

New Mexico's Air and Water

the endangered essentials.

— Harvey Mudd II

A Federal air pollution control official stated recently, "There is no clean air left in the United States." New Mexico is no exception: smog, that noxious price of progress, has arrived in New Mexico, as anyone who has been here long enough to remember how it was before can testify—days so clear that Mt. Taylor could be seen from Albuquerque and San Antonio Mountain was sharp and clear from Tesuque Hill. Those days are rare now. And the day is coming when the Sandia Crest will barely be visible from downtown Albuquerque—the day will come unless New Mexicans take an unequivocal stand about what they value in the Land of Enchantment.

New Mexico's surface water is among the cleanest in the continental United States. It is still possible to find streams that carry no man-made contamination in the Pecos or the Gila Forests. Even the upper Rio Grande is relatively clean. There is no guarantee, however, that such situation will not change under the pressures of increased population and industrial development. It must not be allowed to change.

Air

A quick look at the air and water situation as it stands now: air in New Mexico is contaminated by 1,597,336 tons of pollution annually. Of this figure, transportation, the ubiquitous automobile, accounts for fully 50%; industrial processes account for 31%; this includes oil and gas production in the southeast counties, copper smelting in the Deming-Silver City area, and sawmills in most mountainous areas, most conspicuously in the Espanola and Alamogordo areas. Power generation accounts for approximately 10% of the statewide total, some 164,741 tons per year at the present rates of activity. There is one significant source of power generation pollution in the state—the Arizona Public Service Company/New Mexico Public Service Company facility near Farmington. These coal burning plants generate some 290 tons of fly ash per day—although only 10% of the state's air pollution total comes from the Farmington facility, fully 64% of all the particulates (airborne solid wastes) of the state are generated by this one activity. The fly ash is spread by prevailing westerlies into the upper Rio Grande Valley where it becomes the major factor in reducing visual range and the general quality of the views. The blue haze that is so prevalent from Albuquerque to Taos is attributable to the fly ash. It has been tracked by air into these areas; a satellite photograph shows the plume stretched from Farmington all the way to San Luis, Colorado. Monitoring devices set up at Los Alamos by the Arizona Public Service Company detected



Arizona Public Service Co./New Mexico Public Service Co.
plant near Farmington, N. M.

Photograph by Jon Samuelson

the fly ash. However, industry spokesmen have made no statement concerning the quantities which were found. In addition to the fly ash, sulphur dioxides and oxides of nitrogen are pollutants from the Four Corners power plant. The remaining 9% of the state's air pollution is contributed by miscellaneous burning processes; public dump burning is a major contributor.

Water

The Health & Social Services Department indicates that some 200 miles of New Mexico streams are degraded due to inadequate or improperly operated municipal sewage plants. It is estimated that some 280 industrial and business operations contribute to the contamination of streams. The most notable example of a water polluter is the Molybdenum Corporation of America's mine and processing plant at Questa. Consisting of a slurry of fine sand and small quantities of cyanide, the mill waste is transported by pipe from the mill site in the Red River Canyon to settling ponds west of Questa. The silt settles out and the decanted waters, including dissolved chemicals, are allowed to enter the Red River. However, because of the abrasive qualities of the slurry, the transport pipes break, frequently spilling large quantities of waste into the Red River and eventually the Rio Grande.

Bureau of Land Management officials believe that these breaks may affect fish populations in the Red River. Moly Corp officials state that the decanted water is pure enough to drink; the fact remains, however, that the decant pond, named Turquoise Lake in an attempt to turn it into a recreation area, will not support trout. The Moly Corp has requested permission to dump decant wa-

ter into the wild river section of the Rio Grande; the Bureau of Land Management, which administers the Wild Rivers Act, has at both the state and Washington levels turned down the request. It is technically feasible for the Moly Corp to reuse the decanted water at a capital cost of only one to two per cent of the present capital investment.

