identify receptor and source strengths, and directional samplers were used to identify the amount of pollution being transported from the installation and to the surrounding cities. In addition to information on TSP concentration, wind speed and wind direction data were gathered at several sites in the sampling area to study the transport of pollution to and from the installation. Directional samplers' operating times were gathered to indicate the relative significance of pollution coming from the direction of the installation. The activity level in training areas surrounding Tank Table VII were monitored to check the relative significance of training and maneuver activities on TSP concentrations coming off Fort Carson.

TSP concentrations were measured with the "Reference Method for the Determination of Total Suspended Particulates in the Atmosphere (High Volume Method)" (Appendix A).[1] Basically this technique uses a high-flow-rate vacuum cleaner motor that draws suspended particulates (having diameters smaller than 100 microns) through a porous glass fiber paper. Particulates in the size range of 0.1 to 100 microns diameter are collected on the glass fiber filters. The concentration of suspended particulates in the ambient air is determined by measuring the mass of the collected particulates and dividing by the volume of air sampled. The technique is generally sensitive enough to detect a TSP concentration as low as 1 $\mu g/m^3$ using a 24-hour sampling period.

The samplers in this study were made by General Metal Works Company of Cleves, OH (Model 2000H) and MicroChemical Specialties Company of Berkeley, CA (Model 620). Each high-volume sampler consists of a 0.6 horsepower Lamb electric vacuum motor, a 110 to 90 volt stepdown transformer, a Dixon pressure transducer flow recorder, an elapsed time indicator, and a 7-day cycle timer -- all encased in an anodized aluminum shelter. Figure 1 is a schematic of the high-volume sampler components. Figure 2 is a drawing of the assembled sampler and shelter. The filter medium employed for this study was Gelman type A and type AE glass fiber filter paper (8 x 10 in. [203 x 294 mm]). Filter papers were conditioned in a desiccator, maintained at 70°F (21.1°C) and less than 50 percent relative humidity, for 24 to 48 hours before weighing. The analytical balance used for filter weighing was a Torbal Model EA-1AP built by the Torsion Balance Company of Clifton, NJ. This balance has a 0 to 160 gram capacity with a 0.1 mg sensitivity and a $\pm$0.05 mg accuracy.

Before the initial weighing, each filter paper was exposed to a light source and inspected for imperfections. Filters were then assigned a four-digit identification number and placed in the desiccator for 24 to 48 hours. After weighing, the filters were placed in a numbered 10 x 12 in. (254 x 305 mm) zip-lock plastic storage bag for transportation to the sampling site. There, a filter paper was removed from its plastic carrying case and placed on

[1] National Primary and Secondary Ambient Air Quality Standards, 40 CFR Part 50 (25 November 1971).

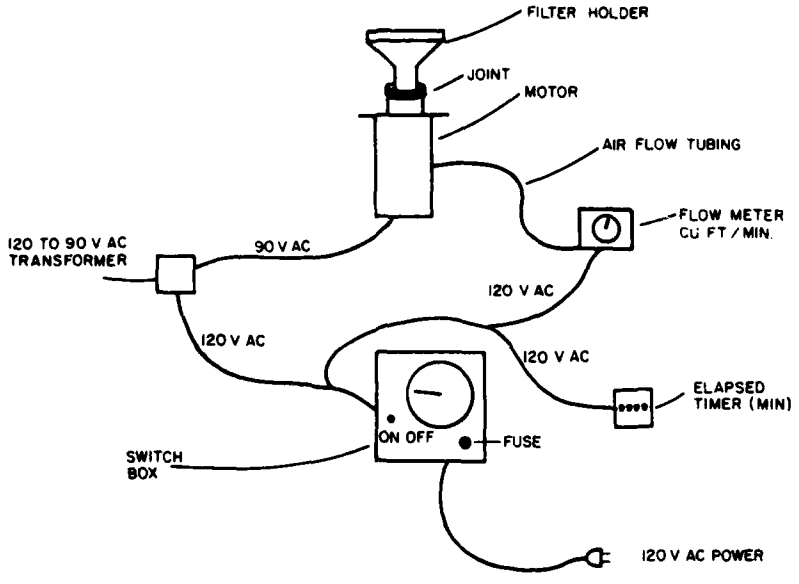


Figure 1. High volume air sampler schematic (all located inside metal housing).

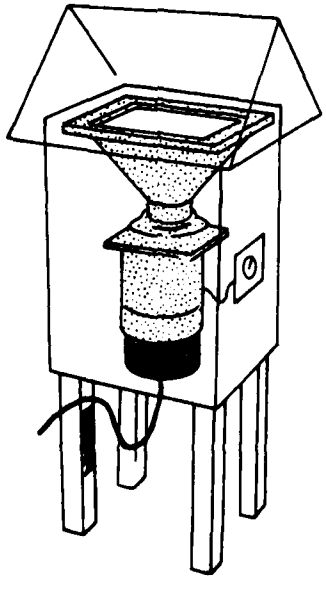


Figure 2. Assembled sampler and shelter.

the filter head. A new flow chart was placed on the flow chart recorder and an elapsed time indicator reading was taken. The number of the filter paper used, the location of the sampling site, the elapsed time indicator reading, the number of the flowchart paper, the time of day, and the type of sampling station were recorded on the data sheet. At the end of the sampling period, the filter paper was removed from the filter head and put in its plastic container, the flowchart was removed from the flowchart recorder, and the data sheet, flowchart, and paper were sent back to CERL for final weighing and analysis. Omnidirectional sampling stations were operated almost continuously; they were shut down only for equipment servicing and filter paper changes. Directional high-volume sampler stations were serviced once every 3 days. This was done to get at least 12 hours elapsed time on each filter paper before weighing for concentrations.

Each high-volume sampler was calibrated before the start of the study and at each change of brushes on the motor. The pressure transducer flow recorders were calibrated with a portable orifice calibration kit. Calibration charts were made for each sampler relating flow recorder readings to actual air flow rate. Since pressure conditions were within 15 percent of orifice calibration conditions and temperatures were within 100 percent (^{o}C) of orifice calibration conditions, it was unnecessary to correct the flow rate for the temperatures and pressures encountered during high-volume sampler calibration.

The directional high-volume sampling stations monitored the TSP concentrations coming from the direction of Fort Carson. To do this, a wind directional controlling switching system, Model 7670, built by Sierra Environmental Instruments of Berkeley, CA, was used. The Model 7670 consists of two basic components: wind directional head and a control module (Figure 3). The wind directional head is a weather vane connected to an adjusted cam and a micro switch mounted inside the head. The cam can be adjusted for an in-sector setting of up to 180 degrees. The out-sector setting is the difference between 360 degrees and the in-sector setting.

The control module has two running-time meters which accumulate the in-sector and out-sector times, two delay relays, and two power-out connectors. Sampling instruments connected to the power-out terminals are turned on and off by the vane. As the vane goes into a selected sector, power is directed to that sector's time-delay relay. After a preset delay is completed, the relay picks up and power is available to operate the high volume sampler which is connected to the in-sector's power-out plug. The wind directional controller is sensitive to within 0.5 degrees of wind direction. Figure 4 is a schematic of a 3-day directional, high-volume sampler station. The wind directional head is located 20 ft (6 m) above the surrounding terrain. Five wind directional controller systems were used in this study.

Hourly wind speed and wind direction information were recorded at eight sites throughout the study area. CERL used existing sites at Butts Field on Fort Carson, Pueblo Airport in Pueblo, Peterson Field in Colorado Springs, and El Paso County Health Department sites on Tejon Street in Colorado Springs and at Security Volunteer Fire Department. CERL installed three additional sites on-post. Wind recording stations at the Community Services Building No. 1526 and on Tank Table VII employed the Electronic Weather Station built by Climatronics Corporation of Hauppauge, NY. Figure 5 presents a schematic of this

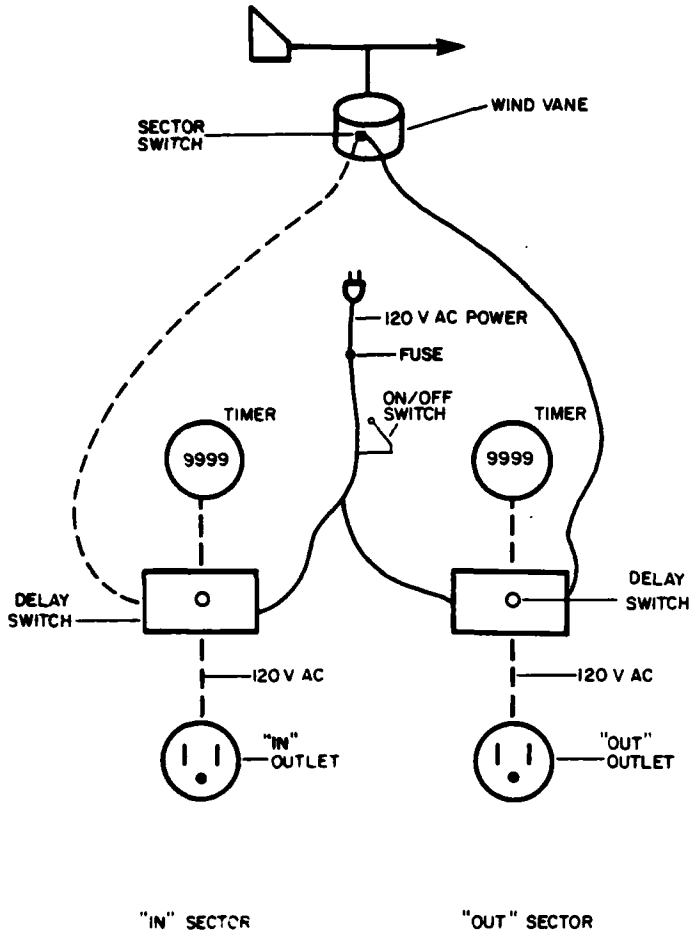


Figure 3. Wind direction controller system schematic.

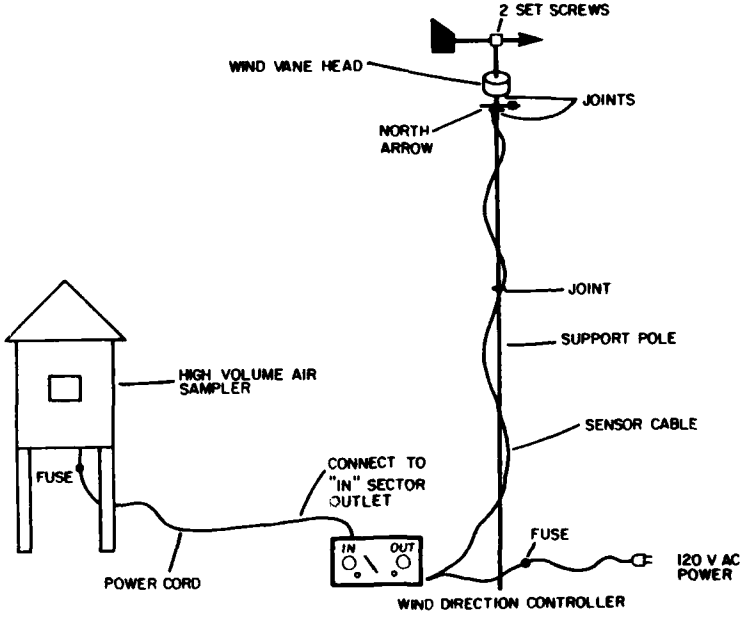


Figure 4. Three-day, high-volume sampling station schematic (North Post, South Post, El Paso Health Department, Security and Pueblo Health Department sites).

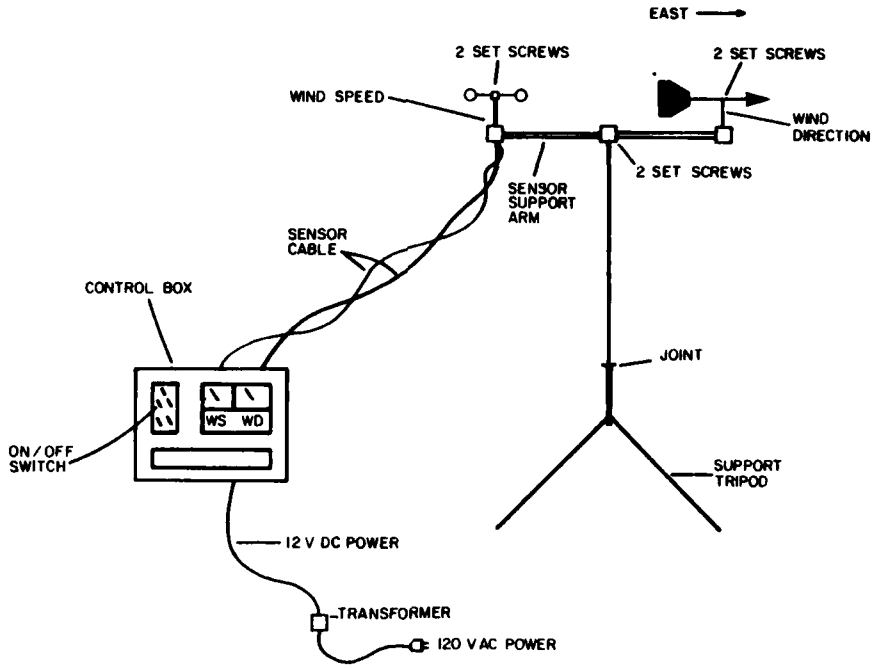


Figure 5. Climatronics wind monitoring system schematic.

monitoring system, which records wind speeds 0 to 50 mph (0 to 80 km/hr) ±1.5 percent and wind direction 0 to 540 degrees ±1.5 percent with a with a threshold wind speed of 0.75 mph (1.2 km/hr). The third site, located at the Rod and Gun Club area, used a Gill-Propeller Vane system built by R. M. Young Company of Traverse City, MI. Figure 6 presents the schematic of the R. M. Young wind monitoring system, which records wind speeds 0 to 50 mph (0 to 80 km/hr) ±0.25 percent and wind direction 0 to 540 degrees ±0.25 percent with a 0.03 mph (0.48 km/hr) wind speed threshold.

CERL trained Fort Carson personnel to collect monitoring station data, calibrate monitoring station equipment, and repair and service all monitoring station sites. Filter paper on the omnidirectional sampling stations were changed each day of the week. Directional high-volume sampling stations were changed every three days, according to a predefined schedule (Appendix B). El Paso County Health Department personnel serviced the Colorado Springs and Security sites during the week. Pueblo County personnel serviced the Pueblo site 7 days a week. Installation personnel serviced the Fort Carson sites 7 days a week, and the El Paso County sites on weekends. Wind recording sites established by CERL were serviced once a week, and existing wind recording sites were serviced once a month. Accumulated data were transmitted to CERL by mail every other day.

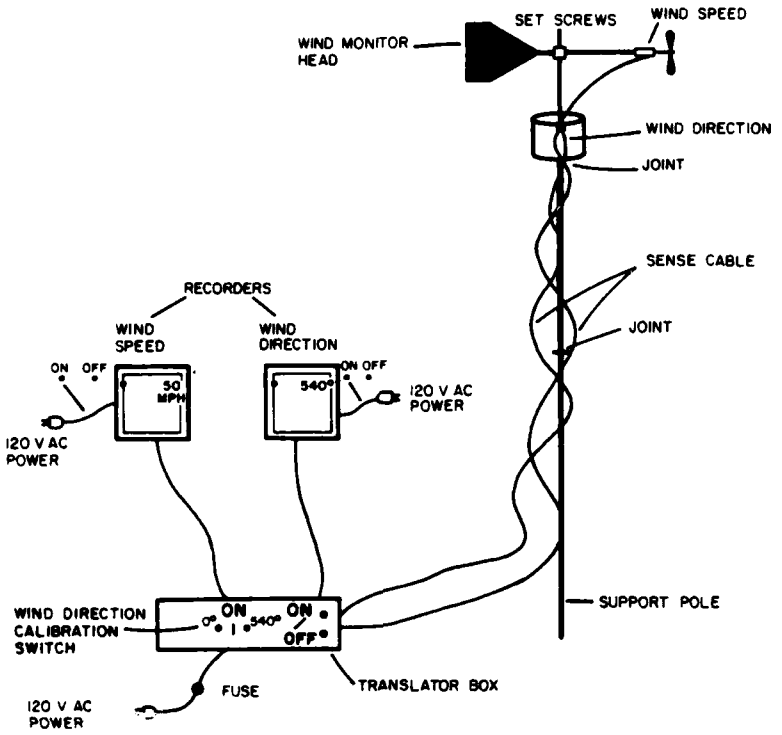


Figure 6. R. M. Young wind monitoring system schematic.

Monitoring Station Locations

Table 1 lists the 11 monitoring stations used in this study for measuring TSP concentrations. Table 2 gives the eight wind speed and wind direction monitoring sites. Figure 7 is an area map showing the relative station locations and the sample sectors for the directional samplers.

Two sampling sites were in El Paso county outside the installation. The first was in Colorado Springs on top of the El Paso County Health Department building on Tejon Street. The site was selected because it is the Health Department's monitoring site for the Colorado Springs business district and southern residential areas. This site contained both an omnidirectional sampler and a directional sampler. The omnidirectional sampler, designated CS1, measured the TSP levels affecting the population in this area. The directional station, designated CS3, measured the TSP level from the direction of Fort Carson. The directional station monitored TSP levels coming from a 130- to 180-degree sector. The sampling station consisted of two sheltered high-volume samplers; one of the samplers was connected to a wind directional switching system and a wind speed/wind direction recording station. The samplers were 14 ft (4.3 m) above street level and were 50 ft (15.2 m) away from the nearest roadway. This location did not meet current U.S. Environmental Protection Agency (USEPA) criteria for locating TSP monitors, but was used because of the historical record developed for TSP compliance monitoring by

Table 1

TSP Monitoring Station Locations

	Abbreviation	Type	Location
El Paso County Sites:			
1.	CS1	Omnidirectional	El Paso County Health Department 710 S. Tejon St. Colorado Springs, CO
2.	CS3	Directional	Same as 1
3.	SE1	Omnidirectional	Security Volunteer Fire Department Security, CO
4.	SE3	Directional	Same as 3
Fort Carson Sites:			
5.	NP3	Directional	Installation Confinement Facility Building 8010
6.	CB1	Omnidirectional	Community Services Building No. 1526
7.	RG1	Omnidirectional	Rod and Gun Club Area 850 yd (777 m) WNW of the D4 junction
8.	TT1	Omnidirectional	Tank Table VII on Route 1 600 yd (549 m) south of White Butte
9.	SP3	Directional	Department of Energy VHF Radio Site on south Fort Carson boundary. 1000 yd (915 m) SSW of B14 junction.
Pueblo County Sites			
10.	PB1	Omnidirectional	Pueblo County Health Department 151 Central Main Street Pueblo, CO
11.	PB3	Directional	Same as 10

Table 2

Wind Monitoring Sites

El Paso County Stations

1. El Paso County Health Department
   710 S. Tejon St.
   Colorado Springs, CO

2. Security Volunteer Fire Department
   Security, CO

3. Colorado Spring Airport - Peterson Field
   Colorado Springs, CO

Fort Carson Stations

4. Community Services Building No. 1526

5. Rod and Gun Club Area
   850 yd (777 m) WNW of D4 Junction

6. Butts Field

7. Tank Table VII
   on Route 1 600 yd (549 m) south of
   White Butte

Pueblo County Station

8. Pueblo Municipal Airport
   Pueblo, CO

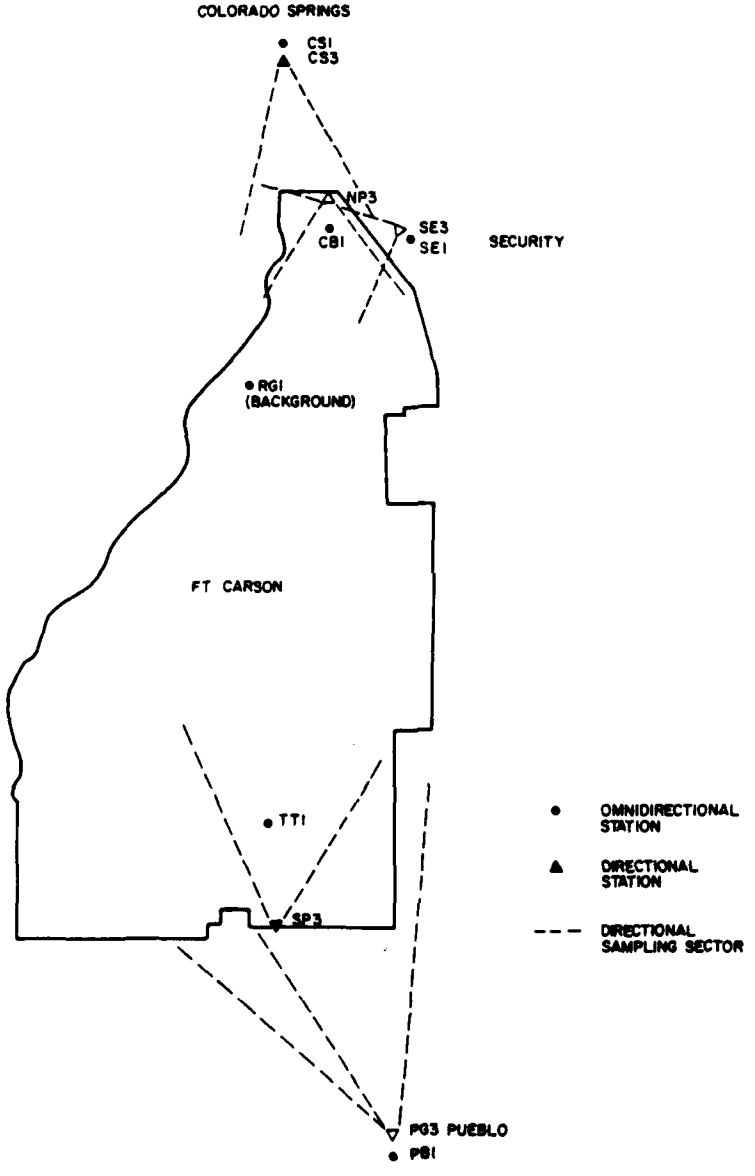


Figure 7. Sampling station location map.

the El Paso County Health Department. The wind directional controller vane and the wind monitoring heat were 35 ft (10.7 m) above the roadway and 55 ft (16.8 m) from the street. This site was serviced during the week by El Paso County Health Department personnel and on weekends by Fort Carson personnel. Station maintenance, repair, and calibration were done by Fort Carson personnel. The Security monitoring site was at the Security Volunteer Fire Department. This location was selected because of its long-term use as a TSP concentration monitoring site for the Security and Widefield residential areas east of Fort Carson. The site consisted of a directional and omnidirectional monitoring station. The omnidirectional monitor, SE1, was designed to measure the TSP levels affecting the residential areas of Security and Widefield. The directional sampler, SE3, measured the dust concentrations coming from a 160- to 270-degree sector. The site consisted of two sheltered high-volume samplers (one connected to a wind directional switching system) and the wind monitoring system. The samplers were 14 ft (4.3 m) above the surrounding area and 50 ft (15.2 m) from the adjacent street. This site also did not meet current USEPA siting criteria for TSP monitoring stations. The wind directional switching vane was 35 ft (10.7 m) above the roadway and 50 ft (15.2 m) away. The wind speed and direction recording wind vane was in a parking lot next to the fire hall; the vane was on a pole 20 ft (6.1 m) above the roadway and 10 ft (3 m) from street edge.

There were five sampling stations on Fort Carson. The north boundary station, NP3, was a directional monitoring site on the north building of the installation's Confinement Facility Building 8010. This site was to measure the TSP concentration coming from the installation and heading toward Colorado Springs. The site monitored TSP concentration coming from a 120- to 200-degree sector. The site consisted of one sheltered high-volume sampler connected to a wind directional switching system. The sampling head was 30 ft (9.1 m) above ground level and was 325 ft (99 m) from adjacent roadways. This site met current USEPA criteria for TSP monitoring sites. The wind vane for the wind switching system was in the same area at a height of 50 ft (15.2 m).

The second installation site was an omnidirectional monitor, designated CB1, on Community Services Building 1526. This site was selected to monitor the TSP concentrations coming from activities in the cantonment area. This site was also used by the El Paso County Health Department as its monitoring station for Fort Carson and consisted of a sheltered high-volume sampler and a wind speed/wind direction monitoring system. The sampling head was 40 ft (12.2 m) above the surrounding area and 125 ft (38.1 m) from the nearest roadway. This site met the USEPA's current site selection criteria for TSP monitors. The wind speed and direction monitor was in the same location, 50 ft (15.2 m) above the surrounding area.

The background station, designated RG1, for this study was at the Rod and Gun Club area on the western boundary of Fort Carson. This site was selected because it had not been actively used in training for 15 years and was relatively isolated from the installation's cantonment and training/maneuver activities. The site consisted of an omnidirectional sheltered high-volume sampler and a wind speed/wind direction recording system on top of a platform 8-ft (2.4-m) high. The sampling head was 12 ft (3.7 m) above ground level and 850 ft (777 m) from the nearest roadway. This site met current USEPA criteria for TSP monitoring sites. The wind vane for the wind monitoring system was at the same site at a height of 20 ft (6.1 m).

TSP concentrations from training and maneuver activities were measured at a monitoring site near Tank Table VII. This site, designated TT1, was selected because of its nearness to the portions of Fort Carson used most for training. The site's purpose was to determine the effects on air-quality of training activities for all units from a company up to a brigade/battalion. The monitoring station was on top of a 60-ft (18.2-m) hill in the main staging for Tank Table VII. The omnidirectional, sheltered, high-volume sampler and the wind speed/wind-direction recording systems were on top of a platform 8-ft (2.4-m) high. The sampling head was 70 ft (21.3 m) above the surrounding terrain and 500 ft (152.4 m) from the nearest roadway. This site also met current USEPA criteria for placing TSP monitors. The wind vane for the monitoring system was located at the same site, but 85 ft (25.9 m) above the surrounding terrain.

The final Fort Carson site, SP3, was a directional monitor on a ridge 150-ft (45.7-m) high -- on the south boundary of Fort Carson just southeast of Teller Reservoir, and next to a Department of Energy VHF radio repeater site. This site was to monitor the TSP concentrations leaving Fort Carson from a 320 to 28 degree sector, and was chosen because of its relative isolation from surrounding training activities and access to power. The site consisted of a sheltered, high-volume sampler connected to a wind-directional switching system, all on top of a platform 8-ft (2.4-m) high. The sampling head was 25 ft (7.6 m) above the access road and 75 ft (22.9 m) from it. The site was 175 ft (53.4 m) above and 1700 ft (518.3 m) from the nearest unpaved road, Route 14. This site complied with the current USEPA criteria for monitoring sites. The wind vane for the switching system was at the same site, 35 ft (10.7 m) above the access road. All Fort Carson sites were serviced, repaired, maintained, and calibrated by installation personnel.

Only one sampling site was in Pueblo County -- at the Pueblo County Health Department on Central Main Street. This site was chosen because the Pueblo County Health Department used it for some time both to measure TSP levels encountered by residents of central and northern Pueblo and to determine compliance with TSP regulations. The site consisted of an omnidirectional monitor (PB1) for measuring ambient receptor TSP levels; a directional monitor (PB3) designed to measure TSP levels coming from a 280 to 320 degree sector (Fort Carson); and two sheltered high-volume samplers -- one of these was connected to a wind-directional switching system. The samplers were 16 ft (4.9 m) above ground level and 75 ft (22.9 m) from the adjacent roadway. The wind vane for the directional switching system was in the same area at a height of 35 ft (10.7 m). This site did not meet current USEPA criteria for TSP monitoring sites.

Data Quality Control Procedures

To maintain the accuracy and quality of the data collected in the field, several procedures were developed: checks on equipment operation, on equipment calibration, on data collection techniques, on data transmittal, and on data analysis.

Equipment checks were run on the analytical balance, wind-directional switching systems, elapsed-time meters, and flow-rate recorders. The analytical balance was calibrated twice per year by the U.S. Army Field Support

Calibration Laboratory team. Periodic tests of the balance's operation were made using standard class "S" weights. Elapsed time meters on both the high-volume sampler and the wind-switching system were checked for accuracy using a standard 24-hour clock twice per year. In-field checks were performed daily on the timers by comparing elapsed-time readings on the high-volume sampler, sector-timer readings on the wind-directional switching system, elapsed-time readings as recorded by the flow-rate recorder and the start/stop times entered on the data collection sheet. The high-volume sampler was calibrated at the beginning of the study, and any time motors or brushes were replaced. Brushes were replaced either when the high-volume sampler stopped working or when flow rate deviated more than 10 percent over a 24-hour operating period. After each major maintenance action on the high-volume samplers, a new calibration curve was developed. Wind-directional recorders were checked daily for proper North orientation and proper recorder operation. Units were electronically calibrated once every 3 months during the study period. Wind-directional switching systems were checked daily for proper North orientation and timer operation. In-sector monitoring times were compared daily to recorded wind direction from the local wind monitoring station. Table 3 lists the wind monitoring sites used in checking the operating percentages for the directional, high-volume sampling stations. Each piece of filter paper was visually inspected on a light table for pin holes, tears, or creases. After passing this inspection, each piece of paper was assigned a four-digit identification number and placed in a controlled desiccator for 24 to 48 hours before weighing. After this initial weighing, filters were stored in a numbered, plastic zip-lock bag and sent for final weighing to CERL.

Table 3

Wind Monitoring Sites Used as Checks on Directional Sampling Stations

Directional Station	Wind Monitoring Station
El Paso County Health Dept. (CS3) 710 S. Tejon St. Colorado Springs, CO	Same location
Security Volunteer Fire Department (SE3) Security, CO	Same location
North Fort Carson Boundary Confinement Facility Building 8010 (NP3) Fort Carson, CO	Community Services Building 1526 Fort Carson
South Fort Carson Boundary Department of Energy VHF Radio Repeater Site (SP3) Fort Carson, CO	Tank Table VII South of White Butte Route 1
Pueblo County Health Department (PB3) 151 Central Main Pueblo, CO	Pueblo Municipal Airport Pueblo, CO

Data collection procedures were audited with data logs (Figure 8) for recording sampling dates, flowchart numbers, filter paper numbers, start and stop times, in-sector times, elapsed-time readings, and operator comments. A data log was kept for each filter paper and flowchart pair (Figure 9). Data collection followed a preset monthly schedule common to all sampling locations (Appendix B). Weekly checks were made of data logs to identify errors in sampling collection and data recording.

Data analysis procedures were audited in several ways. Weighing audits were performed on both clean and exposed filters. Ten out of every 100 filters were chosen randomly, reweighed, and compared to the original weight. Original weights for all 100 filters were acceptable if the selected audit weights were within ±2.8 mg for clean filters and ±5.0 mg for exposed filters. Audits of data processing procedures were also performed on 10 randomly chosen calculations out of every 100. The original concentrations for the 100 filters were accepted if the audited concentrations of the selected filters were within ±3 percent of the original concentrations. The final data analysis check was the removal of discordant data. Data were removed based on filter paper conditions, inaccurate or inconsistent data log completion, operator comments on vandalism, and statistical trend evaluation checks on individual data points. Table 4 presents the statistical technique used for the rejection of discordant data. The suspected data point was compared to neighboring values generated in a 2-week period on either side of the data point. Rejection was done at the 95 percent confidence level.

Data Analysis Program

TSP concentration data collected from each sampling station were analyzed for compliance with State and Federal ambient air quality regulations, and were compared with wind parameters, precipitation type and amount, and other sampling stations. TSP concentrations were checked for a maximum allowable concentration for 24 hours and an annual mean basis as listed in Table 5. TSP levels as recorded at omnidirectional sampling stations were compared with the wind speed and wind direction recordings to identify significant TSP-producing situations. Operating times on directional samplers were compared to wind direction recordings. Comparisons were made between source and background TSP levels to determine the significance of the area source TSP contribution; between background and receptor TSP levels to find the significance of receptor concentrations; between source and boundary TSP concentrations to check the amount of TSP going off-post; between boundary and directional receptor TSP levels to identify the amount of Fort Carson TSP reaching the receptor and the incidence of intervening dust sources. Finally, comparisons between directional and omnidirectional TSP concentrations helped determine how much the TSP from the Fort Carson direction contributed to the overall TSP concentrations. The effect of man's activity on dust concentration was evaluated by comparing TSP concentrations of weekdays versus weekends. Additionally, training activity in the Tank Table VII area was compared to the dust concentrations recorded at Tank Table VII station to determine the effects of training/maneuver activities on air quality.

Field Data Log

Sampler Location: _____

Start Date: _____ Stop Date: _____

24 hr Time: _____ 24 hr Time: _____

Sampling Cycle: _____ 1 Day _____ 3 Day _____

Filter Paper Number: _____

Flow Chart Number: _____

Sampler Running Time Start: _____

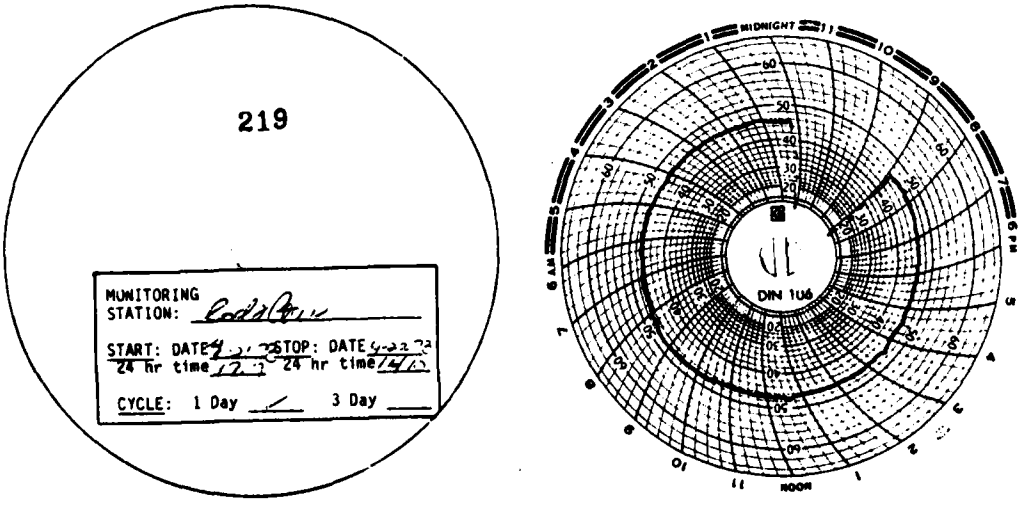
Stop: _____

Wind Controller Time In Sector: _____

Out Sector: _____

Comments: (Local Activity, Rainfall, Problems, Etc.)

Figure 8. Sample field data log.



a. Front view b. Back view

Figure 9. Sample flowchart for high-volume sampler.

Table 4

Discordant Data Rejection Procedure

Dixon Criterion*

1. Level of risk is 10 percent or $\alpha = 0.10$

2. For between 14 and 25 samples, these equations were used.

   If the suspect number was unusually high:

$$\frac{(X_n - X_{n-2})}{(X_n - X_3)} = r_{22}$$

   If the suspect number was unusually low:

$$X \frac{(X_3 - X_1)}{(X_{n-2} - X_1)} = r_{22}$$

3. Determine $r_1 - \alpha/2$ for 15 samples:

$$r_1 - \alpha/2 = 0.525$$

4. If $r_{22} > 0.525$, then the suspect number was rejected.

* W. J. Dixon and F. J. Massey, Introduction to Statistical Analysis (McGraw-Hill, 1957).

Table 5

TSP Regulations Governing Ambient Air Quality (1978-1979)

		Annual	24 Hour
Federal:	Primary Standards	75 $\mu g/m^3$ Geometric mean	260 $\mu g/m^3$ Once per year
	Secondary standards	60 $\mu g/m^3$ Geometric mean	150 $\mu g/m^3$ Once per year
Colorado:	Urban Areas	55 $\mu g/m^3$ Arithmetic mean	180 $\mu g/m^3$ Once per year
	Rural	45 $\mu g/m^3$ Arithmetic mean	150 $\mu g/m^3$ Once per year
	All areas after 1980	45 $\mu g/m^3$ Arithmetic mean	150 $\mu g/m^3$ Once per year

3 DATA ANALYSIS RESULTS

Comparison to Ambient Air Quality Standards

Table 5 lists the ambient TSP regulations governing the air quality during the study period. As can be seen in this table, the USEPA and the Colorado State EPA disagree on how TSP concentrations are distributed. The State of Colorado assumes an arithmetic distribution, whereas the USEPA assumes a geometric distribution. The two assumptions differ in that the Federal concentrations are normalized by taking the log of the concentration before performing statistical analysis on the distribution. Appendix A contains both the arithmetic and geometric distributions for all 11 stations during the study period. As Appendix A shows, the assumption of geometric distribution better represents the actual distribution of concentration values in the field.

Table 6 is a summary, by sampling station, of the annual mean concentrations. As can be seen by comparing the geometric and arithmetic means, the assumptions of frequency distribution greatly affect the mean value. Based on the variation of the data encountered during the sampling period, a 95 percent confidence interval for the mean TSP concentration was estimated. Table 7 summarizes the compliance status for each station as compared to the ambient TSP standards during the study period. All Fort Carson stations (NP3, CB1, RG1, TT1, and SP3) complied with Federal primary and secondary annual geometric means regulations and with Colorado urban and rural arithmetic standards. The only potential TSP standard violation occurred at the Community Services Building (CB1) omnidirectional station, where the Federal secondary maximum 24-hour concentration standard and the Colorado urban and rural maximum "once-per-24-hour" standards were exceeded one more time than allowable. The El Paso County monitoring stations (CS1, SE1, SE3) and Pueblo County Monitoring sites (PB1, PB3) violated both Federal and Colorado ambient TSP standards during the study period. Only the omnidirectional, 1-day stations (CS1, SE1, PB1) complied with the primary Federal regulations for annual geometric mean and maximum 24-hour concentration.

