



Proposed
STATE IMPLEMENTATION
PLAN REVISION

For Attainment and Maintenance
of the National Ambient Air Quality
Standards for Total Suspended
Particulate Matter for the Rapid
City Non-Attainment Area.

December, 1978

Prepared by the South Dakota
Department of Environmental
Protection Air Quality Program

Control Strategy
for
Total Suspended Particulates

PAGE

1	Introduction
3	Description of Air Monitoring Network
4	Non-Attainment Status
5	Basic Strategy
6	Alternative Strategies
7	Implementation
8	Management of New Source Growths
9	Reasonable Further Progress
11	Emission Inventory
12	Annual Reporting
13	Economic Impact
14	Social Impact
15	Energy Impact
16	Health and Welfare Impact
17	Demonstration of Attainment
18	Conclusions
	Attachments

INTRODUCTION

In April of 1972, the South Dakota Department of Health, Division of Sanitary Engineering, what was to become the South Dakota Department of Environmental Protection (DEP), started monitoring the quality of the air in Rapid City, South Dakota. In the ensuing years, it became evident that the amount of suspended particulate matter in the air of Rapid City was exceeding the standards set by the United States Environmental Protection Agency (EPA) to protect the health and welfare of the public.

With the passage of the Clean Air Act Amendments of 1977, it became very evident that something would have to be done bring the level of air pollution down to an acceptable level.

For this purpose a Clean Air Task Force, consisting of local citizens, business, industry, planning, educational and governmental officials, was appointed jointly by the Mayor of Rapid City and the Chairman of the County Commissioners of Pennington County. This Task Force was assigned the responsibility of developing a control strategy that would bring the Rapid City and adjacent areas into compliance with National Ambient Air Quality Standards (NAAQS).

After many months of hard work, the Task Force submitted its recommendations in the form of proposed local rules to the Rapid City Council and the Pennington County Commissioners.

The local rules presented in this report are basically the result of the Task Force's effort.

TABLE I

ATTAINMENT WITH NAAQS	1976	1977	1978	1979	1980	1981	1982	1983
<p>Non-Attainment Status based on this period</p> <p>Task Force Organization and completion of Task</p> <p>Submittal of SIP revision</p> <p>Extensive continued monitoring to monitor compliance</p> <p>School of Mines summertime fugitive dust study</p> <p>Emission inventory performed by 6th District</p> <p>School of Mines winter time fugitive dust study</p> <p>Pennnington County adoption of fugitive dust regulations</p> <p>EPA approval of SIP revision</p>								

Description of Air Monitoring Network

The first two air monitors established in Rapid City were installed on the Rapid City Water Treatment Plant and the Pennington County Public Health Building in April of 1972. These monitors were of the high-volume type. Samples were taken every 6 days to assure a random sample. The original two samplers were moved short distances from the Water Treatment Plant to the Mt. View Nursing Home and from the Public Health Building to the Rapid City Public Library.

Two more high-volume monitors were established at the South Dakota Cement Plant and at Ken Friez Enterprises. These samplers were moved in the summer of 1976 to Pennington County Public Service Building and to Stevens High School.

In the summer of 1978 two new sites were established at South Junior High and at Arrowhead Country Club.

Since the first samplers were established in 1972, they have shown Rapid City and adjacent area to be in violation of NAAQS.

Looking at the data for the Rapid City area, it is evident that the air quality is improving. The readings for total suspended particulates (TSP) have been reduced from gross violations, to just barely above the ambient standard.

Non-Attainment Status

On March 31, 1978, the Administrator of EPA designated the Rapid City and the adjacent area a non-attainment for TSP. The Administrator determined that the area was violating NAAQS for TSP based on measurements taken in the last quarter of 1976 and the first three quarters of 1977.

The control strategies for TSP contained in this section are designed to attain the NAAQS by December 31, 1982. To prove that it is no longer in a non-attainment area, an area must remain in compliance for eight consecutive calendar quarters.

Basic Strategy

The purpose of these rules is to bring the Rapid City area into compliance with the NAAQS for TSP. To accomplish this purpose, these fugitive dust rules were promulgated.

