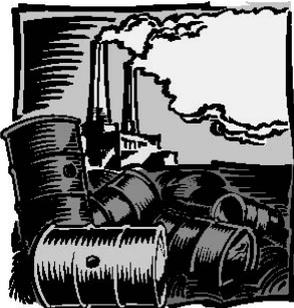




WELLHEAD PROTECTION AND NEVADA REGULATIONS FOR PROTECTION OF GROUND WATER

Introduction

In Nevada most communities receive their drinking water from underground sources through private wells or public water supply systems. In addition to supplying water, the subsurface environment has been used for centuries to dispose of liquid and solid wastes. Subsurface waste disposal from businesses, industrial manufacturing, septic tanks or farming could contaminate both public and private drinking water wells. Therefore, protecting these water supplies is extremely important.



The State of Nevada has adopted water quality legislation and pursuant regulations to protect the ground water from potential contaminant sources. Some potential contaminant sources regulated by the Nevada

Administrative Code (NAC) include underground storage tanks, landfills, wastewater treatment systems, mining facilities, underground injection systems, and hazardous waste treatment and storage/disposal facilities. Since poorly constructed wells and unplugged/unused wells can act as direct conduits for contaminants to reach an aquifer, the construction and abandonment of water wells are also regulated by the State through the Division of Water Resources.

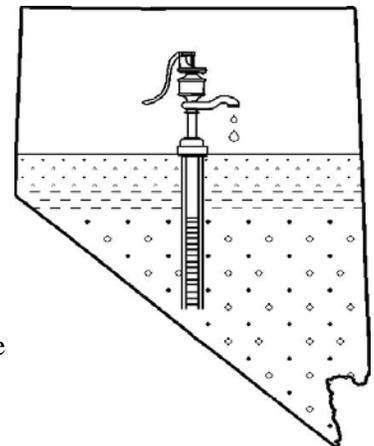
The Nevada Division of Environmental Protection (NDEP), the lead agency for ground water protection in the State of Nevada, implements and enforces regulations under the Nevada Water

Pollution Control Law and other laws included in various chapters of the Nevada Revised Statutes (NRS). The Nevada Division of Minerals (NDOM), the Nevada Department of Agriculture (NDOA), the Nevada Division of Water Resources (NDWR), and the Nevada State Health Division (NSHD) also enforce regulations which protect ground water. Information regarding specific regulations can be obtained by contacting the respective divisions. Also, the NAC is available on the world wide web at www.leg.state.nv.us.

Nevada has passed statutes that provide for source specific controls such as design and performance standards for mining facilities, landfills, etc. Also, Nevada has land use statutes that enable local authorities to manage potential sources of contamination as part of Wellhead Protection Programs (WHPPs). This fact sheet summarizes the description of a Wellhead Protection Program and most other potential contaminant sources regulated by the NAC.

Wellhead Protection Program

The State Wellhead Protection Program (WHPP) is a voluntary program that encourages local governments, communities, and utility companies to take systematic preventive measures to protect their underground drinking water resources. The basic idea of wellhead protection is to reduce the risk of ground water contamination by



managing potential sources of contamination. A community must determine the land surface area around a water supply well, called the wellhead protection area (WHPA), that should be protected. Before a plan or program can be developed, it is important to identify the existing and potential threats to the ground water. Then the WHPA should be managed to protect the ground water.

The Bureau of Water Pollution Control (BWPC) within NDEP is the lead agency for Nevada's Wellhead Protection Program. The BWPC provides technical assistance, educational guidance, and financial assistance (when available) for local program development and implementation of WHPPs. The State recommends the following elements be included in the development of a WHPP.

- Formation of a local WHPP team, and identification of roles and responsibilities of all team members.
- Delineation of wellhead protection areas (WHPAs): the State's recommendation is to consider a minimum WHPA of a 3,000 foot radius or a 5-year travel time capture zone for shallow, unconfined or semi-confined aquifers.
- Identification of potential contaminant sources: an extensive inventory is needed within your community and near the wells to identify the location of facilities using, manufacturing, or storing materials that have the potential to contaminate your drinking water wells.
- Management strategies: to protect your water supply wells from potential sources of contamination.
- Contingency planning: a detailed emergency response plan is needed to be ready for use if an accidental event threatens your drinking water supply.
- Plans for the siting of new wells: to maximize yield and reduce the potential for contamination.
- Public participation: to ensure involvement of local citizens throughout the wellhead protection process.