Based on the statistical characteristics of the data collected during the study period, violation frequency was projected for the maximum 24-hour concentration standards (Table 8) and the annual concentration standard (Table 9). Table 8 data for the Fort Carson stations shows a relatively minor problem with the secondary Federal standard of 150 $\mu g/m^3$. Violations occurred on 2 days -- just 1 day more than allowed under the standards. All off-post directional samplers exhibited frequent violations of both primary and secondary standards, and urban and rural Colorado State standards. The Security omnidirectional station (SE1) was the only off-post station which basically complied with all maximum concentration regulations.

A review of the data in Table 9 shows that Fort Carson monitoring stations essentially comply with all annual TSP standards. The cantonment area samplers (CB1 and NP3) seem to have some problem with the rural Colorado standard of 45 $\mu g/m^3$ (arithmetic distribution), but this can be controlled with a moderate fugitive dust control program. This projected noncompliance may result more from the distribution assumption than from air quality that is actually degraded. Off-post stations meet neither of the Colorado annual

Table 6

Arrival Mean Concentration Summary

Station	Geometric		Arithmetic	
	Sample Mean	True Mean 95% CI	Sample Mean	True Mean 95% CI
CS1	72.9	(69.7-76.2)	79.0	(75.5-82.5)
CS3	89.6	(81.5-98.5)	97.0	(89.0-105.0)
SE1	57.7	(55.3-60.2)	61.9	(59.3-64.5)
SE3	84.1	(77.5-91.3)	90.7	(83.5-97.9)
NP3	39.7	(35.6-44.3)	44.0	(39.6-48.4)
CB1	41.9	(39.6-44.3)	47.5	(44.7-50.3)
RG1	23.0	(21.4-24.7)	27.3	(25.5-29.1)
TT1	21.6	(19.9-23.5)	28.1	(25.7-30.5)
SP3	30.2	(26.2-34.8)	34.9	(30.5-39.3)
PB1	72.1	(68.1-76.4)	80.0	(75.8-84.2)
PB3	83.1	(72.1-95.8)	97.0	(86.6-107.4)

Table 7

Violations of TSP Standards During Study Period (2/1/78 to 1/16/79)

Station	Federal				Colorado			
	Primary		Secondary		Urban		Rural	
	75	260	60	150	55	180	45	150
CS1	No	0	Yes	13	Yes	1	NA	--
CS3	Yes	0	Yes	7	Yes	1	NA	--
SE1	No	0	No	2	Yes	0	Yes	2
SE3	Yes	0	Yes	5	Yes	0	Yes	5
NP3	No	0	No	0	No	0	No	0
CB1	No	0	No	2	No	2	Yes	2
RG1	No	0	No	0	NA	--	No	0
TT1	No	0	No	1	NA	--	No	1
SP3	No	0	No	0	NA	--	No	0
PB1	No	0	Yes	9	Yes	5	NA	--
PB3	Yes	1	Yes	11	Yes	4	NA	--

Table 8

Projected Frequency of Violations of 24-Hour TSP Standards (Days/Year)

Station	Federal		Colorado*	
	260 ($\mu g/m^3$)	150 $\mu g/m^3$)	180 ($\mu g/m^3$)	150 ($\mu g/m^3$)
CS1	0.43	15.49	0.41	5.62
CS3	3.57	51.70	5.77	33.25
SE1	0.24	2.77	NEG**	0.05
SE3	1.06	29.26	2.17	18.39
NP3	0.05	1.93	NEG	NEG
CB1	0.08	2.51	NEG	0.01
RG1	0.02	0.48	NEG	NEG
TT1	0.30	2.27	NEG	NEG
SP3	0.08	1.97	NEG	NEG
PB1	1.96	26.74	1.32	10.03
PB3	19.09	78.72	19.32	58.54

* Colorado Standards assume arithmetic distribution.
** Negligible: Less than 0.0050 days/year.

Table 9

Projected Frequency of Violations of Annual TSP Standards

Station	Federal[1]		Colorado[2]	
	Primary (75 $\mu g/m^3$)	Secondary (60 $\mu g/m^3$)	Urban (55 $\mu g/m^3$)[3]	Rural (45 $\mu g/m^3$)
CS1	1 out of 10	Always[4]	Always	Always
CS3	4999 out of 5000	Always	Always	Always
SE1	Never[5]	1 out of 20	Always	Always
SE3	249 out of 250	Always	Always	Always
NP3	Never	Never	Never	1 out of 3
CB1	Never	Never	Never	24 out of 25
RG1	Never	Never	Never	Never
TT1	Never	Never	Never	Never
SP3	Never	Never	Never	Never
PB1	1 out of 10	Always	Always	Always
PB3	14 out of 15	Always	Always	Always

1 Geometric distribution assumed.
2 Arithmetic distribution assumed.
3 Urban areas only until 1980.
4 Violations would occur more than 9,999 years out of 10,000 years.
5 Violations would occur less than 1 year out of 10,000 years.

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CB1	0.08	2.51	NEG	0.01
RG1	0.02	0.48	NEG	NEG
TT1	0.30	2.27	NEG	NEG
SP3	0.08	1.97	NEG	NEG
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NP3	Never	Never	Never	1 out of 3
CB1	Never	Never	Never	24 out of 25
RG1	Never	Never	Never	Never
TT1	Never	Never	Never	Never
SP3	Never	Never	Never	Never
PB1	1 out of 10	Always	Always	Always
PB3	14 out of 15	Always	Always	Always

1 Geometric distribution assumed.
2 Arithmetic distribution assumed.
3 Urban areas only until 1980.
4 Violations would occur more than 9,999 years out of 10,000 years.
5 Violations would occur less than 1 year out of 10,000 years.

standards. The off-post omnidirectional sampling stations (CS1, SE1 and PB1) exhibit a reasonable ability to comply with primary Federal annual geometric means standards, but are unable to meet secondary mean standards. Again, all the directional stations (CS3, SE3, PB3) show problems with compliance.

From the compliance analysis, it can be concluded that Fort Carson currently complied with all ambient TSP regulations and will for most of the foreseeable future. Colorado's assumption of the arithmetic distribution of TSP concentration data may make it difficult for the cantonment area to comply with the rural (1980) annual TSP standard; but Fort Carson can easily correct this with dust control measures. Of much greater significance are the compliance problems of the Pueblo, Colorado Springs, and Security areas. The directional sampling stations at these sites indicate that major portions of the excessive TSP concentrations do come from the direction of Fort Carson. However, review of the source sampling stations (CB1, TT1) and directional boundary monitoring stations (NP3, SP3) indicates that the problem does not come from Fort Carson proper.

Fort Carson's Regional Air Quality Effects

To determine Fort Carson's effect on regional air quality, it was first necessary to break the data from each station into common data sets. In the design of the study, CERL anticipated that there would be six data sets: the El Paso County Health Department stations (CS1 and CS3), the Security Fire Department stations (SE1 and SE3), the Pueblo County Health Department stations (PB1 and PB3), the Fort Carson cantonment stations (CB1 and NP3), the Fort Carson training area stations (TT1 and SP3), and the background station (RG1). To define these common data sets, statistics were used on the raw data in Appendix C. Because the natural variability in the TSP concentrations for each station, standard statistical techniques (analysis of variance) could not be used to identify stations belong to the same data set. Instead, CERL had to compare daily data from each station. In this comparison, the difference of the logs of any two stations' TSP concentrations were grouped for the entire test period. The resulting distribution was then analyzed for the occurrence of the zero point. In the ideal correlation, the zero point would be at the 50 percentile in the frequency distribution. If the zero was skewed either to the left or to the right of the 50 percentile, this indicated the relative position of the two stations being studied.

Figure 10, a map of Fort Carson, shows the annual geometric mean concentration and the relative position of each sampling station. Statistical analysis of the raw data indicated that the El Paso County Health Department stations (CS1 and CS3) were measuring the same quality as were the Pueblo County Health Department stations (PB1, PB3) and the cantonment area stations (NP3, CB1). However, the Security Volunteer Fire Department stations (SE1, SE3) were not measuring the same air quality. This indicates that the quality of the air moving from the direction of Fort Carson toward Security is controlled primarily by a source very near the sampling stations -- possibly the railroad tracks immediately west of the fire house, U.S. Route 87, or even Fountain Creek flood plain.

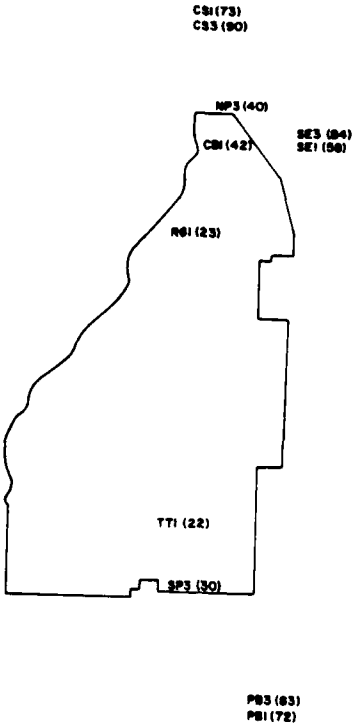


Figure 10. Station annual geometric mean concentrations.

Further analysis of the data compared the source/receptor TSP monitoring stations to the background stations (RG1). This examination indicated that the air quality measured by the background station (RG1) was statistically different from that measured by the El Paso County Health Department monitoring station, the Security Volunteer Fire Department station, and the Pueblo County Health Department station. Comparisons of the background stations (RG1) to the Fort Carson Training area stations (TT1 and SP3) showed that statistically these stations monitored same air quality. This means that Fort Carson's training activities -- performed at their current levels and viewed over the entire year -- do not significantly alter the ambient TSP concentration from that of the background. Comparison of the background station (RG1) to the Fort Carson cantonment stations (CB1 and NP3) did not show these stations to be statistically similar to or different from the background stations. Basically, this means that Fort Carson's cantonment area activities do affect ambient air quality (when compared to the background) -- but not enough to be called a different data set.

Comparisons of station sets to each other showed that the Fort Carson cantonment area data set was statistically different from the data set of the El Paso County Health Department and that of the 3-day directional sampler at the Security Volunteer Fire Department. The 1-day directional station (SE1) at the Security Volunteer Fire Department was neither statistically different

from nor similar to the Fort Carson cantonment station. However, SE1 did prove to be statistically different from the data set of the El Paso County Health Department stations (CS1 and CS3). The Fort Carson training area stations (TI1 and SP3) were statistically different from Pueblo County Health Department stations (PB3 and PB1). Further analysis showed that the El Paso County Health Department stations (CS1 and CS3), the Pueblo County Health Department stations (PB1 and PB3), and the Security directional sampling station (SE3) were all sampling the same air quality data set. This is unusual and seems to result from sampling site location. All three sampling stations are on top of one-story buildings and are within 50 ft (15.2 m) of a heavily traveled roadway. Since these sites do not meet USEPA high-volume sampling site location criteria for proximity to roadways, and since they are measuring statistically similar air quality, these stations probably are not measuring the true ambient TSP concentrations. Instead, it is highly likely that these stations are measuring the resuspended dust generated by traffic traveling on nearby roadways. The only way to verify this would be to measure the TSP concentrations at these sites using a high-volume sampler cascade impactor. This equipment consists of three to seven stages which sort out the particulates by their aerodynamic size. If the stations are mislocated and are measuring the resuspended dust plume, most of the sample weight will occur within the first two stages, which measure large settleable particulates.

Fort Carson's cantonment activities generate average TSP concentrations in the area of 42 $\mu g/m^3$. The boundary monitoring station (NP3) verified this by showing that an average concentration of 40 $\mu g/m^3$ is transported off-post toward Colorado Springs. The El Paso County Health Department directional sampler (CS3) received an average of 90 $\mu g/m^3$ from the direction of Fort Carson. If Fort Carson's cantonment activities were controlling Colorado Spring's air quality, the concentration at the El Paso County Health Department should be somewhat less than concentration being transported off-post. However, the study showed that the concentration at the El Paso County Health Department was greater than the concentration being transported off-post. This can be explained in two ways: either there is a large intervening source between Colorado Springs and Fort Carson, or the Colorado Springs Health Department samplers are mislocated. Inspection of the concentration rose (Figure 11) for the omnidirectional sampler at the El Paso County Health Department indicates that a significant amount of the TSP concentration comes from the southeast and the north. This suggests that Interstate 25 and the cold air drain to the Fountain Creek flood plain may be TSP sources.

Fort Carson's effect on the air quality in the Security/Widefield area is indicated by comparing the average TSP concentration generated on-post (CB1), 42 $\mu g/m^3$, and the average TSP concentration coming from the Fort Carson direction as seen by the Security directional sampler (SE3), 84 $\mu g/m^3$. Again, if Fort Carson were controlling the air quality in the Security area, it would be expected that the TSP concentrations as seen by the directional sampler would be somewhat less than the concentration being generated on-post. In fact, though, the concentration coming from Fort Carson's direction is significantly larger than that being generated on-post. Again, this could only be caused by sampler mislocation or an intervening source. Inspection of the concentration rose for the Security Volunteer Fire Department station (Figure 12) indicates that the controlling factors for Security's air quality are located both north and south of the sampling station. Again, the controlling source could be

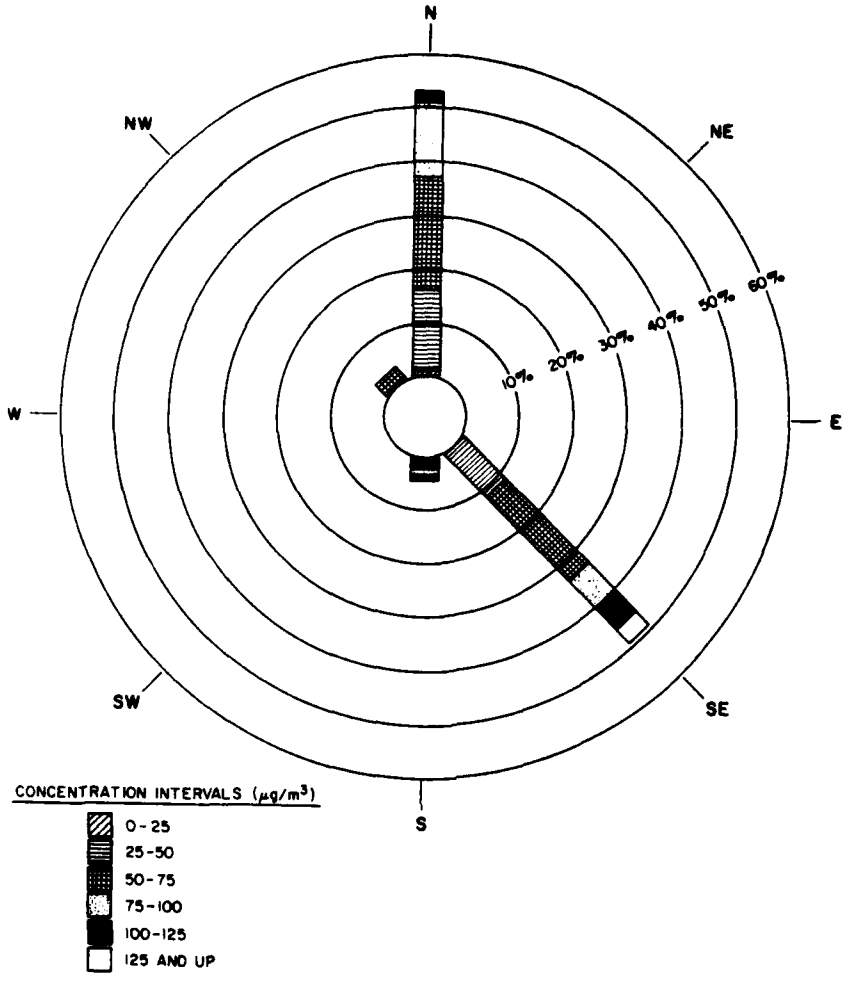


Figure 11. Concentration distribution for El Paso County Health Department station.

Interstate 25 and the Fountain Creek flood plain, which run parallel to and west of the Security sampling station.

Fort Carson's effect on Pueblo's air quality is negligible. Comparisons of data from the background station (RG1) and the training area stations (TT1 and SP3) indicated that they are statistically monitoring the same air quality; thus existing training and maneuver activities had no effect on the ambient air quality. The training area's omnidirectional monitor (TT1) revealed that the average TSP concentration was about 22 $\mu g/m^3$. The directional sampling station (SP3) indicated that approximately 30 $\mu g/m^3$ (on average) were being transported off-post toward Pueblo. Comparison between this concentration and that monitored by the directional sampling station at the Pueblo County Health Department (PB3), whose average TSP concentration was 83 $\mu g/m^3$, indicated that either there was a large intervening source between Fort Carson's boundary and the Health Department, or the Health Department's sampling stations were mislocated. The concentration rose from Pueblo sampling station (Figure 13) suggests that the controlling TSP concentrations came from the north and northeast. Possible sources located in these directions are

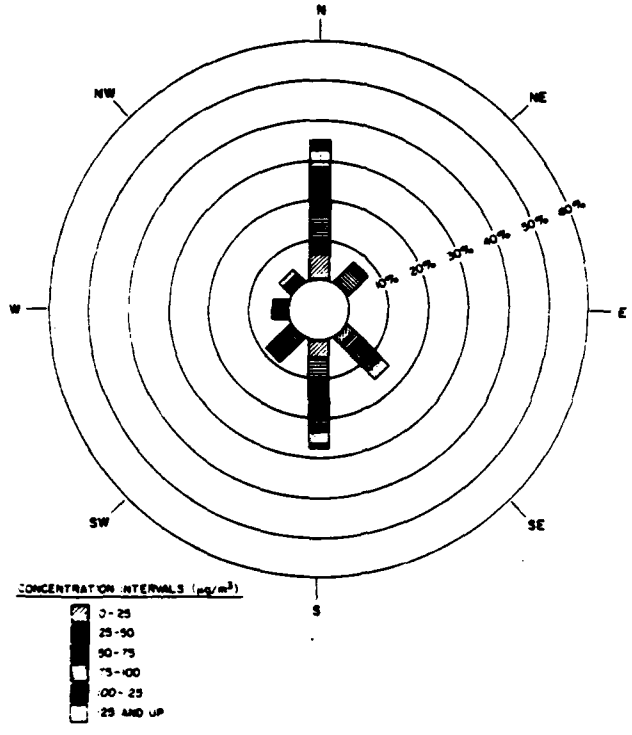


Figure 12. Concentration distribution for Security Volunteer Fire Department station.

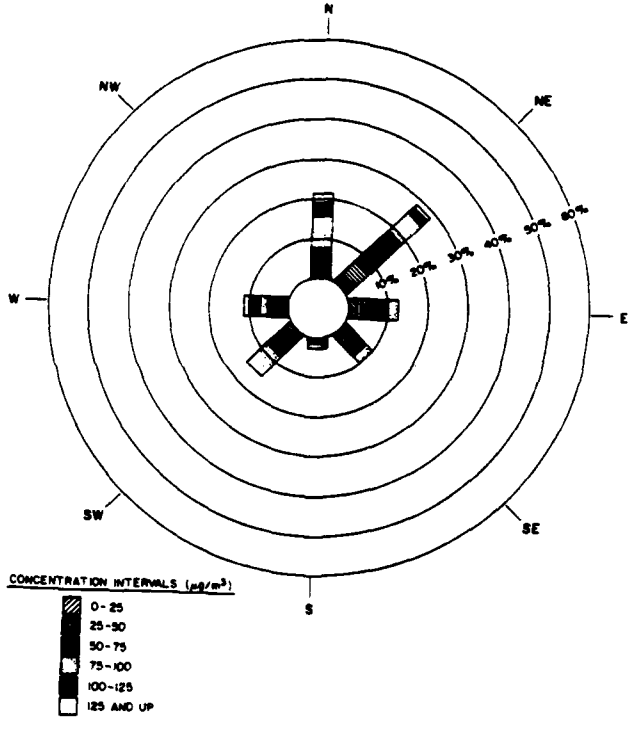


Figure 13. Concentration distribution for Pueblo County Health Department station.

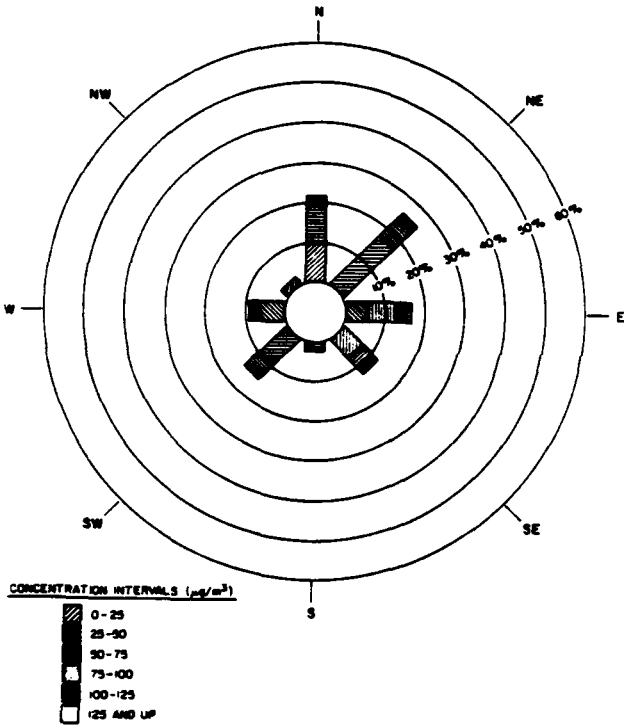


Figure 14. Concentration distribution for the Fort Carson Training Area station.

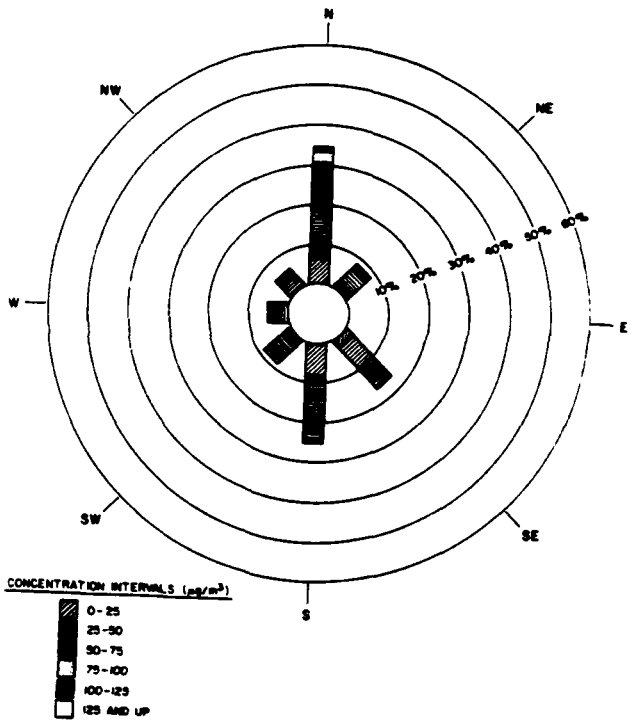


Figure 15. Concentration distribution for the Fort Carson Cantonment Area station.

Interstate 25 and areas of land being developed for new housing projects north and northeast of Pueblo.

CERL's analysis of the region's effect on Fort Carson's air quality indicated that the most significant TSP sources are north, northeast, and east of monitoring station TT1, as the concentration rose for the Tank Table monitoring station (Figure 14) shows. Since the site is surrounded by a large staging area which has no soil binding vegetation, it is suspected that this predominantly affects the Tank Table's air quality. As can be seen, there is very little or no effect from the south or southeast (the direction of Pueblo). Analysis of the concentration rose (Figure 15) for the cantonment area monitoring station (CB1) indicates that significant TSP concentrations come from the north and the south. TSP sources potentially causing this problem are again Interstate 25 and the Fountain Creek flood plain parallel to and east of the cantonment area, Colorado Springs located on the north side of the cantonment area, and the training areas just south of the cantonment area. The significant southeast component of this rose also indicates that the unpaved roads and parking lots east of the cantonment area by the motor pools may also have a significant effect on the cantonment's air quality. Analysis of the concentration rose for the background station (Figure 16) does not really suggest any overwhelming TSP source. Southeast, south, and west winds generally dominate the air patterns for this station. The only potentially significant source is in the northwest component, represented by the 75 to 100 $\mu g/m^3$ range. The only sources in this direction are the recreation area of the Rod and Gun Club and State Highway 115. Training areas southwest, southeast, and east of the Rod and Gun Club station do not seem to have a significant effect on the ambient TSP concentration.

Forces Controlling TSP Concentrations

To develop an effective TSP control strategy, the forces that control the production of dust must be understood. In this study, an attempt was made to learn about the effects of natural climatic conditions and human activities on the TSP concentration recorded at the monitoring sites. The climatic evaluation included the effects of wind speed, season of the year, and precipitation on TSP concentration. The evaluation of human activities and dust concentration examined training and maneuver activities on Tank Table VII for July and August 1978, and concentrations by day of the week for all monitoring stations.

In an attempt to analyze the effects of wind speed, two different wind conditions were analyzed. First, CERL attempted to correlate the average 24-hour wind speed and the corresponding dust concentrations. Figure 17 is a typical plot showing that no correlation existed for any station. Next, an attempt was made to correlate dust concentration with the number of hours per day above a threshold wind speed. Two conditions were attempted: one using a 7 mph (11.2 km/hr) threshold and another using a 12 mph (19.2 km/hr) threshold. Figure 18 is an example showing the lack of the correlation. This situation held for all six omnidirectional sampling stations.

The time plots in Appendix D and concentration summary in Table 10 indicate that all stations exhibited some degree of seasonality in their dust concentrations. The source/receptor station (CS1, SE1, CB1, and PB1) had their

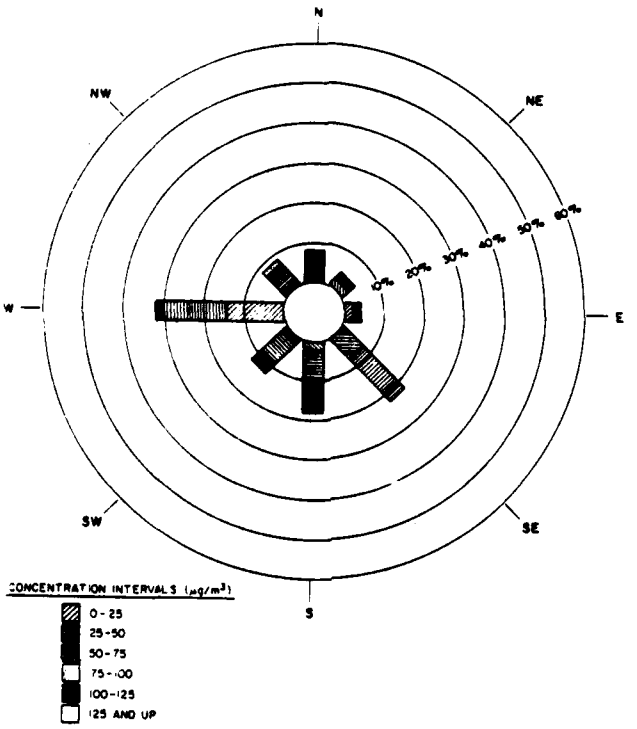
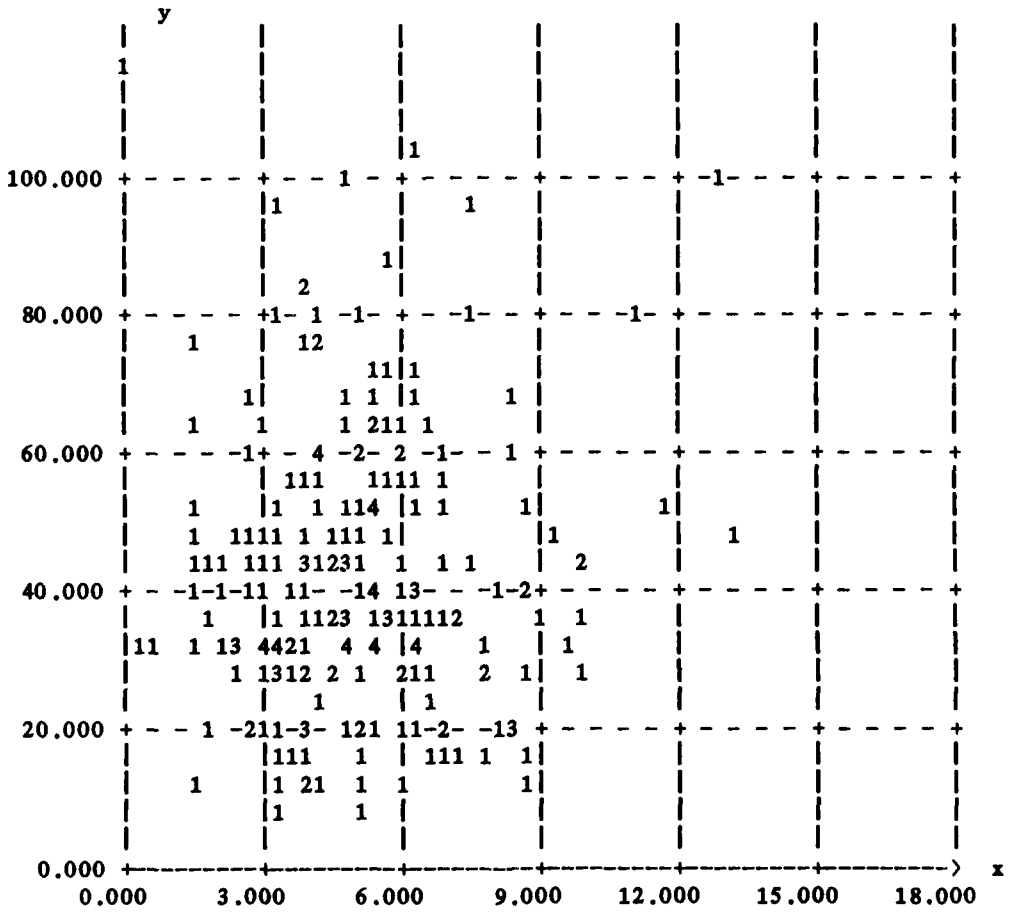


Figure 16. Concentration distribution for the background station.

highest and most erratic concentration levels in October, November, and December. These same stations exhibited their lowest TSP concentration level in July and August. In direct contrast to the source/receptor stations, the background station (RG1) had its highest concentration in late May, June, and early July and its lowest particulate concentration in November and December. This unusual fact seems to indicate a degree of tolerance for particulate concentrations by the air shed. It would seem from the data that the region tolerates human activities best in the summer months of June, July, and August. However, human activities appear to be least acceptable in the months of November and December. This trend should be incorporated in a dust control strategy.

The effects of precipitation on dust concentration were evaluated by looking at the amount and type precipitation encountered. Precipitation records kept at the Colorado Springs Airport (Peterson Field) were used for the El Paso County Health Department station (CS1), the Security Volunteer Fire Department station (SE1), the Fort Carson cantonment area station (CB1), and the background station at the Rod and Gun Club (RG1). The precipitation records from the Pueblo County Airport were used for the Fort Carson training and maneuver station (TT1) and for the Pueblo County Health Department station (PB1). It was observed that precipitation has relatively little influence on the long-term TSP concentration because there is simply not very much rain in

Cantonment Station TSP Conc vs 24 hr Ave Wind Speed

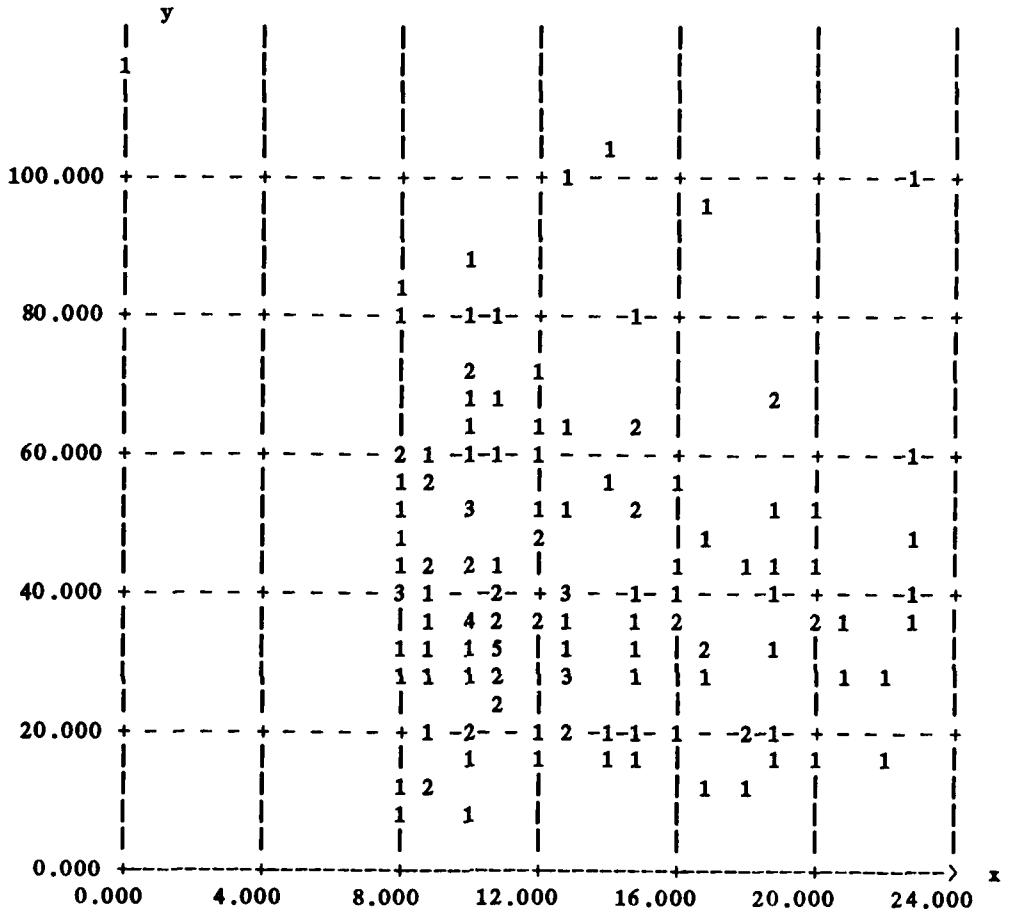


Data plotted along the X-axis is: 24 Hour Ave Wind Speed (mph)
Data plotted along the Y-axis is: Cantonment Station TSP Conc (ug/m3)

	X	Y
mean	5.200	43.729
st. dev.	2.217	19.961
variance	4.915	398.435
R	0.057	

Figure 17. Example TSP concentration vs 24-hour average wind speed plot.

Cantonment Station TSP Conc vs Hours Above 7 mph Wind Speed



Data plotted along the X-axis is: Hours Above 7 mph Wind Speed Threshold
Data plotted along the Y-axis is: Cantonment Station TSP Conc (ug/m3)

	X	Y
mean	12.974	44.039
st. dev.	4.422	21.390
variance	19.557	457.541
R	-0.066	

Figure 18. Example TSP concentration vs number of hours per day over a threshold wind speed plot.

Table 10

Monthly Geometric Mean Concentration Summary

Month	Station ($\mu g/m^3$) CS1	CS3	SE1	SE3	NP3	CB1	RG1	TT1	SP3	PB1	PB3
Feb 78	77	110	69	72	NO DATA	41	19	26	23	73	78
Mar	64	93	62	104	37	26	17	28	23	72	58
Apr	65	113	49	102	NO DATA	46	36	26	26	70	54
May	56	67	43	57	46	34	18	21	NO DATA	54	27
June	64	84	52	74	38	35	30	26	34	73	92
July	62	76	55	65	42	42	37	46	54	66	87
Aug	66	58	47	65	47	42	26	23	31	67	86
Sep	71	87	60	74	43	43	29	25	33	84	106
Oct	90	124	81	85	63	49	26	22	28	97	124
Nov	90	102	59	98	43	48	18	19	26	69	90
Dec	87	89	65	119	25	41	12	7	NO DATA	64	103
Jan	100	137	75	102	32	66	14	12	NO DATA	92	100

this area. There were fewer than 50 rain showers above the trace level and fewer than 50 days recorded with snow on the ground. While the long-term effects were not significant, precipitation did have an effect on dust concentrations. It was found, for example, that rainfall over 0.05 in. (1.3 mm) resulted in about a 12 percent reduction in TSP concentrations at all 6 stations. This reduction, however, lasted for only 1 to 2 days before returning to the normal cycle. Snow cover was found to be significant when it was at least 6-in. (152.4-mm) deep. It was, however, not very significant because only 5 days of the entire study period had a least this much snow. The precipitation effects do suggest some dust control strategies. Techniques which keep the soil moisture equivalent to 0.05 in. (1.3 mm) of precipitation or better will result in significant reduction of TSP concentrations. Because of their ability to retain soil moisture, surface crusting techniques will significantly reduce TSP concentration.

CERL performed two studies of the effects of human activities on dust concentrations. First, the concentrations by day of the week were assessed. The data in Table 11 show that all stations exhibited a weekly cycle. The El Paso County Health Department site (CS1), the Security Volunteer Fire

Table 11

Weekday Concentration Summary (Background not included)

Day	Station ($\mu g/m^3$) CS1	SE1	CB1	TT1	PB1
Monday					
(Arithmetic)	49	29	17	1	50
(Geometric)	44	24	14	6	41
Tuesday					
(Arithmetic)	53	33	20	-1	53
(Geometric)	47	28	16	5	47
Wednesday					
(Arithmetic)	55	31	23	2	56
(Geometric)	48	25	24	14	47
Thursday					
(Arithmetic)	60	39	26	2	58
(Geometric)	52	32	20	6	50
Friday					
(Arithmetic)	52	32	18	4	49
(Geometric)	46	27	13	7	41
Saturday					
(Arithmetic)	40	33	9	1	39
(Geometric)	33	27	10	6	31
Sunday					
(Arithmetic)	37	28	9	-1	42
(Geometric)	31	23	11	6	31

Department site (SE1), the Fort Carson cantonment area site (CB1), and the Pueblo County Health Department site (PB1) exhibited their peak concentrations on Thursday. The Fort Carson training and maneuver area station (TT1) exhibited its peak concentrations on Wednesdays. All stations except the Pueblo County Health Department station and the Fort Carson cantonment area station exhibited their low concentrations on Sunday. The data also indicate that all stations have lower weekend levels than weekday levels. An average of 27 percent (geometric) and 29 percent (arithmetic) reduction of weekend over weekday dust level concentration was observed. This reduction was especially significant for the El Paso County Health Department station (CS1), the Fort Carson cantonment area station (CB1), and the Pueblo County Health Department station (PB1). That the TSP concentrations in the entire study area were cyclic indicates human activity level is a major factor in controlling dust in the region. This cycle can be used in developing a dust control strategy.