The basic strategy for this accomplishment is to have each potential emitter of fugitive dust install and operate Reasonably Available Control Technology (RACT). RACT will be defined on a case-by-case basis for each source, based on available technology and economics.

The basic agency for enforcing these rules would be Pennington County Air Quality Review Board. Members of the Board would be appointed by Pennington County Commissioners and they would also appoint an air quality officer to perform the necessary field work for the Board. The Board would have the power to decide RACT.

Alternative Strategies

Numerous methods of control and measurement were discussed during the process of developing these rules. One of the areas of concern involved choosing between the identification of general control methods and the designation of specific control requirements. The general control method was chosen to provide the emitter a chance to use alternative and/or innovative technology.

The largest problem encountered was the method of assuring compliance with these rules. The up-wind down-wind method of measurement of fugitive emissions was considered and discarded as too difficult, costly, and time-consuming. The method of measuring opacity for fugitive emissions was rejected basically because of its subjectivity.

Implementation

The proposed fugitive dust ordinance will be implemented by the County through the Board and supported by the City.

Funds for the implementation of the rules will be supplied jointly by the city and county. The county may submit an application to DEP for funds; DEP will review and evaluate the application prior to submission to EPA.

Management of New Source Growth

No new major emission source that would cause a violation of a NAAQS for TSP at any location in South Dakota will be permitted to begin construction or operation. No major new source emitting any criteria pollutant will be allowed to construct or operate in a non-attainment area for that pollutant without assurances that reasonable further progress will be maintained toward achieving attainment status. Before any new major source can be built in a non-attainment area, it must:

- a. Comply with Reasonable Further Progress
- b. Implement LAER (lowest achievable emission rate).
- c. Achieve compliance with all applicable emission limits and standards at all other major sources which it owns or operates by applicant are in compliance.

