UTTON TRANSBOUNDARY RESOURCES CENTER

Water Matters!

Volume 2015 Article 23

1-1-2013

Water Quality Regulation

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> "I ask all of you, how effective our efforts to provide a sustainable water supply can be if we do not have the support and tools to ensure that water quality is safe and clean?"
>
> Marcy Leavitt,
> *N.M. Environment Department's Surface Water Quality Goals,*
> WRRI Water Quality for the 21st Century Conference (2006)

Water Quality Regulation

While many of the water issues in New Mexico center around having an adequate supply of water, the quality of the water is just as important as the quantity in supplying water for drinking and other uses that rely on clean water. Protecting water quality is financially more feasible than conducting expensive cleanup programs. New Mexico has a strong interest in water quality regulation to protect public health and the environment and to minimize expenditures for mitigation of contaminated supplies. Water quality is a difficult subject to navigate; there is a complex web of statutes and agency involvement. This paper is intended to be a quick reference guide to an extremely complex topic.

The New Mexico Water Quality Act was adopted in 1967. The Act provides authority for water quality management in New Mexico. This law establishes the Water Quality Control Commission (WQCC) and defines its authority to adopt water quality standards and to direct programs consistent with the federal Clean Water Act.

The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and for setting standards for surface-water quality. The Clean Water Act is primarily implemented by the states, but the Environmental Protection Agency (EPA) remains responsible for establishing safe levels of contaminants, establishing policy and guidance for surface water quality programs, pursuing cleanup of contaminated Superfund and other toxic sites (usually in conjunction with the states), and overseeing grant and loan programs to provide funding for various water quality programs. In New Mexico, the State lacks "primacy" for issuing permits (discussed below). The federal Safe Drinking Water Act regulates community drinking water systems to ensure safe, treated drinking water for public health.

The New Mexico Water Quality Management Plan (available on the NMED website) provides a concise summary of the water quality management system in New Mexico and fulfills the requirements of § 74-6-4.B of the New Mexico Water Quality Act that the State maintain a comprehensive water quality management program. It also fulfills the requirements of § 208 (area-wide waste treatment management plans) and § 303 (Continuing Planning Process) of the federal Clean Water Act.

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Categories of Water Quality Protection

Sources of water quality problems can be linked to three main categories:

- Point source discharges include releases of potential contaminants to surface or groundwater. These include sewage treatment plants, industrial discharges, landfills, mine sites, or any other discreet source of contamination.
- Nonpoint source discharges from diffuse sources include septic tanks, livestock grazing, erosion from road construction, rural and urban storm water runoff, and sediment arising from forest fires. Return flows from agriculture are exempt from the CWA.
- Natural geologic or atmospheric conditions may cause constituents to exceed water quality standards in some locations.

New Mexico Water Quality Control Commission

The New Mexico WQCC is the water pollution control agency for all purposes of the federal Clean Water Act and for the wellhead protection and sole source aquifer programs of the federal Safe Drinking Water Act. The WQCC also administers and enforces the New Mexico Utility Operator Certification Act. The duties and powers of the WQCC include adoption of a comprehensive water quality management program, the development of a continuing planning process, the administration of loans and grants from the federal government, the adoption of water quality standards, and the adoption of regulations to prevent or abate water pollution. In addition to its formal rule-making role, the WQCC serves as a forum to facilitate and advance a statewide policy dialogue on important water quality topics. It also serves a role in quasi-judicial administrative hearings concerning appeals of certain agency decisions, such as permitting actions and adoption of regulations.

Members of the WQCC include representatives from the Environment Department, Department of Game and Fish, Office of the State Engineer, Oil Conservation Commission, State Parks Division, Department of Agriculture, Soil and Water Conservation Commission, Bureau of Geology and Mineral Resources, Health Department, one representative of municipal or county government, and three members of the public appointed by the governor. Most of the current members are technical professionals with extensive experience in water quality issues.

New Mexico Environment Department

The New Mexico Environment Department (NMED) is responsible for maintaining, restoring, and improving the quality of the state's waters and assuring that safe drinking water is provided from public water systems. NMED is the agency that implements and enforces the regulations adopted by the WQCC. By statute the NMED is authorized to act as staff to the WQCC in proceedings other than adjudicatory or appellate proceedings in which the NMED is a party. The WQCC has assigned the NMED responsibility for assisting in developing water quality classifications and standards, regulating discharges, permitting of wastewater treatment facilities, and undertaking monitoring and enforcement of the statutes and permits.