Agricultural runoff containing chemical fertilizers and pesticides is becoming another major source of surface water pollution.

New Mexico's ground water supplies are not in good condition. Of 330 public water supplies in the state, 124 failed to meet United States Public Health Service standards for chemical content; nearly a half of the total of 330 failed to meet biological standards. Increased use of ground waters will inevitably result in the lowering of water tables, and the spoilage, through the intrusion of brackish waters, of many small private wells.

Of greater significance in discussing New Mexico's water is the matter of total supply. The state has 2.5 million acre feet available annually. Environmental Services Division of New Mexico Health and Social Services estimates that at present rates of agricultural use, this quantity will support a population of 1.5 million people, only 500,000 more than the present population. Long-range state planning should be begun with reference to that figure.

The satellite cities which are planned for the Santa Fe area have given little or no attention to the question of over-all state water supply. The water resources of New Mexico are finite, a fact which may work to the state's advantage in setting the limits of its population.

Another pollution problem which will require farsighted planning is that of solid wastes. The 3 million daily pounds of refuse generated now require some 200 acres per year in sanitary land-fill operations. That figure, it is estimated, will increase to 500 acres per year by the year 2000. As long as this disposal method is used, land-fill operations must be steered into appropriate areas, areas that have no better social potential.

Ultimately, however, the method must be abandoned in favor of a system which requires reuse of the raw material contained in our solid waste. The American one-use-only approach to materials is profoundly wasteful and, at the same time, environmentally destructive. The world's supply of unreplaceable raw material, iron, virgin forest, hydrocarbon fuels, etc.—is diminishing rapidly as our demand for material goods expands. And, at the other end of a product's life, the vast quantity of American junk imposes severe economic and psychological stresses on our society. The only way out of this double bind is to recycle.

The Air Standards

The quality of New Mexico's environment is and will be controlled by the degree of public concern. The standards promulgated by the state's De-

partment of Health & Social Services, and the laws enacted by the legislature reflect that degree of concern.

New Mexico's air quality standards and regulations, which went into effect 26 February, 1970, are relatively good as a result of a rather substantial amount of citizen's concern and expertise that was demonstrated at the public hearings last September and October. On the positive side, New Mexico emissions' regulations are strict, but not economically prohibitive, when dealing with the emissions from asphalt plants (except portable plants), gypsum plants, cement plants and coal-burning power plants. The fly ash emissions from the Four Corners power plants will, therefore, have to be controlled 99% by 1 January, 1972, in the case of Units 1, 2, 3 and 6, and by January, 1974, in the case of Units 4 and 5, which are now operating at 97%. This will reduce the present fly ash pollution to about one-fifth of the present problem. This is one of the best fly ash emission (particulates) standards in the nation. There is no sulphur-dioxide (SO²) emission regulation in the state. The regulation for hydrogen-sulphide emissions from paper pulp mills is the most stringent in the nation; even with this standard, however, odors would be detectable two miles from a plant. There are no emission regulations for perlite plants or for copper smelters, a major source of sulphur-dioxide emissions.

The regulation concerning sawmill wood waste burners is adequate. It will require some improvement of incinerator performance on all presently operating units. Any unit operating after January 1, 1975, will be required to operate at much higher standards (measured in terms of smoke density). The eventual goal is to phase out this wasteful method of disposing of the sawmill by-products. Open burning of trash is now prohibited in New Mexico except in the case of communities under 5,000 in population with no public refuse collection service. Certain forestry and agricultural uses of fire, along with the fireplace and the barbecue, are also excepted.

New Mexico also defined ambient air-quality standards (a measure of the overall quality of our air) in the case of particulates and SO². Ambient air standards simply set limits, for particular pollutants, beyond which the air will be considered polluted. These limits can be used to justify tightening of emission regulations. Only emission regulations can be used to control pollutants issuing from a specific source. New Mexico ambient air standards for particulates are scandalous considering the existing relatively high quality of our air. It allows an annual geometric mean of 60 micrograms per cubic meter which, if achieved, reduces visibility to a mere 15 miles. New Mexico's natural background particulate levels probably run around 27 micrograms per cubic meter; the existing standard allows, then, significant deterioration of existing air quality. The sulphur-dioxide standard is equally bad.