BEST AVAILABLE
TECHNOLOGICAL
CONTROL

194

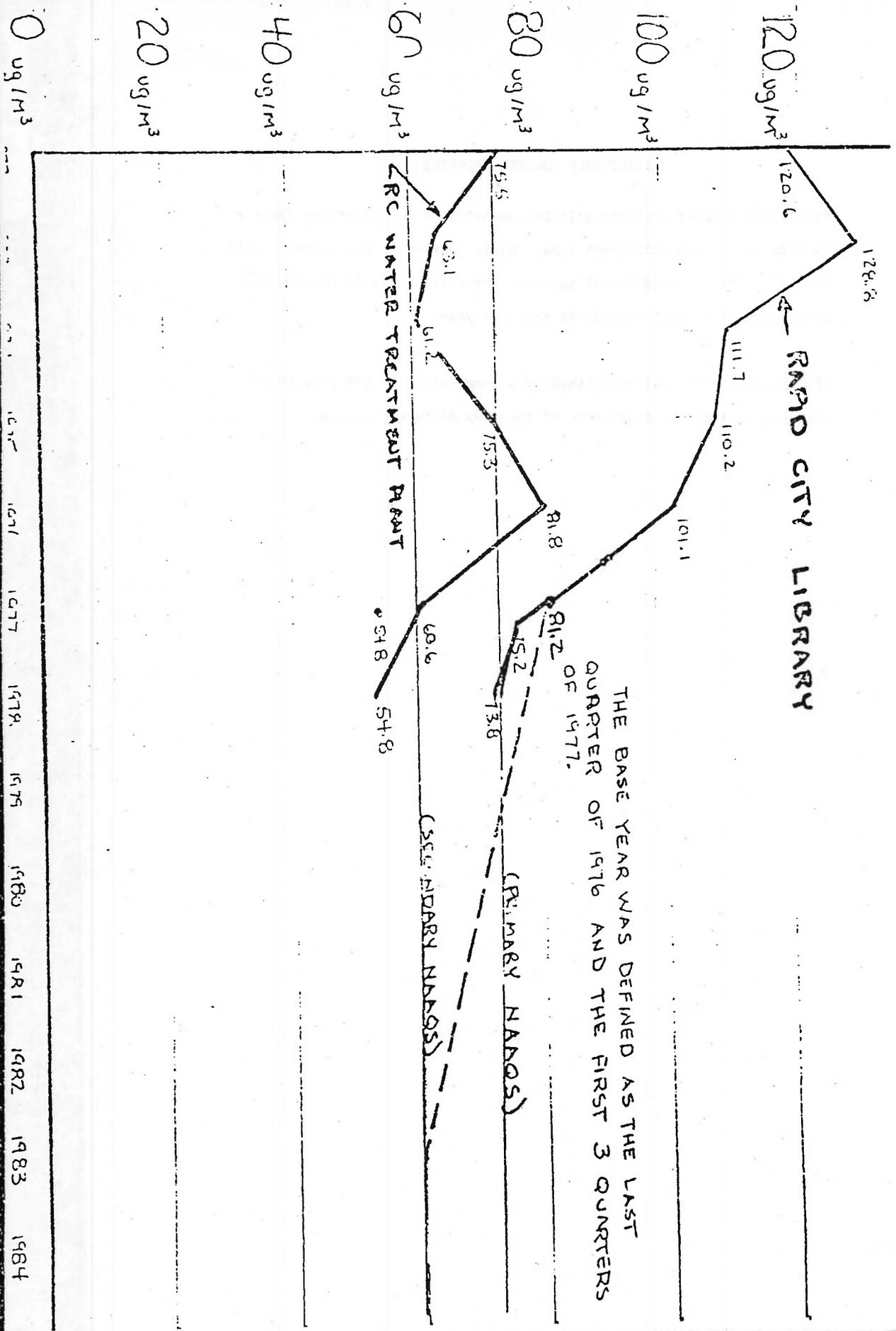
BEST AVAILABLE
ORIGINAL

REASONABLE FURTHER PROGRESS

Reasonable further progress will be demonstrated by monitoring the air quality in the non-attainment area. Since nearly all new controls will be applied to non-traditional sources, there is no way to predict the exact amounts of dust control in tons per year.

The progress will be accomplished by a compilation of the effects of the new rules on the compliance of the many different sources.

REASONABLE FUR IHEK? PROGRESS



Emissions Inventory

The emissions inventory was conducted by the Sixth District Council of Local Governments. For detailed information on point sources, a check should be made of the National Emissions Data System.

Annual Reporting

Annual reports will be filed with EPA for the purpose of maintaining and assuring reasonable further progress. Monitoring results will be reported before the end of each following quarter and annual results as required.

Major new sources will be reported as they are permitted.

The results of any new studies will be made available as the final reports are completed.

Economic Impact

The cost of implementation of the rules contained in this document will be borne principally by industries, construction companies, and local governments within the Rapid City area of Pennington County. Since several alternative measures to control each category of excessive TSP emissions are allowable and available, no implementation cost can be estimated at this time.

Social Impact

The social effects of the implementation of this strategy are expected to be minimal. For certain areas within and around Rapid City, human mobility and safety will increase as a result of greater atmospheric visibility. Social benefits are expected to result also from the aesthetically pleasing appearance of cleaner air and from the fact that objects such as streets, cars, and buildings will remain relatively dust-free for longer periods of time.

Energy Impact

The possible energy impacts of the implementation of this strategy will also vary with types of control measures chosen to implement the provisions contained in these rules. Generally, however, relatively large amounts of energy will be used in the operation of machinery to stabilize (with water or chemicals) land areas which have been cleared for construction activities and for the operation of machinery to water, oil, pave, or clean roads, streets, alleys, and parking lots.

Health and Welfare Impact

Particles of soil generally are relatively large and, therefore, are not respirable and are usually non-toxic. In urban areas, however, it is likely that toxic or smaller particles from industrial and vehicular sources may either be attached to, or mixed with the larger particles that constitute the largest portion of the total mass of TSP, as measured by the high volume air samplers. For this reason, it is difficult to determine the health benefits that may result from further control of fugitive dust emissions. However, it is not difficult to predict a more healthy general public as each possible precursor of disease is lessened.

Demonstration of Attainment

Attainment will be demonstrated by monitoring eight consecutive calendar quarters, with the subsequent data remaining below the NAAQS. At the present time DEP has five quarters of data showing compliance with the primary standard for all sites in Rapid City.

As for the secondary standard, all sites except two are in compliance. One of these two sites has been in compliance during the last three quarters.