The management of land use in the WHPA is usually the responsibility of local governments. Local governments have a variety of regulatory and non-regulatory management options to protect their underground drinking water resources and develop a Wellhead Protection Program (WHPP). The fact sheet entitled "Local Authority for Ground Water and Wellhead Protection" contains the details of the regulatory management options.

Nonpoint Sources

Nonpoint source pollution originates from a diffuse source such as urban runoff, irrigation drainage, mining construction, etc. Nonpoint sources can contaminate both surface and ground water resources. The Bureau of Water Quality Planning (BWQP) within NDEP manages a program for the control of nonpoint sources of water pollution. The BWQP's current approach to controlling nonpoint sources of water pollution to both surface and ground water is to seek compliance through regulatory and non-regulatory programs including technical and financial assistance, training, technology transfer, demonstration projects and education. This approach includes coordination of land and water resource management agencies and public outreach. NAC 445A.305 - 445A.340 contains regulations regarding nonpoint sources.

Underground Storage Tank Regulation, Petroleum Discharge and Hazardous Waste Cleanup

The Bureau of Corrective Actions (BCA) within NDEP oversees cleanup activities at sites where soil and/or water contamination has been identified, including contamination from Leaking Underground Storage Tanks (NAC 590.700 - 590.790).

The Underground Storage Tank (UST) program focuses on pollution prevention, by setting performance standards for UST-system design, construction, installation, upgrading and



notification requirements (NAC 459.9921 - 459.999). The BCA provides implementation and oversight for multimedia corrective action cases (NAC 445A.226 - 445A.22755, and 445A.273 - 445A.2737), consultant certification (NAC 459.970 - 459.9729), and the petroleum reimbursement fund programs for leaking tanks which have been repaired/removed (NAC 445A.2738 - 445A.2739).

Remediation of contamination from historical operations at active or former Department of Defense facilities, and all remediation projects on Department of Energy facilities are overseen by the Bureau of Federal Facilities, a part of NDEP.

Hazardous Waste Management

The Bureau of Waste Management (BWM) within NDEP has developed a Hazardous Waste Management plan. The plan provides a mechanism to inventory the sources, types, and quantities of hazardous waste managed in Nevada. NAC 444.842 - 444.976, and 459.952 - 459.95528 contain the implementing regulations.



The RCRA Facility Branch of the BWM is authorized by EPA and has responsibility for implementing Title 40 of the Code of Federal Regulations regarding hazardous waste facilities. An owner or operator of a facility must submit a permit application to BWM for review and approval to operate a facility for hazardous waste treatment, storage, and/or disposal. The permit application also requires that the facility owner/operator implement a ground water monitoring program for disposal facilities to determine the facility's impact on the quality of underground water resources.

Recycling

The Bureau of Waste Management within NDEP provides funding and technical assistance for recycling programs. Nevada does not have a statewide program for the collection and proper disposal of residential household hazardous wastes, however, several counties operate household hazardous waste collection programs (NAC 444A.005 - 444A.655). These programs help protect ground water through public awareness and proper disposal of potential contaminants. Information about locations and proper disposal of household hazardous wastes can be obtained by calling the Nevada Recycling Hotline at 1-800-597-5865.



Solid Waste

NDEP's solid waste disposal regulations (NAC 444.570 - 444.7499) require permits for all disposal sites. The Bureau of Waste Management enforces the solid waste disposal regulations to protect the public health and safety including protection of ground water resources. The disposal site location and the facility design must meet criteria stated in the regulations. The permit application for a solid waste facility must include a comprehensive ground water monitoring program to determine the landfill performance in protecting ground water resources.



Septic Systems and Wastewater

The Bureau of Water Pollution Control (BWPC) within NDEP acts as the primary enforcement agency for Nevada's Water Pollution Control Law. NAC 445A.070 - 445A.348 contain the implementing regulations. The BWPC regulates all septic

systems with a capacity of 5,000 gallons or more of effluent per day. The BWPC also regulates dairies and animal feed lots having a minimum number of animals. NDEP has been delegated the National Pollutant Discharge Elimination System (NPDES) permitting program under the Clean Water Act. Besides NPDES permits for discharge to surface waters, the BWPC also issues State Ground Water Permits for infiltration basins and land application of Publicly Owned Treatment Works (POTW) effluent. NDEP requires the approval of treatment/disposal sites from local governmental bodies before issuing a permit. The BWPC also regulates land application of sewage sludge, or biosolids, a by-product of wastewater treatment.

