

## NEW MEXICO GROUND WATER QUALITY PROTECTION STRATEGY

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New Mexico currently has one of the most advanced ground water protection programs in the country, in large part because of the state's early concern and action. The State Constitution, adopted in 1911, addresses the allocation and use of water, and a 1971 constitutional amendment requires the legislature to provide for water pollution control. In 1967, the state legislature passed the Water Quality Act establishing the Water Quality Control Commission (WQCC) and assigned the Commission the duties of adopting regulations to prevent or abate water pollution and to develop a continuing planning process. Comprehensive regulations covering ground water quality were adopted in 1977. Many other states have not yet implemented effective water pollution regulations.

### BASIS FOR STRATEGY DEVELOPMENT

In 1978, President Carter's Water Policy Message directed federal agencies to expand federal and state dialogue and cooperation on ground water issues. In 1979, the U.S. Environmental Protection Agency (EPA) began development of a ground water protection strategy; in 1980, a proposed strategy was distributed for comment; and in 1984, a final Ground-Water Protection Strategy was issued. Four major EPA objectives were to:

1. strengthen state ground water programs;
2. assess ground water problems from unaddressed contamination sources;
3. issue guidelines to direct EPA ground water protection and cleanup efforts; and
4. to strengthen EPA's ground water management organization and its cooperation with other federal agencies and the states.

In pursuing the first of these objectives, the EPA encouraged states to make use of existing grant programs to develop their ground water protection programs and strategies. The New Mexico Environmental Improvement Division (EID) has for several years received funds from the EPA under Section 106 of the Clean Water Act to strengthen New Mexico's ground water protection program. Recently, this grant has been used, in part, to prepare its ground water quality protection strategy. The purpose of the formal strategy

is to detail the manner in which the state will strengthen its protection program in the future.

A number of states have already submitted strategies to the EPA, while New Mexico's strategy is still in preparation. The significance of this is not that New Mexico's strategy is late in being submitted, but that the format and substance of the strategy are being developed with the deliberations of other states available as background. Additionally, there has been increasingly consistent guidance from the EPA and there have been several books published on strategy development. Within this context, New Mexico's Ground Water Quality Protection Strategy is expected to provide useful information and guidance to municipal, county and regional governments as well as state agencies which deal with ground water contamination. The public and their elected representatives will also find useful material within the strategy.

## STRATEGY DEVELOPMENT

Development of a sound and useful ground water quality protection strategy requires establishment of a goal; assessment of the current protection system; development and assessment of possible additions, deletions, and alternative approaches to the current system; and development of a scheme for selecting and implementing specific improvements.

### The Current System

The current ground water protection system provides protection to ground water quality through numeric and narrative standards. Numeric standards established by the WQCC include 33 health-related, nine aesthetic-related (causing problems such as disagreeable taste and odor) and five agriculture-related ground water contaminant concentration limits. An example of a narrative standard is the WQCC's prohibition of contamination by "... a water contaminant or combination of water contaminants (among the 87 listed and potentially toxic chemicals) in concentration(s) which, upon exposure, ingestion, or assimilation either directly from the environment or indirectly by ingestion through food chains will unreasonably threaten to injure human health, or the health of animals or plants ..."

The purpose of the WQCC regulations is to protect all ground water in the state which has an existing total dissolved solids concentration of 10,000 mg/l or less, for present and potential future use as domestic and agricultural water supply, and to protect those segments of surface waters which are gaining because of ground water inflow.

There are over 400 facilities operating with discharge permits issued under these regulations. Only one percent of these facilities have caused ground water contamination in excess of standards. Yet the EID is aware of almost 900 incidents of ground water contamination which occurred between 1927 and 1986 and which were caused by unpermitted discharges. Only 54 of these cases have received or soon will receive some degree of remediation.

The state's Hazardous Waste Management Regulations require owners or operators of hazardous waste management facilities to monitor for indications of the presence of hazardous constituents in ground water above background concentrations. Where contamination is detected, cleanup is required to background concentrations or to Alternate Concentration Limits. The New Mexico Environmental Improvement Board, which promulgates these regulations, is required by the state's Hazardous Waste Act to adopt regulations equivalent to EPA's regulations. EPA's regulations are adopted pursuant to the Resource Conservation and Recovery Act. There are more than 750 facilities in the state which handle hazardous waste. The number of these which has caused ground water contamination is unknown. There are only 23 facilities which are subject to current hazardous waste permitting requirements. Contamination at seven of these sites has been documented, and corrective action has been or is being taken at all seven sites.