There are a number of programs within the N.M. Environment Department that deal with water quality issues:

The Drinking Water Bureau oversees public drinking water systems to ensure that water quality delivered to the public meets EPA standards. The Bureau provides technical assistance and community outreach

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throughout New Mexico to help systems meet water quality goals and develop technical, managerial, and financial capacity. The Drinking Water Bureau also oversees source water protection programs for the state and is the agency responsible for assisting New Mexico drinking water systems with compliance with the federal Safe Drinking Water Act.

The *Surface Water Quality Bureau's* mission is to preserve, protect, and improve New Mexico's surface water quality for present and future generations. The Surface Water Quality Bureau oversees implementation of the Clean Water Act in New Mexico, including periodic updates of water quality standards, monitoring and assessment, listing of impaired waters, and development of Total Maximum Daily Load (TMDL) regulations to meet water quality standards. The Bureau also directs programs aimed at addressing nonpoint source contamination through funding and voluntary watershed restoration efforts, and conducts compliance inspections of permitted wastewater dischargers on behalf of the EPA. New Mexico is one of only four states that do not have primacy under the Clean Water Act for issuing National Pollutant Discharge Elimination System (NPDES) permits for point source discharges, most of which are municipal discharges in New Mexico.

The *Ground Water Quality Bureau* (GWQ Bureau) protects the environmental quality of New Mexico's groundwater resources and is responsible for identifying, investigating, and cleaning-up contaminated sites, which pose significant risks to human health and the environment. The GWQ Bureau issues Groundwater Discharge Permits (pollution prevention permits); implements the NMED's responsibilities under the N.M. Mining Act to ensure that environmental issues are addressed and standards are met; oversees groundwater investigation and remediation activities; identifies, investigates, and remediates inactive hazardous waste sites through implementation of the federal Superfund program; oversees agreements between the State and responsible parties;

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and implements the Voluntary Remediation Program. The GWQ Bureau increases industry and public understanding of the importance of safe groundwater supplies and the importance of protecting groundwater quality through pollution prevention initiatives.

NMED also oversees water quality management planning; manages state and federal construction grant and loan assistance programs which provide financial support to municipalities for construction or improvement of wastewater treatment facilities; and provides technical assistance to local governments regarding water and wastewater treatment.

Other bureaus of NMED that also deal at least in part with water quality issues include the *Hazardous Waste Bureau, the Petroleum Storage Tank Bureau, the Solid Waste Bureau, and the N.M. Department of Energy (DOE) Oversight Bureau.*

Other Entities Responsible for Water Quality Regulation

In addition to the N.M. Environment Department, a number of other entities are involved in the oversight of water quality programs, including Tribes, Pueblos, and various federal and state agencies.

Under the federal Clean Water Act § 518(e), *Indian Tribes and Pueblos* are treated as states, allowing them to adopt water quality standards and to administer programs similar to those carried out by the N.M. Environment Department. Tribes can be treated as states if they have governmental and management capacity to administer

water quality programs on their lands. Many of the Tribes and Pueblos in New Mexico have adopted water quality standards, which may differ from State standards, and have active water quality monitoring and protection programs.

The *U.S. Army Corps of Engineers (Corps)* oversees permitting under Section 404 of the federal Clean Water Act, which regulates the discharge of dredged, excavated, or fill material in wetlands, streams, rivers, and other U.S. waters. The Corps is authorized to issue Section 404 Permits for certain activities including construction of ponds, embankments, bridges, stream channelization, or other activities that have the potential to introduce sediment or other chemicals into water. The Surface Water Quality Bureau is responsible for certifying that the 404 permits issued by the Corps protect the state's water quality.

The *N.M. Energy, Minerals and Natural Resources Department* includes the *Oil Conservation Division (OCD)* which plays a role in regulating water quality in New Mexico. The OCD oversees compliance with environmental regulations pertaining to oil and gas operations in the state. The relationship between the work of OCD and that of the WQCC has been in the foreground recently due to the new "Pit rules."

There are 47 *Soil and Water Conservation Districts* in New Mexico. Soil and Water Conservation Districts (SWCDs) are independent subdivisions of the state, governed by boards consisting of local landowners and residents elected or appointed for four-year terms. The N.M. Soil and Water Conservation District Act authorized SWCDs to conserve and develop the natural resources of the state, provide for flood control, preserve wildlife, protect the tax base, and promote the health, safety, and general welfare of the people of New Mexico. SWCDs coordinate assistance from all available sources—public and private, local, state, and federal—in an effort to develop locally driven solutions to natural resource concerns including water quality protection.

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Current Water Quality Issues

There are many water concerns and ongoing management issues in New Mexico. Some of the key pressing issues include: dairy regulation; water quality in the Rio Grande that is beginning to provide public drinking water supplies for Albuquerque and Santa Fe; arsenic in drinking water; mining, oil and gas impacts on water quality; and contamination from various industrial sites and other sources.