At .03 parts per million, New Mexico has actually accepted a standard less stringent than those proposed by the cities of St. Louis and Kansas City. At .03 parts per million, adverse effects to plant life and human health have been noted.

The air quality standards and regulations can be strengthened at subsequent hearings before the Health Board. The ambient air quality standards for particulates must be strengthened if we are to protect our views, a basic right of our citizens and an important resource for the tourist industry. A figure of around 35 micrograms per cubic meter would be more appropriate for New Mexico. The sulphur-dioxide ambient air standard must be lowered to .015 parts per million to provide minimal health protection.

Sulphur-dioxide, incidentally, combined with air-borne water vapor becomes sulphuric acid (H^2SO^4) and thereby a major maintenance problem

for many building materials: H^2SO^4 is corrosive to most materials, including human lungs. The ambient sulphur-dioxide level in the San Juan Basin is already exceeding the state standard because of the power plants. New Mexico Citizens for Clean Air and Water, a citizen's group which participated most actively in the standards' hearing, also recommends that visibility standards be set that will define the air as polluted when the absolute visual range is reduced to a certain point — perhaps 100 miles. Emission regulations must be included for sulphur-dioxide and oxides of nitrogen; and the regulations must be expanded to cover industries not now included, such as the copper smelters in the south.

WORK FOR THE FUTURE.

The Air Law

The 1970 legislature made some promising amendments to the Air Quality Control Act. The New Mexico law now has some teeth in it, which its "lobbied to death" predecessor lacked. Some improvements are found in the definitions: visibility is now specifically included as a component of the public welfare which must be protected. The word "will" was replaced by "may" in the section which described polluted air as air which "...will, with reasonable probability, damage health, etc..." This is a significant improvement from the legal point of view, in that less ironclad evidence is needed by

the Health Department or the citizen in establishing a reason to act against a polluter. The language of the new law, "may... damage health" allows action before there has occurred damage to the citizens of the state. The old language, "will damage" essentially allowed industry to avoid being called a polluter until there was already irreversible deterioration in the air and in the health of the citizen: The old "don't move until there is a crisis" syndrome.

Another positive point was the consolidation of the provision for mandatory public hearings, with rights of citizen participation, for all regulation changes and requests by industry for permission to operate below air quality regulations under a variance. Attempts to include noxious odors in the definitions were defeated by cattle interests who feared for the sanctity of their feed lots.

The 1970 bill made some improvements in the enforcement and penalty section of the act. The tools

now available to the Health and Social Services Department and to the citizens include the use of a court injunction against a polluter, a provision for civil penalties of up to \$1,000 per day of violation, a petty misdemeanor provision for such lesser environmental infractions as illegal open burning and removal of an automobile smog control device. The previous act only provided for injunctive relief. The weakness here is in the low "up to \$1,000 per day" fine. It is inadequate for large polluters such as the utilities. An early version of the bill contained a fine of up to \$5,000 per day, a level

found in many states, until a final vote of the bill, when a floor amendment introduced by Alfonso Montoya caused it to be reduced to \$1,000 per day. Future sessions of the legislature must elevate the upper limits of the fine structure so as to be a meaningful penalty for the large offender.