The second human activity study monitored the impact of training and maneuver activities on dust concentration. To evaluate this effect, training activities in and around the Tank Table VII area were monitored for the period June through August 1978. It was found that training activities involving units below the brigade or battalion level did not significantly increase the measured TSP concentrations in the Tank Table VII area. Brigade-level exercises increased the ambient TSP concentration by 46.5 $\mu g/m^3$ (arithmetic) and 23.9 $\mu g/m^3$ (geometric). Battalion level exercises increased ambient TSP concentrations by 33.7 $\mu g/m^3$ (arithmetic) and 29.4 $\mu g/m^3$ (geometric). The effects of these large-scale training exercises did not show up at the receptor stations (CB1, SE1, PB1, and CS1), suggesting that the effects of training are limited to the immediate area of the activity. This tendency should be used in a dust control strategy for scheduling ranges and training sites which are near populated areas. Large training and maneuver activities require a buffer zone allowing dust to disperse.

In summary, the following principles can be used in developing a dust control strategy:

1. Maintaining a moisture level in the soil which exceeds 0.05 in. (1.27 mm) or rain will result in a significant reduction of dusting.

2. Scheduling of ranges close to populated areas should be limited to company size units or smaller.

3. Convoys should return on weekends.

4. Large training exercises should be scheduled in the summer instead of November or December.

5. A buffer zone is required between the site of large training exercises and populated areas.

Dust Level Effects on Human Activities

While Fort Carson's activities had relatively minor effects on the TSP concentration of the region, localized fugitive dust concentrations had a great effect on Fort Carson's activities. CERL noticed, for example, that buildings located within 500 yd (457.3 m) of an unpaved road were greatly affected by dust plumes from vehicles traveling on the road. It was also noticed that the drivers of vehicles traveling in convoy on unpaved roads were unable to see more than 50 ft (15.2 m) ahead. This resulted in safety problems such as vehicle collisions and injuries to personnel directing traffic at major road junctions. In addition, high dust concentrations from tank gunnery back blasts created target siting problems for tanks using unpaved fire points. These dusty conditions prevented tank artillery personnel from training successfully. The tank gunnery problem is caused by repeated use of the same fire points by many vehicles. Since such conditions would not normally be encountered in a war, it would be advisable to control dust generation at fire points to improve the effectiveness of tank gunnery training.

Given the dust problems evaluated at Fort Carson, CERL considered it important to define the extent of fugitive dust problems throughout the Army.

Table 12 contains the results of a phone survey conducted at 34 U.S. Army Training and Doctrine Command (TRADOC) and U.S. Army Forces Command (FORSCOM) installations. Included were all 22 installations currently considered to be major Army activities. Over half of the major installations are now having a fugitive dust problem and are attempting dust control. As can be seen in Table 12, the major problem sources are unpaved tank trails and roads, rock quarrying and crushing activities, and unvegetated training areas. Currently, the most favored control technique is a water spray, but this is only effective until the soil dries. A few installations have tried several other dust control systems with limited success. All 13 installations with a dust control problem expressed the need for further guidance on dust suppression and control.

In summary, for an effective TSP suppression strategy an installation should:

1. Control dust on all unpaved roads and parking lots within 500 yd (457.3 m) of an occupied area.

2. Control dust on heavily used gunnery ranges to enhance training effectiveness.

3. Control dust at major crossroads and areas of heavy convoy traffic to protect personnel and prevent damage to convoy vehicles.

Table 12

Extent of TSP Problems Army-Wide

TRADOC and FORSCOM installations surveyed (includes 22 major installations)	35
Installations currently having a fugitive dust problem	13
Installations currently attempting dust control	11
Major Fugitive Dust Problems	
Unpaved roads and tank trails	10
Rock quarrying and crushing	8
Heavily used training areas	7
Construction/demolition areas	4
Aircraft/helicopter landing areas	3
Undergrowth burning	2
Fugitive Dust Control Techniques	
Water spray	9
Chemical dust palliative	5
Waste oil	3
Vegetation	2

Data Quality Control Results

Table 13 presents a summary of the data lost during the survey period. As can be seen, the main losses were from equipment failure or human error. The directional stations (CS3, SE3, NP3, SP3, and PB3) had a large amount of discordant data loss -- probably due to misalignment of the wind vane mechanism for the wind directional controller. The poor data recovery percentage for the South Post station (SP3) is due to the difficulty in getting to the monitoring station, some vandalism, and two snowstorms (May 1978 and December 1978). For the most part, data recovery was excellent, with omnidirectional stations having a minimum of 250 data points and directional sampling stations having a minimum of 65 data points. While equipment repair problems plagued the study in the early phases of the research project, data recovery exceeded 90 percent for all stations from the middle of June to December 1.

Table 13

Data Loss Summary

Station	Percent Good Data	Traceable Data Loss*	Discordant Data Loss**
CS1	89.1	39	0
CS3	67.0	15	24
SE1	84.8	53	1
SE3	71.2	11	23
NP3	62.2	18	27
CB1	86.9	46	1
RG1	82.4	62	0
TT1	89.1	39	0
SP3	55.7	36	15
PB1	77.8	77	0
PB3	69.6	14	21

*Data loss due to equipment failure or human error.
**Data loss due to unidentified error or wind/vane misalignment.

4 CONCLUSIONS

Fort Carson's Effect on Surrounding Communities

Results of this study show that Fort Carson has virtually no effect on the TSP levels of surrounding communities. In all cases, community TSP levels were significantly higher than any installation TSP level.

The most important findings of this study are that all Fort Carson stations (NP3, CB1, RG1, TT1, and SP3) complied with all Federal ambient air quality TSP regulations -- primary and secondary, geometric annual mean, and maximum 24-hour concentration standards. These stations also complied with all Colorado TSP standards, both arithmetic mean and maximum 24-hour concentration. Statistical projections show that all stations will continue to meet Federal ambient TSP standards, and all but the cantonment station (CB1) will meet 1980 Colorado arithmetic mean regulations. The cantonment area station will miss the 1980 Colorado arithmetic mean standard by only 2 $\mu g/m^3$. This indicates that Fort Carson will have to develop a moderate dust control program for the cantonment area.

Evaluation of the data from directional and omnidirectional monitoring stations showed that Fort Carson had little effect on the air quality of Colorado Springs, Security, and Pueblo. It was shown that Fort Carson training activities in the Tank Table VII area did not significantly degrade ambient TSP concentration from the background condition as seen at the Rod and Gun Club (RG1). It was found that only large training exercises, battalion and brigade size or larger, had a significant effect on the ambient TSP concentrations at the training area monitoring station (TT1). It was also discovered that this effect did not carry beyond the Fort Carson boundaries to the source/receptor monitoring stations in Colorado Springs, Security, Pueblo, and the Fort Carson cantonment area.

The large discrepancy between the source strength of the Fort Carson cantonment area monitor (CB1) and the training area monitor (TT1), and the receptor monitors at Security (SE1), El Paso County Health Department (CS1), and the Pueblo County Health Department (PB1) indicated that the receptor monitoring stations may be mislocated. Since these receptor stations do not meet the USEPA's current siting criteria for TSP monitoring stations near traveled roadways, it is highly likely that these stations are not monitoring the true TSP concentrations of the area but instead are monitoring the resuspended dust plumes from the nearby roadways. It is suspected that if these stations were properly located, the true ambient concentrations would approach those recorded at the Fort Carson cantonment area station (CB1). To verify this condition, it is recommended either that a particle-size analysis be performed on the ambient TSP concentration at the existing sampling site, or that the sampling stations be relocated according to USEPA siting criteria and data collected before and after relocation of the sampling station be analyzed statistically. The potential gain for performing this analysis is that the San Isabel Air Quality Control Region may, in fact, be in compliance with primary Federal TSP concentration standards.

Significant TSP-Producing Activites

In general, it was found that military training and cantonment area activities have a highly localized effect on ambient TSP concentration. Installation cantonment area activities increased the TSP level by an average of 15 $\mu g/m^3$ over the background. Most training activities had an insignificant effect on the TSP level, as compared to the background; however, Army brigade/battalion level exercises caused a significant increase in TSP levels of 26 $\mu g/m^3$. The effects of training and cantonment activities can be limited by a proper dust control management plan. Elements of such a plan would include using dust suppression techniques for unpaved roads within 500 yd (457.3 m) of occupied areas, locating large training exercises in areas away from populated regions, scheduling of large training exercises in the season of the year which has the best tolerance for dispersing TSP concentrations, and scheduling the return of large convoys to the cantonment on weekends. Since fugitive dust is a problem which impairs training effectiveness, dust should be controlled at heavily used firing ranges and major convoy route junctions.

TSP Problems at TRADOC and FORSCOM Installations

About 60 percent of the major TRADOC and FORSCOM installations are experiencing fugitive dust control problems. USEPA and State environmental agencies consider unpaved rural roads a major source of fugitive dust emissions causing noncompliance with TSP regulations. Any military installation which has such roads and is in a noncomplying region should develop an effective dust control strategy.

Measures to Control TSP

Based on information generated at Fort Carson, this study has shown that several steps can control fugitive dust.

a. Dust suppression, with the moisture equivalent of 0.05 in. (1.27 mm) of rain or more, should be provided on all unpaved traffic areas within 500 yd (457.3 m) of populated areas, especially: (a) all cantonment unpaved parking lots, (b) all tank trails east of the motor pool area on Minick Avenue, (c) all unpaved roads near Cordon Road between Academy Boulevard and Abrams Elementary School, (d) the unpaved road section south of and parallel to Titus Boulevard between Harr Avenue and the electric substation, (e) the unpaved road between Nelson Boulevard and Building 8000, and (f) all unpaved parking areas in the Rod and Gun Club area, and recreation areas near Butts Field.

b. Whenever possible, large convoy traffic should be routed down Tank Trail B instead of Tank Trail A. If Tank Trail A must be used, sections nearest off-post populated areas should either be paved or treated with a dust palliative.

c. When large training exercises involving Tank Table VII or other large staging areas are scheduled, all unpaved staging areas should be treated with a dust palliative.

d. At all major route junctions dust should be controlled to prevent accidents and protect traffic control personnel.

e. All heavily used tank firing points where fugitive dust impairs training effectiveness should be treated.

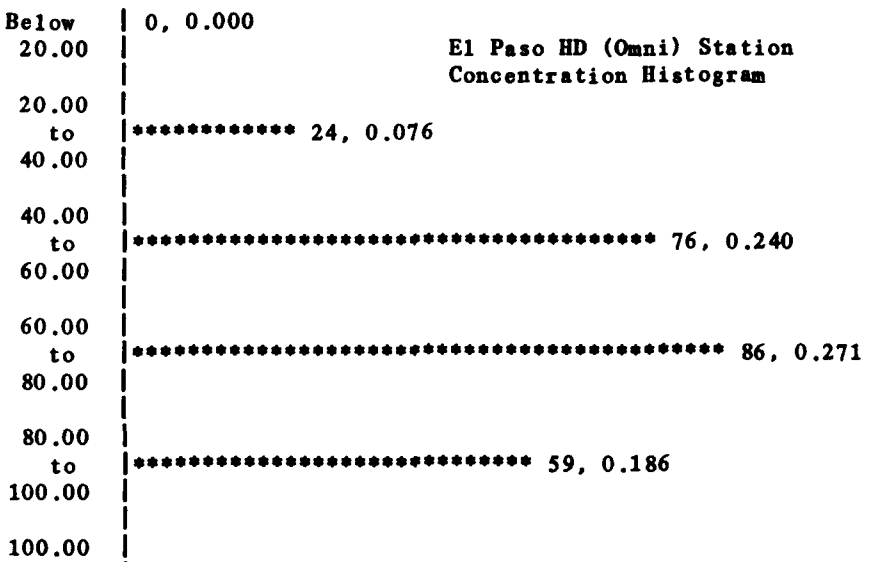
f. All large training exercises should be scheduled in the summer rather than in November and December.

g. Large convoys should return on Saturdays or Sundays.

h. Installations faced with investing large amounts of money to correct a situation assumed to be a problem -- but identified using little or no on-site data -- should make on-site data gathering their first step. At Fort Carson, on-site data collection resulted in a cost savings amounting to about $1000 for every $1 invested in data gathering.

APPENDIX A:

TSP CONCENTRATION FREQUENCY DISTRIBUTIONS



El Paso HD (Omni) Station
LN Concentration Histogram

Below 3.00	0, 0.000
3.00 to 3.25	* 3, 0.009
3.25 to 3.50	** 5, 0.016
3.50 to 3.75	******** 17, 0.054
3.75 to 4.00	****************************** 57, 0.180
4.00 to 4.25	********************************** 65, 0.205
4.25 to 4.50	************************************** 71, 0.224
4.50 to 4.75	****************************** 58, 0.183
4.75 to 5.00	************** 28, 0.088
5.00 to 5.25	****** 12, 0.038
5.25 to 5.50	1, 0.003
5.50 to 5.75	0, 0.000
Above 5.50	0, 0.000

Each * represents 2 occurrences.
There are 317 numbers in the sample set.

El Paso HD (Direc) Station
Concentration Histogram

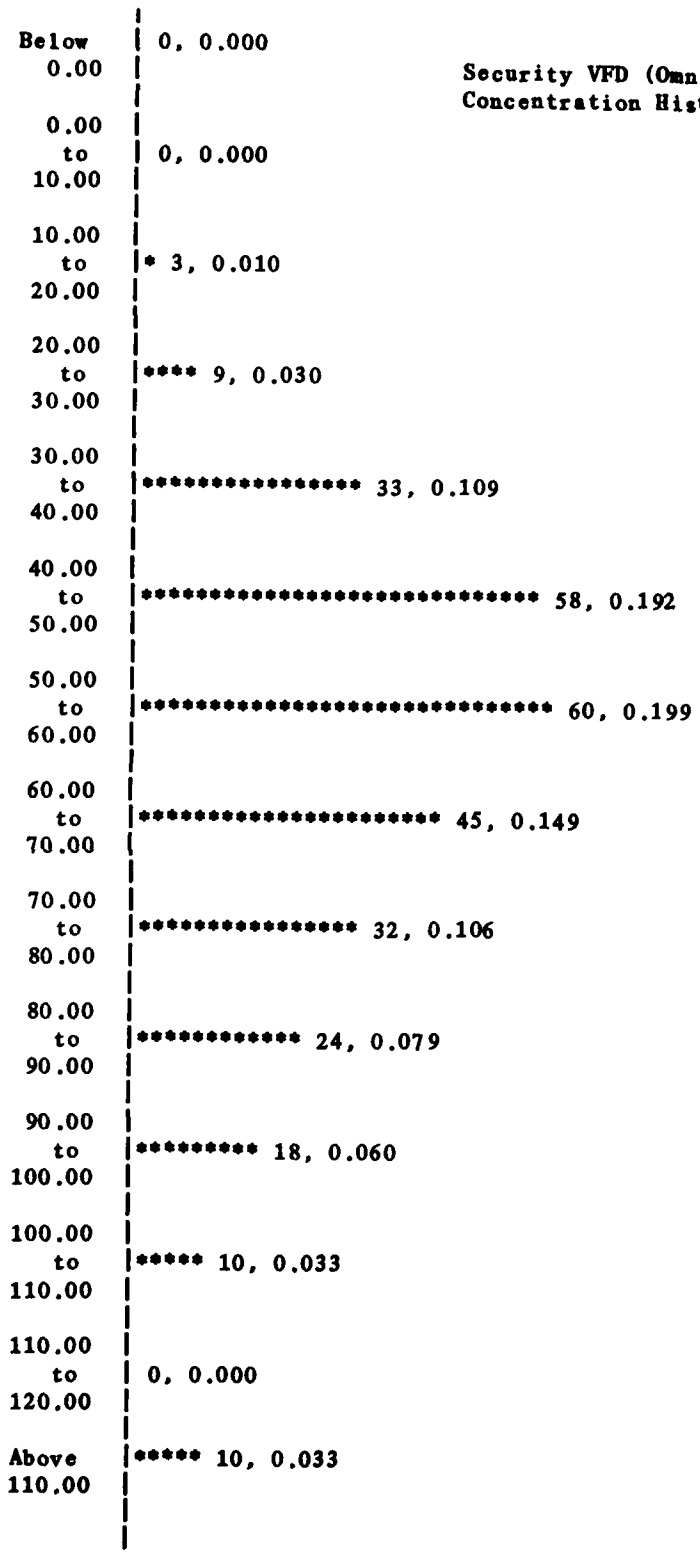
```
Below
 20.00 |* 1, 0.013
       |
 20.00 |
   to  |** 2, 0.025
 40.00 |
       |
 40.00 |
   to  |********* 9, 0.114
 60.00 |
       |
 60.00 |
   to  |***************** 16, 0.203
 80.00 |
       |
 80.00 |
   to  |*************** 14, 0.177
100.00 |
       |
100.00 |
   to  |***************** 16, 0.203
120.00 |
       |
120.00 |
   to  |*********** 11, 0.139
140.00 |
       |
140.00 |
   to  |**** 4, 0.051
160.00 |
       |
160.00 |
   to  |***** 5, 0.063
180.00 |
       |
180.00 |
   to  |* 1, 0.013
200.00 |
       |
200.00 |
   to  | 0, 0.000
220.00 |
       |
220.00 |
   to  | 0, 0.000
240.00 |
       |
240.00 |
   to  | 0, 0.000
260.00 |
       |
Above  | 0, 0.000
240.00 |
       |
       |
```

Each * represents 1 occurrence.
There are 79 numbers in the sample set.

El Paso HD (Direc) Station
LN Concentration Histogram

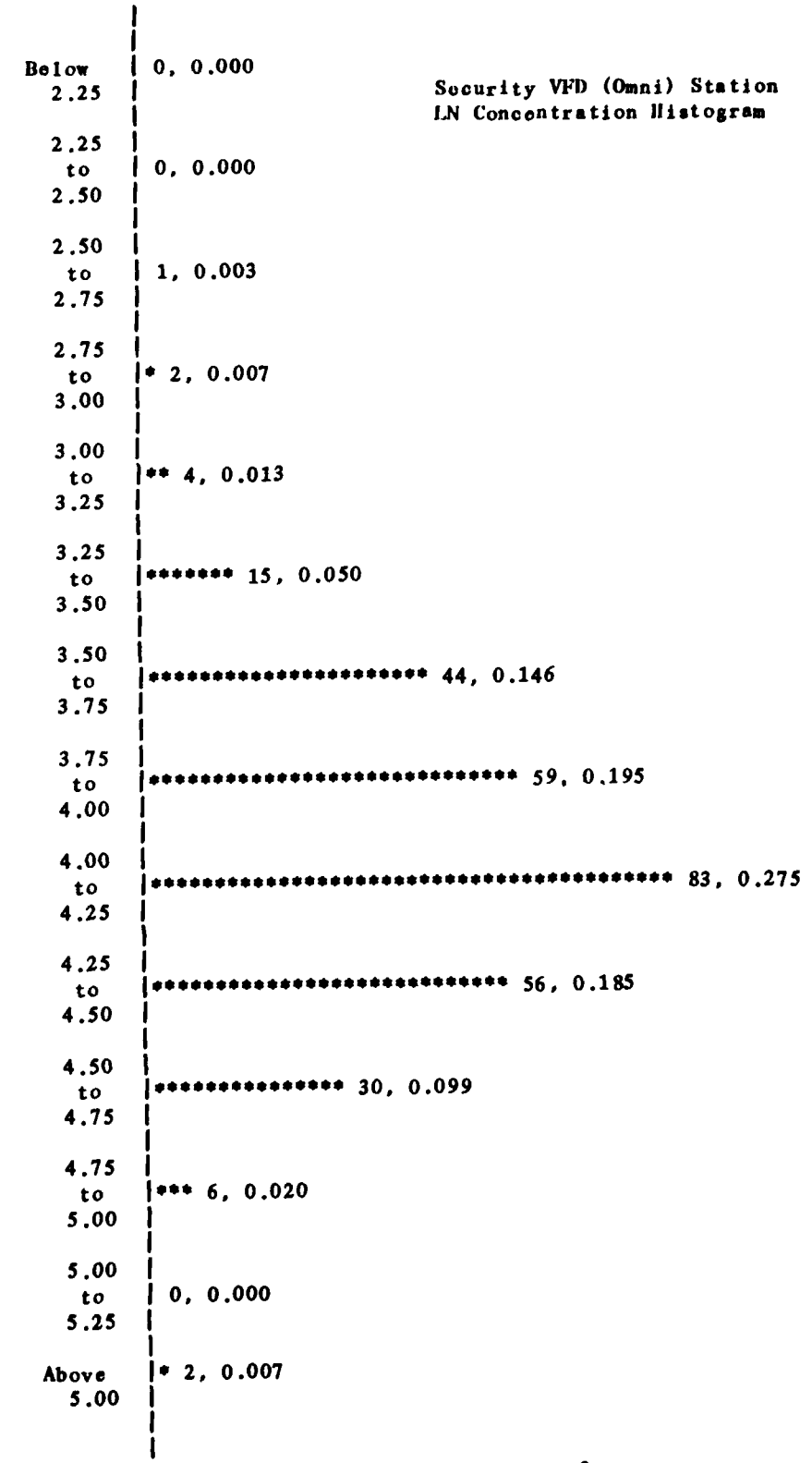
Below 3.00	* 1, 0.013
3.00 to 3.25	0, 0.000
3.25 to 3.50	0, 0.000
3.50 to 3.75	** 2, 0.025
3.75 to 4.00	**** 4, 0.051
4.00 to 4.25	********** 16, 0.203
4.25 to 4.50	********** 12, 0.152
4.50 to 4.75	********** 21, 0.266
4.75 to 5.00	********** 16, 0.203
5.00 to 5.25	******* 7, 0.089
5.25 to 5.50	0, 0.000
5.50 to 5.75	0, 0.000
Above 5.50	0, 0.000

Each * represents 1 occurrence.
There are 79 numbers in the sample set.



Each * represents 2 occurrences.
There are 302 numbers in the sample set.

Security VFD (Omni) Station
LN Concentration Histogram

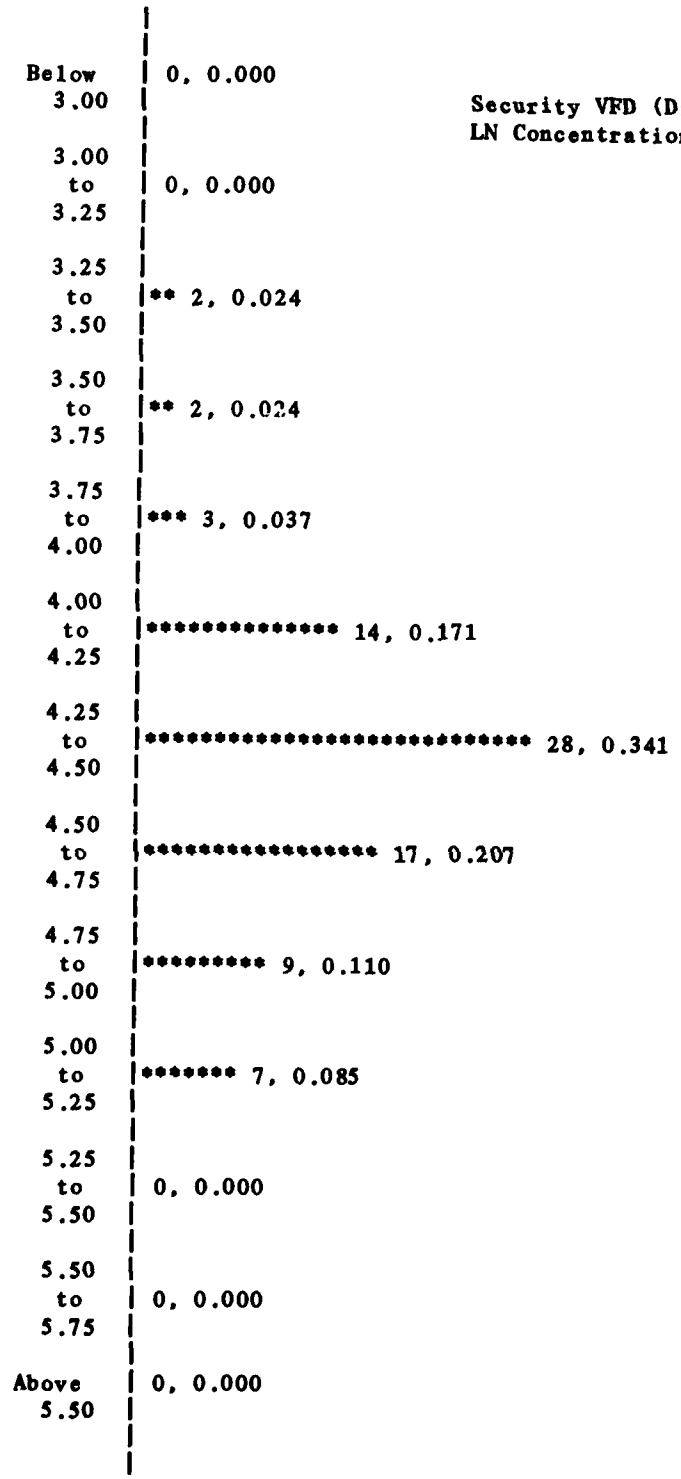


Each * represents 2 occurrences.
There are 302 numbers in the sample set.

Security VFD (Direc) Station
Concentration Histogram

```
        |
        |
 Below  | 0, 0.000
 20.00  |
        |
 20.00  |
   to   |*** 3, 0.037
 40.00  |
        |
 40.00  |
   to   |*********** 11, 0.134
 60.00  |
        |
 60.00  |
   to   |****************** 18, 0.220
 80.00  |
        |
 80.00  |
   to   |************************** 26, 0.317
100.00  |
        |
100.00  |
   to   |******** 8, 0.098
120.00  |
        |
120.00  |
   to   |******* 7, 0.085
140.00  |
        |
140.00  |
   to   |**** 4, 0.049
160.00  |
        |
160.00  |
   to   |***** 5, 0.061
180.00  |
        |
180.00  |
   to   | 0, 0.000
200.00  |
        |
200.00  |
   to   | 0, 0.000
220.00  |
        |
220.00  |
   to   | 0, 0.000
240.00  |
        |
240.00  |
   to   | 0, 0.000
260.00  |
        |
 Above  | 0, 0.000
240.00  |
        |
        |
```

Each * represents 1 occurrence.
There are 82 numbers in the sample set.



Each * represents 1 occurrence.
There are 82 numbers in the sample set.

Ft Carson N. Bound (Direc) Station
Concentration Histogram

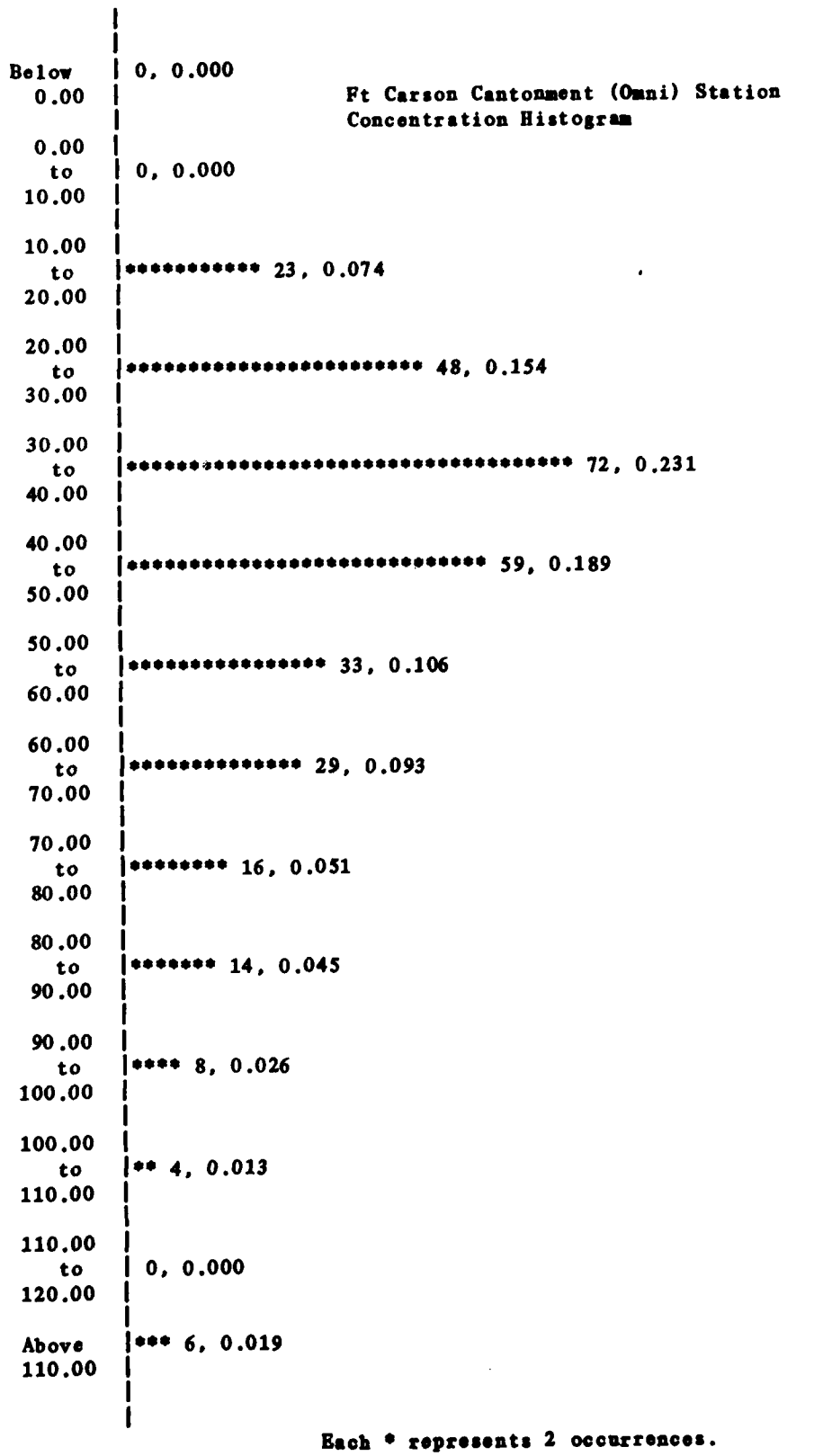
```
        |
        |
Below   | 0, 0.000
 0.00   |
        |
 0.00   |
  to    |* 1, 0.014
10.00   |
        |
10.00   |
  to    |**** 4, 0.054
20.00   |
        |
20.00   |
  to    |*************** 15, 0.203
30.00   |
        |
30.00   |
  to    |************* 13, 0.176
40.00   |
        |
40.00   |
  to    |****************** 18, 0.243
50.00   |
        |
50.00   |
  to    |********** 10, 0.135
60.00   |
        |
60.00   |
  to    |** 2, 0.027
70.00   |
        |
70.00   |
  to    |***** 5, 0.068
80.00   |
        |
80.00   |
  to    |****** 6, 0.081
90.00   |
        |
90.00   |
  to    | 0, 0.000
100.00  |
        |
100.00  |
  to    | 0, 0.000
110.00  |
        |
110.00  |
  to    | 0, 0.000
120.00  |
        |
Above   | 0, 0.000
110.00  |
        |
        |
```

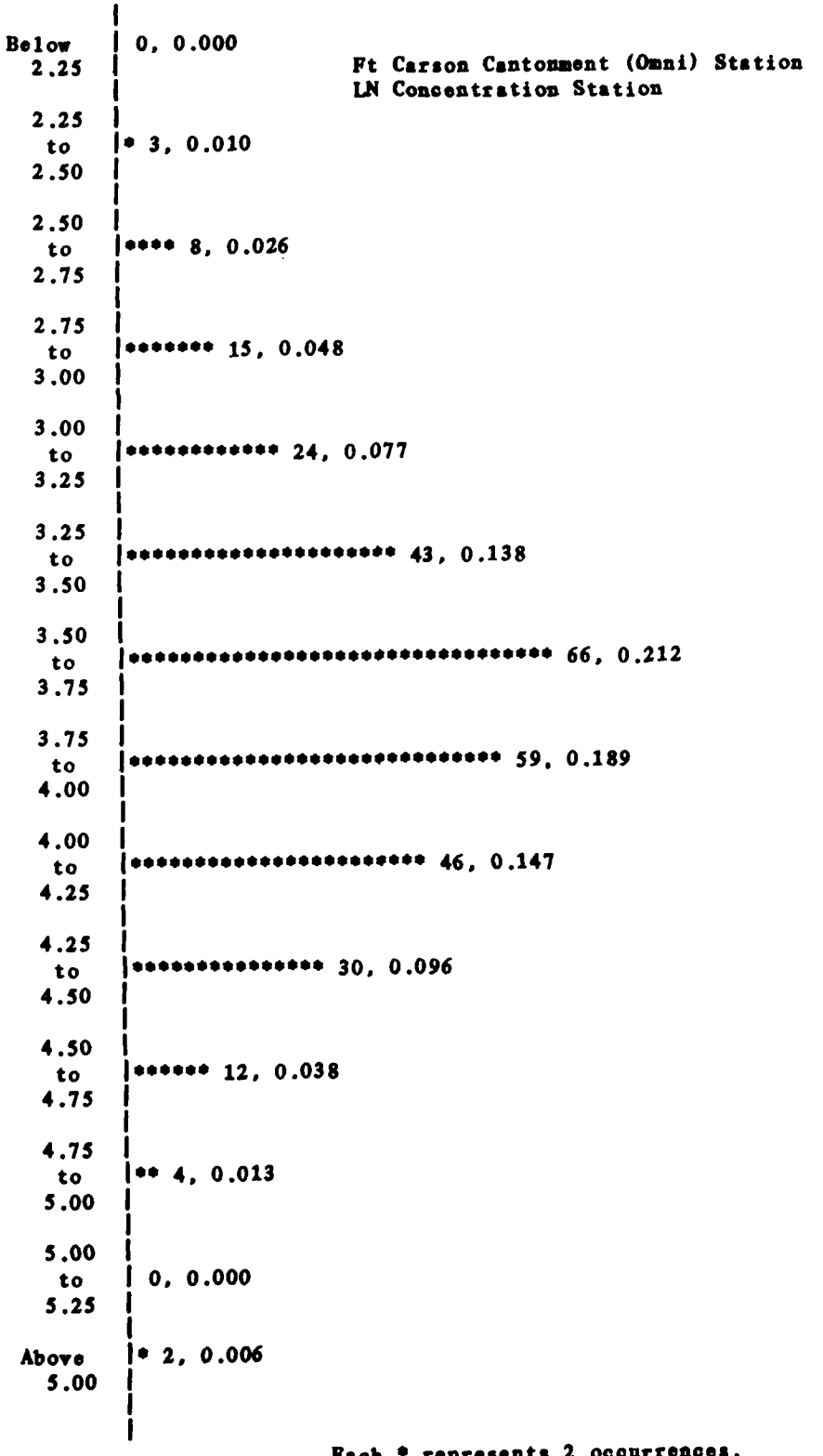
Each * represents 1 occurrence.
There are 74 numbers in the sample set.

Ft Carson N. Bound (Direc) Station
LN Concentration Histogram

Below 2.25	0, 0.000
2.25 to 2.50	** 2, 0.027
2.50 to 2.75	*** 3, 0.041
2.75 to 3.00	0, 0.000
3.00 to 3.25	***** 5, 0.068
3.25 to 3.50	**************** 16, 0.216
3.50 to 3.75	********** 10, 0.135
3.75 to 4.00	******************** 20, 0.270
4.00 to 4.25	******* 7, 0.095
4.25 to 4.50	********** 11, 0.149
4.50 to 4.75	0, 0.000
4.75 to 5.00	0, 0.000
5.00 to 5.25	0, 0.000
Above 5.00	0, 0.000

Each * represents 1 occurrence.
There are 74 numbers in the sample set.


Below 0.00 | 0, 0.000
Ft Carson Cantonment (Omni) Station
Concentration Histogram
0.00 to 10.00 | 0, 0.000
10.00 to 20.00 | ********** 23, 0.074
20.00 to 30.00 | ********** 48, 0.154
30.00 to 40.00 | ********** 72, 0.231
40.00 to 50.00 | ********** 59, 0.189
50.00 to 60.00 | ********** 33, 0.106
60.00 to 70.00 | ********** 29, 0.093
70.00 to 80.00 | ********** 16, 0.051
80.00 to 90.00 | ********** 14, 0.045
90.00 to 100.00 | **** 8, 0.026
100.00 to 110.00 | ** 4, 0.013
110.00 to 120.00 | 0, 0.000
Above 110.00 | *** 6, 0.019
Each * represents 2 occurrences.
There are 312 numbers in the sample set.


Below 2.25 | 0, 0.000
Ft Carson Cantonment (Omni) Station
LN Concentration Station
2.25 to 2.50 |* 3, 0.010
2.50 to 2.75 |**** 8, 0.026
2.75 to 3.00 |******* 15, 0.048
3.00 to 3.25 |************ 24, 0.077
3.25 to 3.50 |********************** 43, 0.138
3.50 to 3.75 |********************************** 66, 0.212
3.75 to 4.00 |****************************** 59, 0.189
4.00 to 4.25 |************************ 46, 0.147
4.25 to 4.50 |**************** 30, 0.096
4.50 to 4.75 |****** 12, 0.038
4.75 to 5.00 |** 4, 0.013
5.00 to 5.25 | 0, 0.000
Above 5.00 |* 2, 0.006
Each * represents 2 occurrences.
There are 312 numbers in the sample set.

