

HISTORICAL OVERVIEW OF NEW MEXICO GROUND WATER QUALITY PROTECTION PROGRAMS

Maxine S. Goad
Water Resource Specialist
New Mexico Environmental Improvement Division
Santa Fe, New Mexico

In New Mexico, much of which is arid, water has historically been recognized as a resource which is limited, critical and basic. Article XVI of the State Constitution, adopted in 1911 in preparation for statehood, deals with water, stating that beneficial use shall be the basis, the measure and the limit of the right to the use of water, and that priority of appropriation shall give the better right. This appropriative doctrine was followed by custom and court declaration in New Mexico for many years before it was enunciated in the State Constitution and in the surface water codes of 1905 and 1907 (when New Mexico was still a territory) and the ground water statutes of 1927 and 1931 (Hale and others, 1965). The state engineer has the authority to administer water rights permits.

NEW MEXICO WATER QUALITY ACT

In recent decades concern about water quality has been added to the early concern about water quantity. The New Mexico Water Quality Act, adopted by the State Legislature in 1967, addressed water pollution more specifically than earlier general public health and public nuisance statutes. It established the Water Quality Control Commission (WQCC) and authorized it to adopt standards and regulations to prevent and abate water pollution from all types of activities, with the exception of oil and gas exploration and production which were already controlled under the Oil and Gas Act. The Water Quality Act defines the water to be protected as including both surface and subsurface water.

In the early 1970s, it became apparent that a specific regulatory program to protect ground water quality should be developed under the authority of the Water Quality Act. The need for such specific regulation was clearly illustrated when a serious ground water pollution problem was discovered in the southeastern part of the state. The State of New Mexico won a suit brought against the discharger on the basis of public nuisance, but the case demonstrated that public nuisance was a difficult, expensive and unwieldy legal means of addressing ground water pollution problems and did not prevent those problems

from arising. Prevention of ground water pollution is particularly important in New Mexico where 85% of the water used in municipal water supply systems comes from ground water sources, and in many areas of the state the only source of water is ground water. In addition, experience has clearly shown that once polluted, ground water is extremely difficult and expensive to clean up. Prevention of pollution is much more economically and technically feasible than remedial action.

WATER QUALITY CONTROL COMMISSION REGULATIONS

Formal efforts to develop specific ground water regulations under the Water Quality Act began in 1974. The Water Quality Control Commission, which is made up of a representative of each of eight constituent state agencies (the director of the state agency or his designee) plus a representative of the public named by the governor, directed the Environmental Improvement Division (EID) to draft proposed regulations. Various proposals were discussed at numerous commission meetings from 1974 through 1976 and were also discussed at meetings of the technical advisory committee organized by EID for this purpose. The technical advisory committee included representatives of industry (including mining and milling), agriculture, municipalities, and environmental organizations.

In June 1976, a four-day public hearing was held with the full commission sitting in attendance to hear the extensive testimony and question witnesses. The ground water standards and regulations, suitably reworded in light of evidence presented at the hearing, were adopted by the commission on January 11, 1977 and became effective on February 18, 1977. They appear as Part 3 of the Water Quality Control Commission Regulations (WQCC, 1987) and are entitled, "Regulations for Discharges Onto or Below the Surface of the Ground."

On February 17, 1977, the new ground water standards and regulations were appealed by nine uranium companies, but they were not stayed by the courts and they remained in effect and enforceable throughout the appeal process. The New Mexico Court of Appeals largely upheld the ground water quality regulations on December 19, 1978. On November 16, 1979, the New Mexico Supreme Court also largely upheld them, except for the definition of "toxic pollutant" which the court found to be unconstitutionally vague. The commission subsequently deleted that definition and in 1981 adopted a new, narrower definition for "toxic pollutant" which has since been upheld by the courts. One particularly important aspect of the 1979 New Mexico Supreme Court decision was that it upheld the placement of the burden of proof upon the discharger to demonstrate that the

discharge would not pollute ground water. A more detailed account of the development and adoption of these regulations can be found in "New Mexico's Experience in Setting and Using Ground Water Quality Standards" (Goad, 1982).