Dairy Regulation: There are more than 200 dairies in New Mexico, producing milk from more than 350,000 cows. Many of the dairy operations are confined animal feeding operations (CAFO) where up to 2,000 cows are contained in a feedlot to produce milk. The large concentration of cows creates tremendous volumes of wastewater.

In December 2010, the WQCC adopted new regulations, the "Dairy Rule," for the dairy industry and for the protection of groundwater quality. These regulations require specific measures to control discharges at dairy facilities. In 2011, the WQCC adopted amendments proposed by NMED, the dairy industry, and a coalition representing citizens and environmental groups following negotiations. The regulations include provisions for groundwater and other monitoring requirements; synthetic lining of new impoundments; measurement of discharge volumes using flow meters; and backflow prevention measures to protect cross-connected supply wells.

The GWQ Bureau began permitting dairy facilities under the newly amended rule in 2012. Under the rule, all expired dairy discharge permits will be addressed within an 18-month period. By December of 2012, the GWQ Bureau had proposed 65 draft permits for comment and 15 permits have been finalized and issued. In the fall of 2012, the dairy industry proposed additional amendments to the Dairy Rule. The hearing on the amendments was scheduled for January of 2013 but postponed. In August of 2013, the N.M. Water Quality Control Commission set a March 2014 meeting to hear the dairy industry's petition to substantially weaken groundwater discharge rules.

Rio Grande Water Quality: With Albuquerque and Santa Fe switching to drinking water systems reliant on surface water from the Rio Grande, there has been increasing interest in the quality of river water. Plutonium and radionuclides have been detected in runoff from Los Alamos Canyon below Los Alamos National Laboratory (LANL), as it flows toward the Rio Grande. DOE has an active program to characterize and remediate sources of contamination from historic laboratory operations, yet there has been concern about the potential for these contaminants to eventually affect drinking water supplies. A study conducted by the University of New Mexico concluded that detections of radionuclides and other parameters that exceeded standards in the Rio Grande were relatively infrequent and could be effectively removed at the Buckman Direct Diversion (BDD) and Albuquerque Bernalillo Water Utility Authority (ABCWUA) treatment plants. Exceptions can be traced to storm events and turbidity in the river, and provisions can be made to avoid intake during storm events.

Polychlorinated Biphenyls (PCBs) have also been detected in samples collected from the bed of the Rio Grande. The PCBs were below the maximum contaminant level (MCL) established for drinking water but were above New Mexico's human health and wildlife habitat criteria. The source of the PCBs has not yet been fully identified. NMED believes that they are coming from surface runoff in the Albuquerque area. PCBs are large compounds that can easily be removed in drinking water treatment plants, but their presence may be detrimental to fish and other aquatic species. PCBs were used in hundreds of industrial and commercial applications. The manufacture of PCBs in the United States was banned in 1979. Further sampling and analyses will be conducted by the storm water management agencies in the Albuquerque area as a condition of their EPA storm water permit. The intent is to locate significant sources of PCBs within the urban watershed.

Other monitoring has detected pharmaceutical compounds in the drains and ditches that flow to the Rio Grande. Compounds detected included low levels of pain relievers, insecticides, and other contaminants. While these compounds may be effectively removed at the drinking water treatment plant, they remain a concern for fish and wildlife.

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Coliform bacteria have periodically been detected in the Rio Grande; studies have linked some of the bacteria to wildlife sources. A large nonpoint source study is proceeding in the Lower Rio Grande, where bacterial contamination is a concern because of the food crops grown in the area, to identify sources and remedies for bacterial contamination.

The Middle Rio Grande area is involved in one of three national pilot programs for watershed-based permitting. The pilot process has a geographic focus with government, public interest groups, industry, academic institutions, private landowners, and concerned citizens providing input on the development of a permit for point source discharges that considers the watershed, rather than individual permits.

Arsenic and Other Natural Contaminants: Arsenic is an odorless element that is present in many drinking water supplies in New Mexico due to natural geologic conditions, particularly in materials with volcanic origins. This element has been linked to cancer. In 2000, EPA lowered the arsenic standard for drinking water to 10 parts per billion to protect consumers. Many drinking water systems in New Mexico are continuing to implement upgrades to treatment processes to comply with the new standard.

There have been isolated detections of uranium, above drinking water standards, in groundwater due to natural sources in Espanola and the Pojoaque Valleys, in some wells in the Santa Fe area, other locations along the Rio Grande, and elsewhere in New Mexico. Much of the deep groundwater, and some shallower groundwater, has a naturally high mineral content. For more information, please see the chapter "Deep Water Regulation" in this edition of *Water Matters!*. Individual drinking water systems must deal with naturally occurring constituents through blending and treatment to ensure compliance with drinking water standards.