New Mexico's Liquid Waste Disposal Regulations cover residential septic tank discharges. Ground water is protected through lot size (density) and water table clearance requirements. There are approximately 135,000 septic systems in the state, about 50,000 of which have state permits. Most of the remaining systems have been "grandfathered". There have been approximately 450 cases of ground water contamination from septic systems, most of which are reported as excessive nitrate concentrations in areas of dense residential development. No remediation of contaminated ground water has occurred.

#### Ground Water Classification

In assessing the current system, there are a number of questions which should be asked. One of the first is, "Is all ground water in the state which needs protection adequately protected by statute and regulation?" In other words, if present statutory requirements and regulations were enforced in all circumstances where they apply, would all significant present and future ground water quality problems be eliminated? This question naturally leads to additional questions: Is there ground water in the state that doesn't need protection? What is adequate protection? For what is the ground water protection being provided? Most states begin to answer these questions by categorizing

ground waters according to a classification system. Ground water standards are then set for classes of use.

For example, Wyoming's regulations have identified seven categories of ground water use and protection, including domestic (<500 mg/l TDS); agricultural (<2000 mg/l TDS); livestock (<5000 mg/l TDS); industrial (<5000 mg/l TDS); mineral, hydrocarbon and geothermal (no TDS limit); fish and aquatic life (<500mg/l for egg hatching, <1000 mg/l for fish rearing, and <2000 mg/l for sustaining aquatic life); and unfit for any use (no TDS limit). Dischargers impacting water with existing uses cannot make the affected water unsuitable for its intended use at any place of withdrawal. Discharges to unappropriated waters cannot cause the affected waters to exceed established numeric use standards.

Another approach has been taken by Connecticut. That state has four categories of ground water within its classification system: uncontaminated public drinking water supplies; uncontaminated private drinking water supplies; contaminated but treatable ground water; and contaminated and untreatable ground water. There are no associated numerical standards. Discharges of increasing ground water impact are allowed over aquifers with increasing degrees of contamination. Completed aquifer classification maps provide guidance for siting permitted dischargers (in general, none but innocuous discharges are allowed into the first two categories of aquifer), and serve as planning tools for water supplies and waste disposal and influence remedial additions.

In New Mexico, the Hazardous Waste Management Regulations protect all ground water in the state to drinking water standards or better. The WQCC regulations protect ground water of 10,000 mg/l TDS to standards of highest use. Should ground waters of the state with TDS concentrations greater than 10,000 mg/l receive protection by the WQCC regulations for highest use, for example, for use in secondary recovery of hydrocarbons by the oil and gas industry? Should New Mexico expand its classification system, for example, based on aquifer vulnerability, and develop aquifer vulnerability maps to aid in focusing state ground water protection and remediation efforts? Should there be areas of special protection, for example, no discharge zones around municipal wellheads?

#### Governmental Authorities

Another general question that should be asked is, "How should authorities and responsibilities for ground water quality protection be distributed?" Ancillary questions include: Which governmental entities are most appropriate to deal with which ground water contamination problems? What are the appropriate sources of technical and

financial support for these entities and what authorities are necessary to meet concomitant responsibilities?

It is Florida's policy to ensure that all local government plans include provisions for the control of development which protect existing and future ground water supplies from degradation. Dade County, Florida protects its wellfields by purchasing and decommissioning high-risk facilities such as gasoline stations which are located within wellhead protection areas.

Massachusetts has a program which provides financial assistance to communities to purchase land or easements to protect the recharge areas of water supply wells from future development. Since 1982, almost \$15 million has been provided to cities and towns which have developed plans for ground water protection. Land owners can also be compensated through reduced taxes in proportion to the decrease in appraised value. The Cape Cod Planning Commission sponsors educational programs on waste reduction for individuals and industries. Also, a local regulatory program for underground storage tanks is in effect.