The state-wide program for the protection of ground water quality adopted by the Water Quality Control Commission in 1977 has two basic aspects: (1) setting ground water standards (as of 1987, 47 numerical standards plus a generic "toxic pollutant" provision have been adopted); and (2) requiring by regulation that a discharger demonstrate in a "discharge plan" that those standards will not be violated at any place of present or foreseeable future use. The stated purpose is to protect all ground water that has an existing concentration of 10,000 mg/l or less total dissolved solids, and to protect those segments of surface waters which are gaining because of ground water inflow. The requirements apply to a wide variety of types of discharges of effluent or leachate onto or below the surface of the ground, including well injection, seepage from surface impoundments and leach fields, land application of industrial, municipal and other wastes, and any other "point source" discharges which may impact ground water except those specifically exempted. Certain oil, natural gas, carbon dioxide gas, geothermal and coal mining discharges and small individual home septic tank systems are specifically exempted from the requirements of Part 3 and are covered by other statutes and regulations. Also exempted are most discharges due to natural infiltration of precipitation and to irrigated agriculture. All facilities new or newly modified since 1977 are covered by these regulations, and older facilities can be required to submit discharge plans at the discretion of the constituent agency. However, these regulations do not require remediation of historical pollution problems existing before 1977.

Each proposed numerical ground water standard must be supported by substantial evidence at a public hearing before being adopted by the commission. Twenty-seven numerical standards, almost all for inorganic contaminants, were adopted in 1977 as part of the original standards and regulations, and eight toxic organic compounds were added in 1982 as a result of public hearings held in 1981. Subsequent monitoring in the state identified ground water quality problems with additional toxic organic compounds (McQuillan, 1984; Jercinovic, 1984). The commission held a public hearing in September 1985 on proposed additions and amendments to the numerical ground water standards, with opposition testimony presented by representatives of the oil and gas industry. Twelve new standards, and two amendments to make previous standards more stringent, were adopted for toxic organic contaminants, and became effective March 4, 1986. The interests opposing the new standards at the hearing appealed them and asked that they be stayed

during the appeal process. The Court of Appeals rejected the request for stay and on March 25, 1986 issued its formal opinion in this matter clarifying, for the first time, the standards and procedures to be used in requests for stay of administrative regulations promulgated in New Mexico (WQCC, 1986). In December 1987, the Court of Appeals upheld the new standards. In January 1988, appellant's petition for writ of certiorari asking the Supreme Court of the State of New Mexico to consider this matter was denied. Thus, the new standards have been firmly upheld by the courts.

Ground water monitoring has shown that these commission regulations have been very successful in preventing new ground water pollution problems from facilities to which they apply which were new or newly modified since their adoption in 1977 (WQCC, 1986). They have also been effective in requiring that old pollution problems not be allowed to spread or get worse. An inventory of ground water pollution problems in New Mexico from 1927 to 1987 (McQuillan and Keller, 1987) indicates that slightly more than half of the documented pollution incidents were due to non-point sources, predominantly household septic tanks and cesspools, discharges not covered by the commission regulations. Virtually all of the point source contamination incidents were due to historical disposal practices occurring before either Water Quality Control Commission or Oil Conservation Division current regulations were in effect, to accidental discharges, or to current unpermitted discharges.

In addition to discharge plan requirements, the cleanup regulation, Section 1-203, is the other important tool for control of ground water pollution under Water Quality Control Commission regulations. Section 1-203 requires reporting and cleanup of spills, leaks, and other discharges not done in conformance with commission regulations. The majority of incidents handled under this regulation have been petroleum product spills and leaks, both leaks from underground storage tanks and surface discharges and spills.