NOVEMBER 1978

Conclusions

With effective administration by the County and the Board and full cooperation from the sources of TSP, these rules are expected to bring Rapid City and adjacent areas into the compliance with the NAAQS for TSP

The interest, work and cooperation by the officials of Rapid City and Pennington County, the personnel of the Institute of Atmospheric Sciences and the Sixth District Council of Local Governments, and especially the members of the Clean Air Task Force were very important and much appreciated in formulating these rules.

ATTACHMENTS

Particulate Matter Inventory for Rapid City, South Dakota, September 1978,
Sixth District Council of Local Governments.

"Proposed Fugitive Dust Regulation," Pennington County/Rapid City Clean
Air Task Force.

Requirements for Reducing Fugitive Particulate Emissions Over Rapid City,
South Dakota - Field, Laboratory, and Modeling Studies, September 1978,
Bryant L. Davis, Paul C. Yue, L. Ronald Johnson, and Theouore I. Mathis.

"Air Quality Analysis," 1978, Department of Environmental Protection

NEWSPAPER Articles published in Rapid City Journal, 1978

Legal Status

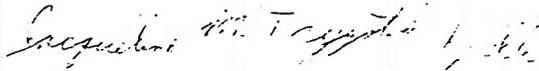
To Whom it May Concern:

On December 12, 1978 the South Dakota Board of Environmental Protection passed a motion, pursuant to SDCL 34A-1-36, approving the proposed regulations and air pollution control program adopted by the Pennington County Air Quality Review Board for the control of fugitive dust emissions in Pennington County.

In addition, on December 12, 1978, the Pennington County Board of Commissioners adopted the proposed fugitive dust ordinances as law.

Therefore, in light of the Board of Environmental Protection's approval and the adoption of the ordinances by the Pennington County Board of Commissioners, Pennington County has the necessary authority to control fugitive dust emissions within the county.

Sincerely,



Jacqueline M. Trygstad
Assistant Attorney General
Earth Resources Unit
Room B-102, Anderson Building
Pierre, South Dakota 57501
Telephone: 773-3805

December 20, 1978

To Whom it May Concern:

This letter is in response to your question concerning the enforceability of pollution control ordinances adopted by approved municipal and county air pollution control agencies against state facilities (i.e., State Cement Plant).

SDCL 34A-1-36 grants to municipalities and counties the express authority to establish air pollution control programs and, in turn, to enact ordinances to implement those programs. But, there is no mention of whether these ordinances are enforceable against state created agencies or entities.

South Dakota courts have not addressed this issue specifically, but courts from other states that have ruled on the issue of local control over state created agencies have held that agencies created by the Legislature may not be subjected to local rules, regulations and ordinances unless expressly authorized by the State Constitution or the Legislature.

Thus, if municipal and county air pollution control agencies are to have jurisdiction over state-owned facilities (i.e., State Cement Plant), the South Dakota Legislature would have to amend SDCL 34A-1-36 by adding a provision that specifically subjects state-owned facilities to the jurisdiction of local air pollution control agencies.

A proposed amendment to SDCL 34A-1-36 would add the following provision: Such jurisdiction shall apply over State facilities located within the physical boundaries of the municipality or county.

It is my opinion that this provision would grant municipal and county air pollution control agencies the jurisdiction to enforce ordinances adopted by them against state-owned facilities (i.e., State Cement Plant).

Sincerely,


Jacqueline M. Trygstad
Assistant Attorney General
Earth Resources Unit
Room B-102, Anderson Building
Pierre, South Dakota 57501
Telephone: 773-3805

PENNINGTON COUNTY ORDINANCE #12

"FUGITIVE DUST REGULATION"

Be it ordained by the Board of County Commissioners of Penn. Co.

1.0 CONTROL OF FUGITIVE DUST

1.1 Applicability

The provisions of this regulation shall apply to all persons who emit or cause to be emitted fugitive dust as defined in Section 1.2 below.

1.2 Definitions

1.2.1 "Fugitive dust" is particulate matter which escapes and becomes airborne from unenclosed operations or activities or which is emitted into the atmosphere without passing or being conducted through a flue pipe, stack, or other structure designed for the purpose of emitting air pollutants into the atmosphere.