Another job for the next legislative session is to establish the permit system in the state. A permit system allows some control over a new industry before it becomes a pollution problem. Under this system, the industry has to satisfy the Health and Social Services Department that its methods of pollution control are adequate to prevent harmful emissions before it can proceed with construction of the plant. In the long run, this will save the industry money—by avoiding legal battles with Health and Social Services if their methods prove unsatis-

The environmental issues that confront New Mexico, the United States, and ultimately, the human race, are, in the final analysis, far broader than questions of specific contaminants and the regulations for their control. The ultimate concerns must be centered around an understanding of man's relationship with the planet Earth and his right to a clean, healthy, and ecologically balanced environment. It is now necessary to ask fundamental questions concerning the rights of man on this Earth and about our attitudes toward population growth and industrial expansion. *New Mexico Architecture* suggests that its readers put some of these questions to the two candidates for Governor. A post card is provided for these questions. It is hoped that Mr. Bruce King and Mr. Pete Domenici will make a public answer to these questions.

Please send these post cards today!



factory, and by avoiding costly remodeling to meet air quality requirements. The permit system also gives HSS greater control over all sources in the state. The permit system was lost in the last session because the Health and Social Services Department did not feel itself financially or otherwise equipped to administer the program. Adequate funding is a continuing problem—it is a fight which will occur at each session. In the last session, a record \$250,000 for pollution control was appropriated; however the over-all HSS budget was cut drastically, which reduces the effectiveness of the appropriation.

Water Standards and Law

New Mexico's water quality standards are adequate, but could use strengthening. They lack any standard for turbidity (water clarity), one of the pollution effects of the Moly Corp's spills. Increased turbidity in the Red River may have a detrimental effect on fish feeding ability, on the overall life quality of the stream, and, of course, on the tourist industry of the area which must count on good fishing as an asset. The "emission regulations" in dealing with water are measured in chemical oxygen demand (COD) and biological oxygen demand (BOD). The COD standard of 50 parts per million is now being violated by the municipal sewage plants in the City of Albuquerque.

Public hearings are now mandatory in any proceeding in which the city would request permission to continue operation under a variance.

In the last session of the legislature much of what was done to improve the Water Quality Control Act was identical to what was done for the air law; the establishment, for example, of a fine of up to \$1,000 per day in civil penalties. In the case of water, this fine is even more obviously inadequate than in the case of air. Difficult to dispose of pollutants can be held in holding tanks by an irresponsible industry, and then the accumulation of many days or weeks is "accidentally" discharged into the stream in one shot, at the low cost of only \$1,000. The permit system must be incorporated in the water law as well as into the air law. One forward step made in the last legislative session was

the addition of a "private citizen" to the seven-member Water Quality Control Board (Variance Board). Citizen participation in environmental decisions is essential since most government agencies are either too politically confined or too tied to private industry to provide the kind of active disinterested input into the decision-making process. Governor Cargo has appointed a University of New Mexico biologist who is also retained as a consultant by New Mexico Public Service Company. This is hardly what the conservationist had in mind when he asked that a private citizen be included on the board.

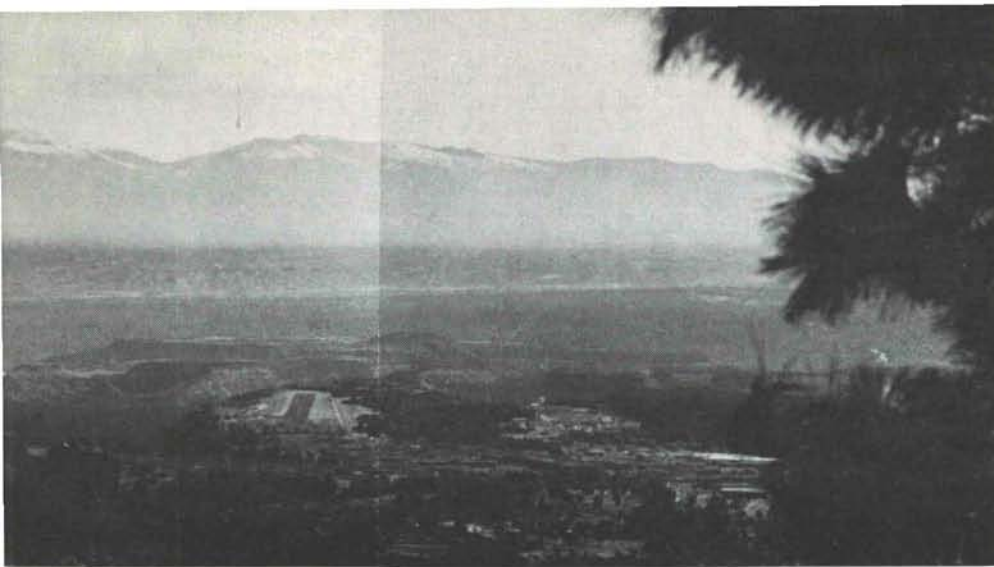
THERE IS ABSOLUTELY NO REASON FOR NEW MEXICO'S AIR AND WATER TO DETERIORATE FURTHER.