OTHER PROGRAMS AFFECTING GROUND WATER QUALITY PROTECTION

Ground water quality protection in New Mexico has local, state and federal aspects. While the major law dealing with water quality management at the state level is the New Mexico Water Quality Act, other state laws and broad local authorities are also involved since so many different activities may affect water quality. Please see the attached table "Summary of New Mexico State and Local Government Authorities to Control Pollution of Ground Water - 1987." This table gives information on those authorities which are specifically directed toward protection of ground water quality, such as the Water Quality

Control Commission regulations. It also gives information on those regulatory authorities mainly directed toward other issues but having relevance to ground water protection (e.g. Solid Waste Management Regulations; State Fire Board Rules and Regulations Relating to Flammable and Combustible Liquids). Some of these authorities have been designed to make the state eligible to assume primary enforcement authority over federal programs (e.g. Hazardous Waste Management Regulations; Surface Coal Mining Regulations). A brief description of most of these authorities can be found in New Mexico's latest biennial report to Congress, Water Quality and Water Pollution Control in New Mexico, 1986 (WQCC, 1986), and additional information will be included in the 1988 version of this report.

FROM THE PAST TO THE FUTURE

Much of New Mexico's state ground water protection program was well established before most of the federal legislation and regulations addressing ground water quality were adopted. State regulations controlling the disposal of oil-field brines in order to protect ground water quality have been in effect since 1969. The Water Quality Act was adopted in 1967 and, as described above, a comprehensive ground water quality program applicable to a broad range of discharges was in effect by 1977. One challenge to New Mexico has been, and continues to be, to incorporate into its programs beneficial aspects of federal programs without disruption of state programs already in place. The state has sought and obtained primary enforcement authority over various programs mandated by federal legislation, including the underground injection control program established by the Federal Safe Drinking Water Act and the hazardous waste management program established by the Federal Resource Conservation and Recovery Act.

While New Mexico now has in place an effective program for control of many sources of ground water pollution, serious challenges remain. These include the need to better address (1) non-point source contamination such as that from large numbers of small septic systems in residential areas; (2) disposition of septage (pumpage from septic tanks) and other vacuum truck effluents; (3) landfill problems and how to comply with new federal criteria; (4) leaks, spills and unpermitted discharges; (5) contamination due to historical practices which are no longer allowed; (6) the possibility of pesticide problems; (7) meeting new federal criteria including wellhead protection requirements; (8) improving coordination efforts; and (9) setting appropriate priorities to balance the need for continued support of existing effective programs (especially preventive programs) with the

need to solve new problems. Many of these challenges cannot be met without substantial local effort. City and county governments and local citizens must all be involved; public education is essential for their understanding of the problems and of their options for action.

REFERENCES

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- Jercinovic, D.E. 1984. Petroleum-product contamination of soil and water in New Mexico. New Mexico Environmental Improvement Division, Santa Fe, New Mexico.
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<p align="center">Summary of New Mexico State and Local Government Authorities to Control Pollution of Ground Water-1987 (Table prepared by Maxine S. Goad, Environmental Improvement Division)</p>			
<p>DIVISION OR SUBDIVISION OF NEW MEXICO STATE GOVERNMENT AUTHORIZED TO ADMINISTER REGULATIONS CONTROLLING POLLUTION OF GROUND WATER</p>	<p>AUTHORIZING STATUTES</p>	<p>ADOPTED REGULATIONS/CODES OR PROCEDURES</p>	<p>TYPES OF FACILITIES, ACTIVITIES, AND SOURCES OF GROUND WATER CONTAMINATION ADDRESSSED BY AUTHORIZED DIVISION OF STATE GOVERNMENT</p>
<p>Environmental Improvement Division of the HEALTH AND ENVIRONMENT DEPARTMENT</p>	<p>WATER QUALITY ACT 74-6-1 through 74-6-13, NMSA 1978</p> <p>HAZARDOUS WASTE ACT 74-4-1 through 74-4-13, NMSA 1978</p> <p>EMERGENCY MANAGEMENT ACT 74-4B-1 through 74-4B-11, NMSA 1978</p> <p>ENVIRONMENTAL IMPROVE- MENT ACT 74-1-1 through 74-1-10, NMSA 1978</p> <p>RADIATION PROTECTION ACT 74-3-1, through 74-3-16, NMSA 1978</p> <p>PUBLIC NUISANCE STATUTE 30-8-1, 30-8-2 and 30-8-8, NMSA 1978</p>	<p>Water Quality Control Commission Regulations</p> <p>Hazardous Waste Management Regulations Asbestos Management Regulations</p> <p>Hazardous Materials Emergency Response Plan</p> <p>Solid Waste Management Regulations Liquid Waste Disposal Regulations Water Supply Regulation Radiation Protection Regulations</p>	<p>Industrial (except oil and gas production and refinement) Mining, milling and smelting (except coal mining) Municipal sewage and sludge Private domestic sewage including septic tank systems Hazardous waste generation, handling and disposition, including asbestos disposition Underground Storage Tanks Agricultural (except those irrigation practices which pose no threat) Leaks and spills (except from oil and gas production and refinement) Landfills (except landfills for oil and gas production and refinement wastes)</p>