Rod Gun Club (Omni) Station
Concentration Histogram

```
  Below  | 0, 0.000
   0.00  |
         |
   0.00  |
    to   |***************** 34, 0.117
  10.00  |
         |
  10.00  |
    to   |************************************ 73, 0.252
  20.00  |
         |
  20.00  |
    to   |*************************************** 78, 0.269
  30.00  |
         |
  30.00  |
    to   |************************ 49, 0.169
  40.00  |
         |
  40.00  |
    to   |************** 28, 0.097
  50.00  |
         |
  50.00  |
    to   |******* 14, 0.048
  60.00  |
         |
  60.00  |
    to   |**** 9, 0.031
  70.00  |
         |
  70.00  |
    to   |** 5, 0.017
  80.00  |
         |
  80.00  |
    to   | 0, 0.000
  90.00  |
         |
  90.00  |
    to   | 0, 0.000
 100.00  |
         |
 100.00  |
    to   | 0, 0.000
 110.00  |
         |
 110.00  |
    to   | 0, 0.000
 120.00  |
         |
  Above  | 0, 0.000
 110.00  |
         |
```

Each * represents 2 occurrences.
There are 290 numbers in the sample set.

Rod Gun Club (Omni) Station
LN Concentraton Histogram

```
Below 1.75 |** 2, 0.007
1.75 to 2.00 |******** 8, 0.028
2.00 to 2.25 |************************ 23, 0.079
2.25 to 2.50 |*************** 15, 0.052
2.50 to 2.75 |****************************** 29, 0.100
2.75 to 3.00 |********************************** 32, 0.110
3.00 to 3.25 |************************************************** 47, 0.162
3.25 to 3.50 |***************************************************** 49, 0.169
3.50 to 3.75 |************************************ 36, 0.124
3.75 to 4.00 |******************************* 31, 0.107
4.00 to 4.25 |************* 13, 0.045
4.25 to 4.50 |***** 5, 0.017
4.50 to 4.75 | 0, 0.000
Above 4.50 | 0, 0.000
```

Each * represents 1 occurrence.
There are 290 numbers in the sample set.

Tank Table VII (Omni) Station
Concentration Histogram

```
 Below  | 0, 0.000
  0.00  |
        |
  0.00  |
   to   |**************************** 57, 0.178
 10.00  |
        |
 10.00  |
   to   |************************************* 75, 0.234
 20.00  |
        |
 20.00  |
   to   |************************************** 77, 0.241
 30.00  |
        |
 30.00  |
   to   |*********************** 47, 0.147
 40.00  |
        |
 40.00  |
   to   |*********** 23, 0.072
 50.00  |
        |
 50.00  |
   to   |******** 17, 0.053
 60.00  |
        |
 60.00  |
   to   |****** 12, 0.038
 70.00  |
        |
 70.00  |
   to   |* 2, 0.006
 80.00  |
        |
 80.00  |
   to   |** 4, 0.013
 90.00  |
        |
 90.00  |
   to   | 0, 0.000
100.00  |
        |
100.00  |
   to   |* 2, 0.006
110.00  |
        |
110.00  |
   to   | 0, 0.000
120.00  |
        |
 Above  |** 4, 0.013
110.00  |
        |
```

Each * represents 2 occurrences.
There are 320 numbers in the sample set.

Tank Table VII (Omni) Station
LN Concentration Histogram

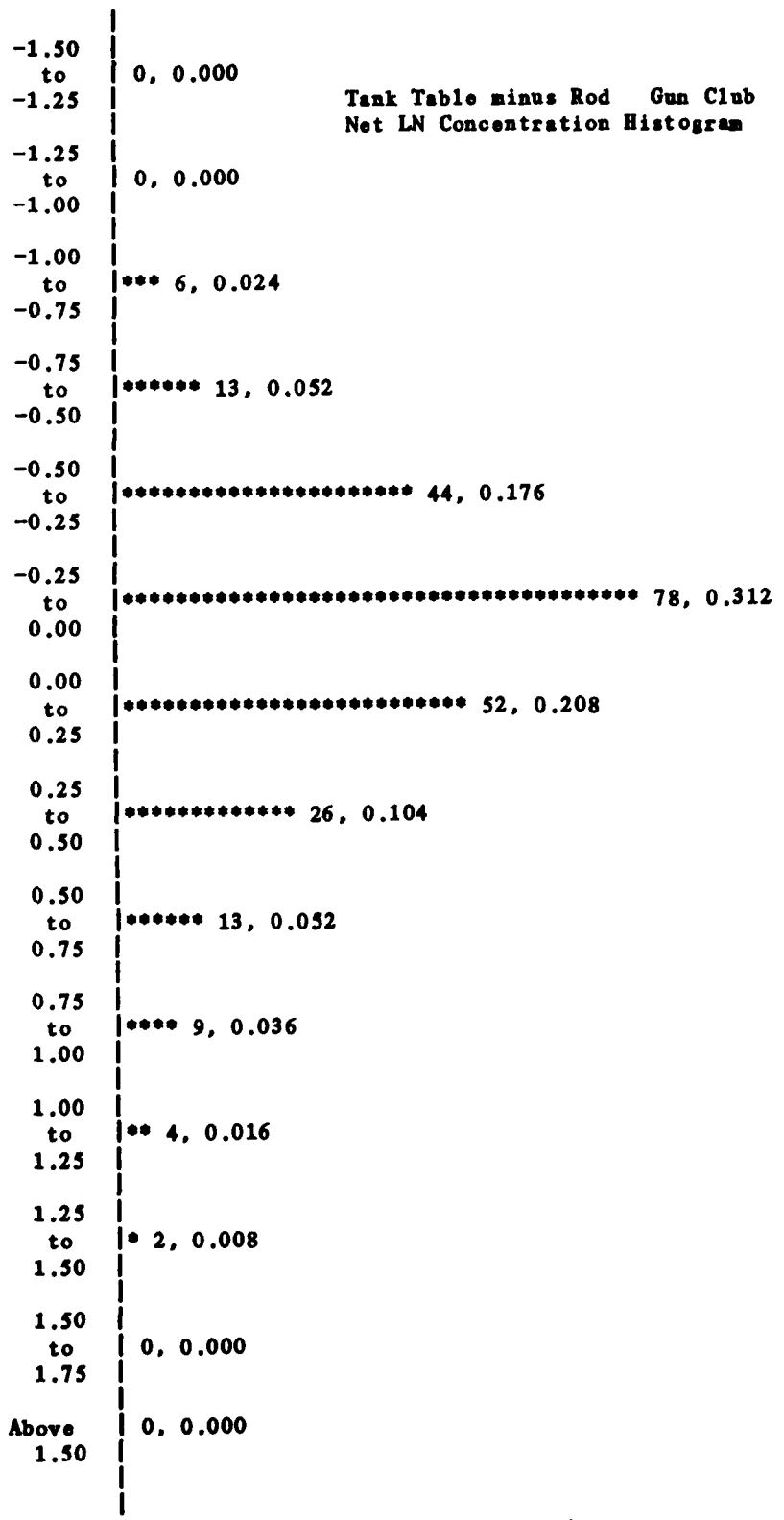
```
Below 2.25  | 1, 0.004
2.25 to 2.50 | 1, 0.004
2.50 to 2.75 | 1, 0.004
2.75 to 3.00 | 0, 0.000
3.00 to 3.25 |** 5, 0.019
3.25 to 3.50 |****** 12, 0.044
3.50 to 3.75 |***** 11, 0.041
3.75 to 4.00 |************** 26, 0.096
4.00 to 4.25 |***************************** 55, 0.204
4.25 to 4.50 |************************************* 72, 0.267
4.50 to 4.75 |************************** 51, 0.189
4.75 to 5.00 |************** 26, 0.096
5.00 to 5.25 | 0, 0.000
Above 5.00  |**** 9, 0.033
```

Each * represents 2 occurrences.
There are 270 numbers in the sample set.

Tank Table minus Rod Gun Club
Net Concentration Histogram

```
Below -30.00 |* 2, 0.008
             |
-30.00 to -25.00 |* 2, 0.008
             |
-25.00 to -20.00 |* 3, 0.012
             |
-20.00 to -15.00 |**** 9, 0.036
             |
-15.00 to -10.00 |******** 16, 0.064
             |
-10.00 to -5.00 |********************** 40, 0.160
             |
 -5.00 to 0.00 |************************************** 72, 0.288
             |
  0.00 to 5.00 |************************** 50, 0.200
             |
  5.00 to 10.00 |******** 17, 0.068
             |
 10.00 to 15.00 |******* 14, 0.056
             |
 15.00 to 20.00 |*** 6, 0.024
             |
 20.00 to 25.00 |** 4, 0.016
             |
 25.00 to 30.00 | 1, 0.004
             |
 30.00 to 35.00 | 0, 0.000
             |
Above 30.00  |******* 14, 0.056
             |
```

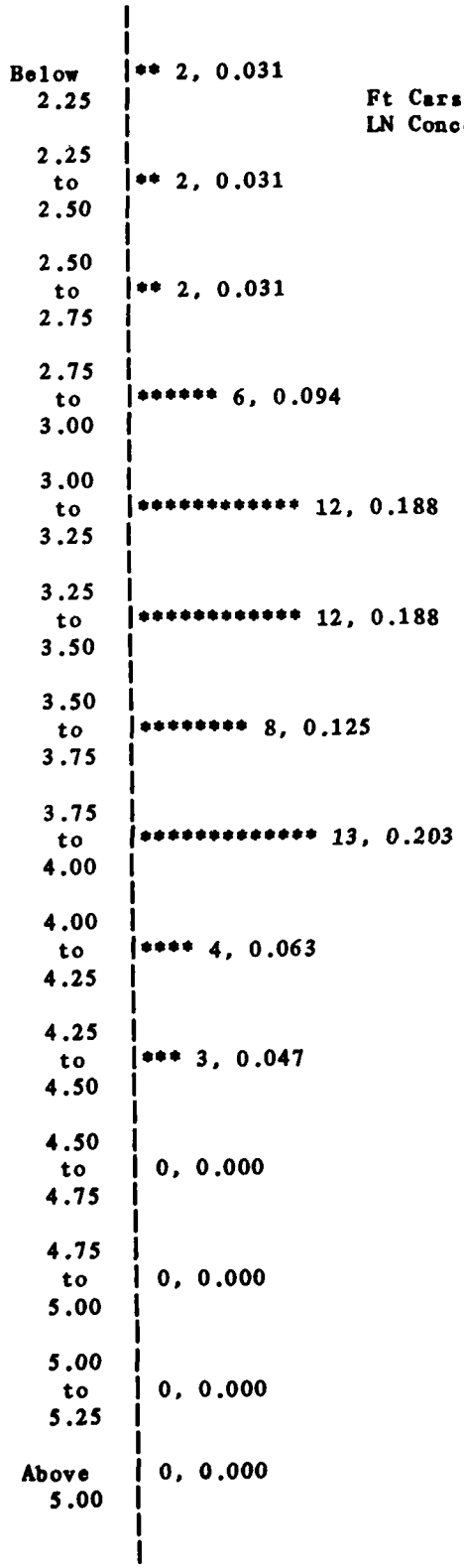
Each * represents 2 occurrences.
There are 250 numbers in the sample set.


Tank Table minus Rod Gun Club
Net LN Concentration Histogram
-1.50 to -1.25 | 0, 0.000
-1.25 to -1.00 | 0, 0.000
-1.00 to -0.75 | *** 6, 0.024
-0.75 to -0.50 | ****** 13, 0.052
-0.50 to -0.25 | ********** 44, 0.176
-0.25 to 0.00 | ********** 78, 0.312
0.00 to 0.25 | ********** 52, 0.208
0.25 to 0.50 | ********** 26, 0.104
0.50 to 0.75 | ****** 13, 0.052
0.75 to 1.00 | **** 9, 0.036
1.00 to 1.25 | ** 4, 0.016
1.25 to 1.50 | * 2, 0.008
1.50 to 1.75 | 0, 0.000
Above 1.50 | 0, 0.000
Each * represents 2 occurrences.
There are 250 numbers in the sample set.

Ft Carson S. Bound (Direc) Station
Concentration Histogram

```
Below
 0.00 | 0, 0.000
      |
 0.00 |
  to  |** 2, 0.031
10.00 |
      |
10.00 |
  to  |********** 10, 0.154
20.00 |
      |
20.00 |
  to  |******************** 19, 0.292
30.00 |
      |
30.00 |
  to  |************ 12, 0.185
40.00 |
      |
40.00 |
  to  |********* 9, 0.138
50.00 |
      |
50.00 |
  to  |****** 6, 0.092
60.00 |
      |
60.00 |
  to  |**** 4, 0.062
70.00 |
      |
70.00 |
  to  |* 1, 0.015
80.00 |
      |
80.00 |
  to  |** 2, 0.031
90.00 |
      |
90.00 |
  to  | 0, 0.000
100.00|
      |
100.00|
  to  | 0, 0.000
110.00|
      |
110.00|
  to  | 0, 0.000
120.00|
      |
Above | 0, 0.000
110.00|
      |
```

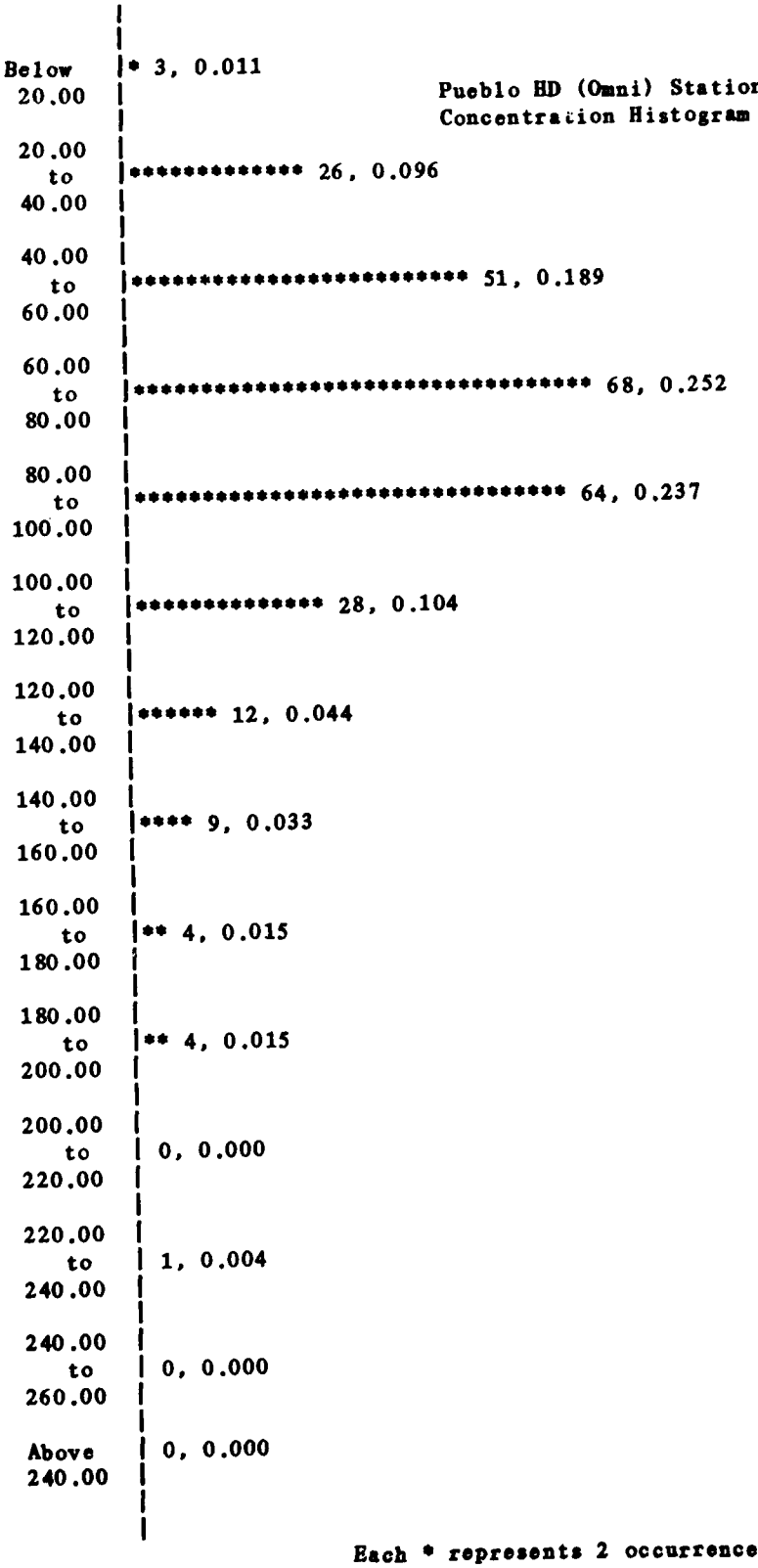
Each * represents 1 occurrence.
There are 65 numbers in the sample set.



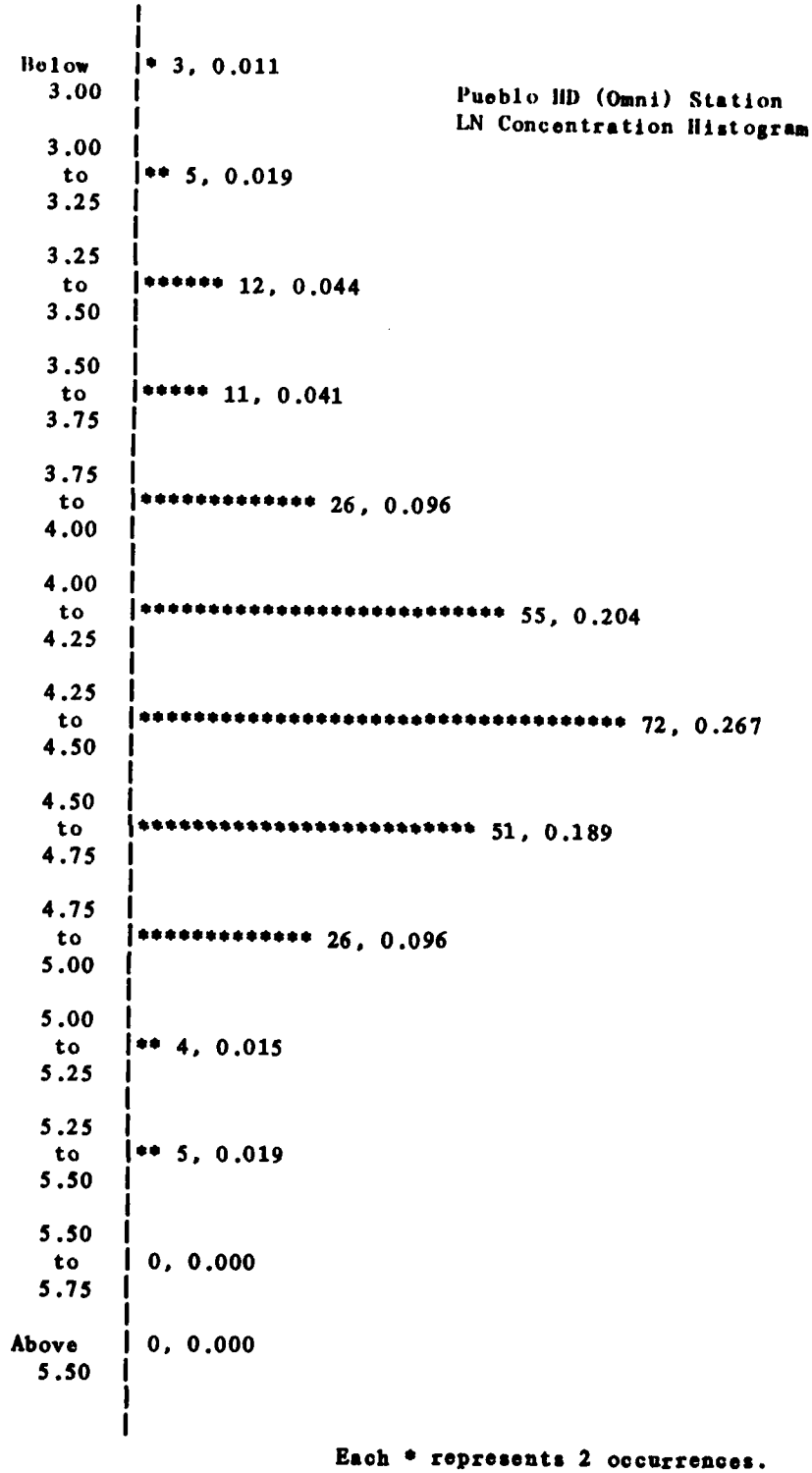
Ft Carson S. Bound (Direc) Station
LN Concentration Histogram

Each * represents 1 occurrence.
There are 64 numbers in the sample set.

Pueblo HD (Omni) Station
Concentration Histogram



Each * represents 2 occurrences.
There are 270 numbers in the sample set.


Below 3.00
* 3, 0.011
Pueblo HD (Omni) Station
LN Concentration Histogram
3.00 to 3.25
** 5, 0.019
3.25 to 3.50
****** 12, 0.044
3.50 to 3.75
***** 11, 0.041
3.75 to 4.00
********** 26, 0.096
4.00 to 4.25
********** 55, 0.204
4.25 to 4.50
********** 72, 0.267
4.50 to 4.75
********** 51, 0.189
4.75 to 5.00
********** 26, 0.096
5.00 to 5.25
** 4, 0.015
5.25 to 5.50
** 5, 0.019
5.50 to 5.75
0, 0.000
Above 5.50
0, 0.000
Each * represents 2 occurrences.
There are 270 numbers in the sample set.

Pueblo HD (Direc) Station
Concentration Histogram

```
Below
 20.00 |*** 3, 0.038
       |
 20.00 |
   to  |**** 4, 0.050
 40.00 |
       |
 40.00 |
   to  |********* 9, 0.112
 60.00 |
       |
 60.00 |
   to  |********** 10, 0.125
 80.00 |
       |
 80.00 |
   to  |******************** 20, 0.250
100.00 |
       |
100.00 |
   to  |************* 13, 0.162
120.00 |
       |
120.00 |
   to  |******** 8, 0.100
140.00 |
       |
140.00 |
   to  |***** 5, 0.063
160.00 |
       |
160.00 |
   to  |**** 4, 0.050
180.00 |
       |
180.00 |
   to  |** 2, 0.025
200.00 |
       |
200.00 |
   to  | 0, 0.000
220.00 |
       |
220.00 |
   to  |* 1, 0.013
240.00 |
       |
240.00 |
   to  | 0, 0.000
260.00 |
       |
Above  |* 1, 0.013
240.00 |
       |
       |
```

Each * represents 1 occurrence.
There are 80 numbers in the sample set.

Pueblo HD (Direc) Station
LN Concentration Histogram

```
Below 3.00 |*** 3, 0.038
3.00 to 3.25 | 0, 0.000
3.25 to 3.50 |** 2, 0.025
3.50 to 3.75 |**** 4, 0.050
3.75 to 4.00 |***** 5, 0.063
4.00 to 4.25 |********* 9, 0.112
4.25 to 4.50 |************ 12, 0.150
4.50 to 4.75 |************************ 23, 0.287
4.75 to 5.00 |********** 10, 0.125
5.00 to 5.25 |********** 10, 0.125
5.25 to 5.50 |* 1, 0.013
5.50 to 5.75 | 0, 0.000
Above 5.50 |* 1, 0.013
```

Each * represents 1 occurrence.
There are 80 numbers in the sample set.

APPENDIX B:

MONITORING STATION SERVICE SCHEDULES

MONTH: February 1978

Day and Date	CS 1	CS 3	SE 1	SE 3	NP 3	CB 1	RG 1	TT 1	SP 3	PB 1	PB 3
W 1	x		x			x	x	x		x	
T 2	x	x	x	x	x	x	x	x	x	x	x
F 3	x		x			x	x	x		x	
S 4	x		x			x	x	x		x	
S 5	x	x	x	x	x	x	x	x	x	x	x
M 6	x		x			x	x	x		x	
T 7	x		x			x	x	x		x	
W 8	x	x	x	x	x	x	x	x	x	x	x
T 9	x		x			x	x	x		x	
F 10	x		x			x	x	x		x	
S 11	x	x	x	x	x	x	x	x	x	x	x
S 12	x		x			x	x	x		x	
M 13	x		x			x	x	x		x	
T 14	x	x	x	x	x	x	x	x	x	x	x
W 15	x		x			x	x	x		x	
T 16	x		x			x	x	x		x	
F 17	x	x	x	x	x	x	x	x	x	x	x
S 18	x		x			x	x	x		x	
S 19	x		x			x	x	x		x	
M 20	x	x	x	x	x	x	x	x	x	x	x
T 21	x		x			x	x	x		x	
W 22	x		x			x	x	x		x	
T 23	x	x	x	x	x	x	x	x	x	x	x
F 24	x		x			x	x	x		x	
S 25	x		x			x	x	x		x	
S 26	x	x	x	x	x	x	x	x	x	x	x
M 27	x		x			x	x	x		x	
T 28	x		x			x	x	x		x	

MONTH: March 1978

Day and Date	CS 1	CS 3	SE 1	SE 3	NP 3	CB 1	RG 1	TT 1	SP 3	PB 1	PB 3
W 1	x	x	x	x	x	x	x	x	x	x	x
T 2	x		x			x	x	x		x	
F 3	x		x			x	x	x		x	
S 4	x	x	x	x	x	x	x	x	x	x	x
S 5	x		x			x	x	x		x	
M 6	x		x			x	x	x		x	
T 7	x	x	x	x	x	x	x	x	x	x	x
W 8	x		x			x	x	x		x	
T 9	x		x			x	x	x		x	
F 10	x	x	x	x	x	x	x	x	x	x	x
S 11	x		x			x	x	x		x	
S 12	x		x			x	x	x		x	
M 13	x	x	x	x	x	x	x	x	x	x	x
T 14	x		x			x	x	x		x	
W 15	x		x			x	x	x		x	
T 16	x	x	x	x	x	x	x	x	x	x	x
F 17	x		x			x	x	x		x	
S 18	x		x			x	x	x		x	
S 19	x	x	x	x	x	x	x	x	x	x	x
M 20	x		x			x	x	x		x	
T 21	x		x			x	x	x		x	
W 22	x	x	x	x	x	x	x	x	x	x	x
T 23	x		x			x	x	x		x	
F 24	x		x			x	x	x		x	
S 25	x	x	x	x	x	x	x	x	x	x	x
S 26	x		x			x	x	x		x	
M 27	x		x			x	x	x		x	
T 28	x	x	x	x	x	x	x	x	x	x	x
W 29	x		x			x	x	x		x	
T 30	x		x			x	x	x		x	
F 31	x	x	x	x	x	x	x	x	x	x	x

MONTH: April 1978

Day and Date	CS 1	CS 3	SE 1	SE 3	NP 3	CB 1	RG 1	TT 1	SP 3	PB 1	PB 3
S 1	x		x			x	x	x		x	
S 2	x		x			x	x	x		x	
M 3	x	x	x	x	x	x	x	x	x	x	x
T 4	x		x			x	x	x		x	
W 5	x		x			x	x	x		x	
T 6	x	x	x	x	x	x	x	x	x	x	x
F 7	x		x			x	x	x		x	
S 8	x		x			x	x	x		x	
S 9	x	x	x	x	x	x	x	x	x	x	x
M 10	x		x			x	x	x		x	
T 11	x		x			x	x	x		x	
W 12	x	x	x	x	x	x	x	x	x	x	x
T 13	x		x			x	x	x		x	
F 14	x		x			x	x	x		x	
S 15	x	x	x	x	x	x	x	x	x	x	x
S 16	x		x			x	x	x		x	
M 17	x		x			x	x	x		x	
T 18	x	x	x	x	x	x	x	x	x	x	x
W 19	x		x			x	x	x		x	
T 20	x		x			x	x	x		x	
F 21	x	x	x	x	x	x	x	x	x	x	x
S 22	x		x			x	x	x		x	
S 23	x		x			x	x	x		x	
M 24	x	x	x	x	x	x	x	x	x	x	x
T 25	x		x			x	x	x		x	
W 26	x		x			x	x	x		x	
T 27	x	x	x	x	x	x	x	x	x	x	x
F 28	x		x			x	x	x		x	
S 29	x		x			x	x	x		x	
S 30	x	x	x	x	x	x	x	x	x	x	x

MONTH: May 1978

Day and Date	CS 1	CS 3	SE 1	SE 3	NP 3	CB 1	RG 1	TT 1	SP 3	PB 1	PB 3
M 1	x		x			x	x	x		x	
T 2	x		x			x	x	x		x	
F 3	x	x	x	x	x	x	x	x	x	x	x
T 4	x		x			x	x	x		x	
F 5	x		x			x	x	x		x	
S 6	x	x	x	x	x	x	x	x	x	x	x
S 7	x		x			x	x	x		x	
M 8	x		x			x	x	x		x	
T 9	x	x	x	x	x	x	x	x	x	x	x
W 10	x		x			x	x	x		x	
T 11	x		x			x	x	x		x	
F 12	x	x	x	x	x	x	x	x	x	x	x
S 13	x		x			x	x	x		x	
S 14	x		x			x	x	x		x	
M 15	x	x	x	x	x	x	x	x	x	x	x
T 16	x		x			x	x	x		x	
W 17	x		x			x	x			x	
T 18	x	x	x	x	x	x	x	x	x	x	x
F 19	x		x			x	x			x	
S 20	x		x			x	x			x	
S 21	x	x	x	x	x	x	x	x	x	x	x
M 22	x		x			x	x	x		x	
T 23	x		x			x	x	x		x	
W 24	x	x	x	x	x	x	x	x	x	x	x
T 25	x		x			x	x	x		x	
F 26	x		x			x	x	x		x	
S 27	x	x	x	x	x	x	x	x	x	x	x
S 28	x		x			x	x	x		x	
M 29	x		x			x	x	x		x	
T 30	x	x	x	x	x	x	x	x	x	x	x
W 31	x		x			x	x	x		x	

MONTH: June 1978

Day and Date	CS 1	CS 3	SE 1	SE 3	NP 3	CB 1	RG 1	TT 1	SP 3	PB 1	PB 3
T 1	x		x			x	x	x		x	
F 2	x	x	x	x	x	x	x	x	x	x	x
S 3	x		x			x	x	x		x	
S 4	x		x			x	x	x		x	
M 5	x	x	x	x	x	x	x	x	x	x	x
T 6	x		x			x	x	x		x	
W 7	x		x			x	x	x		x	
T 8	x	x	x	x	x	x	x	x	x	x	x
F 9	x		x			x	x	x		x	
S 10	x		x			x	x	x		x	
S 11	x	x	x	x	x	x	x	x	x	x	x
M 12	x		x			x	x	x		x	
T 13	x		x			x	x	x		x	
W 14	x	x	x	x	x	x	x	x	x	x	x
T 15	x		x			x	x	x		x	
F 16	x		x			x	x	x		x	
S 17	x	x	x	x	x	x	x	x	x	x	x
S 18	x		x			x	x	x		x	
M 19	x		x			x	x	x		x	
T 20	x	x	x	x	x	x	x	x	x	x	x
W 21	x		x			x	x	x		x	
T 22	x		x			x	x	x		x	
F 23	x	x	x	x	x	x	x	x	x	x	x
S 24	x		x			x	x	x		x	
S 25	x		x			x	x	x		x	
M 26	x	x	x	x	x	x	x	x	x	x	x
T 27	x		x			x	x	x		x	
W 28	x		x			x	x	x		x	
T 29	x	x	x	x	x	x	x	x	x	x	x
F 30	x		x			x	x	x		x	

MONTH: July 1978

Day and Date	CS 1	CS 3	SE 1	SE 3	NP 3	CB 1	RG 1	TT 1	SP 3	PB 1	PB 3
S 1	x		x			x	x	x		x	
S 2	x	x	x	x	x	x	x	x	x	x	
M 3	x		x			x	x	x		x	
T 4	x		x			x	x	x		x	
W 5	x	x	x	x	x	x	x	x	x	x	x
T 6	x		x			x	x	x		x	
F 7	x		x			x	x	x		x	
S 8	x	x	x	x	x	x	x	x	x	x	x
S 9	x		x			x	x	x		x	
M 10	x		x			x	x	x		x	
T 11	x	x	x	x	x	x	x	x	x	x	x
W 12	x		x			x	x	x		x	
T 13	x		x			x	x	x		x	
F 14	x	x	x	x	x	x	x	x	x	x	x
S 15	x		x			x	x	x		x	
S 16	x		x			x	x	x		x	
M 17	x	x	x	x	x	x	x	x	x	x	x
T 18	x		x			x	x	x		x	
W 19	x		x			x	x	x		x	
T 20	x	x	x	x	x	x	x	x	x	x	x
F 21	x		x			x	x	x		x	
S 22	x		x			x	x	x		x	
S 23	x	x	x	x	x	x	x	x	x	x	x
M 24	x		x			x	x	x		x	
T 25	x		x			x	x	x		x	
W 26	x	x	x	x	x	x	x	x	x	x	x
T 27	x		x			x	x	x		x	
F 28	x		x			x	x	x		x	
S 29	x	x	x	x	x	x	x	x	x	x	x
S 30	x		x			x	x	x		x	
M 31	x		x			x	x	x		x	

MONTH: August 1978

Day and Date	CS 1	CS 3	SE 1	SE 3	NP 3	CB 1	RG 1	TT 1	SP 3	PB 1	PB 3
T 1	x	x	x	x	x	x	x	x	x	x	x
W 2	x		x			x	x	x		x	
T 3	x		x			x	x	x		x	
F 4	x	x	x	x	x	x	x	x	x	x	x
S 5	x		x			x	x	x		x	
S 6	x		x			x	x	x		x	
M 7	x	x	x	x	x	x	x	x	x	x	x
T 8	x		x			x	x	x		x	
W 9	x		x			x	x	x		x	
T 10	x	x	x	x	x	x	x	x	x	x	x
F 11	x		x			x	x	x		x	
S 12	x		x			x	x	x		x	
S 13	x	x	x	x	x	x	x	x	x	x	x
M 14	x		x			x	x	x		x	
T 15	z		x			x	x	x		x	
W 16	x	x	x	x	x	x	x	x	x	x	x
T 17	x		x			x	x	x		x	
F 18	x		x			x	x	x		x	
S 19	x		x	x	x	x	x	x	x	x	x
S 20	x		x			x	x	x		x	
M 21	x		x			x	x	x		x	
T 22	x	x	x	x	x	x	x	x	x	x	x
W 23	x		x			x	x	x		x	
T 24	x		x			x	x	x		x	
F 25	x	x	x	x	x	x	x	x	x	x	x
S 26	x		x			x	x	x		x	
S 27	x		x			x	x	x		x	
M 28	x	x	x	x	x	x	x	x	x	x	x
T 29	x		x			x	x	x		x	
W 30	x		x			x	x	x		x	
T 31	x	x	x	x	x	x	x	x	x	x	x

MONTH: September 1978

Day and Date	CS 1	CS 3	SE 1	SE 3	NP 3	CB 1	RG 1	TT 1	SP 3	PB 1	PB 3
F 1	x		x			x	x	x		x	
S 2	x		x			x	x	x		x	
S 3	x	x	x	x	x	x	x	x	x	x	x
M 4	x		x			x	x	x		x	
T 5	x		x			x	x	x		x	
W 6	x	x	x	x	x	x	x	x	x	x	x
T 7	x		x			x	x	x		x	
F 8	x		x			x	x	x		x	
S 9	x	x	x	x	x	x	x	x	x	x	x
S 10	x		x			x	x	x		x	
M 11	x		x			x	x	x		x	
T 12	x	x	x	x	x	x	x	x	x	x	x
W 13	x		x			x	x	x		x	
T 14	x		x			x	x	x		x	
F 15	x	x	x	x	x	x	x	x	x	x	x
S 16	x		x			x	x	x		x	
S 17	x		x			x	x	x		x	
M 18	x	x	x	x	x	x	x	x	x	x	x
T 19	x		x			x	x	x		x	
W 20	x		x			x	x	x		x	
T 21	x	x	x	x	x	x	x	x	x	x	x
F 22	x		x			x	x	x		x	
S 23	x		x			x	x	x		x	
S 24	x	x	x	x	x	x	x	x	x	x	x
M 25	x		x			x	x	x		x	
T 26	x		x			x	x	x		x	
W 27	x	x	x	x	x	x	x	x	x	x	x
T 28	x		x			x	x	x		x	
F 29	x		x			x	x	x		x	
S 30	x	x	x	x	x	x	x	x	x	x	x

MONTH: October 1978

Day and Date	CS 1	CS 3	SE 1	SE 3	NP 3	CB 1	RG 1	TT 1	SP 3	PB 1	PB 3
S 1	x		x			x	x	x		x	
M 2	x		x			x	x	x		x	
T 3	x	x	x	x	x	x	x	x	x	x	x
W 4	x		x			x	x	x		x	
T 5	x		x			x	x	x		x	
F 6	x	x	x	x	x	x	x	x	x	x	x
S 7	x		x			x	x	x		x	
S 8	x		x			x	x	x		x	
M 9	x	x	x	x	x	x	x	x	x	x	x
T 10	x		x			x	x	x		x	
W 11	x		x			x	x	x		x	
T 12	x	x	x	x	x	x	x	x	x	x	x
F 13	x		x			x	x	x		x	
S 14	x		x			x	x	x		x	
S 15	x	x	x	x	x	x	x	x	x	x	x
M 16	x		x			x	x	x		x	
T 17	x		x			x	x	x		x	
W 18	x	x	x	x	x	x	x	x	x	x	x
T 19	x		x			x	x	x		x	
F 20	x		x			x	x	x		x	
S 21	x	x	x	x	x	x	x	x	x	x	x
S 22	x		x			x	x	x		x	
M 23	x		x			x	x	x		x	
T 24	x	x	x	x	x	x	x	x	x	x	x
W 25	x		x			x	x	x		x	
T 26	x		x			x	x	x		x	
F 27	x	x	x	x	x	x	x	x	x	x	x
S 28	x		x			x	x	x		x	
S 29	x		x			x	x	x		x	
M 30	x	x	x	x	x	x	x	x	x	x	x
T 31	x		x			x	x	x		x	