High levels of salinity are also an issue in the Rio Grande and the Pecos River in the southern part of the state. Technical studies have indicated that much of the salinity is due to natural discharge of saline groundwater.

Mining Impacts on Water Quality: New Mexico has a long history of mining for copper, molybdenum, uranium, coal, and other resources. There has also been considerable activity in oil and gas extraction, including coal bed methane, both historically and recently. These activities have been important economic contributors in New Mexico.

There are currently about 400 permitted mining operations in New Mexico. The N.M. Mining Act of 1993 provides for permitting, monitoring, and closure of hardrock mines in the state. The Act requires reclamation bonds to ensure proper closure. Some of the key current concerns with mining impacts on water quality include:

- *Uranium*: Uranium mining in New Mexico during and after World War II was significant, particularly in the western part of the state near Grants. Most uranium mining in the state ended by the 1980s, but recently there has been renewed interest in uranium mining and in cleaning up legacy uranium sites throughout the northwestern part of the state. Abandoned mines continue to present potential threats to water quality.
- *Coal*: There has been concern about water quality degradation from coal ash disposal in the San Juan Basin. The EPA is considering new rules for disposal of coal combustion, which would affect operations in New Mexico.
- *Oil and Gas*: In 2007, the WQCC adopted new Pit rules designed to protect water quality from oil and gas operations. The Pit rules require a hydrogeologic report that provides sufficient information and detail on a site's topography, soils, geology, surface hydrology, and groundwater hydrology to enable the OCD to evaluate the actual and potential effects on soils, surface-water, and groundwater. The rules also

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require detailed information on dike protection and include siting requirements that prevent pits where groundwater is less than 50 feet below the surface, within 300 feet of a water body, or within 500 feet of a well or wetland. The rules also include closure requirements and long-term sampling.

- *Copper and Molybdenum Mines*: Large copper mining operations in the southwestern part of the state and a molybdenum mine along the Red River in northern New Mexico have contributed to surface-water and groundwater contamination. In January of 2012, NMED initiated development of rules specific to copper mines pursuant to 2009 legislation requiring industry-specific rules for dairies and copper mines. The molybdenum mine was recently listed as a Superfund site. Cleanup of these operations is being overseen by the NMED.

Other Spills and Contaminated Sites: There are numerous industrial, mining, and commercial sites around New Mexico that are currently being monitored and in some cases have been remediated. There are currently 14 listed Superfund sites in New Mexico that are in various stages of investigation and remediation. The Superfund program is designed to address contamination from uncontrolled hazardous waste sites. Additional sites are being addressed by the NMED Ground Water Quality, Petroleum Storage Tank, and Solid Waste Bureaus. Many of the sites are contaminated due to earlier activities that failed to protect ground and surface water. For example, gas stations that were in operation prior to requirements for double-walled gas tanks were much more likely to have releases of chemicals into water supplies. Some of these are still actively being remediated. Information on petroleum storage tank sites, landfills, and other contaminated sites, including status of cleanup, is available at the NMED website.

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One very large current concern is a jet fuel spill from the Kirtland Air Force Base that could include as much as 8 million gallons of fuel that have leaked from underground pipes over a period of decades. The fuel has reached the groundwater aquifer and is moving toward drinking water supply wells. Monitoring for low levels of Ethylene Dibromide (EDB), a mobile indicator that can provide an early warning of the presence of jet fuel, is ongoing. As EDB is no longer in use as a fuel additive, its presence is an indicator that this is a historic problem.

Surface and groundwater standards have also been exceeded in New Mexico waters due to nonpoint sources. Septic tanks have impacted shallow groundwater in numerous locations, and erosion and sedimentation from roads and livestock grazing are also common issues. Statewide septic tank regulations were updated by NMED in 2005. The new regulations may require more stringent treatment depending on lot size and soil and groundwater conditions. While these regulations are more protective of groundwater, there are older areas around the state where septic tanks continue to be a source of groundwater contamination. In urbanized Bernalillo County, all septic systems must be brought up to code by 2015.

Conclusion

As we come to terms with the limits of New Mexico's water supply, the *quality* of our water will become increasingly important. Many activities are important: sampling, testing, and monitoring; developing appropriate regulations and enforcement mechanisms to protect water quality; and providing for treatment and remediation of contamination. Allocating sufficient resources for these activities is a challenge,

but one that is imperative to address. In the end, regulations and policies designed to prevent groundwater contamination are generally less expensive to administer than treatment and remediation programs after contamination occurs.

By Joanne Hilton, Hydrologist, and Susan Kelly, J.D.

Latest Update by James Hogan, Kimberly Kirby, and Jerry Schoeppner (2012)

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