Summary Table Continued - page 2			
SUBDIVISION OF NEW MEXICO STATE GOVERNMENT	AUTHORIZING STATUTES	ADOPTED REGULATIONS/CODES OR PROCEDURES	TYPES OF FACILITIES AND ACTIVITIES ADDRESSED
Oil Conservation Division of the ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT	OIL AND GAS ACT 70-2-1 through 70-2-38, NMSA 1978 WATER QUALITY ACT 74-6-1 through 74-6-13, NMSA 1978 GEOTHERMAL RESOURCES CONSERVATION ACT 71-5-1 through 71-5-24, NMSA 1978	Oil Conservation Division Rules and Regulations Water Quality Control Commission Regulations Geothermal Resources Rules and Regulations	Oil and natural gas production and transportation through refinement, including disposition of produced water and drilling fluid Oil field servicing companies Refineries Natural gas processing plants and transmission after refinement Carbon dioxide facilities Geothermal facilities
Mining and Minerals Division of the ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT	SURFACE MINING ACT 69-25A-1 through 69-25A-35, NMSA 1978 ABANDONED MINE RECLAMATION ACT 69-25B-1 through 69-25B-11, NMSA 1978	Surface Coal Mining Regulations New Mexico Reclamation Plan for Abandoned Mine Lands	Surface and underground coal mining Abandoned mines (coal mines and under certain conditions other mines)
STATE ENGINEER OFFICE	72-2-1, 72-13-4, 72-13-6, 69-3-6 and 70-2-12.8. (15) NMSA 1978 72-12-1 through 72-12-28, NMSA 1978 New Mexico Supreme Court Decisions in <u>City of Roswell v. Reynolds</u> , 88 N.M. 249, 522 P. 2d 796 (1974); <u>Heine v. Reynolds</u> , 69 N.M. 398, 367 P. 2d 708 (1962); and <u>Stokes v. Morgan</u> , 101 N.M. 195, 680 P. 2d 335 (1984)	State Engineer Rules and Regulations Governing Drilling of Wells and Appropriation and Use of Ground Water in New Mexico State Engineer Order # 25A 1950 (Estancia Basin)	General supervision of waters of the state Plugging of mine discovery or drill holes Drilling, casing and plugging artesian wells to prevent commingling Pumpage control to prevent salt water encroachment Designation of aquifers to be protected by the Oil Conservation Division