MONTH: November 1978

Day and Date	CS 1	CS 3	SE 1	SE 3	NP 3	CB 1	RG 1	TT 1	SP 3	PB 1	PB 3
W 1	x		x			x	x	x		x	
T 2	x	x	x	x	x	x	x	x	x	x	x
F 3	x		x			x	x	x		x	
S 4	x		x			x	x	x		x	
S 5	x	x	x	x	x	x	x	x	x	x	x
M 6	x		x			x	x	x		x	
T 7	x		x			x	x	x		x	
W 8	x	x	x	x	x	x	x	x	x	x	x
T 9	x		x			x	x	x		x	
F 10	x		x			x	x	x		x	
S 11	x	x	x	x	x	x	x	x	x	x	x
S 12	x		x			x	x	x		x	
M 13	x		x			x	x	x		x	
T 14	x	x	x	x	x	x	x	x	x	x	x
W 15	x		x			x	x	x		x	
T 16	x		x			x	x	x		x	
F 17	x	x	x	x	x	x	x	x	x	x	x
S 18	x		x			x	x	x		x	
S 19	x		x			x	x	x		x	
M 20	x	x	x	x	x	x	x	x	x	x	x
T 21	x		x			x	x	x		x	
W 22	x		x			x	x	x		x	
T 23	x	x	x	x	x	x	x	x	x	x	x
F 24	x		x			x	x	x		x	
S 25	x		x			x	x	x		x	
S 26	x	x	x	x	x	x	x	x	x	x	x
M 27	x		x			x	x	x		x	
T 28	x		x			x	x	x		x	
W 29	x	x	x	x	x	x	x	x	x	x	x
T 30	x		x			x	x	x		x	

MONTH: December 1978

Day and Date	CS 1	CS 3	SE 1	SE 3	NP 3	CB 1	RG 1	TT 1	SP 3	PB 1	PB 3
F 1	x		x			x	x	x		x	
S 2	x	x	x	x	x	x	x	x	x	x	x
S 3	x		x			x	x	x		x	
M 4	x		x			x	x	x		x	
T 5	x	x	x	x	x	x	x	x	x	x	x
W 6	x		x			x	x	x		x	
T 7	x		x			x	x	x		x	
F 8	x	x	x	x	x	x	x	x	x	x	x
S 9	x		x			x	x	x		x	
S 10	x		x			x	x	x		x	
M 11	x	x	x	x	x	x	x	x	x	x	x
T 12	x		x			x	x	x		x	
W 13	x		x			x	x	x		x	
T 14	x	x	x	x	x	x	x	x	x	x	x
F 15	x		x			x	x	x		x	
S 16	x		x			x	x	x		x	
S 17	x	x	x	x	x	x	x	x	x	x	x
M 18	x		x			x	x	x		x	
T 19	x		x			x	x	x		x	
W 20	x	x	x	x	x	x	x	x	x	x	x
T 21	x		x			x	x	x		x	
F 22	x		x			x	x	x		x	
S 23	x	x	x	x	x	x	x	x	x	x	x
S 24	x		x			x	x	x		x	
M 25	x		x			x	x	x		x	
T 26	x	x	x	x	x	x	x	x	x	x	x
W 27	x		x			x	x	x		x	
T 28	x		x			x	x	x		x	
F 29	x	x	x	x	x	x	x	x	x	x	x
S 30	x		x			x	x	x		x	
S 31	x		x			x	x	x		x	

MONTH: January 1979

Day and Date	CS 1	CS 3	SE 1	SE 3	NP 3	CB 1	RG 1	TT 1	SP 3	PB 1	PB 3
M 1	x	x	x	x	x	x	x	x	x	x	x
T 2	x		x			x	x	x		x	
W 3	x		x			x	x	x		x	
T 4	x	x	x	x	x	x	x	x	x	x	x
F 5	x		x			x	x	x		x	
S 6	x		x			x	x	x		x	
S 7	x	x	x	x	x	x	x	x	x	x	x
M 8	x		x			x	x	x		x	
T 9	x		x			x	x	x		x	
W 10	x	x	x	x	x	x	x	x	x	x	x
T 11	x		x			x	x	x		x	
F 12	x		x			x	x	x		x	
S 13	x	x	x	x	x	x	x	x	x	x	x
S 14	x		x			x	x	x		x	
M 13	x		x			x	x	x		x	
T 16	x	x	x	x	x	x	x	x	x	x	x
W 17	x		x			x	x	x		x	
T 18	x		x			x	x	x		x	
F 19	x	x	x	x	x	x	x	x	x	x	x
S 20	x		x			x	x	x		x	
S 21	x		x			x	x	x		x	
M 22	x	x	x	x	x	x	x	x	x	x	x
T 23	x		x			x	x	x		x	
W 24	x		x			x	x	x		x	
T 25	x	x	x	x	x	x	x	x	x	x	x
F 26	x		x			x	x	x		x	
S 27	x		x			x	x	x		x	
S 28	x	x	x	x	x	x	x	x	x	x	x
M 29	x		x			x	x	x		x	
T 30	x		x			x	x	x		x	
W 31	x	x	x	x	x	x	x	x	x	x	x

APPENDIX C:

MONTHLY TSP CONCENTRATION DATA

STATION: El Paso City/County Health Dept

START MONTH: February STOP MONTH: February

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
2/1		N.D.	
2/2	99.9	106.5	0007
2/3	99.9	113.8	0012
2/4		N.D.	
2/5	99.9	048.6	0015
2/6	99.9	072.7	0017
2/7	99.9	062.1	0018
2/8	99.9	067.5	0021
2/9	99.9	114.6	0024
2/10	99.9	137.9	0030
2/11	99.9	050.4	0031
2/12	99.9	104.9	0137
2/13	99.9	065.7	0034
2/14	99.9	069.8	0037
2/15	99.9	057.8	0040
2/16		N.D.	0040
2/17	99.9	053.8	0042
2/18	99.9	052.8	0049
2/19		052.8	0049
2/20	99.9	077.3	0050
2/21	99.9	090.1	0051
2/22	99.9	104.3	0291
2/23	99.9	161.6	0295
2/24	99.9	057.8	0300
2/25	99.9	054.4	0301
2/26	99.9	098.0	0302
2/27	99.9	083.8	0305
2/28	99.9	072.2	0307

Geometric Mean = 76.669
Standard Deviation is 1.405

STATION: El Paso City/County Health Dept

START MONTH: March STOP MONTH: March

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
3/1	99.9	117.7	0310
3/2	99.9	049.3	0313
3/3	99.9	041.2	0317
3/4	99.9	067.2	0318
3/5		067.2	0318
3/6	99.9	034.0	0320
3/7	99.9	053.0	0324
3/8	99.9	084.4	0327
3/9	99.9	048.5	0329
3/10	99.9	048.2	0335
3/11	99.9	050.5	0336
3/12	99.9	038.5	0337
3/13	99.9	039.9	0341
3/14	99.9	045.5	0343
3/15	99.9	051.2	0345
3/16	99.9	105.3	0348
3/17	99.9	081.1	0354
3/18	99.9	086.5	0355
3/19	99.9	071.7	0356
3/20	99.9	080.2	0358
3/21		N.D.	0358
3/22		N.D.	0358
3/23		N.D.	0358
3/24		N.D.	0358
3/25		N.D.	0358
3/26		N.D.	0358
3/27	99.9	077.1	0361
3/28	99.9	078.0	0365
3/29	99.9	074.7	0362
3/30	99.9	093.9	0366
3/31	99.9	097.1	0369

Geometric Mean = 63.572
Standard Deviation is 1.415

STATION: El Paso City/County Health Dept

START MONTH: April STOP MONTH: April

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
4/1	99.9	038.0	0372
4/2		038.0	0372
4/3		N.D.	0372
4/4		N.D.	0372
4/5		N.D.	0372
4/6		N.D.	0372
4/7		N.D.	0372
4/8		N.D.	0372
4/9		N.D.	0372
4/10		N.D.	0372
4/11		N.D.	0372
4/12		N.D.	0372
4/13		N.D.	0372
4/14		N.D.	0372
4/15		N.D.	0372
4/16	99.9	071.5	0402
4/17		N.D.	
4/18	99.9	045.8	0380
4/19	99.9	082.4	0519
4/20	99.9	096.4	0518
4/21	99.9	076.1	0512
4/22		076.1	0512
4/23		076.1	0512
4/24	99.9	085.1	0508
4/25	99.9	127.9	0506
4/26		127.9	0506
4/27	99.9	097.5	0504
4/28	99.9	073.2	0496
4/29	99.9	027.9	0495
4/30	99.9	022.8	0494

Geometric Mean = 65.122
Standard Deviation is 1.673

STATION: El Paso City/County Health Dept

START MONTH: May STOP MONTH: May

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
5/1	99.9	023.2	0491
5/2	99.9	067.1	0489
5/3	99.9	045.9	0486
5/4	99.9	038.5	0483
5/5		038.8	0483
5/6		038.5	0483
5/7		038.5	0483
5/8	99.9	089.6	0482
5/9		089.6	0482
5/10	99.9	079.2	0564
5/11	99.9	065.2	0566
5/12	99.9	063.5	0569
5/13	99.9	062.2	0573
5/14		062.2	0573
5/15	99.9	104.0	0574
5/16	99.9	209.8	0578
5/17	99.9	063.6	0580
5/18	99.9	052.0	0583
5/19	99.9	059.0	0589
5/20	99.9	047.6	0590
5/21		047.6	0590
5/22	99.9	066.3	0591
5/23	99.9	080.2	0593
5/24	99.9	062.5	0596
5/25	99.9	057.3	0598
5/26		057.3	0598
5/27	99.9	031.0	0643
5/28		031.0	0643
5/29		031.0	0643
5/30	99.9	074.7	0640
5/31	99.9	049.7	0648

Geometric Mean = 56.331
Standard Deviation is 1.537

STATION: El Paso City/County Health Dept

START MONTH: June STOP MONTH: June

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
6/1		049.7	0648
6/2	99.9	060.4	3574
6/3	99.9	036.3	3575
6/4		036.3	3575
6/5	99.9	056.2	3577
6/6	99.9	049.0	3570
6/7		049.0	3570
6/8	99.9	064.0	3580
6/9		N.D.	3580
6/10		N.D.	3580
6/11		N.D.	3580
6/12		N.D.	3580
6/13		N.D.	3580
6/14		N.D.	3580
6/15		N.D.	3580
6/16	99.9	090.1	3582
6/17	99.9	071.8	3591
6/18		071.8	3591
6/19	99.9	099.3	3583
6/20	99.9	093.3	3584
6/21	99.9	103.7	3576
6/22	99.9	071.2	3573
6/23	99.9	105.1	3601
6/24	99.9	054.0	3602
6/25	99.9	063.6	3603
6/26	99.9	088.1	3610
6/27	99.9	085.0	3613
6/28	99.9	056.8	3614
6/29	99.9	052.2	3616
6/30	99.9	044.4	3624

Geometric Mean = 64.287
Standard Deviation is 1.376

STATION: El Paso City/County Health Dept

START MONTH: July STOP MONTH: July

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
7/1	99.9	044.2	3625
7/2	99.9	051.4	3626
7/3	99.9	053.6	3628
7/4	99.9	057.0	3631
7/5	99.9	068.2	3634
7/6	99.9	105.2	3637
7/7	99.9	101.4	3643
7/8	99.9	067.7	3644
7/9	99.9	045.8	3646
7/10	99.9	062.9	3648
7/11		062.9	3648
7/12	99.9	060.4	3652
7/13	99.9	069.5	3653
7/14	99.9	070.9	3655
7/15	99.9	066.2	3656
7/16	99.9	052.1	3657
7/17	99.9	057.0	3664
7/18	99.9	063.7	0768
7/19	99.9	049.6	0764
7/20	99.9	043.2	1089
7/21	99.9	051.8	1094
7/22	99.9	037.6	1095
7/23	99.9	037.2	1097
7/24	99.9	068.7	1099
7/25	99.0	088.5	1101
7/26	99.9	105.9	1105
7/27	99.9	111.0	1106
7/28	99.9	099.6	1111
7/29	99.9	057.1	1112
7/30	99.9	047.9	1114
7/31	99.9	050.3	1116
Geometric Mean =		61.913	
Standard Deviation is		1.351	

STATION: El Paso City/County Health Dept

START MONTH: August STOP MONTH: August

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
8/1	99.9	057.5	1119
8/2	99.9	046.8	1122
8/3		N.D.	
8/4	99.9	080.0	1130
8/5	99.9	058.8	1131
8/6	99.9	053.1	1133
8/7	99.9	072.4	1134
8/8	99.9	060.0	1132
8/9	99.9	077.6	1138
8/10	99.9	079.8	1139
8/11	99.9	098.9	1140
8/12	99.9	056.5	1141
8/13	99.9	044.5	1144
8/14	99.9	067.5	1047
8/15	99.9	096.6	1049
8/16	99.9	086.3	1050
8/17	99.9	063.4	1054
8/18	99.9	061.5	1060
8/19	99.9	079.8	1061
8/20	99.9	060.9	1062
8/21	99.9	075.1	1065
8/22	99.9	066.7	1069
8/23	99.9	070.6	1071
8/24	99.9	081.8	1073
8/25	99.9	064.0	1079
8/26	99.9	050.6	1080
8/27	99.9	059.9	1081
8/28	99.9	050.5	1085
8/29	99.9	055.5	1087
8/30	99.9	069.1	1147
8/31	99.9	081.9	1150

Geometric Mean = 66.222
Standard Deviation is 1.228

STATION: El Paso City/County Health Dept

START MONTH: September STOP MONTH: September

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
9/1	99.9	066.8	1157
9/2	99.9	052.8	1158
9/3	99.9	043.4	1160
9/4	99.9	044.9	1161
9/5	99.9	078.4	1163
9/6	99.9	081.6	1166
9/7	99.9	127.2	1170
9/8	99.9	064.1	1175
9/9	99.9	065.9	1176
9/10	99.9	054.0	1178
9/11	99.9	127.8	1180
9/12	99.9	080.8	1184
9/13	99.9	077.9	1186
9/14	99.9	076.7	1187
9/15	99.9	069.4	1446
9/16	99.9	090.5	1448
9/17	99.9	068.0	1449
9/18	99.9	105.1	1451
9/19	99.9	048.3	1452
9/20	99.9	048.8	1450
9/21	99.9	070.6	1457
9/22	99.9	079.5	1463
9/23	99.9	056.2	1464
9/24	99.9	035.5	1465
9/25	99.9	052.3	1467
9/26	99.9	073.7	1470
9/27	99.9	094.0	1473
9/28	99.9	123.6	1476
9/29	99.9	103.2	1481
9/30	99.9	094.4	1485

Geometric Mean = 71.392
Standard Deviation is 1.389

STATION: El Paso City/County Health Dept

START MONTH: October STOP MONTH: October

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
10/1	99.9	100.5	1484
10/2	99.9	074.6	1486
10/3	99.9	101.5	1490
10/4	99.9	154.8	1492
10/5	99.9	111.7	1494
10/6	99.9	103.9	1501
10/7	99.9	095.5	1376
10/8	99.9	065.5	1384
10/9	99.9	110.5	1505
10/10		110.5	1505
10/11	99.9	143.1	1420
10/12	99.9	112.6	1638
10/13	99.9	125.1	1632
10/14	99.9	107.8	1631
10/15	99.9	096.3	1629
10/16	99.9	133.9	1627
10/17	99.9	137.6	1504
10/18	99.9	140.8	1623
10/19	99.9	123.4	1620
10/20	99.9	108.3	1616
10/21	99.9	036.2	1615
10/22	99.9	023.8	1613
10/23	99.9	094.8	1612
10/24	99.9	051.0	1608
10/25	99.9	067.0	1607
10/26	99.9	082.3	1605
10/27	99.9	069.8	1604
10/28	99.9	087.6	1602
10/29	99.9	057.5	1601
10/30	99.9	078.1	1595
10/31		N.D.	1595

Geometric Mean = 90.359
Standard Deviation is 1.515

STATION: El Paso City/County Health Dept

START MONTH: November STOP MONTH: November

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
11/1	99.9	151.9	1594
11/2	99.9	103.4	1593
11/3	99.9	084.2	1591
11/4	99.9	151.9	1590
11/5	99.9	122.0	1589
11/6	99.9	147.0	1422
11/7	99.9	160.3	1424
11/8	99.9	133.0	1427
11/9		N.D.	1427
11/10	99.9	051.8	1747
11/11	99.9	026.0	1748
11/12	99.9	043.6	1675
11/13	99.9	077.1	1687
11/14	99.9	081.5	1688
11/15		081.5	1688
11/16	99.9	152.3	1801
11/17	99.9	119.2	1803
11/18		119.2	1803
11/19	99.9	044.9	1806
11/20	99.9	086.3	1805
11/21	99.9	107.0	1813
11/22	99.9	083.9	1814
11/23		083.9	1814
11/24	99.9	086.5	1788
11/25	99.9	053.4	1790
11/26	99.9	064.4	1791
11/27	99.9	083.4	1793
11/28		083.4	1793
11/29	99.9	128.3	1795
11/30	99.9	107.8	1799

Geometric Mean = 89.626
Standard Deviation is 1.546

STATION: El Paso City/County Health Dept

START MONTH: December STOP MONTH: December

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
12/1	99.9	083.8	1773
12/2	99.9	034.4	1774
12/3	99.9	076.8	1776
12/4	99.9	046.5	1778
12/5		046.5	1778
12/6		046.5	1778
12/7		046.5	1778
12/8	99.9	063.6	1785
12/9	99.9	075.1	1784
12/10	99.9	053.2	1783
12/11	99.9	117.5	1786
12/12	99.9	079.6	1751
12/13	99.9	094.3	1752
12/14	99.9	157.9	1753
12/15	99.9	165.8	1974
12/16	99.9	135.5	1980
12/17	99.9	126.6	1979
12/18		126.6	1979
12/19	99.9	078.2	1973
12/20	99.9	150.2	1990
12/21		150.2	1990
12/22	99.9	098.3	1991
12/23		098.3	1991
12/24		098.3	1991
12/25		098.3	1991
12/26		098.3	1991
12/27		098.3	1991
12/28		098.3	1991
12/29		N.D.	1991
12/30		N.D.	1991
12/31		N.D.	1991
Geometric Mean =	87.058		
Standard Deviation is	1.529		

STATION: El Paso City/County Health Dept

START MONTH: January STOP MONTH: January

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
1/1		N.D.	1991
1/2	99.9	085.7	1768
1/3	99.9	102.0	1767
1/4		102.0	1767
1/5	99.9	121.9	1766
1/6	99.9	069.3	1926
1/7	99.9	099.8	1755
1/8	99.9	136.2	1924
1/9	99.9	139.0	1757
1/10	99.9	148.1	1897
1/11	99.9	172.0	1893
1/12	99.9	071.3	1895
1/13		071.3	1895
1/14	99.9	065.0	1891
1/15	99.9	060.6	1762
1/16	99.9	102.7	2148
1/17	99.9	127.0	2145
1/18	99.9	103.4	2158
1/19	99.9	058.8	2157
1/20	99.9	177.0	2135

Geometric Mean = 100.136

Standard Deviation is 1.417

STATION: El Paso City/County Health Dept (directional)

START MONTH: February STOP MONTH: February

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
2/2	38.6	169.1	0006
2/5	88.6	069.0	0014
2/8	63.7	128.2	0022
2/11	60.7	N.D.	0022
2/14	91.3	N.D.	0022
2/17	41.1	N.D.	0022
2/20	25.4	N.D.	0022
2/23	74.4	N.D.	0022
2/26	72.2	096.4	0303

Geometric Mean = 109.582
Standard Deviation is 1.469

STATION: El Paso City/County Health Dept (directional)

START MONTH: March STOP MONTH: March

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
3/1	54.3	075.5	0311
3/4	28.3	104.4	0319
3/7	36.6	121.6	0325
3/10	27.0	059.1	0334
3/13	53.6	N.D.	0334
3/16	40.1	N.D.	0334
3/19	35.6	105.9	0357
3/22		N.D.	0357
3/25		N.D.	0357
3/28	30.2	107.8	0364
3/31	48.2	N.D.	0364

Geometric Mean = 92.992
Standard Deviation is 1.314

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FORT CARSON FUGITIVE DUST GENERATION AND TRANSPORT STUDY: LESSO--ETC(U)
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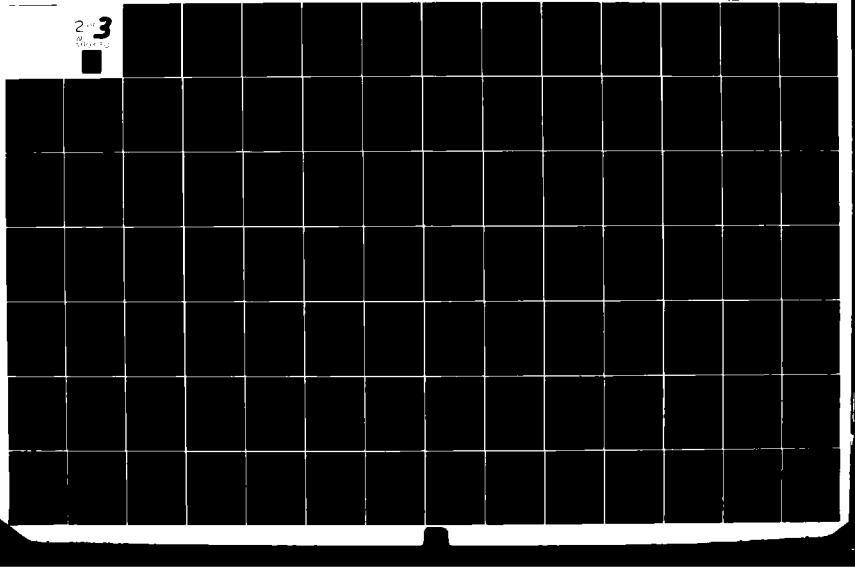

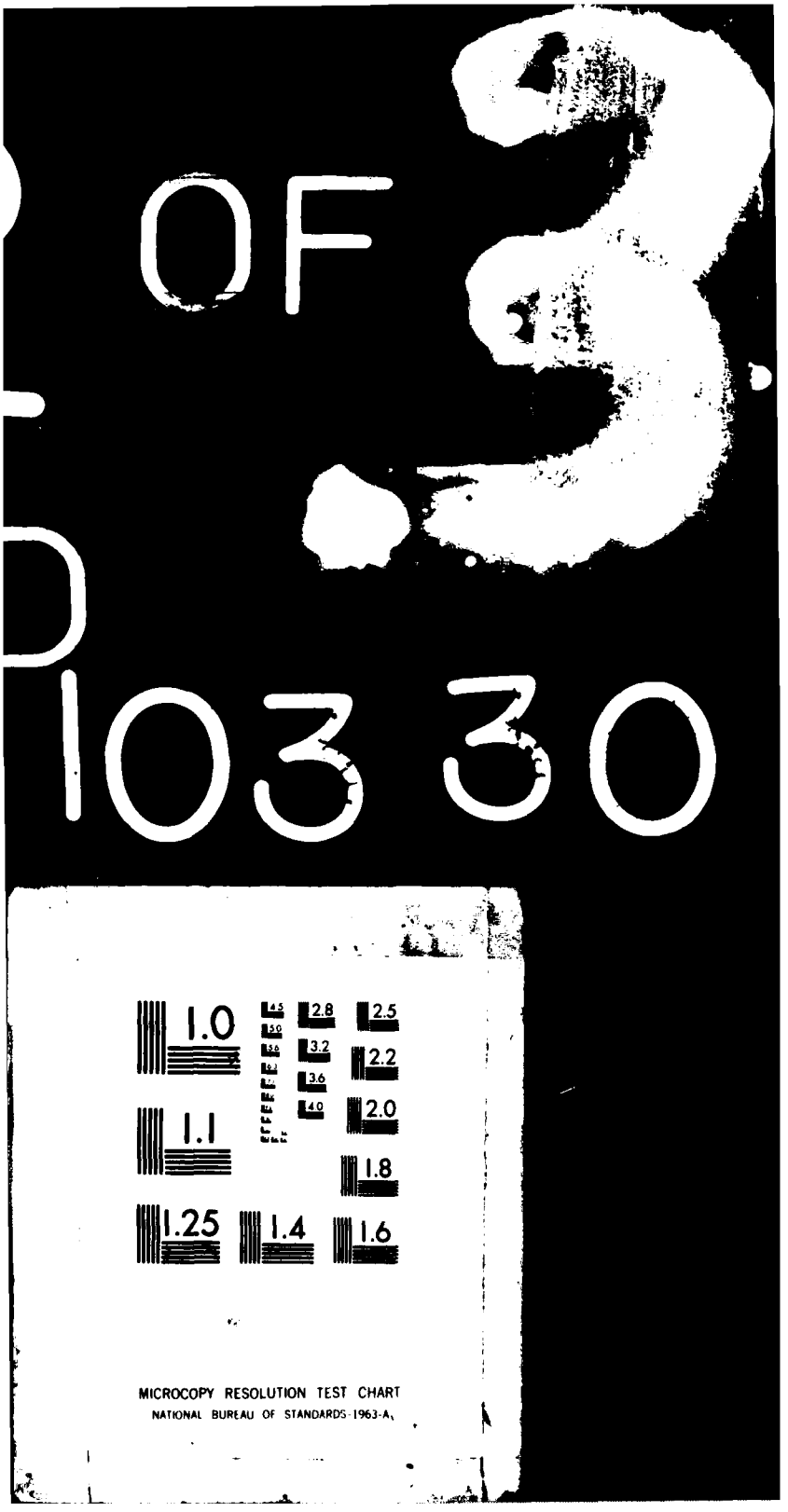
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STATION: El Paso City/County Health Dept (directional)

START MONTH: April STOP MONTH: April

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
4/3	03.8	N.D.	0364
4/7		N.D.	0364
4/10		N.D.	0364
4/13		N.D.	0364
4/16	11.9	N.D.	0364
4/18	94.9	N.D.	0364
4/21	57.4	N.D.	0364
4/24	61.5	119.2	0509
4/27	26.6	107.5	0501
4/30	73.0	N.D.	0501

Geometric Mean = 113.199
Standard Deviation is 1.076

STATION: El Paso City/County Health Dept (directional)

START MONTH: May STOP MONTH: May

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
5/3	18.8	062.3	0485
5/6		062.3	0485
5/8	17.0	123.8	0481
5/12	25.4	048.0	0570
5/15	09.4	N.D.	0570
5/18	95.9	N.D.	0570
5/22	60.2	N.D.	0570
5/24	72.7	N.D.	0570
5/27	78.8	N.D.	0570
5/30	63.0	057.5	0647

Geometric Mean = 66.761
Standard Deviation is 1.435

STATION: El Paso City/County Health Dept (directional)

START MONTH: June STOP MONTH: June

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
6/2	99.9	N.D.	0647
6/5		N.D.	0647
6/8		N.D.	0647
6/11		N.D.	0647
6/14		N.D.	0647
6/17		N.D.	0647
6/20	37.9	104.7	0749
6/23	31.7	090.1	3590
6/26	45.1	083.6	3611
6/29	24.1	064.4	3617

Geometric Mean = 84.419
Standard Deviation is 1.225

STATION: El Paso City/County Health Dept (directional)

START MONTH: July STOP MONTH: July

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
7/2	25.6	060.1	3627
7/5	31.2	098.3	3635
7/8	19.9	074.4	3645
7/12	16.3	082.9	3651
7/14	23.7	069.0	3654
7/18	31.0	075.2	0763
7/20	23.2	059.0	1088
7/23	19.0	083.2	1096
7/26	47.8	114.5	1104
7/29	26.4	061.0	1113

Geometric Mean = 76.063
Standard Deviation is 1.243

STATION: El Paso City/County Health Dept (directional)

START MONTH: August STOP MONTH: August

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
8/1	61.6	046.5	1120
8/4		046.5	1120
8/7	99.9	N.D.	1120
8/10		N.D.	1120
8/13		N.D.	1120
8/16	19.8	087.6	1051
8/19	37.5	073.4	1063
8/22	16.2	015.9	1068
8/25	08.1	098.0	1078
8/28	34.7	057.2	1084
8/31	20.0	097.0	1151

Geometric Mean = 57.542
Standard Deviation is 1.826

STATION: El Paso City/County Health Dept (directional)

START MONTH: September STOP MONTH: September

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
9/3	35.4	062.5	1159
9/6		N.D.	1159
9/9	32.2	086.0	1177
9/12	19.6	107.8	1185
9/15	29.9	097.2	1447
9/18	23.6	087.2	1450
9/21	22.0	086.6	1458
9/24	14.6	060.9	1466
9/27	51.1	107.8	1474
9/30	17.2	104.1	1482

Geometric Mean = 87.172
Standard Deviation is 1.241

STATION: El Paso City/County Health Dept (directional)

START MONTH: October STOP MONTH: October

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
10/3	29.9	139.3	1489
10/6	28.2	109.9	1502
10/9	19.7	103.9	1606
10/12	33.7	144.2	1637
10/15	18.5	115.7	1628
10/18	40.4	N.D.	1628
10/21	30.9	N.D.	1628
10/24	12.4	N.D.	1628
10/27	18.7	N.D.	1628
10/30	41.2	137.5	1596

Geometric Mean = 124.077
Standard Deviation is 1.150

STATION: El Paso City/County Health Dept (directional)

START MONTH: November STOP MONTH: November

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
11/2	13.7	183.1	1592
11/5	28.7	169.6	1588
11/8	17.4	132.5	1428
11/11	40.0	047.3	1749
11/14	46.0	113.8	1676
11/17	56.7	068.5	1804
11/20	20.2	109.3	1811
11/24	55.2	059.7	1789
11/26	25.1	101.2	1792
11/30	18.1	122.3	1800

Geometric Mean = 102.052
Standard Deviation is 1.555

STATION: El Paso City/County Health Dept (directional)

START MONTH: December STOP MONTH: December

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
12/2	30.8	034.2	1775
12/5		034.2	1775
12/8	26.9	068.1	1782
12/11	25.9	099.2	1787
12/14	46.0	161.8	1988
12/17	07.9	151.1	1978
12/20	29.2	123.3	1989
12/23		123.3	1989
12/26		123.3	1989
12/29		N.D.	1989

Geometric Mean = 89.327
Standard Deviation is 1.820

STATION: El Paso City/County Health Dept (directional)

START MONTH: January STOP MONTH: January

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
1/1		N.D.	1989
1/5	27.8	143.1	1765
1/7	22.4	168.9	1925
1/10	33.4	169.9	1896
1/14	13.9	079.9	1900
1/16	30.2	147.9	2147

Geometric Mean = 137.149
Standard Deviation is 1.366

STATION: Security Fire Dept

START MONTH: February STOP MONTH: February

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
2/1		N.D.	
2/2	99.9	085.8	0005
2/3	99.9	102.2	0008
2/4	99.9	088.5	0009
2/5	99.9	041.1	0010
2/6	99.9	052.5	0016
2/7	99.9	057.0	0011
2/8	99.9	054.8	0019
2/9	99.9	072.1	0023
2/10	99.9	056.8	0025
2/11		056.8	0025
2/12	99.9	067.4	0139
2/13	99.9	081.4	0029
2/14	99.9	065.9	0035
2/15		N.D.	0035
2/16		N.D.	0035
2/17	99.9	051.9	0041
2/18	99.9	051.9	0046
2/19	99.9	068.4	0045
2/20	99.9	091.2	0047
2/21	99.9	121.6	0289
2/22		N.D.	0289
2/23	99.9	123.2	0290
2/24	99.9	057.6	0293
2/25	99.9	060.0	0298
2/26	99.9	89.8	299
2/27	99.9	073.6	0304
2/28	99.9	058.9	0306

Geometric Mean = 69.270
Standard Deviation is 1.328

STATION: Security Fire Dept

START MONTH: March STOP MONTH: March

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
3/1	99.9	107.9	0308
3/2	99.9	048.0	0312
3/3	99.9	054.8	0314
3/4	99.9	080.1	0315
3/5		080.1	0315
3/6	99.9	029.2	0321
3/7	99.9	063.9	0322
3/8	99.9	077.2	0326
3/9	99.9	100.8	0328
3/10	99.9	040.9	0331
3/11	99.9	064.8	0332
3/12	99.9	041.8	0333
3/13	99.9	035.4	0339
3/14	99.9	030.8	0342
3/15	99.9	051.6	0344
3/16	99.9	094.0	0346
3/17	99.9	097.8	0350
3/18	99.9	096.7	0351
3/19	99.9	062.4	0352
3/20	99.9	077.0	0359
3/21		N.D.	0359
3/22		N.D.	0359
3/23		N.D.	0359
3/24		N.D.	0359
3/25		N.D.	0359
3/26		N.D.	0359
3/27		N.D.	0359
3/28		N.D.	0359
3/29		N.D.	0359
3/30		N.D.	0359
3/31		N.D.	0359

Geometric Mean = 61.998
Standard Deviation is 1.504

STATION: Security Fire Dept

START MONTH: April STOP MONTH: April

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
4/1		N.D.	0359
4/2		N.D.	0359
4/3		N.D.	0359
4/4		N.D.	0359
4/5		N.D.	0359
4/6		N.D.	0359
4/7		N.D.	0359
4/8		N.D.	0359
4/9		N.D.	0359
4/10		N.D.	0359
4/11		N.D.	0359
4/12		N.D.	0359
4/13		N.D.	0359
4/14		N.D.	0359
4/15		N.D.	0359
4/16	99.9	040.3	0406
4/17	99.9	063.5	0375
4/18	99.9	045.0	0378
4/19		045.0	0378
4/20	99.9	085.7	0520
4/21	99.9	032.5	0516
4/22		032.5	0516
4/23	99.9	043.0	0514
4/24	69.9	061.8	0510
4/25	99.9	090.4	0507
4/26	99.9	104.9	0505
4/27	99.9	109.2	0503
4/28	99.9	064.0	0500
4/29	99.9	020.1	0499
4/30	99.9	015.1	0498

Geometric Mean = 49.349
Standard Deviation is 1.784

STATION: Security Fire Dept

START MONTH: May STOP MONTH: May

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
5/1	99.9	018.1	0492
5/2	99.9	052.3	0490
5/3	99.9	035.2	0488
5/4	99.9	040.3	0484
5/5		040.3	0484
5/6		040.3	0484
5/7		040.3	0484
5/8		040.3	0484
5/9		040.3	0484
5/10	99.9	049.1	0563
5/11	99.9	051.7	0565
5/12	99.9	044.4	0567
5/13	99.9	065.6	0571
5/14		065.6	0571
5/15	99.9	082.4	0572
5/16	99.9	090.4	0577
5/17	99.9	056.5	0579
5/18	99.9	033.8	0581
5/19	99.9	036.0	0585
5/20		036.0	0585
5/21		036.0	0585
5/22	99.9	054.1	0594
5/23	99.9	057.8	0586
5/24		057.8	0586
5/25	99.9	051.1	0587
5/26	99.9	045.8	0599
5/27	99.9	023.1	0600
5/28		023.1	0600
5/29		023.1	0600
5/30	99.9	060.8	0651
5/31	99.9	035.7	0602

Geometric Mean = 43.251
Standard Deviation is 1.443

STATION: Security Fire Dept

START MONTH: June STOP MONTH: June

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
6/1		035.7	0602
6/2	99.9	044.1	3565
6/3	99.9	030.2	3567
6/4		030.2	3567
6/5	99.9	033.4	3569
6/6	99.9	037.7	3572
6/7		037.7	3572
6/8	99.9	050.1	3585
6/9	99.9	058.9	3586
6/10	99.9	062.5	3587
6/11		062.5	3587
6/12	99.9	066.4	3589
6/13	99.9	074.1	3568
6/14		074.1	3568
6/15	99.9	064.3	3564
6/16	99.9	063.2	3588
6/17	99.9	054.0	3595
6/18		054.0	3595
6/19	99.9	065.0	3598
6/20	99.9	059.0	3596
6/21	99.9	077.9	3599
6/22	99.9	070.6	3600
6/23	99.9	079.9	3604
6/24	99.9	055.8	3605
6/25	99.9	060.2	3607
6/26	99.9	055.6	3609
6/27	99.9	059.8	3612
6/28	99.9	032.9	3615
6/29	99.9	040.8	3618
6/30	99.9	041.8	3620

Geometric Mean = 52.298
Standard Deviation is 1.343

STATION: Security Fire Dept

START MONTH: July STOP MONTH: July

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
7/1	99.9	047.4	3621
7/2	99.9	045.4	3622
7/3	99.9	059.4	3629
7/4	99.9	050.9	3630
7/5	99.9	066.2	3632
7/6	99.9	060.5	3636
7/7	99.9	073.8	3638
7/8	99.9	074.0	3639
7/9	99.9	040.3	3640
7/10		040.3	3640
7/11	99.9	052.9	3647
7/12	99.9	056.7	3642
7/13	99.9	065.0	3650
7/14	99.9	073.8	3658
7/15	99.9	058.0	3660
7/16	99.9	045.9	3661
7/17	99.9	049.7	3662
7/18	99.9	062.0	0790
7/19	99.9	042.7	0765
7/20	99.9	041.6	0767
7/21	99.9	041.6	1090
7/22	99.9	035.3	1091
7/23	99.9	048.0	1092
7/24	99.9	059.3	1098
7/25	99.9	066.7	1100
7/26		066.7	1100
7/27	99.9	082.7	1103
7/28	99.9	086.9	1107
7/29		N.D.	1107
7/30	99.9	057.9	1109
7/31	99.9	037.9	1115