The city of Austin, Texas enacted ordinances to protect watersheds in the Edwards Aquifer recharge area. Three zones were established within each watershed: critical water quality zones which are to be free from development; buffer zones where urban development is severely restricted; and upland zones which are the least restrictive on development. Underground Water Conservation Districts may soon establish ground water protection rules in various Texas localities.

In New Mexico, the state is prohibited from directly dictating land use in its pursuit of public and environmental protection. But local governments have both the responsibility to protect public health, safety and welfare as well as the unique authority to manage land use practices. At present, eight counties have enacted zoning ordinances, three of which address ground water quality problems through subdivision requirements. Should the state require that all local planning processes include provisions for ground water quality protection? Should the state provide incentives to local governments to consider ground water quality in their planning processes, for example, through tax breaks or grants? Should the state be required to provide technical and financial assistance to local governments, for example, in the form of consultation and/or vulnerability maps of local water supply aquifers?

#### Contamination Prevention and Cleanup

The EID estimates that about six percent of the known ground water contamination cases are being cleaned up. What damage is being caused by the remainder? What are

the health effects of people presently drinking contaminated ground water unbeknown to the EID and themselves? Is it regulations, resources or both which limit the state's cleanup efforts?

The Regional Water Quality Control Board, California's water pollution abatement agency, cannot effectuate abatement as rapidly as is technically feasible because of its immense caseload and severe understaffing. As a result, contamination migration presents unnecessary threats to water supply wells and the abatement costs are increased geometrically. It is estimated that staffing levels should be increased 400 to 600 percent, an action that is generally regarded as politically impossible. In response to this situation, local governments have proposed that they be given authority to step into the abatement process if the state cannot move rapidly on any particular case. Nevertheless, California has about \$100 million available in a state "superfund" and about \$9 million in a leaking underground storage tank fund.

Arizona, suffering from significant ground water quality problems, approved a landmark Environmental Quality Act in May, 1986. That act established the Water Quality Assurance Revolving Fund, made up of legislative appropriations, monies from penalties and monies recovered from responsible parties for cleanup costs. The fund is to receive \$6 million per year and can accumulate up to \$25 million. Its purpose is to provide for monitoring of pollution and ground water cleanup. Staffing for the ground water protection program was more than doubled with the addition of approximately 130 positions.

The recently enacted Iowa Clean Water Act raises approximately \$12 million per year for the next five years for control of ground water contamination. The law is unusual in that it stresses education and research. For example, centers are created at three public universities to study contaminant health effects, proper waste disposal and reduction of agricultural chemical use. Approximately three-quarter of the \$64.5 million cost will be paid for by chemical manufacturers and dealers.

Should New Mexico significantly increase its staffing and funding levels, and if so, should the funding come from increased taxes, ground water user fees, fees on dischargers, fines and penalties or some other source or combination of sources? Should local governments be given a role in contamination cleanup, and if so, how will those efforts be funded?

#### Implementing Improvements

There is a long list of general and specific questions which should be asked in the process of developing a state ground water protection strategy. For example, should the

monitoring and protection afforded private wells be expanded? What are the effects of agricultural practices on the state's ground water quality, and are those practices in need of additional regulation? Should there be an approved hazardous waste disposal site in the state in order to minimize illegal disposal? Should contamination standards be developed for water-borne pathogens? Are present minimum lot size requirements for the installation of septic systems inadequate? Should septic systems continue to be allowed to be installed on small lots platted prior to applicable regulations?

In developing the New Mexico Ground Water Quality Protection Strategy, the EID is attempting to set out these and additional issues for appraisal. It anticipates the formation of a committee made up of representatives of state, regional, county and municipal governments, environmental groups, industry, Indian tribes, academics and the public-at-large to deliberate these questions and develop recommendations. The document providing background on the state's ground water resources, its ground water quality problems, current ground water protection programs and possible approaches to ground water quality problems, will be available from the EID in a couple of months. The committee will be expected to characterize New Mexico's interest in protecting ground water quality, to make known the views of particular constituent groups where applicable, to provide feedback to the state on existing ground water quality protection policy, to recommend ground water quality protection policy, and to recommend constructive changes. This process should take one to two years.