1.2.2 "Reasonably available control technology (RACT)" is the extent of emission control technology determined on a case by case analysis to be economically and technologically reasonable requirements for emission control.

1.3 Standard of Compliance

1.3.1 No person shall emit or cause to be emitted fugitive dust from any source without applying reasonably available control technology (RACT) to that source or in such quantities that ambient air total suspended particulate concentration measurements taken violate National Ambient Air Quality Standards (NAAQS).

1.3.2. Total suspended particulate concentration measurements shall be in accord with standard methods specified by the U.S. Environmental Protection Agency, and at locations specified by the Air Quality Review Board as appropriate to the unique characteristics of the source.

1.3.2. Wind measurements shall be taken at locations and by methods specified by the Air Quality Review Board. Such methods shall specify that wind speeds during the sampling period not exceed 25 miles per hour.

} ?

1.4 Reasonably Available Control Technology Required

1.4.1 In order to comply with the provisions of Section 1.3 above, all persons who own, operate, or are otherwise responsible for a source of fugitive dust shall utilize reasonably available control technology to prevent such dust from becoming airborne. Such reasonably available control technology may include, but are not limited to, the following:

- (a) For land clearing, excavating, grading, earth-moving, dredging, or demolition:
 - (1) wetting down, including prewatering
 - (2) stabilizing with chemicals
 - (3) applying dust palliatives
 - (4) disturbing a minimum topsoil per unit of time and reclaiming disturbed areas as quickly as possible
 - (5) restricting the speed of vehicles traversing the area
- (b) For constructing, using, altering, or repairing private roads or parking facilities:
 - (1) watering, paving, or chemically stabilizing routinely used haul roads
 - (2) restricting the speed of vehicles
 - (3) watering down or chemically stabilizing roadway shoulders
 - (4) enclosing or covering open bodied trucks
 - (5) switching from moving materials by vehicle to moving them by conveyance systems
 - (6) covering, shielding, or enclosing the area
 - (7) preventing and/or promptly removing the deposit of dirt and mud on paved roads
 - (8) clearing paved roads frequently

- (c) For crushing, screening, handling, conveying, or processing materials:
 - (1) installing hoods, fans, and exhaust systems to enclose and vent the processing of dusty materials
 - (2) covering conveyance systems
 - (3) enclosing aggregate storage piles, or reducing the amount of vehicular or aggregate movement on open storage piles
 - (4) moisturizing or chemically treating the material during processing
 - (5) sealing leaks or openings in process enclosures
- (d) For exposure of land or materials subject to erosion by wind:
 - (1) landscaping and replanting exposed areas with native vegetation
 - (2) installing wind screens or equivalent wind speed reduction devices
 - (3) stabilizing the land with chemicals
 - (4) physically stabilizing the land by covering with a nonerodible material such as gravel
 - (5) enclosing aggregate storage piles

1.4.2 Where the owner or operator of a source had undertaken reasonably available control technology applicable under Section 1.4.1 but is found to cause violations of the standard specified in Section 1.3, the latter Section shall constitute the prevailing standard, in which case further controls would be required.

1.5 Fugitive Dust Control Permits Required for Construction Activities, i.e., temporary operations

1.5.1 No person engaged in construction activities involving clearing and earthmoving on more than one acre of land shall initiate construction, after the date of enactment of this fugitive dust regulation, without first applying for and obtaining from the appropriate governing body, a construction permit.

1.5.2 Section 1.5.1 shall not apply to work performed under contract executed prior to the enactment of this regulation, provided that such work shall be complete prior to December 31, 1981.

1.6 Compliance Plans and Schedules Required, i.e., continuous operations

1.6.1 No person shall conduct an operation in a manner to emit or cause to emit fugitive dust without having first obtained from the Air Quality Review Board an operating permit.

1.6.2 Any person who emits or causes to be emitted fugitive dust such that Sections 1.3 or 1.4 are violated shall be required to submit a compliance plan and schedule which demonstrates to the satisfaction of the Air Quality Review Board that said standards will be met within a period of time acceptable to the Air Quality Review Board, (demonstrating reasonable progress with compliance of the standards by December 31, 1981). Said compliance plans and schedules shall be submitted to the Air Quality Review Board following formal notification by the Air Quality Review Board that such plans and schedules are necessary. Said notification shall specify reasonable time in which such plans and schedules must be submitted.