Geometric Mean = 54.754
Standard Deviation is 1.273

STATION: Security Fire Dept

START MONTH: August STOP MONTH: August

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
8/1	99.9	039.5	1118
8/2	99.9	030.4	1121
8/3	99.9	019.6	1123
8/4	99.9	037.9	1125
8/5	99.9	048.1	1127
8/6	99.9	043.3	1136
8/7	99.9	N.D.	
8/8		N.D.	
8/9	99.9	049.4	0863
8/10	99.9	053.5	1145
8/11	99.9	053.5	1045
8/12	99.9	043.8	1142
8/13	99.9	041.9	1143
8/14	99.9	057.4	1046
8/15	99.9	058.9	1048
8/16	99.9	053.8	1052
8/17	99.9	060.0	1055
8/18	99.9	050.0	1056
8/19	99.9	057.5	1057
8/20	99.9	048.4	1058
8/21	09.9	055.7	1064
8/22	99.9	050.6	1067
8/23	99.9	043.6	1070
8/24	99.9	057.7	1072
8/25	99.9	042.2	1075
8/26	99.9	050.1	1076
8/27	99.9	057.3	1077
8/28	99.9	041.2	1083
8/29	99.9	036.4	1086
8/30	99.9	049.8	1146
8/31	99.9	063.0	1148

Geometric Mean = 46.926
Standard Deviation is 1.272

STATION: Security Fire Dept

START MONTH: September STOP MONTH: September

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
9/1	99.9	067.2	1152
9/2	99.9	062.9	1153
9/3	99.9	041.2	1155
9/4	99.9	041.9	1156
9/5	99.9	054.2	1162
9/6	99.9	048.8	1164
9/7	99.9	078.4	1169
9/8	99.9	042.7	1171
9/9	99.9	054.4	1172
9/10	99.9	056.9	1174
9/11	99.9	069.6	1188
9/12		069.6	1188
9/13	99.9	059.9	1433
9/14	99.9	064.4	1182
9/15	99.9	082.3	1188
9/16	99.9	102.3	1189
9/17	99.9	079.2	1190
9/18	99.9	113.0	1191
9/19	99.9	037.2	1193
9/20	99.9	049.2	1453
9/21	99.9	059.3	1455
9/22	99.9	071.3	1459
9/23	99.9	061.1	1460
9/24	99.9	036.1	1461
9/25	99.9	036.9	1468
9/26	99.9	050.0	1469
9/27	99.9	049.4	1471
9/28	99.9	080.1	1475
9/29	99.9	071.3	1477
9/30	99.9	080.5	1479

Geometric Mean = 59.814

Standard Deviation is 1.342

STATION: Security Fire Dept

START MONTH: October STOP MONTH: October

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
10/1	99.9	062.4	1480
10/2	99.9	056.0	1485
10/3	99.9	085.3	1488
10/4	99.9	092.6	1491
10/5	99.9	076.3	1493
10/6	99.9	083.3	1495
10/7	99.9	083.3	1497
10/8	99.9	048.0	1498
10/9	99.9	077.8	1499
10/10	99.9	102.5	1418
10/11	99.9	092.4	1392
10/12		092.4	1392
10/13	99.9	100.2	1636
10/14	99.9	074.5	1635
10/15	99.9	079.7	1634
10/16	99.9	094.2	1487
10/17	99.9	087.1	1625
10/18		N.D.	1625
10/19	99.9	091.9	1621
10/20		N.D.	1621
10/21		N.D.	1621
10/22		N.D.	1621
10/23		N.D.	1621
10/24		N.D.	1621
10/25		N.D.	1621
10/26		N.D.	1621
10/27		N.D.	1621
10/28		N.D.	1621
10/29		N.D.	1621
10/30		N.D.	1621
10/31		N.D.	1621
Geometric Mean =	80.774		
Standard Deviation is	1.224		

STATION: Security Fire Dept

START MONTH: November STOP MONTH: November

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
11/1		N.D.	1621
11/2	99.9	059.5	1726
11/3	99.9	054.8	1611
11/4	99.9	083.1	1600
11/5	99.9	085.9	1599
11/6	99.9	093.2	1421
11/7	99.9	086.9	1423
11/8	99.9	089.3	1425
11/9	99.9	065.8	1429
11/10	99.9	029.2	1681
11/11	99.9	031.8	1682
11/12	99.9	027.0	1684
11/13	99.9	066.6	1686
11/14		066.6	1686
11/15		066.6	1686
11/16	99.9	132.6	1802
11/17	99.9	072.2	1807
11/18		072.2	1807
11/19	99.9	035.8	1810
11/20	99.9	037.7	1597
11/21	99.9	047.1	1809
11/22	99.9	058.7	1815
11/23		058.7	1815
11/24	99.9	049.3	1816
11/25	99.9	046.5	1818
11/26	99.9	032.9	1819
11/27	99.9	067.2	1794
11/28		067.2	1794
11/29	99.9	096.2	1796
11/30	99.9	064.4	1798

Geometric Mean = 59.299
Standard Deviation is 1.479

STATION: Security Fire Dept

START MONTH: December STOP MONTH: December

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
12/1	99.9	046.5	1769
12/2		046.5	1769
12/3	99.9	086.7	1772
12/4	99.9	045.6	1777
12/5		045.6	1777
12/6		045.6	1777
12/7		045.6	1777
12/8		045.6	1777
12/9	99.9	070.1	1779
12/10	99.9	058.3	1781
12/11	99.9	094.0	1780
12/12	99.9	066.9	1750
12/13		066.9	1750
12/14	99.9	102.2	1986
12/15	99.9	089.1	1754
12/16	99.9	098.5	1985
12/17	99.9	088.8	1984
12/18	99.9	028.6	1977
12/19	99.9	046.2	1981
12/20	99.9	154.7	1972
12/21		154.7	1972
12/22	99.9	076.0	1992
12/23		076.0	1992
12/24		076.0	1992
12/25		076.0	1992
12/26		076.0	1992
12/27		076.0	1992
12/28		N.D.	1992
12/29		N.D.	1992
12/30	99.9	037.8	1763
12/31		037.8	1763

Geometric Mean = 65.360
Standard Deviation is 1.506

STATION: Security Fire Dept

START MONTH: January STOP MONTH: January

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
1/1		N.D.	1763
1/2		N.D.	1763
1/3		N.D.	1763
1/4	99.9	073.3	1761
1/5	99.9	101.9	1760
1/6	99.9	091.9	1923
1/7	99.9	116.4	1922
1/8	99.9	129.9	1759
1/9	99.9	093.2	1758
1/10	99.9	111.4	1898
1/11	99.9	094.8	1894
1/12	99.9	073.6	1892
1/13		073.6	1892
1/14	99.9	057.6	1902
1/15	99.9	027.9	1905
1/16	99.9	032.0	2144
1/17	99.9	068.6	2146
1/18	99.9	055.4	2159
1/19	99.9	058.1	2152
1/20	99.9	122.6	2151

Geometric Mean = 75.108
Standard Deviation is 1.550

STATION: Security Fire Dept (directional)

START MONTH: February STOP MONTH: February

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
2/2		N.D.	0003
2/5	79.9	038.2	0004
2/8	59.1	091.4	0020
2/11	45.8	081.5	0133
2/14	57.5	074.8	0036
2/17	36.8	089.7	0044
2/20	31.5	N.D.	0044
2/23	59.5	N.D.	0044
2/26	67.1	N.D.	0044

Geometric Mean = 71.808
Standard Deviation is 1.436

STATION: Security Fire Dept (directional)

START MONTH: March STOP MONTH: March

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
3/1	59.0	N.D.	0044
3/4	15.9	131.3	0316
3/7	31.6	137.4	0323
3/10	24.5	092.7	0330
3/13	22.2	062.4	0338
3/16	21.2	113.5	0347
3/19	14.1	163.8	0353
3/22		N.D.	0353
3/25		N.D.	0353
3/28	34.6	084.2	0363
3/31	23.2	082.8	0367

Geometric Mean = 103.847
Standard Deviation is 1.377

STATION: Security Fire Dept (directional)

START MONTH: April STOP MONTH: April

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
4/3	35.8	100.9	0373
4/6	79.8	101.8	0374
4/9		N.D.	0374
4/12		N.D.	0374
4/16	26.8	099.9	0407
4/18	22.0	084.7	0377
4/21	28.2	089.5	0517
4/24	24.2	114.2	0511
4/27	27.0	125.3	0502
4/30		N.D.	

Geometric Mean = 101.542
Standard Deviation is 1.143

STATION: Security Fire Dept (directional)

START MONTH: May STOP MONTH: May

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
5/3	34.0	060.0	0487
5/6		060.0	0487
5/9		060.0	0487
5/12	24.0	074.7	0568
5/15	21.8	088.7	0576
5/18	24.9	050.1	0582
5/22	40.2	059.4	0588
5/25	40.3	061.5	0595
5/27	31.3	029.9	0601
5/30	29.7	042.7	0652

Geometric Mean = 56.549
Standard Deviation is 1.347

STATION: Security Fire Dept (directional)

START MONTH: June STOP MONTH: June

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
6/2	12.5	N.D.	0652
6/5	29.2	N.D.	0652
6/8	28.6	N.D.	0652
6/12	40.5	089.1	3593
6/15	40.7	080.5	3594
6/17	99.9	N.D.	3594
6/20		N.D.	3594
6/23	42.2	N.D.	3594
6/26	36.4	N.D.	3594
6/29	25.1	056.8	3619

Geometric Mean = 74.132
Standard Deviation is 1.266

STATION: Security Fire Dept (directional)

START MONTH: July STOP MONTH: July

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
7/2	50.5	057.0	3623
7/5	35.0	073.8	3633
7/8	35.0	057.8	3641
7/11	18.2	079.0	3649
7/14	30.9	057.8	3659
7/17	19.8	070.5	3663
7/20	24.1	041.3	0766
7/23	15.8	093.7	1093
7/27	18.6	N.D.	1093
7/29	17.8	N.D.	1093

Geometric Mean = 64.589
Standard Deviation is 1.287

STATION: Security Fire Dept (directional)

START MONTH: August STOP MONTH: August

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
8/1	19.4	N.D.	1093
8/4	36.2	N.D.	1093
8/7	21.2	065.0	1129
8/10	21.9	076.7	1137
8/13	35.4	N.D.	1137
8/16	43.6	N.D.	1137
8/19	23.4	N.D.	1137
8/22	24.3	N.D.	1137
8/25	16.3	062.2	1074
8/28	25.9	057.2	1082
8/31	16.2	N.D.	1082

Geometric Mean = 64.897
Standard Deviation is 1.131

STATION: Security Fire Dept (directional)

START MONTH: September STOP MONTH: September

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
9/3	22.8	N.D.	1082
9/6	19.7	074.4	1165
9/9	45.8	077.9	1173
9/13	46.8	078.9	1434
9/15	45.8	098.2	1183
9/18	51.1	096.3	1192
9/21	25.9	092.2	1456
9/24	30.4	031.2	1462
9/27		N.D.	1462
9/30		N.D.	1462

Geometric Mean = 74.248
Standard Deviation is 1.489

STATION: Security Fire Dept (directional)

START MONTH: October STOP MONTH: October

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
10/3	49.8	110.2	0999
10/6	35.2	085.8	1496
10/9	50.4	096.4	1500
10/13	77.4	N.D.	1500
10/15	59.3	N.D.	1500
10/18	73.4	N.D.	1500
10/21	49.4	066.9	1618
10/24	25.4	073.3	1625
10/27	44.2	085.2	1619
10/30	49.1	083.8	1606

Geometric Mean = 84.945
Standard Deviation is 1.179

STATION: Security Fire Dept (directional)

START MONTH: November STOP MONTH: November

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
11/2	30.1	142.4	1617
11/5	84.6	121.4	1598
11/8	20.6	158.6	1426
11/11	51.3	102.8	1683
11/14		102.8	1683
11/17	36.7	093.8	1808
11/20	52.1	069.4	1812
11/24	31.2	043.3	1817
11/26	40.2	079.0	1820
11/29	17.7	121.2	1797

Geometric Mean = 97.570
Standard Deviation is 1.463

STATION: Security Fire Dept (directional)

START MONTH: December STOP MONTH: December

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
12/2	25.7	081.3	1771
12/5		081.3	1771
12/8		081.3	1771
12/11	34.5	133.3	1770
12/14	26.9	153.6	1987
12/17	42.4	086.7	1982
12/20	36.4	169.4	1993
12/23		169.4	1993
12/26		169.4	1993
12/29		N.D.	1993

Geometric Mean = 118.584
Standard Deviation is 1.421

STATION: Security Fire Dept (directional)

START MONTH: January STOP MONTH: January

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
1/1		N.D.	1993
1/4	29.2	109.1	1764
1/7	16.0	165.3	1921
1/10	28.4	129.3	1899
1/14	59.8	054.8	1890
1/16	42.8	085.2	2149

Geometric Mean = 101.714
Standard Deviation is 1.525

STATION: North Boundary (directional)

START MONTH: February STOP MONTH: February

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
2/2	09.3	N.D.	
2/5	00.1	N.D.	
2/8	09.4	N.D.	
2/11	01.9	N.D.	
2/14	02.5	N.D.	
2/17	08.1	N.D.	
2/20	08.9	N.D.	
2/23	07.9	N.D.	
2/26	04.7	N.D.	

No data selected

STATION: North Boundary (directional)

START MONTH: March STOP MONTH: March

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
3/1	01.6	N.D.	2102
3/4	24.6	040.2	0197
3/7	39.5	052.9	0203
3/11	43.1	025.9	0218
3/13	36.0	080.6	0221
3/16	43.4	009.6	0229
3/19	47.1	056.7	0238
3/22	70.2	031.1	0244
3/25	32.2	037.9	0247
3/29	53.5	044.7	0248
3/31	73.4	N.D.	0248

Geometric Mean = 36.915
Standard Deviation is 1.833

STATION: North Boundary (directional)

START MONTH: April STOP MONTH: April

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
4/4	95.0	N.D.	0248
4/7		N.D.	0248
4/9		N.D.	0248
4/12		N.D.	0248
4/15	38.9	N.D.	0248
4/18	19.8	N.D.	0248
4/21	94.2	N.D.	0248
4/24	99.9	N.D.	0248
4/27	99.6	N.D.	0248
4/30	79.9	N.D.	0248

No data selected

STATION: North Boundary (directional)

START MONTH: May STOP MONTH: May

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
5/4	25.8	045.7	0440
5/6		045.7	0440
5/9		045.7	0440
5/12		045.7	0440
5/15	99.9	N.D.	0440
5/18	99.9	N.D.	0440
5/22		N.D.	
5/25		N.D.	
5/28		N.D.	
5/31		N.D.	

Geometric Mean = 45.700
Standard Deviation is 1.000

STATION: North Boundary (directional)

START MONTH: June STOP MONTH: June

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
6/2		N.D.	
6/5		N.D.	
6/8		N.D.	
6/11		N.D.	
6/14		N.D.	
6/17		N.D.	
6/20		N.D.	
6/23	55.1	038.0	0773
6/26	56.0	047.6	0754
6/29	23.5	031.0	0855

Geometric Mean = 38.275
Standard Deviation is 1.239

STATION: North Boundary (directional)

START MONTH: July STOP MONTH: July

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
7/2	42.9	028.4	0848
7/5	50.2	046.9	0811
7/8	26.6	036.0	0849
7/11	21.6	045.2	0785
7/14	24.7	040.7	0808
7/17	31.2	046.8	0810
7/20		N.D.	0810
7/23	28.0	050.9	0770
7/26	46.5	063.9	0862
7/29	37.9	028.3	0874

Geometric Mean = 41.684
Standard Deviation is 1.308

STATION: North Boundary (directional)

START MONTH: August STOP MONTH: August

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
8/1	58.8	020.4	1037
8/4	65.2	036.4	0952
8/7	27.6	084.3	0978
8/10	22.9	049.7	0981
8/13	49.7	045.0	0979
8/16	43.6	055.2	0980
8/19	45.6	048.6	0906
8/22	22.1	075.2	0994
8/25	07.9	053.0	0905
8/28	55.1	031.0	0996
8/31	20.8	048.2	1025

Geometric Mean = 46.574
Standard Deviation is 1.481

STATION: North Boundary (directional)

START MONTH: September STOP MONTH: September

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
9/3	84.0	N.D.	1025
9/6	99.9	N.D.	1025
9/9	99.9	N.D.	1025
9/12	99.9	N.D.	1025
9/15		N.D.	1025
9/19	49.2	033.3	1327
9/21	47.1	054.6	1299
9/24	29.4	020.5	1300
9/27	63.0	071.5	1325
9/30	31.8	055.2	1374

Geometric Mean = 43.006
Standard Deviation is 1.645

STATION: North Boundary (directional)

START MONTH: October STOP MONTH: October

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
10/3	35.7	082.0	1373
10/6	34.6	052.0	1397
10/9	38.1	052.1	1395
10/12	35.1	081.2	1396
10/15	32.1	082.7	0982
10/18	52.6	N.D.	0982
10/21	49.9	N.D.	0982
10/24	21.6	040.1	1642
10/27		N.D.	1642
10/30		N.D.	1642

Geometric Mean = 62.538
Standard Deviation is 1.365

STATION: North Boundary (directional)

START MONTH: November STOP MONTH: November

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
11/1	33.6	073.3	1730
11/5	48.8	087.3	1718
11/8	31.2	071.4	1702
11/11	63.6	014.8	1729
11/14	58.3	055.6	1839
11/17	56.7	028.9	1840
11/20	34.6	023.5	1841
11/23		023.5	1841
11/26	30.1	046.8	1875
11/29	23.6	079.1	1878

Geometric Mean = 43.118
Standard Deviation is 1.868

STATION: North Boundary (directional)

START MONTH: December STOP MONTH: December

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
12/2	20.3	028.9	1913
12/5	45.6	010.6	1877
12/8	19.9	032.2	1912
12/11	28.0	033.0	1969
12/14	29.6	028.7	1970
12/17	28.7	031.8	1994
12/20	35.9	029.7	2015
12/23		029.7	2015
12/26	40.6	027.7	2017
12/29	70.0	014.9	2016
Geometric Mean =	25.317		
Standard Deviation is	1.465		

STATION: North Boundary (directional)

START MONTH: January STOP MONTH: January

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
1/2	58.3	036.2	2030
1/5	26.1	029.7	2054
1/7	32.6	061.4	1919
1/10	35.3	038.4	2055
1/14	20.8	013.2	1908
1/16	34.5	046.5	2070
1/19	21.5	022.8	2102
Geometric Mean =	32.146		
Standard Deviation is	1.653		

STATION: Community Services Bldg

START MONTH: February STOP MONTH: February

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
2/1	99.9	066.7	0094
2/2	99.9	077.8	0098
2/3	99.9	068.6	0099
2/4	99.9	040.6	0101
2/5		N.D.	
2/6	99.9	022.5	0113
2/7	99.9	023.4	0114
2/8		N.D.	0114
2/9		N.D.	0114
2/10		N.D.	0114
2/11	99.9	037.6	0127
2/12		N.D.	0127
2/13		N.D.	0127
2/14		N.D.	0127
2/15		N.D.	0127
2/16	99.9	023.2	0027
2/17	99.9	042.2	0144
2/18	99.9	029.5	0142
2/19	99.9	022.4	0145
2/20	99.9	046.1	0157
2/21	99.9	062.6	0159
2/22		N.D.	
2/23	99.9	099.2	0163
2/24	99.9	046.5	0167
2/25	99.9	022.6	0172
2/26	99.9	057.4	0175
2/27	99.9	045.8	0178
2/28	99.9	034.6	0179

Geometric Mean = 41.308
Standard Deviation is 1.592

STATION: Community Services Bldg

START MONTH: March STOP MONTH: March

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
3/1	99.9	063.4	0186
3/2	99.9	016.6	0187
3/3	99.9	017.5	0192
3/4	99.9	020.0	0196
3/5		020.0	0196
3/6	99.9	015.3	0202
3/7	99.9	034.5	0204
3/8	99.9	048.3	0210
3/9	99.9	028.7	0211
3/10		028.7	0211
3/11	99.9	012.1	0213
3/12	99.9	019.7	0224
3/13	99.9	017.5	0222
3/14		017.5	0222
3/15	99.9	032.4	0227
3/16	99.9	045.8	0231
3/17	99.9	033.8	0232
3/18	99.9	048.8	0235
3/19	99.9	034.1	0237
3/20		N.D.	0237
3/21		N.D.	0237
3/22		N.D.	0237
3/23		N.D.	0237
3/24		N.D.	0237
3/25		N.D.	0237
3/26		N.D.	0237
3/27		N.D.	0237
3/28		N.D.	0237
3/29		N.D.	0237
3/30		N.D.	0237
3/31		N.D.	0237

Geometric Mean = 26.285
Standard Deviation is 1.596

STATION: Community Services Bldg

START MONTH: April STOP MONTH: April

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
4/1		N.D.	0237
4/2		N.D.	0237
4/3		N.D.	0237
4/4		N.D.	0237
4/5		N.D.	0237
4/6		N.D.	0237
4/7		N.D.	0237
4/8		N.D.	0237
4/9		N.D.	0237
4/10		N.D.	0237
4/11		N.D.	0237
4/12		N.D.	0237
4/13		N.D.	0237
4/14		N.D.	0237
4/15	99.9	032.2	0398
4/16	99.9	033.5	0404
4/17	99.9	049.1	0409
4/18		049.1	0409
4/19	99.9	039.7	0463
4/20	99.9	078.7	0475
4/21		N.D.	0475
4/22		N.D.	0475
4/23	99.9	055.5	0467
4/24	99.9	047.2	0461
4/25	99.9	086.9	0416
4/26	99.9	055.7	0419
4/27	99.9	083.9	0424
4/28	99.9	045.4	0427
4/29	99.9	012.7	0431
4/30	99.9	034.1	0434

Geometric Mean = 45.636
Standard Deviation is 1.633

STATION: Community Services Bldg

START MONTH: May STOP MONTH: May

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
5/1		034.1	0434
5/2		034.1	0434
5/3		034.1	0434
5/4		034.1	0434
5/5		34.1	0434
5/6		34.1	0434
5/7		034.1	0434
5/8		034.1	0434
5/9		N.D.	0434
5/10	99.9	046.7	0444
5/11	99.9	023.0	0448
5/12	99.9	043.9	0451
5/13	99.9	041.3	0458
5/14		041.3	0458
5/15	99.9	072.7	0603
5/16	99.9	102.5	0453
5/17	99.9	042.0	0607
5/18	99.9	042.2	0452
5/19	99.9	023.1	0619
5/20		023.1	0619
5/21		023.1	0619
5/22	99.9	034.8	0624
5/23	99.9	049.7	0626
5/24	99.9	036.1	0637
5/25	99.9	038.1	0639
5/26	99.9	029.6	0650
5/27	99.9	016.6	0655
5/28	99.9	015.3	0665
5/29		015.3	0665
5/30	99.9	041.8	0656
5/31		041.8	0656

Geometric Mean = 34.299
Standard Deviation is 1.501

STATION: Community Services Bldg

START MONTH: June STOP MONTH: June

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
6/1	99.9	010.7	0660
6/2	99.9	028.1	0661
6/3	99.9	017.1	0663
6/4		017.1	0663
6/5	99.9	031.4	0732
6/6	99.9	029.5	0736
6/7		029.5	0736
6/8	99.9	021.4	0738
6/9		021.4	0738
6/10		021.4	0738
6/11		021.4	0738
6/12	99.9	063.0	0664
6/13	99.9	048.1	0740
6/14		048.1	0740
6/15	99.9	048.4	0745
6/16	99.9	038.1	0748
6/17		038.1	0748
6/18		038.1	0748
6/19		038.1	0748
6/20	99.9	061.3	0758
6/21	99.9	080.0	0759
6/22	99.9	064.2	0760
6/23	99.9	067.3	0775
6/24	99.9	033.5	0776
6/25	99.9	050.2	0850
6/26	99.9	050.3	0838
6/27	99.9	046.5	0842
6/28	99.9	044.7	0841
6/29	99.9	034.8	0840
6/30	99.9	029.0	0826

Geometric Mean = 35.344
Standard Deviation is 1.601

STATION: Community Services Bldg

START MONTH: July STOP MONTH: July

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
7/1	99.9	032.2	0825
7/2	99.9	032.3	0823
7/3	99.9	035.7	0839
7/4	99.9	034.2	0827
7/5	99.9	028.4	0824
7/6	99.9	066.3	0828
7/7	99.9	057.1	0793
7/8	99.9	045.8	0820
7/9	99.9	023.2	0792
7/10	99.9	044.3	0791
7/11	99.9	039.9	0801
7/12	99.9	054.8	0777
7/13	99.9	051.6	0778
7/14	99.9	064.0	0804
7/15	99.9	040.5	0802
7/16	99.9	033.7	0803
7/17	99.9	040.5	0787
7/18	99.9	052.5	0859
7/19	99.9	040.8	0769
7/20	99.9	035.1	0877
7/21	99.9	039.3	0885
7/22	99.9	020.9	0892
7/23	99.9	014.5	0886
7/24	99.9	047.5	0887
7/25	99.9	082.6	0888
7/26	99.9	079.6	0889
7/27	99.9	084.8	0890
7/28	99.9	058.8	0891
7/29	99.9	031.9	0873
7/30	99.9	036.2	1041
7/31	99.9	046.5	1038

Geometric Mean = 41.884
Standard Deviation is 1.484

STATION: Community Services Bldg

START MONTH: August STOP MONTH: August

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
8/1	99.9	037.9	0945
8/2	99.9	033.6	0950
8/3	99.9	012.3	0949
8/4	99.9	031.3	0946
8/5	99.9	033.2	0948
8/6	99.9	033.3	0947
8/7	99.9	058.7	0960
8/8	99.9	N.D.	
8/9	99.9	052.5	0963
8/10	99.9	062.7	0964
8/11	99.9	055.4	0961
8/12	99.9	037.7	0965
8/13	99.9	037.4	0966
8/14	99.9	047.4	0985
8/15	99.9	061.2	0986
8/16		N.D.	0986
8/17	99.9	066.1	0991
8/18	99.9	056.8	0899
8/19	99.9	060.9	0911
8/20		N.D.	0911
8/21	99.9	041.1	0910
8/22	99.9	044.9	0912
8/23	99.9	043.7	0997
8/24	99.9	055.1	0998
8/25	99.9	044.5	0914
8/26	99.9	039.4	0915
8/27	99.9	035.9	0917
8/28	99.9	030.9	0916
8/29	99.9	030.9	1027
8/30	99.9	036.2	1004
8/31	99.9	047.5	1010
Geometric Mean =	41.812		
Standard Deviation is	1.405		

STATION: Community Services Bldg

START MONTH: September STOP MONTH: September

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
9/1	99.9	046.5	1005
9/2	99.9	042.5	1009
9/3	99.9	020.4	1008
9/4	99.9	023.7	1007
9/5	99.9	049.5	1036
9/6	99.9	052.6	1006
9/7	99.9	073.6	1031
9/8	99.9	038.6	1332
9/9	99.9	031.2	1328
9/10	99.9	027.8	1329
9/11	99.9	098.4	1331
9/12	99.9	054.1	1330
9/13	99.9	052.6	1033
9/14	99.9	060.7	1303
9/15	99.9	054.8	1305
9/16	99.9	069.3	1304
9/17	99.9	041.6	1362
9/18	99.9	081.5	1355
9/19	99.9	036.4	1354
9/20	99.9	036.4	1360
9/21	99.9	045.7	1359
9/22	99.9	040.4	1358
9/23	99.9	031.4	1356
9/24	99.9	019.2	1357
9/25	99.9	025.7	1375
9/26	99.9	038.6	1389
9/27	99.9	038.6	1390
9/28	99.9	062.0	1391
9/29	99.9	065.1	1337
9/30		N.D.	1337

Geometric Mean = 43.394

Standard Deviation is 1.498

STATION: Community Services Bldg

START MONTH: October STOP MONTH: October

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
10/1		N.D.	1337
10/2	99.9	068.7	1377
10/3	99.9	054.7	1378
10/4	99.9	091.0	1379
10/5	99.9	077.1	1406
10/6	99.9	057.9	1407
10/7	99.9	041.0	1336
10/8	99.9	031.4	1436
10/9	99.9	062.7	1435
10/10	99.9	057.3	1394
10/11	99.9	069.9	1416
10/12	99.9	106.0	1365
10/13	99.9	064.7	1415
10/14	99.9	058.9	1414
10/15	99.9	054.1	1412
10/16	99.9	083.0	1413
10/17	99.9	103.1	1656
10/18	99.9	072.6	1650
10/19	99.9	069.1	1651
10/20	99.9	063.4	1655
10/21	99.9	015.3	1652
10/22	99.9	011.9	1654
10/23	99.9	032.7	1653
10/24	99.9	031.4	1539
10/25	99.9	035.9	1723
10/26	99.9	029.6	1657
10/27	99.9	044.0	1720
10/28	99.9	032.1	1557
10/29	99.9	022.4	1743
10/30	99.9	045.2	1738
10/31	99.9	056.3	1744

Geometric Mean = 48.871
Standard Deviation is 1.689

STATION: Community Services Bldg

START MONTH: November STOP MONTH: November

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
11/1	99.9	078.2	1736
11/2	99.9	047.4	1708
11/3	99.9	045.9	1707
11/4	99.9	063.5	1706
11/5	99.9	080.0	1713
11/6	99.9	078.2	1727
11/7	99.9	064.0	1694
11/8	99.9	061.1	1696
11/9	99.9	064.2	1697
11/10	99.9	020.0	1671
11/11	99.9	012.4	1672
11/12	99.9	030.7	1689
11/13		N.D.	
11/14		N.D.	
11/15	99.9	064.2	1832
11/16	99.9	139.4	1833
11/17	99.9	096.6	1834
11/18	99.9	038.7	1835
11/19	99.9	020.3	1836
11/20	99.9	035.8	1837
11/21	99.9	027.0	1838
11/22	99.9	033.0	1854
11/23		033.0	1854
11/24	99.9	030.8	1853
11/25	99.9	029.8	1849
11/26	99.9	050.7	1850
11/27	99.9	075.0	1852
11/28	99.9	074.7	1851
11/29	99.9	075.5	1883
11/30	99.9	053.0	1882

Geometric Mean = 47.642

Standard Deviation is 1.728

STATION: Community Services Bldg

START MONTH: December STOP MONTH: December

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
12/1	99.9	045.5	1874
12/2	99.9	029.3	1868
12/3		N.D.	
12/4	99.9	029.7	1674
12/5	99.9	017.8	1746
12/6		017.8	1746
12/7		017.8	1746
12/8	99.9	036.9	1983
12/9	99.9	032.9	1722
12/10	99.9	055.6	1711
12/11	99.9	080.3	1968
12/12	99.9	050.3	2042
12/13	99.9	081.0	2004
12/14	99.9	083.7	2003
12/15	99.9	077.7	2002
12/16	99.9	049.2	2000
12/17	99.9	049.4	2001
12/18	99.9	041.0	1910
12/19	99.9	048.1	2013
12/20	99.9	070.9	2011
12/21	99.9	086.5	2061
12/22	99.9	027.5	2012
12/23		027.5	2012
12/24		027.5	2012
12/25		027.5	2012
12/26	99.9	052.9	2065
12/27	99.9	086.1	2063
12/28	99.9	044.4	2064
12/29	99.9	030.1	2026
12/30	99.9	022.9	1885
12/31		022.9	1885

Geometric Mean = 40.538
Standard Deviation is 1.653

STATION: Community Services Bldg

START MONTH: January STOP MONTH: January

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
1/1		022.9	1885
1/2	99.9	029.3	1889
1/3	99.9	091.1	2033
1/4	99.9	053.4	2037
1/5	99.9	118.8	2036
1/6	99.9	082.8	2035
1/7	99.9	182.2	2050
1/8		182.2	2050
1/9	99.9	127.6	1756
1/10	99.9	122.0	2049
1/11	99.9	093.4	2034
1/12	99.9	054.3	2060
1/13		054.3	2060
1/14	99.9	030.8	1903
1/15		N.D.	1903
1/16	99.9	028.3	2067
1/17	99.9	091.7	2071
1/18	99.9	043.6	2104
1/19	99.9	047.6	2138
1/20	99.9	048.4	2103
1/21	99.9	071.2	2137
1/22		071.2	2137
1/23	99.9	106.1	2106

Geometric Mean = 67.858
Standard Deviation is 1.810

STATION: Rod Gun Club

START MONTH: February STOP MONTH: February

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
2/1	99.9	021.2	0095
2/2	99.9	016.7	0091
2/3	99.9	029.4	0100
2/4	99.9	015.7	0103
2/5	99.9	010.3	0104
2/6	99.9	012.6	0111
2/7	99.9	021.5	0115
2/8	99.9	020.5	0118
2/9	99.9	033.0	0124
2/10		N.D.	0124
2/11	99.9	022.0	0128
2/12	99.9	036.0	0132
2/13	99.9	030.2	0123
2/14	99.9	040.0	0138
2/15	99.9	028.9	0026
2/16	99.9	015.4	0028
2/17	99.9	013.7	0135
2/18	99.9	010.0	0136
2/19	99.9	006.0	0149
2/20	99.9	008.3	0151
2/21	99.9	008.8	0158
2/22		N.D.	
2/23	99.9	023.7	0165
2/24		N.D.	0165
2/25	99.9	026.0	0171
2/26	99.9	037.1	0173
2/27		037.1	0173
2/28	99.9	023.1	0181

Geometric Mean = 19.389
Standard Deviation is 1.699

STATION: Rod Gun Club

START MONTH: March STOP MONTH: March

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
3/1		N.D.	
3/2	99.9	019.0	0188
3/3	99.9	016.9	0189
3/4	99.9	014.7	0195
3/5		014.7	0195
3/6	99.9	014.9	0201
3/7	99.9	013.3	0205
3/8	99.9	022.1	0206
3/9	99.9	016.6	0212
3/10	99.9	018.6	0217
3/11	99.9	014.6	0215
3/12	99.9	021.5	0223
3/13		N.D.	
3/14		N.D.	
3/15		N.D.	
3/16		N.D.	
3/17		N.D.	
3/18		N.D.	
3/19		N.D.	
3/20		N.D.	
3/21		N.D.	
3/22		N.D.	
3/23		N.D.	
3/24		N.D.	
3/25		N.D.	
3/26		N.D.	
3/27		N.D.	
3/28		N.D.	
3/29		N.D.	
3/30		N.D.	
3/31		N.D.	
Geometric Mean =	16.767		
Standard Deviation is	1.184		

STATION: Rod Gun Club

START MONTH: April STOP MONTH: April

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
4/1		N.D.	
4/2		N.D.	
4/3		N.D.	
4/4		N.D.	
4/5		N.D.	
4/6		N.D.	
4/7		N.D.	
4/8		N.D.	
4/9		N.D.	
4/10		N.D.	
4/11		N.D.	
4/12		N.D.	
4/13		N.D.	
4/14		N.D.	
4/15	99.9	036.0	0397
4/16	99.9	031.8	0405
4/17	99.9	069.2	0408
4/18	99.9	026.6	0478
4/19	99.9	067.3	0465
4/20		067.3	0465
4/21		N.D.	0465
4/22		N.D.	0465
4/23	99.9	033.8	0469
4/24	99.9	039.2	0414
4/25	99.9	063.4	0415
4/26	99.9	060.9	0418
4/27	99.9	040.2	0420
4/28	99.9	028.5	0426
4/29	99.9	013.6	0430
4/30	99.9	008.9	0433

Geometric Mean = 36.252
Standard Deviation is 1.847

STATION: Rod Gun Club

START MONTH: May STOP MONTH: May

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
5/1		008.9	0433
5/2		008.9	0433
5/3		008.9	0433
5/4	99.9	009.7	0441
5/5	99.9	009.0	0442
5/6		009.0	0442
5/7		009.0	0442
5/8		009.0	0442
5/9		N.D.	0442
5/10	99.9	024.4	0445
5/11	99.9	024.2	0447
5/12	99.9	014.4	0460
5/13	99.9	020.0	0459
5/14	99.9	023.0	0457
5/15	99.9	061.2	0604
5/16	99.9	070.2	0606
5/17	99.9	031.0	0609
5/18	99.9	031.6	0612
5/19	99.9	028.5	0618
5/20	99.9	021.5	0617
5/21		N.D.	0617
5/22		N.D.	0617
5/23		N.D.	0617
5/24		N.D.	0617
5/25	99.9	024.4	0638
5/26	99.9	027.7	0649
5/27	99.9	013.5	0654
5/28	99.9	016.0	0645
5/29		016.0	0645
5/30	99.9	036.1	0657
5/31	99.9	020.0	0646

Geometric Mean = 18.396
Standard Deviation is 1.832

STATION: Rod Gun Club

START MONTH: June STOP MONTH: June

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
6/1	99.9	009.0	0728
6/2	99.9	022.1	0727
6/3	99.9	020.4	0662
6/4	99.9	011.5	0731
6/5	99.9	012.7	0733
6/6	99.9	018.3	0735
6/7		018.3	0735
6/8	99.9	019.8	0737
6/9		019.8	0737
6/10	99.9	045.5	0739
6/11		045.5	0739
6/12	99.9	050.1	0743
6/13	99.9	031.4	0741
6/14		031.4	0741
6/15	99.9	032.7	0746
6/16	99.9	032.5	0751
6/17	99.9	043.8	0752
6/18		043.8	0752
6/19		043.8	0752
6/20		043.8	0752
6/21	99.9	045.9	0774
6/22	99.9	055.0	0761
6/23	99.9	061.0	0753
6/24	99.9	029.9	0755
6/25	99.9	048.4	0756
6/26	99.9	047.9	0837
6/27	99.9	030.8	0846
6/28	99.9	048.1	0845
6/29	99.9	026.2	0843
6/30	99.9	017.9	0844
Geometric Mean =	30.114		
Standard Deviation is	1.657		