We start out relatively clean, and, with vigilance and foresight, we can stay that way. The existing problems, such as the power plants and the sawmills, are neither so serious nor entrenched that they cannot be at least partially corrected. The job of protecting our exceptional environment falls as much to the private citizen as it does to state and Federal agencies; for, in essence, government only can do what the citizen demands that it do. Those who are involved in the development of the state, architects, developers, builders, have a special responsibility, for their effect on the future quality of our environment will be more marked than the average citizen. We must be aware that today's haste, carelessness, excessive concern for profits and cost, or simple ignorance, become, invariably, tomorrow's environmental problem. Economic development at the cost of beauty and health of New Mexico's natural environment, is not good economy—the cost to the public health, to the psychological well-being of the human part of the economy, and the damage to our life support system, are factors which our planners and developers must consider. Foresight, care and environmental awareness must be a part of the development of the Land of Enchantment.

—Harvey Mudd II

Primary Source of Data:

Environmental Services Division, New Mexico Department of Health and Social Services Department.



The Sangre de Cristo

Mountains

. . . . they were always
clearly visible . . . once!

This view was taken in 1968. The cover photograph was taken just 8 years previously—from the same spot, at the same time of the day and year. Photographer: Bill Regan.

Area of Cover
Photograph

What you can do!

Household Cleaners Rated on Phosphate

The following list of household cleaners rated for their phosphate content was prepared by the Pollution Probe group of the University of Toronto, Canada, and published by ECO Bulletin, Emmaus, Pa., 18049, which will provide additional copies on request.

Pollution Probe urged consumers to use soap or low-phosphate cleaners. High phosphate products have a higher pollution potential.

The cleaning agents were analyzed in a University of Toronto laboratory. Estimated error is plus or minus 10 per cent of the figure shown, e.g., if the figure is 40 per cent the actual value could lie anywhere between 36 and 44 per cent. All liquid dish detergents tested had less than 1 per cent phosphate.

HEAVY DUTY LAUNDRY DETERGENTS

Product	Per Cent Phosphate	Manufacturer
Amway Trizyme	52.5	Amway Corp.
Bio-Ad	49.0	Colgate Palmolive
Peri	47.0	Sep-Ko Chemicals
Cheer	44.5	Proctor & Gamble
Oxydol	44.5	Proctor & Gamble
Tide XK	43.5	Proctor & Gamble
Drive	41.5	Lever Bros.
All	39.0	Lever Bros.
ABC	37.5	Colgate Palmolive
Sunlight	37.00	Lever Bros.
Amway SAB	36.5	Amway Corp.
Fab	36.5	Colgate Palmolive
Arctic Power	36.5	Colgate Palmolive
Ajax 2	36.0	Colgate Palmolive
Omo	36.0	Lever Bros.
Duz	35.0	Proctor & Gamble
Bold	31.5	Proctor & Gamble
Surf	32.5	Lever Bros.
Breeze	32.0	Lever Bros.
Amaze	27.0	Lever Bros.
Bestline B-7	27.0	Bestline Products, Inc.
Explore	26.0	Witco Chemical Co.
Meleo Laundry Detergent	25.0	Malco Products, Inc.
Wisk	10.5	Lever Bros.
Tend Maskintvatt (Swedish)	8.0	AB Hetios