Summary Table Continued - page 3			
SUBDIVISION OF NEW MEXICO STATE GOVERNMENT	AUTHORIZING STATUTES	ADOPTED REGULATIONS/CODES OR PROCEDURES	TYPES OF FACILITIES AND ACTIVITIES ADDRESSED
Division of Agricultural and Environmental Services of the NEW MEXICO DEPARTMENT OF AGRICULTURE	PESTICIDE CONTROL ACT 76-4-1 through 76-4-39, NMSA 1978	Regulatory Order Number 5 under the Board of Regents of New Mexico State University	Agricultural pesticide application
State Fire Marshal's Office of the STATE CORPORATION COMMISSION	FLAMMABLE LIQUIDS STATUTE 59-17-13 through 59-17-26, NMSA 1978	State Fire Board Rules and Regulations Relating to Flammable and Combustible Liquids (incorporates National Fire Protection Assn. (NFPA) 30, 1984 Edition, NFPA 385, 1979 Edition)	Transportation, marketing, distribution, handling and use of flammable liquids
Motor Transportation of the STATE CORPORATION COMMISSION	MOTOR CARRIER ACT 65-2-80 through 65-2-127, NMSA 1978 Constitution of the State of New Mexico Article XI, Section 1 through 18, NMSA 1978	New Mexico Motor Carrier Rules and Regulations, Rules of Procedure Rule 40 - Governing Transportation of Explosives and Inflammables, Section 1 (applicability of federal Department of Transportation Regulations)	Transportation by motor carrier of hazardous materials including petroleum products
Pipeline Division of the STATE CORPORATION COMMISSION	PIPELINE SAFETY ACT 70-3-11 through 70-3-20, NMSA 1978 Constitution of the State of New Mexico Article XI, Section 1 through 18, NMSA 1978	Rules and Regulations of the Corporation Commission of the State of New Mexico Relating to Pipelines Transporting Oil (Order No. 401) Rules and Regulations for the Transportation of Natural and other Gas by Pipeline-Minimum Standards	Transportation of petroleum and petroleum products by intrastate transmission pipelines

Summary Table Continued - page 4			
SUBDIVISION OF NEW MEXICO STATE GOVERNMENT	AUTHORIZING STATUTES	ADOPTED REGULATIONS/CODES OR PROCEDURES	TYPES OF FACILITIES AND ACTIVITIES ADDRESSED
Construction Industries Division of the REGULATION AND LICENSING DEPARTMENT	CONSTRUCTION INDUSTRIES LICENSING ACT Section 60-13 NMSA 1978	*Construction Industries Rules and Regulations* (Plumbing Code)	Septic tank construction and function
COUNTIES OF THE STATE	SUBDIVISION ACTS 47-5-1 through 47-6-29, and 3-20-1 through 3-20-16, NMSA 1978 ZONING ACT 3-21-1 through 3-21-26, NMSA 1978 REFUSE ACT 4-56-1 through 4-56-3, NMSA 1978 COUNTY ORDINANCES ACT 4-37-1 through 4-37-9, NMSA 1978	County Subdivision Regulations County Zoning Regulations County Refuse Systems County Ordinances, and Grant of Same Authorities Granted Municipalities (see below) with Certain Exceptions	Subdivisions, including liquid and solid waste disposal and water supply systems. Location and use of facilities: restrictions to promote health and welfare Collection and disposal of refuse Landfills, liquid waste systems, other facilities and activities affecting health and safety in the county.
MUNICIPALITIES OF THE STATE	PLANNING AND PLATTING; MUNICIPAL SUBDIVISION ACT 3-19-1 through 3-20-16, NMSA 1978 ZONING ACT 3-21-1 through 3-21-26, NMSA 1978 HEALTH; CONTROL OF DISEASE 3-43-1 through 3-43-2, NMSA 1978	Municipal Planning and Platting and Municipal Subdivision Regulations Municipal Zoning Regulations Municipal Health Codes	Municipal planning and regulation of subdivision within municipal planning jurisdiction Location and use of facilities: restrictions to promote health and welfare Activities affecting public health

Summary Table Continued - page 5			
SUBDIVISION OF NEW MEXICO STATE GOVERNMENT	AUTHORIZING STATUTES	ADOPTED REGULATIONS/CODES OR PROCEDURES	TYPES OF FACILITIES AND ACTIVITIES ADDRESSED
MUNICIPALITIES OF THE STATE (continued)	WATER FACILITIES 3-27-1 through 3-27-9, NMSA 1978	Control of Municipal Potable Water Supplies	Protection of municipal water supply sources within and without municipal boundaries
	SEWAGE FACILITIES 3-26-1 through 3-26-3, NMSA 1978	Sanitary Sewer Authorities	Sewage collection, treatment and disposal
	REFUSE ACT 3-48-1 through 3-48-7, NMSA 1978	Authority to Regulate Refuse	Refuse collection and disposal
	POWERS OF MUNICIPALITIES 3-18-1 through 3-18-29, NMSA 1978	Municipal Ordinances	Facilities and activities within the jurisdiction of a municipality