STATION: Rod Gun Club

START MONTH: July STOP MONTH: July

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
7/1	99.9	021.3	0833
7/2	99.9	023.4	0832
7/3	99.9	024.8	0847
7/4	99.9	026.5	0831
7/5	99.9	048.2	0830
7/6	99.9	044.7	0829
7/7	99.9	052.6	0816
7/8	99.9	046.6	0819
7/9	99.9	034.4	0817
7/10	99.9	039.4	0818
7/11	99.9	031.7	0782
7/12	99.9	063.5	0781
7/13	99.9	070.2	0780
7/14	99.9	041.4	0794
7/15	99.9	034.7	0779
7/16	99.9	036.5	0805
7/17	99.9	033.7	0788
7/18	99.9	047.1	0861
7/19	99.9	025.4	0858
7/20	99.9	031.0	0875
7/21	99.9	035.1	0929
7/22	99.9	026.0	0931
7/23	99.9	033.5	0932
7/24	99.9	035.1	0933
7/25		N.D.	0933
7/26	99.9	058.9	0869
7/27	99.9	052.9	0930
7/28	99.9	043.4	0871
7/29	99.9	038.2	0872
7/30	99.9	031.5	1043
7/31	99.9	022.7	1039

Geometric Mean = 36.685

Standard Deviation is 1.367

STATION: Rod Gun Club

START MONTH: August STOP MONTH: August

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
8/1	99.9	024.7	0940
8/2	99.9	022.0	0870
8/3	99.9	007.9	0941
8/4	99.9	014.4	0944
8/5	99.9	019.3	0943
8/6	99.9	023.3	0942
8/7	99.9	021.5	0954
8/8	99.9	024.1	0953
8/9	99.9	028.1	0955
8/10	99.9	027.3	0956
8/11	99.9	023.7	0959
8/12	99.9	022.0	0958
8/13	99.9	016.5	0957
8/14	99.9	034.2	0987
8/15	99.9	049.8	0988
8/16	99.9	053.3	0989
8/17	99.9	041.0	0993
8/18	99.9	046.2	0900
8/19	99.9	045.9	0918
8/20	99.9	031.5	0925
8/21	99.9	032.3	0924
8/22	99.9	025.6	0923
8/23	99.9	025.5	0922
8/24	99.9	030.6	0913
8/25	99.9	025.8	0919
8/26	99.9	024.7	0921
8/27		N.D.	0921
8/28	99.9	025.1	0903
8/29	99.9	017.4	1018
8/30	99.9	018.3	0904
8/31	99.9	023.8	1023

Geometric Mean = 25.638
Standard Deviation is 1.481

STATION: Rod Gun Club

START MONTH: September STOP MONTH: September

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
9/1	99.9	028.4	1022
9/2	99.9	027.6	1021
9/3	99.9	021.0	1019
9/4	99.9	012.2	0920
9/5	99.9	025.3	1000
9/6	99.9	037.3	1020
9/7	99.9	052.8	1035
9/8	99.9	027.7	1312
9/9	99.9	028.0	1316
9/10	99.9	016.8	1313
9/11	99.9	070.9	1314
9/12	99.9	042.9	1315
9/13	99.9	044.1	1308
9/14	99.9	036.3	1034
9/15	99.9	024.9	1309
9/16	99.9	058.6	1307
9/17	99.9	029.2	1361
9/18	99.9	058.8	1353
9/19	99.9	030.2	1352
9/20	99.9	019.4	1347
9/21	99.9	036.6	1348
9/22		N.D.	1348
9/23	99.9	028.2	1351
9/24	99.9	019.7	1350
9/25	99.9	009.2	1340
9/26	99.9	024.3	1369
9/27	99.9	028.6	1338
9/28	99.9	024.3	1339
9/29		N.D.	1339
9/30		N.D.	1339

Geometric Mean = 28.961
Standard Deviation is 1.587

STATION: Rod Gun Club

START MONTH: October STOP MONTH: October

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
10/1		N.D.	1339
10/2	99.9	031.5	1401
10/3	99.9	035.2	1370
10/4	99.9	078.3	1402
10/5	99.9	053.3	1372
10/6	99.9	044.7	1371
10/7	99.9	032.9	1405
10/8	99.9	025.6	1403
10/9	99.9	037.0	1404
10/10	99.9	028.1	1437
10/11	99.9	039.1	1444
10/12	99.9	072.3	1431
10/13	99.9	054.0	1443
10/14	99.9	038.5	1432
10/15	99.9	034.3	1441
10/16	99.9	039.8	1442
10/17	99.9	053.7	1658
10/18	99.9	053.1	1659
10/19	99.9	040.7	1661
10/20	99.9	040.0	1662
10/21	99.9	005.9	1430
10/22	99.9	008.1	1663
10/23	99.9	014.4	1538
10/24	99.9	014.7	1665
10/25	99.9	006.2	1610
10/26	99.9	006.2	1664
10/27	99.9	013.0	1721
10/28	99.9	006.6	1660
10/29	99.9	015.9	1741
10/30	99.9	026.3	1742
10/31	99.9	034.5	1735

Geometric Mean = 26.125
Standard Deviation is 2.148

STATION: Rod Gun Club

START MONTH: November STOP MONTH: November

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
11/1	99.9	036.9	1733
11/2	99.9	023.1	1677
11/3	99.9	026.0	1678
11/4	99.9	051.3	1725
11/5	99.9	067.2	1709
11/6	99.9	040.1	1728
11/7	99.9	030.2	1704
11/8	99.9	028.6	1698
11/9	99.9	021.9	1699
11/10	99.9	019.0	1670
11/11	99.9	011.7	1669
11/12	99.9	007.2	1668
11/13	99.9	009.4	1700
11/14		N.D.	1700
11/15	99.9	027.5	1843
11/16	99.9	036.5	1844
11/17	99.9	025.9	1845
11/18	99.9	026.3	1846
11/19	99.9	012.2	1847
11/20	99.9	005.9	1848
11/21	99.9	023.7	1860
11/22	99.9	008.8	1859
11/23		008.8	1859
11/24	99.9	015.7	1858
11/25	99.9	014.9	1857
11/26	99.9	013.0	1856
11/27	99.9	012.1	1876
11/28	99.9	013.8	1855
11/29	99.9	013.4	1873
11/30	99.9	010.1	1872

Geometric Mean = 18.479
Standard Deviation is 1.839

STATION: Rod Gun Club

START MONTH: December STOP MONTH: December

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
12/1	99.9	020.1	1871
12/2	99.9	016.1	1693
12/3	99.9	015.1	1916
12/4	99.9	023.2	1691
12/5		N.D.	1691
12/6		N.D.	1691
12/7		N.D.	1691
12/8		N.D.	1691
12/9		N.D.	1691
12/10		N.D.	1691
12/11		N.D.	1691
12/12		N.D.	1691
12/13	99.9	008.3	2010
12/14	99.9	008.9	1917
12/15	99.9	012.4	2009
12/16	99.9	015.6	2005
12/17	99.9	019.2	2008
12/18		N.D.	2008
12/19		N.D.	2008
12/20	99.9	006.7	2007
12/21	99.9	012.0	2006
12/22	99.9	010.1	2021
12/23		010.1	2021
12/24		010.1	2021
12/25		010.1	2021
12/26	99.9	013.8	2020
12/27	99.9	008.1	2018
12/28	99.9	015.8	2019
12/29	99.9	011.8	2027
12/30	99.9	008.3	1887
12/31		008.3	1887

Geometric Mean = 11.882

Standard Deviation is 1.407

STATION: Rod Gun Club

START MONTH: January STOP MONTH: January

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
1/1		008.3	1887
1/2	99.9	011.7	2029
1/3	99.9	023.2	2032
1/4	99.9	018.8	2041
1/5	99.9	016.1	2040
1/6	99.9	023.3	2051
1/7	99.9	013.1	2052
1/8	99.9	010.6	2038
1/9	99.9	024.8	2039
1/10	99.9	024.4	1927
1/11	99.9	016.8	2059
1/12	99.9	015.1	2058
1/13		015.1	2058
1/14	99.9	018.1	2057
1/15	99.9	003.6	2056
1/16	99.9	005.3	2069

Geometric Mean = 13.818
Standard Deviation is 1.734

STATION: Tank Table VII

START MONTH: February STOP MONTH: February

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
2/1	99.9	017.4	0090
2/2	99.9	022.3	0092
2/3	99.9	014.3	0102
2/4	99.9	026.7	0096
2/5	99.9	014.6	0112
2/6	99.9	016.6	0106
2/7		N.D.	0106
2/8	99.9	023.3	0120
2/9	99.9	017.6	0121
2/10	99.9	024.4	0122
2/11	99.9	023.2	0130
2/12		023.2	0130
2/13	99.9	039.7	0141
2/14		N.D.	
2/15	99.9	036.2	0033
2/16		036.2	0033
2/17	99.9	023.3	0148
2/18	99.9	018.7	0143
2/19	99.9	016.3	0150
2/20	99.9	026.7	0156
2/21		N.D.	
2/22	99.9	043.3	0154
2/23	99.9	029.5	0164
2/24	99.9	054.1	0168
2/25	99.9	032.6	0170
2/26	99.9	040.0	0177
2/27		040.0	0177
2/28	99.9	026.5	0180

Geometric Mean = 25.729
Standard Deviation is 1.444

STATION: Tank Table VII

START MONTH: March STOP MONTH: March

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
3/1	99.9	027.1	0183
3/2	99.9	026.7	0190
3/3	99.9	015.1	0191
3/4	99.9	018.9	0194
3/5		018.9	0194
3/6	99.9	015.7	0200
3/7		015.7	0200
3/8	99.9	008.2	0209
3/9	99.9	033.0	0207
3/10	99.9	061.5	0216
3/11	99.9	018.2	0214
3/12	99.9	024.6	0225
3/13	99.9	025.7	0226
3/14	99.9	027.3	0219
3/15	99.9	029.0	0228
3/16	99.9	035.4	0230
3/17	99.9	011.8	0233
3/18	99.9	031.3	0234
3/19	99.9	026.0	0236
3/20	99.9	051.6	0242
3/21	99.9	042.6	0240
3/22	99.9	032.2	0239
3/23	99.9	032.9	0245
3/24	99.9	028.6	0246
3/25	99.9	081.7	0198
3/26	99.9	012.9	0199
3/27	99.9	045.1	0382
3/28	99.9	051.5	0383
3/29	99.9	044.1	0385
3/30	99.9	035.9	0386
3/31	99.9	058.1	0388
Geometric Mean =	28.019		
Standard Deviation is	1.692		

STATION: Tank Table VII

START MONTH: April STOP MONTH: April

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
4/1	99.9	012.6	0389
4/2	99.9	012.3	0391
4/3	99.9	037.5	0392
4/4	99.9	030.2	0393
4/5		N.D.	0393
4/6		N.D.	0393
4/7		N.D.	0393
4/8		N.D.	0393
4/9		N.D.	0393
4/10		N.D.	0393
4/11		N.D.	0393
4/12		N.D.	0393
4/13		N.D.	0393
4/14		N.D.	0393
4/15	99.9	026.6	0399
4/16		026.6	0399
4/17	99.9	015.1	0479
4/18	99.9	018.1	0480
4/19	99.9	042.2	0476
4/20		042.2	0476
4/21		N.D.	0476
4/22		N.D.	0476
4/23	99.9	068.4	0466
4/24	99.9	037.4	0413
4/25	99.9	059.7	0412
4/26	99.9	039.3	0417
4/27	99.9	042.0	0423
4/28	99.9	023.4	0428
4/29	99.9	007.8	0425
4/30		007.8	0425

Geometric Mean = 25.561
Standard Deviation is 1.917

STATION: Tank Table VII

START MONTH: May STOP MONTH: May

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
5/1		007.8	0425
5/2		007.8	0425
5/3		007.8	0425
5/4		007.8	0425
5/5		007.8	0425
5/6		007.8	0425
5/7		007.8	0425
5/8	99.9	012.4	0435
5/9		N.D.	0435
5/10	99.9	015.0	0443
5/11	99.9	015.8	0446
5/12	99.9	021.9	0450
5/13		021.9	0450
5/14	99.9	029.5	0456
5/15	99.9	063.4	0455
5/16	99.9	063.5	0608
5/17	99.9	028.1	0610
5/18	99.9	031.7	0615
5/19	99.9	039.2	0620
5/20	99.9	017.7	0614
5/21		017.7	0614
5/22	99.9	026.7	0616
5/23	99.9	030.7	0627
5/24	99.9	035.4	0635
5/25	99.9	043.1	0636
5/26	99.9	062.7	0628
5/27	99.9	034.1	0653
5/28	99.9	020.4	0644
5/29		020.4	0644
5/30	99.9	048.5	0658
5/31	99.9	030.0	0659

Geometric Mean = 21.081
Standard Deviation is 1.996

STATION: Tank Table VII

START MONTH: June STOP MONTH: June

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
6/1	99.9	023.4	0726
6/3	99.9	011.5	0729
6/2		023.4	0729
6/4		011.5	0729
6/5		011.5	0729
6/6	99.9	016.1	0734
6/7		016.1	0734
6/8	99.9	031.2	0730
6/9		031.2	0730
6/10		031.2	0730
6/11		031.2	0730
6/12	99.9	048.3	0742
6/13	99.9	031.2	0744
6/14		031.2	0744
6/15	99.9	030.0	0747
6/16	99.9	046.7	0750
6/17		046.7	0750
6/18		046.7	0750
6/19		046.7	0750
6/20		N.D.	0750
6/21		N.D.	0750
6/22		N.D.	0750
6/23		N.D.	0750
6/24		N.D.	0750
6/25		N.D.	0750
6/26		N.D.	0750
6/27		N.D.	0750
6/28		N.D.	0750
6/29		N.D.	0750
6/30	99.9	017.1	0856

Geometric Mean = 26.213
Standard Deviation is 1.638

STATION: Tank Table VII

START MONTH: July STOP MONTH: July

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
7/1	99.9	019.4	0834
7/2	99.9	017.4	0806
7/3	99.9	021.9	0807
7/4		N.D.	0807
7/5	99.9	087.7	0857
7/6	99.9	101.7	0809
7/7	99.9	100.4	0815
7/8	99.9	043.5	0814
7/9	99.9	022.3	0813
7/10	99.9	031.5	0812
7/11	99.9	053.7	0800
7/12	99.9	080.4	0795
7/13	99.9	081.0	0798
7/14	99.9	029.2	0797
7/15		029.2	0797
7/16	99.9	018.1	0796
7/17	99.9	018.8	0784
7/18	99.9	050.3	0789
7/19	99.9	037.3	0836
7/20	99.9	044.2	0876
7/21	99.9	073.4	0864
7/22	99.9	065.2	0865
7/23	99.9	074.4	0866
7/24	99.9	130.7	0867
7/25	99.9	115.7	0868
7/26	99.9	178.1	0882
7/27	99.9	053.4	0881
7/28	99.9	052.4	0883
7/29	99.9	038.5	0884
7/30	99.9	022.5	1042
7/31	99.9	019.8	1040
Geometric Mean =	46.039		
Standard Deviation is	1.953		

STATION: Tank Table VII

START MONTH: August STOP MONTH: August

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
8/1	99.9	025.4	0939
8/2	99.9	017.7	0934
8/3	99.9	008.8	0935
8/4	99.9	023.4	0938
8/5	99.9	020.0	0936
8/6	99.9	023.2	0937
8/7	99.9	020.3	0967
8/8	99.9	027.6	0968
8/9	99.9	025.9	0969
8/10	99.9	022.2	0970
8/11	99.9	019.9	0971
8/12	99.9	017.0	0973
8/13		N.D.	0973
8/14	99.9	027.2	0972
8/15	99.9	043.6	0984
8/16	99.9	022.9	0990
8/17	99.9	024.9	0860
8/18	99.9	051.3	0983
8/19	99.9	046.4	0898
8/20	99.9	028.4	0897
8/21	99.9	025.4	0896
8/22	99.9	012.4	0895
8/23	99.9	024.2	0894
8/24	99.9	027.6	0893
8/25	99.9	018.4	0928
8/26	99.9	019.8	0937
8/27	99.9	032.8	0902
8/28	99.9	020.4	0901
8/29	99.9	015.2	0926
8/30	99.9	016.1	1017
8/31	99.9	016.5	1011

Geometric Mean = 22.640
Standard Deviation is 1.441

STATION: Tank Table VII

START MONTH: September STOP MONTH: September

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
9/1	99.9	028.9	1016
9/2	99.9	024.3	1015
9/3	99.9	016.8	1014
9/4	99.9	015.7	1012
9/5	99.9	033.3	1032
9/6	99.9	027.8	1013
9/7	99.9	031.9	1030
9/8	99.9	022.3	1324
9/9		N.D.	1324
9/10		N.D.	1324
9/11		N.D.	1324
9/12	99.9	042.8	1321
9/13	99.9	037.2	1322
9/14	99.9	030.3	1298
9/15	99.9	016.5	1323
9/16	99.9	062.5	1297
9/17	99.9	016.3	1368
9/18	99.9	069.5	1306
9/19	99.9	027.0	1311
9/20	99.9	026.4	1343
9/21	99.9	024.8	1310
9/22	99.9	023.1	1344
9/23	99.9	019.2	1346
9/24	99.9	008.4	1345
9/25	99.9	008.6	1334
9/26	99.9	015.0	1363
9/27	99.9	021.7	1333
9/28	99.9	032.2	1367
9/29	99.9	039.8	1366
9/30	99.9	033.9	1335

Geometric Mean = 24.992

Standard Deviation is 1.639

STATION: Tank Table VII

START MONTH: October STOP MONTH: October

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
10/1	99.9	028.7	1387
10/2	99.9	025.1	1388
10/3	99.9	024.8	1380
10/4	99.9	061.5	1381
10/5	99.9	040.5	1386
10/6	99.9	031.2	1385
10/7	99.9	036.9	1383
10/8	99.9	022.2	1382
10/9	99.9	028.4	1438
10/10	99.9	023.4	1440
10/11	99.9	021.9	1439
10/12	99.9	053.2	1411
10/13	99.9	038.2	1445
10/14	99.9	030.5	1410
10/15	99.9	025.8	1409
10/16	99.9	034.9	1408
10/17	99.9	055.4	1649
10/18	99.9	046.2	1648
10/19	99.9	057.4	1643
10/20	99.9	033.9	1645
10/21	99.9	008.2	1644
10/22	99.9	008.3	1647
10/23	99.9	012.4	1646
10/24	99.9	013.0	1543
10/25	99.9	006.1	1630
10/26	99.9	007.4	1583
10/27	99.9	007.9	1573
10/28	99.9	005.7	1562
10/29	99.9	015.9	1745
10/30	99.9	021.6	1739
10/31	99.9	022.7	1740

Geometric Mean = 22.476
Standard Deviation is 1.992

STATION: Tank Table VII

START MONTH: November STOP MONTH: November

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
11/1	99.9	031.8	1716
11/2	99.9	026.0	1673
11/3	99.9	020.6	1679
11/4	99.9	065.4	1680
11/5	99.9	061.2	1712
11/6	99.9	059.8	1705
11/7	99.9	052.4	1695
11/8	99.9	056.3	1701
11/9	99.9	065.0	1724
11/10	99.9	019.4	1715
11/11	99.9	007.5	1714
11/12	99.9	003.1	1667
11/13	99.9	017.3	1703
11/14	99.9	038.4	1831
11/15	99.9	059.3	1830
11/16	99.9	031.9	1829
11/17	99.9	019.9	1825
11/18	99.9	018.2	1826
11/19	99.9	010.0	1823
11/20	99.9	002.7	1828
11/21	99.9	003.0	1867
11/22	99.9	005.8	1866
11/23		N.D.	1866
11/24		N.D.	1866
11/25		N.D.	1866
11/26	99.9	016.2	1865
11/27	99.9	011.5	1864
11/28	99.9	010.6	1863
11/29		N.D.	1863
11/30	99.9	006.7	1862

Geometric Mean = 18.586
Standard Deviation is 2.732

STATION: Tank Table VII

START MONTH: December STOP MONTH: December

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
12/1		N.D.	1862
12/2		N.D.	1862
12/3	99.9	012.1	1861
12/4	99.9	022.5	1734
12/5	99.9	005.5	1870
12/6		005.5	1870
12/7		005.5	1870
12/8		005.5	1870
12/9	99.9	009.1	1869
12/10	99.9	007.2	1710
12/11	99.9	003.2	1976
12/12	99.9	011.3	1975
12/13	99.9	006.4	1999
12/14	99.9	004.2	1995
12/15	99.9	011.0	1998
12/16	99.9	015.7	1996
12/17	99.9	004.1	1997
12/18	99.9	003.9	1911
12/19	99.9	004.1	2014
12/20	99.9	009.5	2066
12/21	99.9	006.4	2062
12/22	99.9	006.4	2025
12/23		006.4	
12/24		006.4	
12/25		006.4	
12/26	99.9	012.9	2024
12/27	99.9	004.9	2022
12/28	99.9	008.8	2023
12/29	99.9	013.8	1884
12/30	99.9	008.3	1886
12/31		008.3	1886

Geometric Mean = 7.271
Standard Deviation is 1.589

STATION: Tank Table VII

START MONTH: January STOP MONTH: January

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
1/1		008.3	1886
1/2	99.9	010.3	1888
1/3	99.9	017.5	2031
1/4	99.9	014.3	2047
1/5	99.9	013.8	2046
1/6	99.9	018.5	2048
1/7	99.9	009.4	2044
1/8	99.9	009.4	2045
1/9	99.9	025.7	1909
1/10	99.9	024.5	2043
1/11	99.9	007.4	1907
1/12	99.9	009.4	1906
1/13		009.4	1906
1,14		009.4	1906
1/15	99.9	002.2	1904
1/16		N.D.	1904
1/17	99.9	017.9	2068
1/18	99.9	021.3	2072
1/19	99.9	012.0	2139
1/20	99.9	008.1	2140
1/21	99.9	005.1	2143
1/22	99.9	021.1	2142
1/23	99.9	014.7	2141

Geometric Mean = 11.556
Standard Deviation is 1.762

STATION: South Boundary (directional)

START MONTH: February STOP MONTH: February

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
2/2	14.9	018.5	0093
2/5	00.3	N.D.	0108
2/8	13.0	020.1	0119
2/11	08.5	050.6	0129
2/14		N.D.	
2/17	16.7	020.5	0147
2/20	37.4	011.2	0152
2/23	02.1	022.5	0166
2/26	10.4	035.1	0176

Geometric Mean = 23.007
Standard Deviation is 1.620

STATION: South Boundary (directional)

START MONTH: March STOP MONTH: March

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
3/1	09.5	022.5	0182
3/4	99.9	022.5	0182
3/8		N.D.	
3/10		N.D.	
3/13		N.D.	
3/16		N.D.	
3/19		N.D.	
3/22		N.D.	
3/25		N.D.	
3/28		N.D.	
3/31		N.D.	

Geometric Mean = 22.500
Standard Deviation is 1.000

STATION: South Boundary (directional)

START MONTH: April STOP MONTH: April

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
4/3		N.D.	
4/6		N.D.	
4/9		N.D.	
4/12		N.D.	
4/15	41.9	022.3	0401
4/18	31.9	024.6	0410
4/21	98.7	N.D.	0410
4/24	59.5	031.6	0411
4/27	94.7	N.D.	0411
4/30		N.D.	0411

Geometric Mean = 25.881
Standard Deviation is 1.197

STATION: South Boundary (directional)

START MONTH: May STOP MONTH: May

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
5/3		N.D.	0411
5/6		N.D.	0411
5/9	99.1	N.D.	0411
5/12	99.9	N.D.	0411
5/15	99.9	N.D.	0411
5/18	99.9	N.D.	0411
5/22	99.9	N.D.	0411
5/24	99.9	N.D.	0411
5/26		N.D.	0411
5/30		N.D.	0411

No data selected

STATION: South Boundary (directional)

START MONTH: June STOP MONTH: June

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
6/2		N.D.	0411
6/5		N.D.	0411
6/8		N.D.	0411
6/11		N.D.	0411
6/14		N.D.	0411
6/17		N.D.	0411
6/20	25.5	054.3	0757
6/23	32.2	051.3	0853
6/26	23.1	026.0	0852
6/29	31.2	019.0	0854

Geometric Mean = 34.250
Standard Deviation is 1.675

STATION: South Boundary (directional)

START MONTH: July STOP MONTH: July

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
7/2	04.8	060.7	0822
7/5	27.0	050.4	0821
7/8	12.4	035.7	0772
7/11	19.1	065.2	0783
7/14	20.4	047.2	0771
7/17	30.5	032.8	0851
7/20		N.D.	
7/23	21.4	084.4	0786
7/26	25.1	081.3	0878
7/29	24.2	049.4	0879

Geometric Mean = 53.738
Standard Deviation is 1.390

STATION: South Boundary (directional)

START MONTH: August STOP MONTH: August

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
8/1	56.1	010.5	0880
8/4	13.0	040.4	0951
8/7	46.6	027.6	0974
8/10	10.0	046.6	0975
8/13	23.2	043.0	0976
8/16	11.2	076.6	0977
8/19	27.5	035.7	0995
8/22	30.0	031.1	0909
8/25	37.4	026.0	0908
8/28	20.5	019.7	0907
8/31	18.2	027.6	1002

Geometric Mean = 31.296
Standard Deviation is 1.668

STATION: South Boundary (directional)

START MONTH: September STOP MONTH: September

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
9/3	29.8	018.7	1026
9/6	27.7	N.D.	1026
9/9	08.2	N.D.	1026
9/12	40.1	045.0	1317
9/15	09.2	061.1	1319
9/18	16.7	042.1	1318
9/21	40.7	023.3	1302
9/24	39.1	015.1	1301
9/27	20.7	038.9	1364
9/30	13.0	048.1	1341

Geometric Mean = 33.054
Standard Deviation is 1.651

STATION: South Boundary (directional)

START MONTH: October STOP MONTH: October

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
10/3	09.9	067.8	1398
10/6	23.3	032.4	1342
10/9	07.8	032.2	1399
10/12	10.7	046.5	1417
10/15	21.9	054.0	1400
10/18	21.7	037.9	1639
10/21	24.7	004.8	1666
10/24	17.2	025.5	1640
10/27	28.7	015.2	1576
10/30	16.8	028.2	1717

Geometric Mean = 28.497
Standard Deviation is 2.122

STATION: South Boundary (directional)

START MONTH: November STOP MONTH: November

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
11/2	35.8	024.6	1732
11/5	15.4	032.3	1731
11/8	15.6	050.2	1690
11/11	08.3	025.0	1692
11/14	12.5	036.4	1822
11/17	18.6	026.0	1823
11/20	18.3	016.0	1824
11/23		016.0	1824
11/26	29.6	020.9	1879
11/29	07.5	N.D.	1879

Geometric Mean = 25.791
Standard Deviation is 1.453

STATION: South Boundary (directional)

START MONTH: December STOP MONTH: December

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
12/3		N.D.	1879
12/5		N.D.	1879
12/8		N.D.	1879
12/11		N.D.	1879
12/14		N.D.	1879
12/17		N.D.	1879
12/20		N.D.	1879
12/23		N.D.	1879
12/26		N.D.	1879
12/29		N.D.	1879

No data selected

STATION: South Boundary (directional)

START MONTH: January STOP MONTH: January

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
1/2		N.D.	1879
1/4		N.D.	1879

No data selected

STATION: Pueblo City/County Health Dept

START MONTH: February STOP MONTH: February

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
2/1	99.9	114.3	0056
2/2	99.9	140.6	0057
2/3	99.9	091.1	0060
2/4	99.9	066.9	0061
2/5		066.9	0061
2/6	99.9	057.4	0063
2/7	99.9	042.8	0064
2/8	99.9	050.5	0065
2/9	99.9	075.5	0066
2/10	99.9	055.7	0068
2/11	99.9	023.7	0069
2/12	99.9	080.5	0070
2/13	99.9	084.6	0072
2/14	99.9	063.3	0073
2/15	99.9	046.2	0074
2/16	99.9	066.6	0076
2/17	99.9	083.7	0077
2/18		083.7	0077
2/19	99.9	089.9	0079
2/20	99.9	081.5	0080
2/21	99.9	099.7	0082
2/22	99.9	122.1	0249
2/23	99.9	120.1	0251
2/24		N.D.	0251
2/25		N.D.	0251
2/26		N.D.	0251
2/27		N.D.	0251
2/28		N.D.	0251
Geometric Mean =	73.367		
Standard Deviation is	1.489		

STATION: Pueblo City/County Health Dept

START MONTH: March STOP MONTH: March

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
3/1	99.9	105.3	0253
3/2	99.9	075.8	0256
3/3	99.9	054.4	0257
3/4	99.9	098.6	0258
3/5		098.6	0258
3/6	99.9	028.0	0260
3/7	99.9	074.1	0261
3/8	99.9	099.8	0263
3/9	99.9	136.0	0264
3/10	99.9	037.9	0265
3/11	99.9	045.2	0267
3/12	99.9	058.9	0268
3/13	99.9	064.1	0270
3/14	99.9	037.7	0271
3/15	99.9	076.5	0272
3/16	99.9	093.5	0273
3/17	99.9	096.1	0275
3/18	99.9	078.9	0276
3/19	99.9	094.6	0277
3/20	99.9	109.8	0279
3/21	99.9	113.2	0280
3/22	99.9	069.2	0281
3/23	99.9	061.3	0283
3/24	99.9	051.7	0284
3/25		N.D.	0284
3/26		N.D.	0284
3/27		N.D.	0284
3/28		N.D.	0284
3/29		N.D.	0284
3/30		N.D.	0284
3/31		N.D.	0284
Geometric Mean =	72.220		
Standard Deviation is	1.492		

STATION: Pueblo City/County Health Dept

START MONTH: April STOP MONTH: April

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
4/1		N.D.	0284
4/2		N.D.	0284
4/3		N.D.	0284
4/4		N.D.	0284
4/5		N.D.	0284
4/6		N.D.	0284
4/7		N.D.	0284
4/8		N.D.	0284
4/9		N.D.	0284
4/10		N.D.	0284
4/11		N.D.	0284
4/12		N.D.	0284
4/13		N.D.	0284
4/14		N.D.	0284
4/15		N.D.	0284
4/16		N.D.	0284
4/17		N.D.	0284
4/18	99.9	057.2	0521
4/19	99.9	060.8	0523
4/20	99.9	113.3	0524
4/21	99.9	113.1	0525
4/22	99.9	057.2	0527
4/23	99.9	060.2	0528
4/24	99.9	073.1	0530
4/25	99.9	145.6	0531
4/26	99.9	190.7	0532
4/27	99.9	066.1	0533
4/28	99.9	094.6	0535
4/29	99.9	034.9	0536
4/30	99.9	013.5	0537
Geometric Mean =	69.708		
Standard Deviation is	1.958		

STATION: Pueblo City/County Health Dept

START MONTH: May STOP MONTH: May

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
5/1	99.9	011.9	0539
5/2	99.9	040.4	0540
5/3	99.9	055.7	0541
5/4	99.9	029.0	0543
5/5	99.9	009.4	0544
5/6	99.9	026.8	0546
5/7	99.9	042.6	0547
5/8	99.9	063.4	0548
5/9	99.9	069.7	0549
5/10		N.D.	0549
5/11	99.9	063.6	0552
5/12	99.9	077.5	0553
5/13	99.9	057.3	0554
5/14	99.9	085.4	0555
5/15	99.9	085.9	0556
5/16	99.9	193.0	0557
5/17	99.9	057.8	0558
5/18	99.9	056.3	0560
5/19	99.9	045.1	0561
5/20	99.9	043.2	0562
5/21	99.9	057.9	0559
5/22		N.D.	0559
5/23	99.9	168.4	0629
5/24	99.9	095.9	0631
5/25	99.9	079.9	0632
5/26	99.9	092.4	0625
5/27	99.9	029.4	0634
5/28		N.D.	0634
5/29		N.D.	0634
5/30		N.D.	0634
5/31		N.D.	0634

Geometric Mean = 53.840
Standard Deviation is 1.979

STATION: Pueblo City/County Health Dept

START MONTH: June STOP MONTH: June

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
6/1	99.9	028.0	0675
6/2	99.9	031.9	0673
6/3	99.9	029.7	0667
6/4	99.9	051.0	0668
6/5		N.D.	0668
6/6	99.9	074.2	0666
6/7	99.9	054.8	0676
6/8	99.9	071.1	0677
6/9	99.9	093.8	0679
6/10	99.9	114.2	0681
6/11	99.9	073.2	0682
6/12	99.9	089.6	0683
6/13	99.9	071.6	0685
6/14	99.9	074.8	0684
6/15	99.9	097.2	0671
6/16	99.9	090.7	0687
6/17	99.9	079.9	0688
6/18	99.9	066.7	0691
6/19	99.9	138.9	0690
6/20		N.D.	0690
6/21		N.D.	0690
6/22	99.9	100.8	0689
6/23	99.9	101.2	0692
6/24	99.9	089.8	0694
6/25	99.9	077.2	0695
6/26	99.9	087.6	0696
6/27	99.9	073.8	0698
6/28	99.9	061.3	0699
6/29	99.9	099.7	0700
6/30	99.9	064.4	0725
Geometric Mean =	72.552		
Standard Deviation is	1.475		

STATION: Pueblo City/County Health Dept

START MONTH: July STOP MONTH: July

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
7/1	99.9	060.9	0724
7/2	99.9	095.5	0723
7/3	99.9	078.8	0721
7/4	99.9	099.0	0720
7/5	99.9	099.8	0718
7/6	99.9	074.5	0717
7/7	99.9	073.8	0716
7/8	99.9	078.3	0715
7/9	99.9	035.8	0713
7/10	99.9	057.9	0712
7/11	99.9	061.2	0711
7/12	99.9	072.9	0709
7/13	99.9	081.9	0708
7/14	99.9	088.3	0707
7/15	99.9	053.1	0706
7/16	99.9	056.2	0702
7/17	99.9	060.1	0705
7/18		060.1	0705
7/19	99.9	052.4	0703
7/20	99.9	058.6	1262
7/21	99.9	037.1	1260
7/22	99.9	033.2	1259
7/23	99.9	039.4	1194
7/24	99.9	075.8	1195
7/25	99.9	106.5	1258
7/26	99.9	091.5	1256
7/27	99.9	103.9	1196
7/28	99.9	085.9	1255
7/29	99.9	058.0	1254
7/30	99.9	051.2	1252
7/31	99.9	055.4	1251

Geometric Mean = 65.757
Standard Deviation is 1.377

STATION: Pueblo City/County Health Dept

START MONTH: August STOP MONTH: August

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
8/1	99.9	067.3	1249
8/2	99.9	042.5	1248
8/3	99.9	026.1	1247
8/4	99.9	047.6	1245
8/5	99.9	050.8	1243
8/6	99.9	059.5	1244
8/7	99.9	063.2	1242
8/8	99.9	074.7	1240
8/9	99.9	069.8	1239
8/10	99.9	078.4	1238
8/11	99.9	066.8	1198
8/12	99.9	057.5	1237
8/13	99.5	105.4	1236
8/14	99.9	084.3	1234
8/15	99.9	101.4	1233
8/16	99.9	083.9	1230
8/17		083.9	1230
8/18		083.9	1230
8/19		083.9	1230
8/20		083.9	1230
8/21	99.9	096.9	1227
8/22	99.9	062.5	1226
8/23	99.9	083.1	1225
8/24	99.9	072.0	1224
8/25	99.9	056.4	1222
8/26	99.9	075.5	1221
8/27	99.9	065.7	1220
8/28	99.9	055.1	1218
8/29	99.9	047.7	1199
8/30	99.9	051.3	1209
8/31	99.9	084.5	1207

Geometric Mean = 67.276
Standard Deviation is 1.340

STATION: Pueblo City/County Health Dept

START MONTH: September STOP MONTH: September

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
9/1	99.9	080.4	1206
9/2	99.9	084.3	120
9/3	99.9	061.7	1200
9/4	99.9	077.8	1216
9/5	99.9	085.5	1212
9/6	99.9	087.3	1214
9/7		N.D.	
9/8	99.9	076.7	1201
9/9	99.9	089.0	1202
9/10	99.9	086.6	1210
9/11	99.9	114.7	1211
9/12	99.9	100.3	1264
9/13	99.9	091.3	1265
9/14	99.9	116.2	1266
9/15	99.9	095.5	1268
9/16	99.9	089.3	1271
9/17	99.9	056.3	1270
9/18	99.9	141.9	1272
9/19	99.9	066.6	1267
9/20	99.9	066.3	1274
9/21	99.9	088.7	1279
9/22		088.7	1279
9/23	99.9	103.0	1276
9/24	99.9	039.0	1275
9/25	99.9	048.8	1278
9/26	99.9	073.3	1281
9/27	99.9	100.0	1284
9/28	99.9	108.4	1282
9/29	99.9	106.0	1285
9/30	99.9	088.3	1286

Geometric Mean = 83.849
Standard Deviation is 1.309

STATION: Pueblo City/County Health Dept

START MONTH: October STOP MONTH: October

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
10/1	99.9	147.7	1536
10/2		N.D.	
10/3		N.D.	
10/4		N.D.	
10/5		N.D.	
10/6		N.D.	
10/7		N.D.	
10/8		N.D.	
10/9		N.D.	
10/10		N.D.	
10/11	99.9	190.5	1289
10/12	99.9	094.9	1293
10/13	99.9	122.3	1291
10/14	99.9	123.6	1288
10/15	99.9	169.7	1295
10/16	99.9	223.3	1587
10/17	99.9	146.2	1586
10/18	99.9	139.5	1584
10/19	99.9	145.7	1582
10/20	99.9	177.1	1581
10/21	99.9	023.7	1579
10/22	99.9	029.1	1578
10/23	99.9	077.4	1577
10/24	99.9	050.8	1575
10/25	99.9	045.4	1572
10/26	99.9	081.7	1571
10/27	99.9	093.9	1570
10/28	99.9	073.7	1568
10/29	99.9	114.0	1567
10/30	99.9	084.9	1565
10/31	99.9	095.5	1564
Geometric Mean =	97.053		
Standard Deviation is	1.797		