Laundry Soaps

Instant Fels	9.0	Purex Corp.
Lux	less than 1.0	Lever Bros.
Maple Leaf Soap Flakes	less than 1.0	Canada Packers
Ivory Snow	less than 1.0	Proctor & Gamble

Dishwasher Compounds

All	45.0	Lever Bros.
Finish	43.0	Economics Labs.
Calgonite	42.0	Calgon
Cascade	36.5	Proctor & Gamble
Amway Automatic Dishwasher Compound	34.0	Amway Corp.
Swish	29.0	Curley Corp.

Light Duty Compounds (Laundry and other uses)

Dreft	34.0	Proctor & Gamble
Zero	7.5	Boyle Midway
Explore Liquid	less than 1.0	Witco Chemical Co.
Bestline Liquid Concentrate	less than 1.0	Bestline Prod., Inc.
Nutri-Clean OLC	less than 1.0	Con-Stan Industries

Miscellaneous

Calgon (water conditioner)	75.5	Calgon
Amway Water Softener	73.5	Amway Corp.
Solvease	23.0	Russel Chem. Co.
Snowy Bleach	22.5	Harold Schafer Ltd.
Spic and Span	21.0	Proctor & Gamble
Mr. Clean	6.5	Proctor & Gamble
Ajax All-Purpose	6.5	Colgate Palmolive
Arm & Hammer Sal Soda	1.0	Church & Dwight
Fleecy	less than 1.0	Bristol Myers
Javex Bleach	less than 1.0	Bristol Myers
Whistle	less than 1.0	Bristol Myers
Jet Spray	less than 1.0	Economics Labs.
Lestoil	less than 1.0	Noxema
Downy	less than 1.0	Proctor & Gamble
Dutch Bleach	less than 1.0	Purex Corp.
Lawsons Borax	less than 1.0	Bristol Myers
Pinesol	less than 1.0	Cynamid

Reprint from the Denver Post April 5, 1970

While not among the products tested by Pollution Probe group of the University of Toronto, the Shaklee Products Co., Hayward, California, has provided us with an analysis of the phosphate content of its laundry detergent Basic-L. A study prepared by "an independent government licensed research laboratory" determined the phosphate content to be "less than 0.1 parts per million."

Coming Soon in NMA

Billboards and junkyards. A look at where-we-are on implementing the New Mexico Highway Beautification Act of 1966.

NEW MEXICO
IS SWITCHING
TO THE MATCHLESS



medical center, Santa Fe
Robert Plettenberg, Architect



library, Albuquerque
John Reed, Architect

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dormitory, Las Vegas
Philippe Register, Architect

PUBLIC SERVICE COMPANY OF NEW MEXICO

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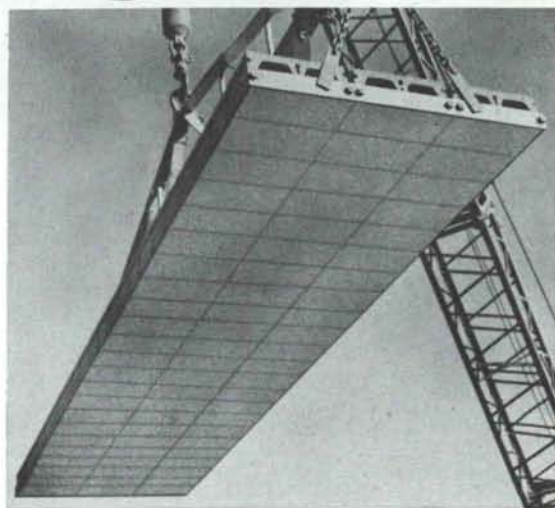
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