1.6.3 Operations which were in existence at the time of adoption of this ordinance shall have ninety (90) days to submit compliance plans and schedules and the Air Quality Review Board shall act upon such plans as soon as possible.

Nothing in this section shall require that those existing operations restrict their operations until a final decision is made by the Air Quality Review Board.

1.6.4 New applications received after the effective date of this ordinance will be approved or denied by the Air Quality Review Board within ninety (90) days of application.

1.6.5 Such compliance plans and schedules shall, at a minimum, include the following:

- (a) A description of the nature and scope of the operations and conditions which may cause a violation.

- (b) A description of those reasonably available control technologies active at the time of the plan submission, and the anticipated effect of such controls upon ambient particulate concentrations.
- (c) A description of those additional, more stringent, emission abatement techniques which will be used to obtain compliance.
- (d) The economic and technical reasonableness of the proposed emission abatement techniques, including such cost analyses and copies of engineering reports or studies sufficient to demonstrate to the Air Quality Review Board's satisfaction that the compliance program will result in compliance with the standards of this regulation.
- (e) An implementation schedule and final compliance date.

1.6.6 Where the Air Quality Review Board is satisfied that the compliance plan and schedule submitted in accord with this section meet the requirements specified, the Air Quality Review Board shall issue an order requiring the person submitting the compliance schedule to perform the acts stipulated.

1.6.7 Whenever the Air Quality Review Board finds that the specifications of its order are being violated, or that a person required to submit a compliance plan by Section 1.6 has not submitted such a plan or has submitted an inadequate plan, it shall serve notice of violation to the person responsible for the compliance plan in the manner provided in Section 1.7.

1.7 Enforcement Procedures

1.7.1 Whenever, on the basis of any information available, the Air Quality Review Board finds that any person is in violation of the provision of this regulation the Air Quality Review Board shall notify the person in violation and shall state with reasonable specificity the nature of the violation, specify a time for compliance which the Air Quality Review Board determines is reasonable, taking into account the seriousness of the violation and any good faith efforts to comply with this regulation.

- 1.7.2 This Air Quality Review Board may issue an order to the person in violation requiring such person to comply with the requirements set forth in Sections 1.5 or 1.6 or the Air Quality Review Board may bring civil action in accordance with Section 1.7.4.
- 1.7.3 Any action under Section 1.7.2 shall not take effect until the person to whom action is initiated has had an opportunity, if requested by the person in violation, to confer with the Air Quality Review Board concerning the alleged violation.
- 1.7.4 The Air Quality Review Board may commence a civil action for appropriate relief, including a permanent or temporary injunction, whenever any person:
1. Fails or refuses to comply with the requirements of Sections 1.5 or 1.6.
 2. Violates, fails, or refuses to comply with any order issued under Section 1.7.1.
- 1.8 Establishment of Administrative Mechanisms
- 1.8.1 The County shall establish an Office of Air Quality for the administration of this regulation. The Office of Air Quality shall be the administrative mechanism for the provisions of Sections 1.1 through 1.7 of this regulation.
- 1.8.2 To provide guidance to the County and the Administrator of the Office of Air Quality, the county commissioners shall appoint a seven (7) person Air Quality Review Board to serve at the pleasure of the county commission for the purpose of providing overall supervision to the Air Quality Office, to recommend policy to the county commission regarding clean air matters, and approve actions of the Air Quality Office in relationship to Sections 1.1 through 1.7 of this regulation.
- 1.8.3 The composition of the Air Quality Review Board shall be: Two individuals representing industry, one individual representing the engineering profession, one individual representing environmental concerns, one individual representing affected homeowners, one individual representing the business community, and one individual on an at large basis. Each member will serve for three years on a staggered term basis.

1.9 Separability

1.9.1 Each section and each provision or requirement of any section of this ordinance shall be considered separable, and the invalidity of any section, provision, or requirement, or any portion thereof, shall not affect the validity or enforceability of any other portion.

Roy Stephens
Lois H. ...
Robert L. ...
Lloyd ...
Stewart Steele

ATTEST:

Helen Scarborough
Pennington County Auditor

Dated this 12th day of December, 1978