STATION: Pueblo City/County Health Dept

START MONTH: November STOP MONTH: November

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
11/1	99.9	117.3	1563
11/2	99.9	128.1	1560
11/3	99.9	068.9	1559
11/4	99.9	097.8	1558
11/5		097.8	1558
11/6	99.9	106.6	1556
11/7	99.9	122.7	1554
11/8	99.9	142.3	1552
11/9	99.9	086.5	1550
11/10	99.9	044.4	1550
11/11	99.9	026.0	1549
11/12	99.9	038.7	1548
11/13	99.9	047.2	1546
11/14		N.D.	1546
11/15		N.D.	1546
11/16	99.9	143.9	1545
11/17	99.9	113.3	1544
11/18	99.9	071.0	1541
11/19	99.9	022.1	1540
11/20	99.9	027.7	1537
11/21	99.9	054.7	1508
11/22	99.9	067.5	1509
11/23		N.D.	1509
11/24	99.9	054.1	1510
11/25		N.D.	1510
11/26		N.D.	1510
11/27		N.D.	1510
11/28		N.D.	1510
11/29		N.D.	1510
11/30		N.D.	1510

Geometric Mean = 69.486
Standard Deviation is 1.780

STATION: Pueblo City/County Health Dept

START MONTH: December STOP MONTH: December

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
12/1		N.D.	1510
12/2		N.D.	1510
12/3		N.D.	1510
12/4		N.D.	1510
12/5		N.D.	1510
12/6		N.D.	1510
12/7		N.D.	1510
12/8		N.D.	1510
12/9		N.D.	1510
12/10		N.D.	1510
12/11		N.D.	1510
12/12		N.D.	1510
12/13		N.D.	1510
12/14		N.D.	1510
12/15		N.D.	1510
12/16		N.D.	1510
12/17		N.D.	1510
12/18		N.D.	1510
12/19		N.D.	1510
12/20		N.D.	1510
12/21	99.9	102.4	1520
12/22	99.9	116.2	1521
12/23	99.9	073.1	1522
12/24	99.9	046.9	1524
12/25	99.9	050.0	1525
12/26	99.9	118.2	1526
12/27	99.9	193.3	1528
12/28	99.9	077.0	1529
12/29	99.9	041.4	1530
12/30	99.9	021.6	1532
12/31	99.9	022.7	1533
Geometric Mean =	63.925		
Standard Deviation is	2.003		

STATION: Pueblo City/County Health Dept

START MONTH: January STOP MONTH: January

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
1/1	99.9	075.9	1929
1/2	99.9	075.7	1930
1/3	99.9	092.6	1931
1/4	99.9	032.4	1933
1/5	99.9	081.8	1934
1/6	99.9	057.6	1935
1/7	99.9	117.1	1936
1/8	99.9	143.8	1938
1/9	99.9	123.7	1939
1/10	99.9	179.0	1940
1/11	99.9	137.0	1942

Geometric Mean = 92.313
Standard Deviation is 1.623

STATION: Pueblo City/County Health Dept (directional)

START MONTH: February STOP MONTH: February

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
2/2	18.6	158.4	0059
2/6		N.D.	
2/9	07.1	042.4	0067
2/12	03.1	176.6	0071
2/15	14.6	077.9	0075
2/17	39.4	082.8	0078
2/20		N.D.	
2/23	01.2	N.D.	
2/26	07.1	029.0	0254

Geometric Mean = 77.806
Standard Deviation is 2.035

STATION: Pueblo City/County Health Dept (directional)

START MONTH: March STOP MONTH: March

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
3/1	12.9	012.5	0255
3/4	32.8	092.6	0259
3/7	22.9	101.2	0262
3/10	62.8	049.2	0266
3/13	48.0	053.1	0269
3/16	02.4	N.D.	
3/19	04.9	156.0	0278
3/22	19.9	057.9	0282
3/25	10.5	038.4	0286
3/28	02.2	N.D.	
3/31	23.1	068.4	0287

Geometric Mean = 57.853
Standard Deviation is 2.045

STATION: Pueblo City/County Health Dept (directional)

START MONTH: April STOP MONTH: April

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
4/3		N.D.	0287
4/6		N.D.	0287
4/9		N.D.	0287
4/12		N.D.	0287
4/15		N.D.	0287
4/18	10.4	085.1	0522
4/21	21.2	080.5	0526
4/24	20.5	104.0	0529
4/28	34.9	084.1	0534
4/30	10.1	007.9	0538

Geometric Mean = 54.329
Standard Deviation is 2.952

STATION: Pueblo City/County Health Dept (directional)

START MONTH: May STOP MONTH: May

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
5/3	47.9	028.7	0542
5/6	43.2	005.0	0545
5/9		N.D.	0545
5/12		N.D.	0545
5/15		N.D.	0545
5/18		N.D.	0545
5/21		N.D.	0545
5/24	11.2	094.5	0630
5/27	39.1	040.7	0623
5/30		N.D.	0623

Geometric Mean = 27.256
Standard Deviation is 3.443

STATION: Pueblo City/County Health Dept (directional)

START MONTH: June STOP MONTH: June

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
6/2	28.1	N.D.	0623
6/5	47.9	N.D.	0623
6/8	41.3	N.D.	0623
6/11	37.3	N.D.	0623
6/14	33.7	N.D.	0623
6/17	26.8	084.1	0670
6/20	28.7	112.8	0672
6/23	42.1	N.D.	0672
6/26	29.0	N.D.	0672
6/29	28.1	081.4	0701

Geometric Mean = 91.743
Standard Deviation is 1.197

STATION: Pueblo City/County Health Dept (directional)

START MONTH: July STOP MONTH: July

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
7/2	32.8	N.D.	0701
7/5	32.0	N.D.	0701
7/8	11.0	106.0	0714
7/11	26.4	090.3	0710
7/14		090.3	0710
7/17	24.9	066.4	0704
7/20	22.8	N.D.	0704
7/23	27.0	N.D.	0704
7/26	33.5	N.D.	0704
7/29	29.6	N.D.	0704

Geometric Mean = 87.038
Standard Deviation is 1.216

STATION: Pueblo City/County Health Dept (directional)

START MONTH: August STOP MONTH: August

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
8/1	10.0	071.3	1250
8/4	12.8	072.5	1246
8/7	34.4	085.0	1241
8/10	21.1	091.3	1197
8/13	19.5	120.8	1235
8/16	22.5	101.4	1229
8/19		101.4	
8/22	15.7	103.0	1228
8/25	27.2	062.5	1223
8/28	22.5	060.8	1219
8/31	20.5	100.4	1208

Geometric Mean = 86.222
Standard Deviation is 1.255

STATION: Pueblo City/County Health Dept (directional)

START MONTH: September STOP MONTH: September

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
9/3	16.2	N.D.	1208
9/6	19.2	N.D.	1208
9/9	19.8	140.2	1203
9/12	31.9	123.9	1217
9/15	15.8	093.8	1269
9/18	19.8	105.0	1273
9/21	36.2	099.6	1280
9/24	31.1	061.7	1277
9/27	15.7	113.1	1283
9/30	23.4	130.5	1287

Geometric Mean = 105.646
Standard Deviation is 1.293

STATION: Pueblo City/County Health Dept (directional)

START MONTH: October STOP MONTH: October

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
10/4	27.9	164.1	1290
10/6	31.6	167.5	1535
10/9	28.2	154.4	1534
10/12	11.3	186.5	1294
10/15	39.2	223.1	1296
10/18	45.3	180.0	1585
10/21	22.1	036.4	1580
10/24	46.8	066.1	1574
10/27	27.2	090.1	1569
10/30	15.8	120.6	1566

Geometric Mean = 123.583
Standard Deviation is 1.759

STATION: Pueblo City/County Health Dept (directional)

START MONTH: November STOP MONTH: November

START DATE	PERCENT OPERATION	CONCEN- TRATION	PAPER NUMBER
11/2	39.3	096.0	1561
11/6	38.3	125.2	1555
11/8	20.6	106.1	1553
11/11	17.7	N.D.	1553
11/14		N.D.	1553
11/17	35.0	N.D.	1553
11/20	16.0	062.7	1507
11/23	26.7	049.4	1511
11/26	18.4	101.0	1513
11/29	26.7	119.8	1514

Geometric Mean = 89.990
Standard Deviation is 1.416

STATION: Pueblo City/County Health Dept (directional)

START MONTH: December STOP MONTH: December

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
12/2	08.1	N.D.	1514
12/5	03.0	092.0	1516
12/8	15.0	085.3	1517
12/11		085.3	1517
12/14	17.3	121.2	1518
12/17	11.4	148.8	1512
12/20	35.5	139.0	1519
12/23	21.8	053.2	1523
12/26	06.8	273.1	1527
12/29	03.7	052.0	1531

Geometric Mean = 102.671
Standard Deviation is 1.687

STATION: Pueblo City/County Health Dept (directional)

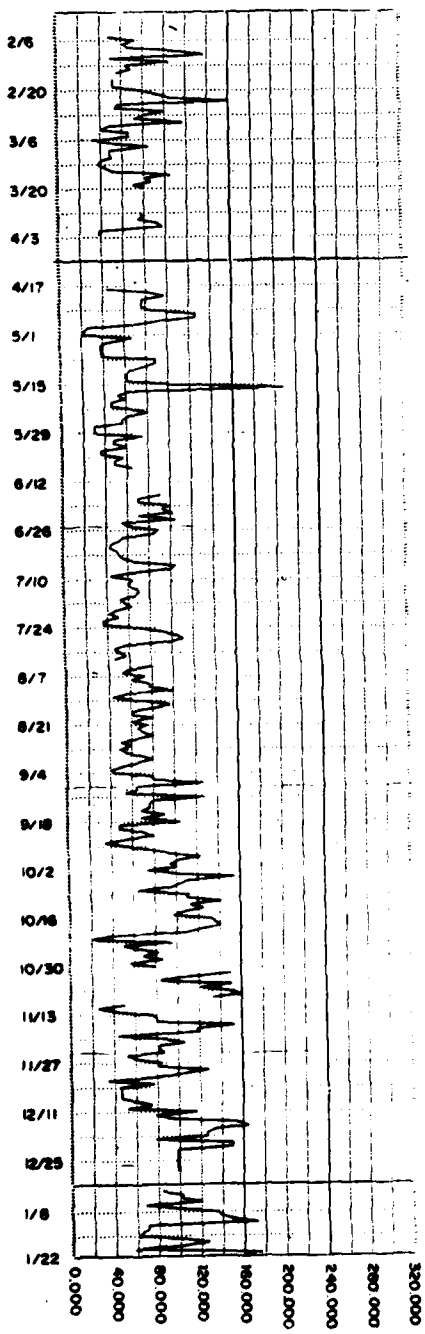
START MONTH: January STOP MONTH: January

START DATE	PERCENT OPERATION	CONCEN-TRATION	PAPER NUMBER
1/1	06.2	098.6	1928
1/4	16.7	058.8	1932
1/7	07.9	170.2	1937

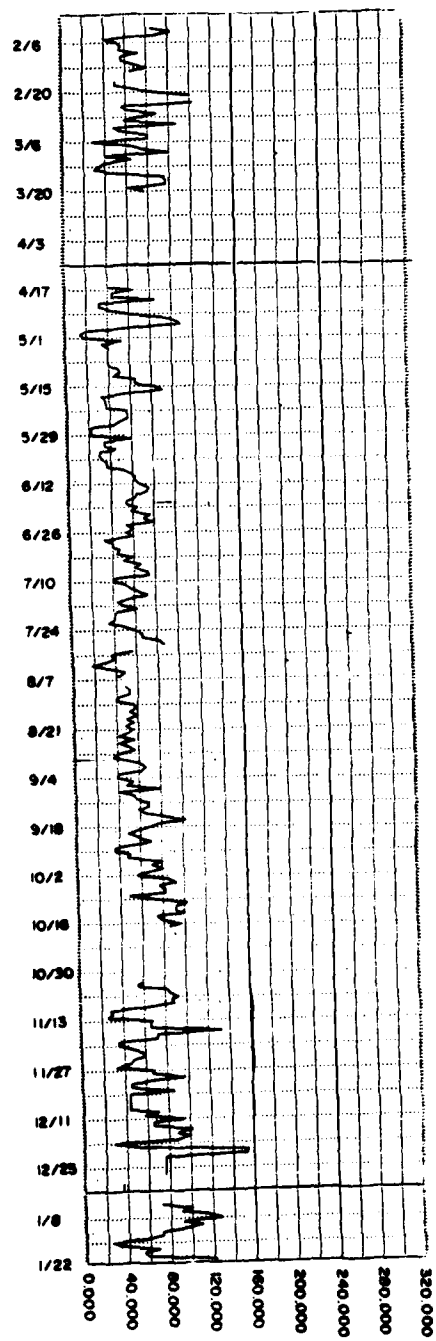
Geometric Mean = 99.557
Standard Deviation is 1.701

APPENDIX D:

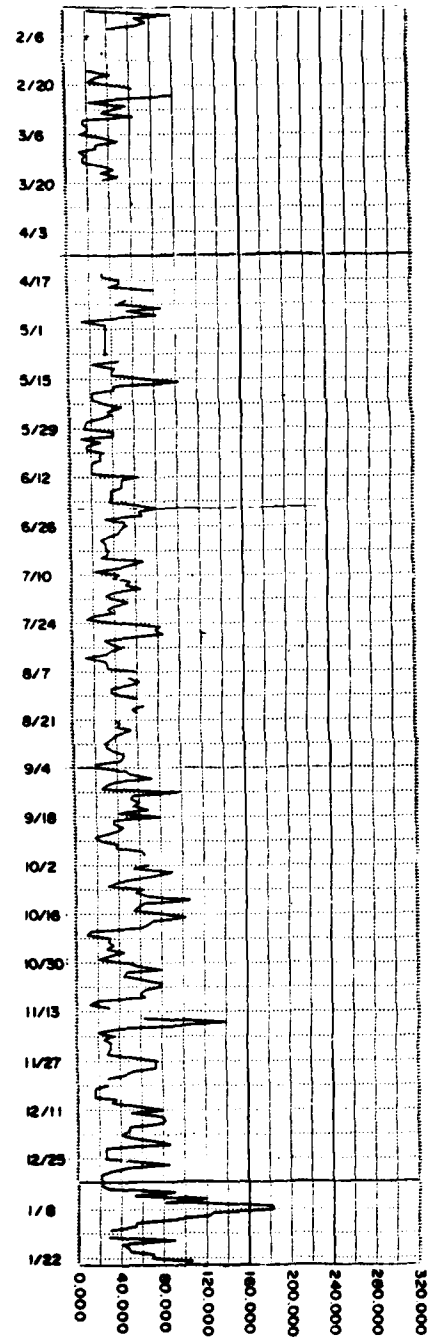
YEARLY TSP CONCENTRATION PLOTS



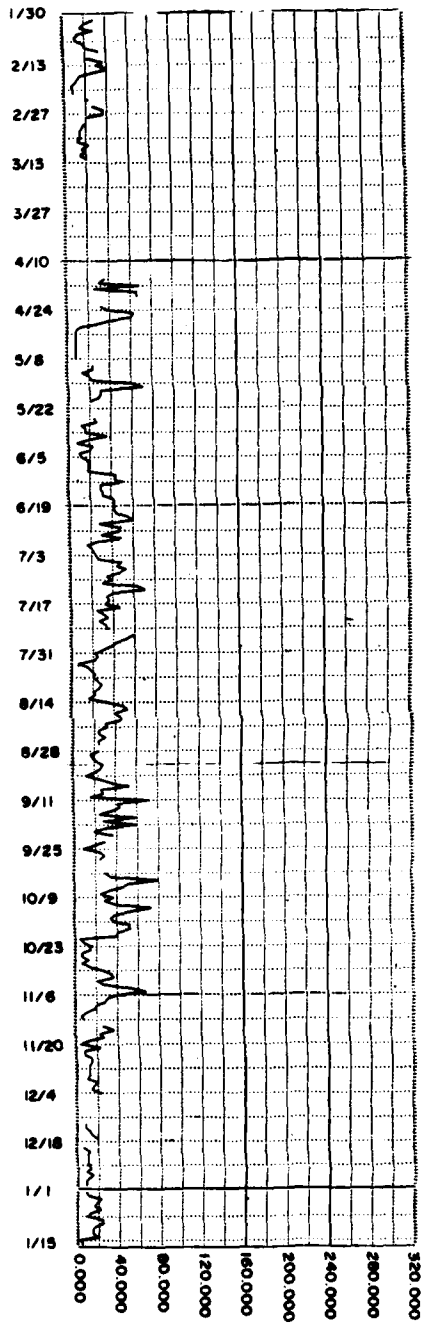
El Paso City/County Health Department station.



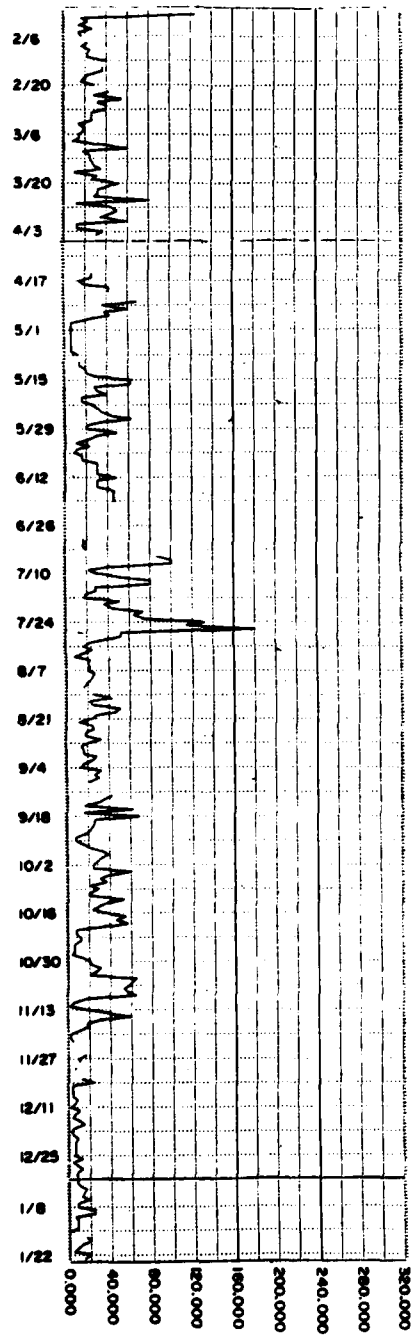
Security Volunteer Fire Department station.



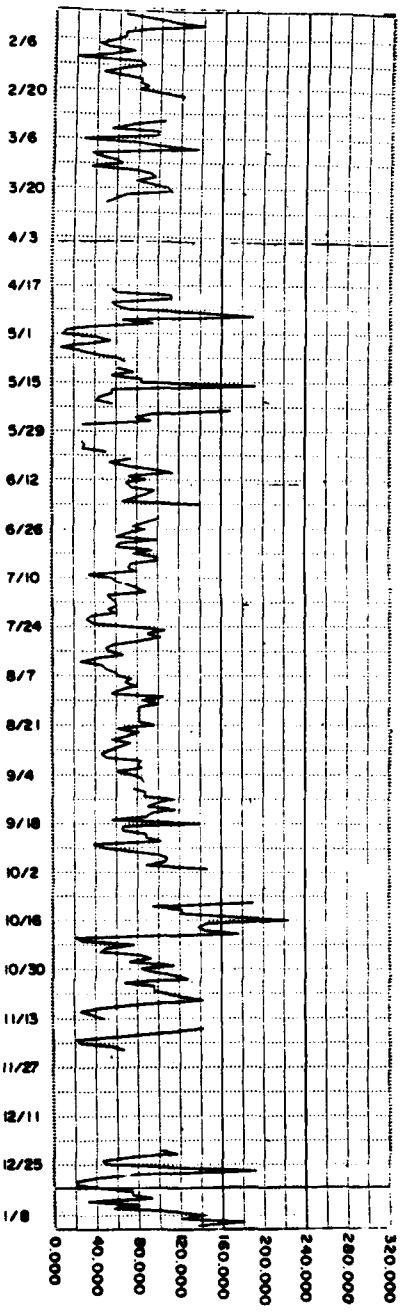
Community Services Bldg. No. 1526, Fort Carson.



Rod & Gun Club area, Fort Carson.



Tank Table VII, Fort Carson.



Pueblo City/County Health Department station.

APPENDIX E:

YEARLY WIND ROSE PLOTS

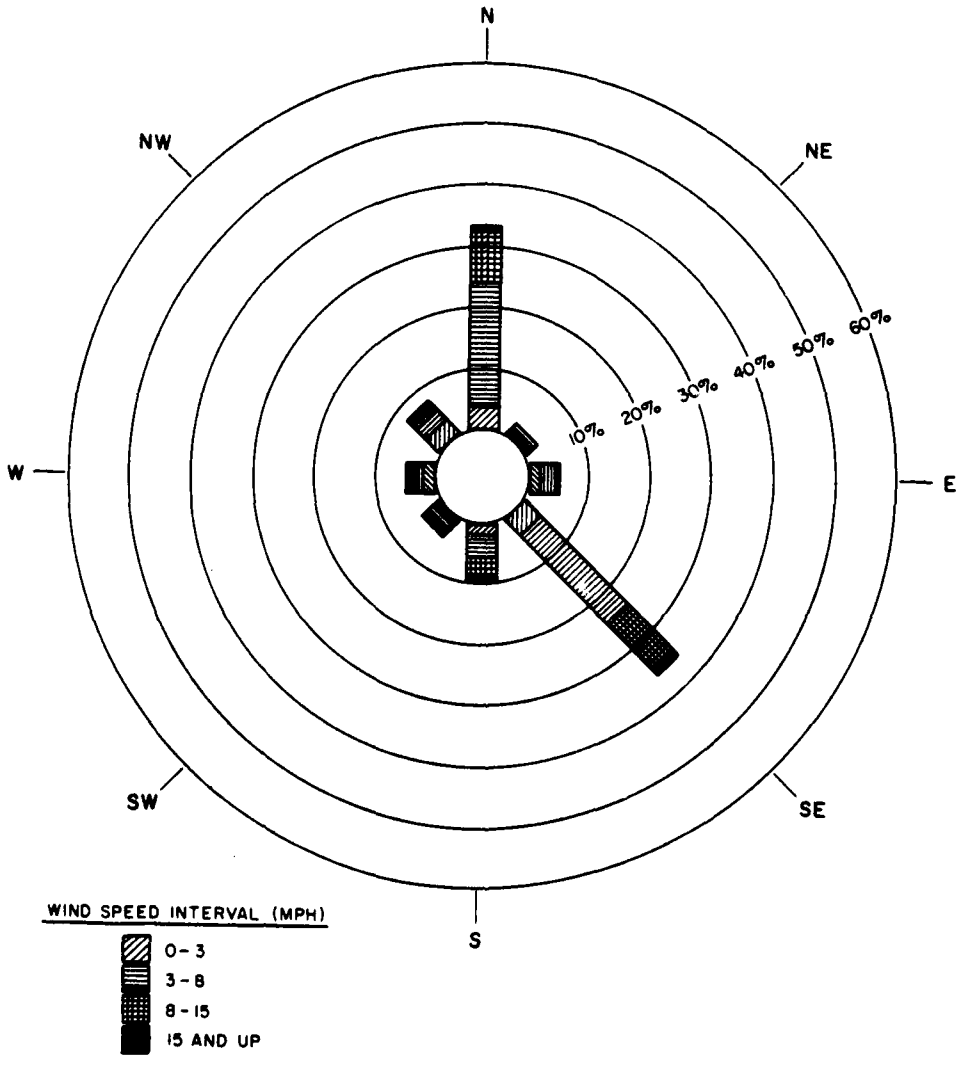


Figure E1. Wind rose for Colorado Springs Health Department station.

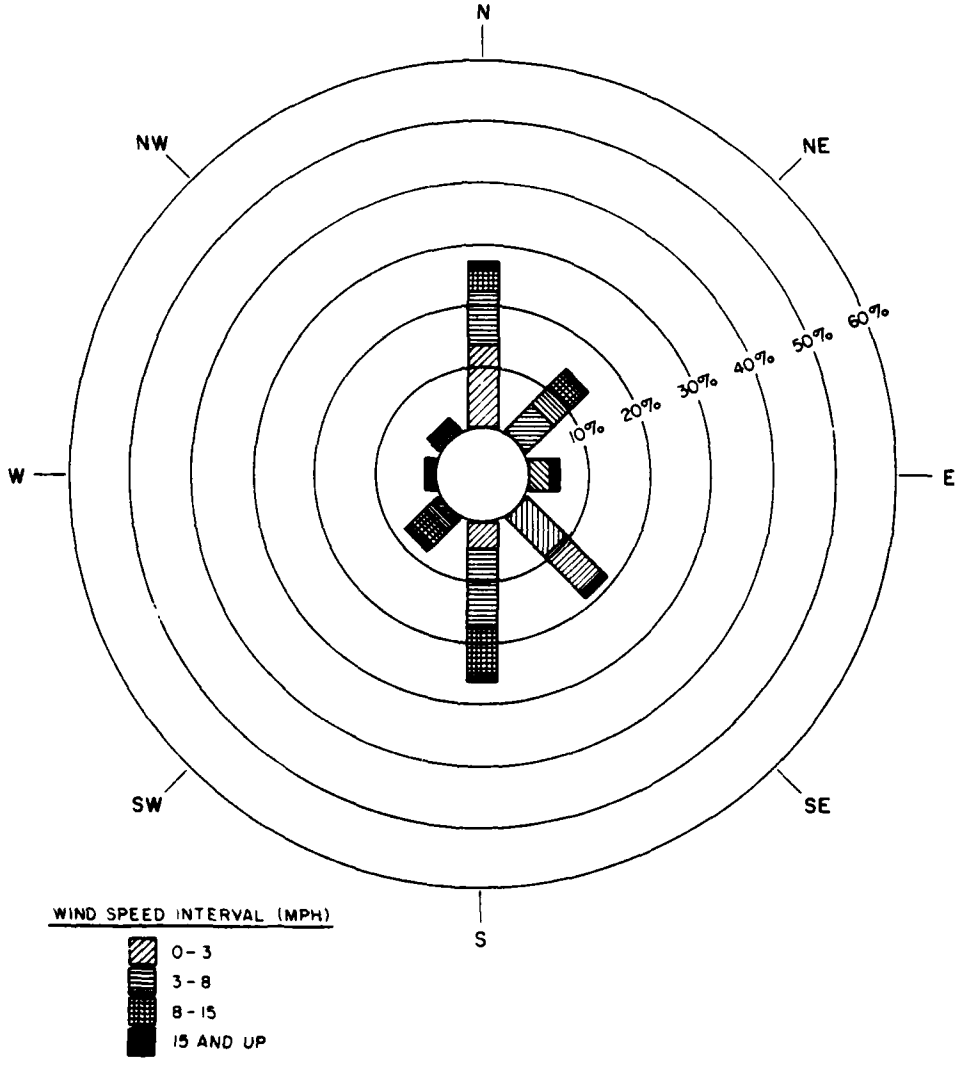


Figure E2. Wind rose for Security Fire Department station.

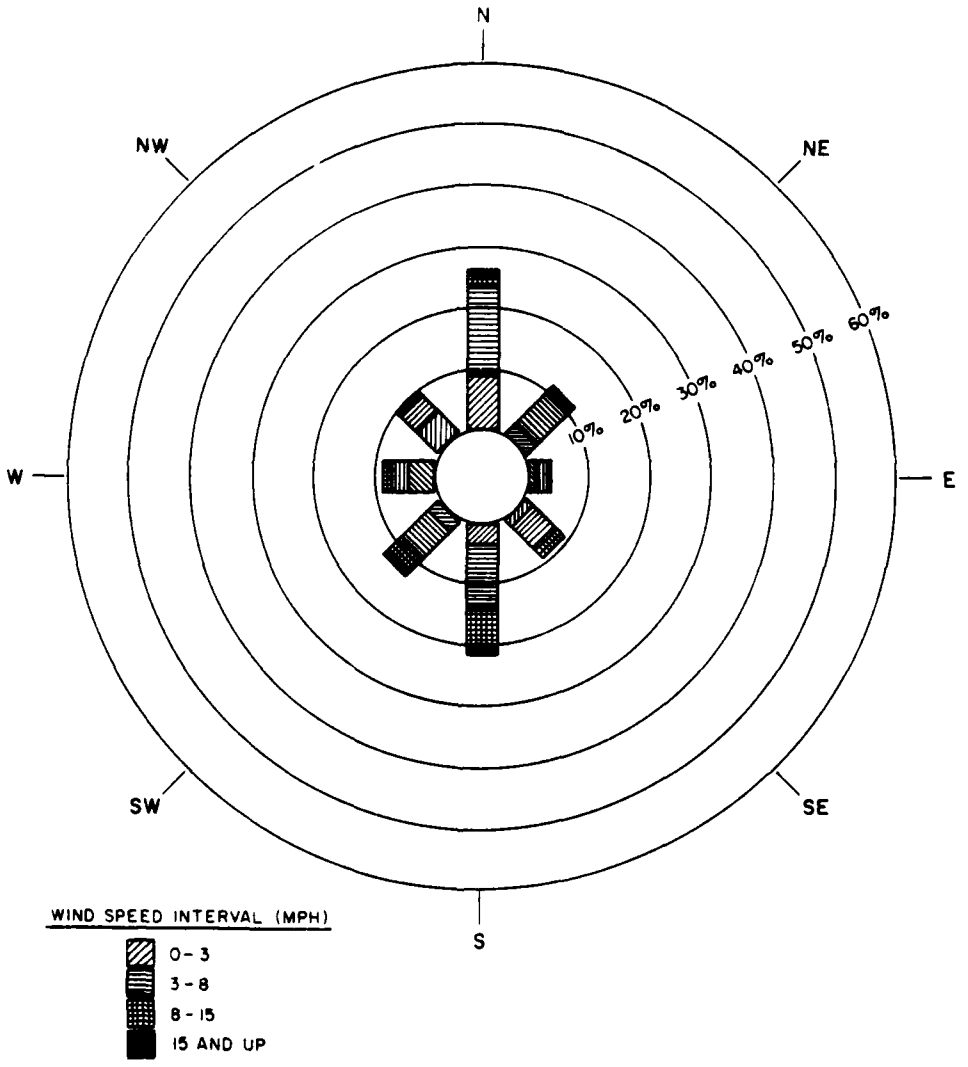


Figure E3. Wind rose for Fort Carson Community Services Building station.

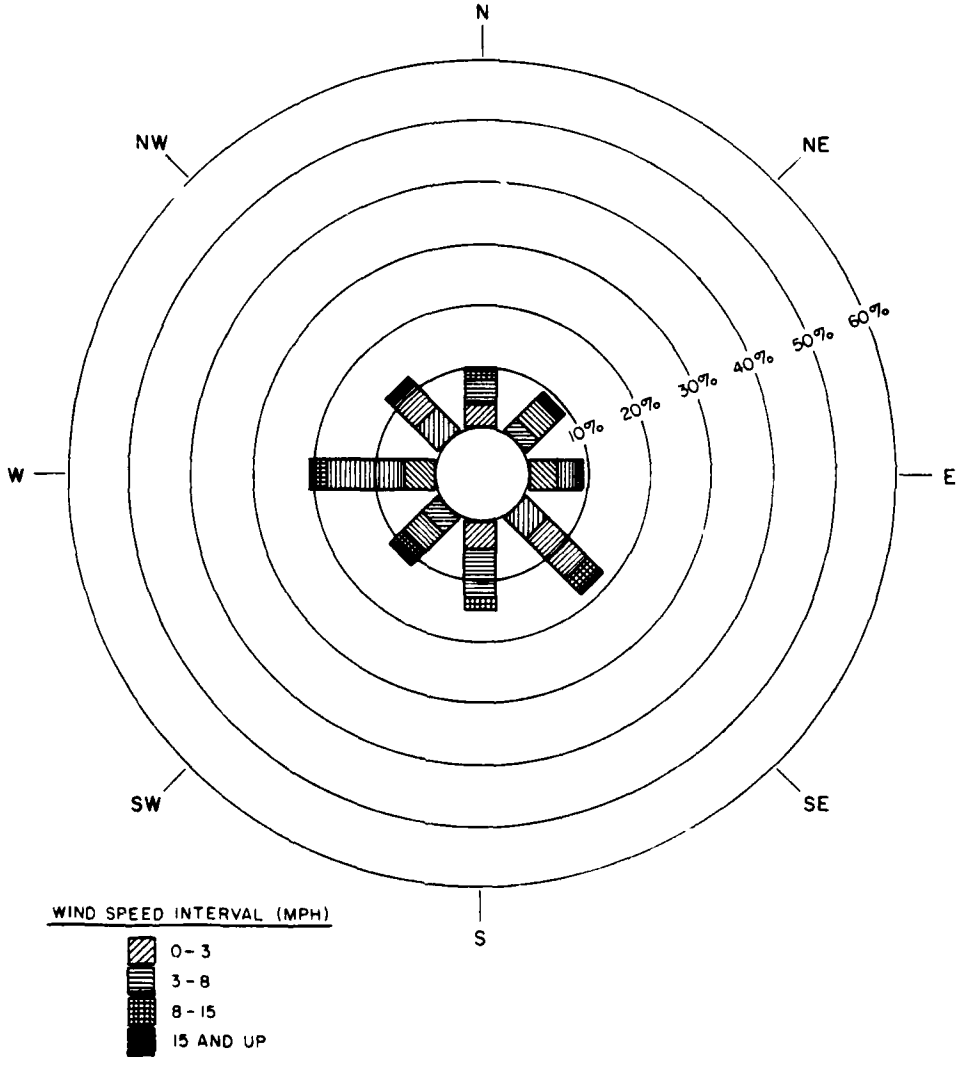


Figure E4. Wind rose for Rod and Gun Club station.

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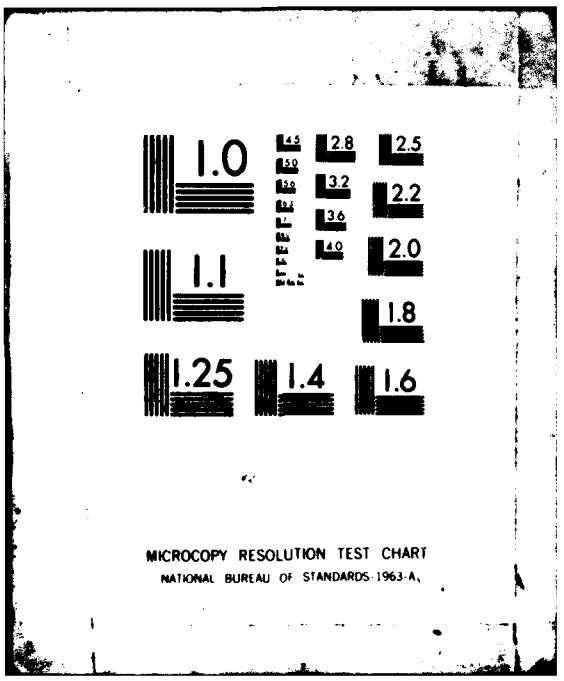
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1.1
1.25
1.4
1.6
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MICROCOPY RESOLUTION TEST CHART
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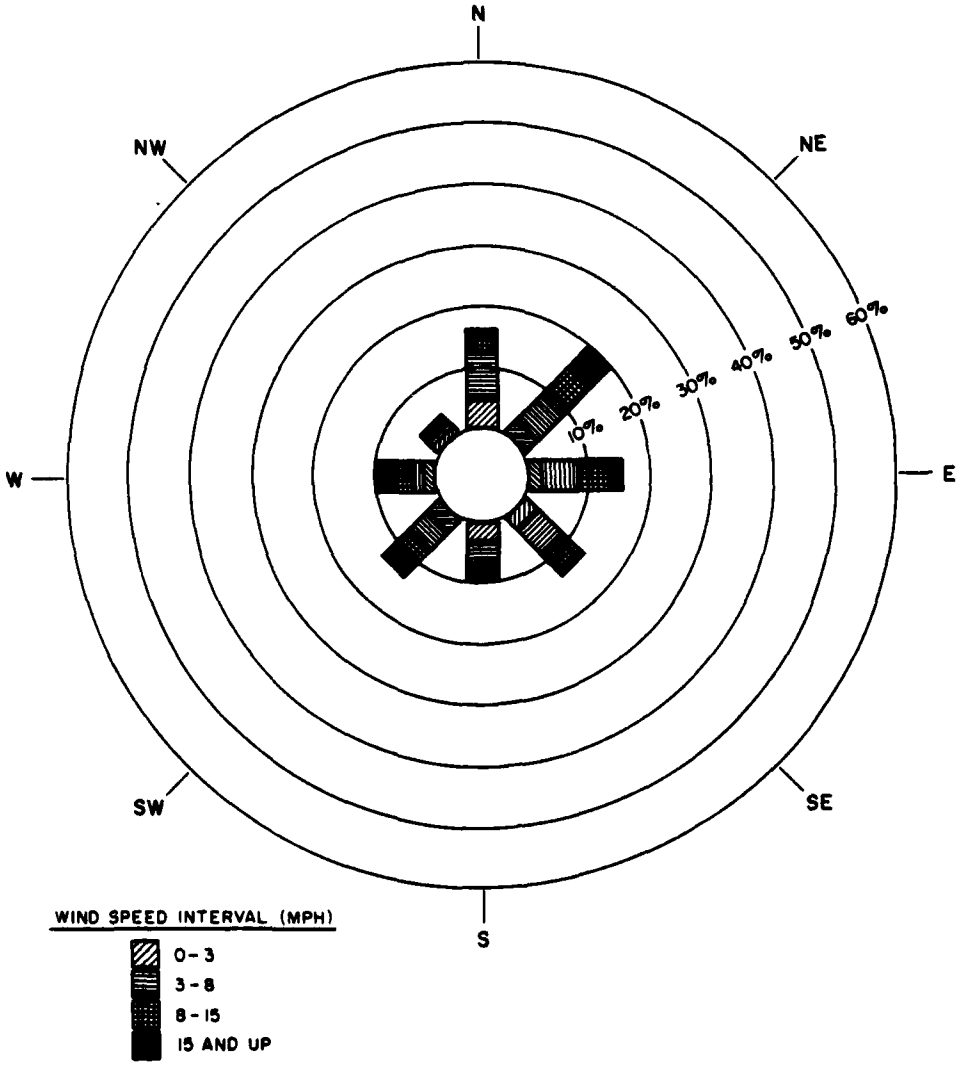

Figure E5. Wind rose for Fort Carson Tank Table station.

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