The Bureau of Health Protection Services (BHPS) within NSHD and the county health authorities regulate the construction of individual septic systems with capacities less than 5,000 gallons per day (NAC Chapter 444).

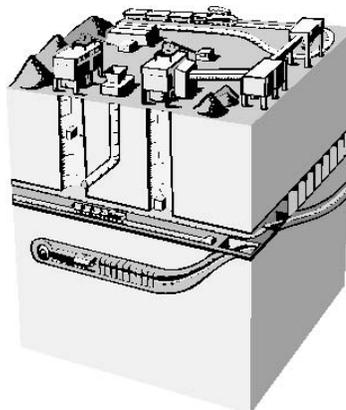
Underground Injection Control

An injection well is either a dug hole or a bored, drilled or driven shaft whose depth is greater than its largest surface dimension. Injection is defined as the subsurface emplacement of fluids in a well. Many of these fluids may be hazardous and could contaminate underground water resources. The Bureau of Water Pollution Control within NDEP has attained primacy for the federal Underground Injection Control (UIC) Program under the Safe Drinking Water Act. The program requires preliminary construction approval for certain injection wells, including geothermal and oil/gas production injection wells, and initial and periodic mechanical integrity testing. It also provides enforcement capabilities for action against noncomplying facilities. NAC 445A.810 - 445A.925 contains regulations regarding the underground injection control program.

Mining Facilities

The Bureau of Mining Regulation and Reclamation (BMRR) within NDEP enforces regulations governing the design, construction, operation, closure and reclamation of mining

facilities (NAC 445A.350 - 445A.447, and 519A.010 - 519A.415). A permit is required before construction of any new process components or modifications to existing process components such as, heap leaching facilities, lined solution ponds, and tailing impoundments. The permit also requires site-specific surface and ground water monitoring programs. The facilities must routinely characterize process solutions and waste rock. Submittal of quarterly and annual reports is required. Spills or releases must be reported to the BMRR.



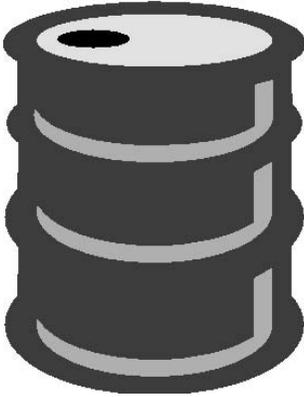
Hydrocarbon and Geothermal Production

The Nevada Division of Minerals (NDOM) has the authority to review and approve design of oil, gas and geothermal wells (NAC 522.010 - 522.195, and 534A.010 - 534A.690). NDOM's authority also includes testing and approval of blow out prevention equipment, and well plugging and abandonment design and verification. The NDOM works in coordination with NDEP's UIC program.



Pesticides

The Nevada Department of Agriculture (NDOA) has the authority to administer the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), and the Nevada Pesticides Act in the State. This includes authority to restrict, prohibit or cancel the use of specific pesticides statewide or by agricultural area if a pesticide is determined to be detrimental to public health (NAC 555.250 - 555.530, 555.600 - 555.700, and 586.005 - 586.151). The NDOA



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has completed a draft State Ground Water Pesticide Management Plan (PMP). Pesticides that may pose an adverse effect to the environment will be subject to an EPA-approved pesticide specific PMP as a condition for their legal sale and use in

Well Construction and Abandonment

The Nevada Division of Water Resources (NDWR) licenses well drillers and regulates well drilling in the State. NAC 534.010 - 534.500 contains regulations for well construction, casing material, proper drilling techniques/sanitary seals and the proper plugging of abandoned wells. All wells other than mining exploration boreholes must be drilled by a well driller licensed in Nevada. Also, NDWR is the custodian of all well logs for wells drilled in the State. The Bureau of Safe Drinking Water (BSDW) within NDEP further regulates well construction for public water systems (NAC 445A.54022 - 445A.5405).

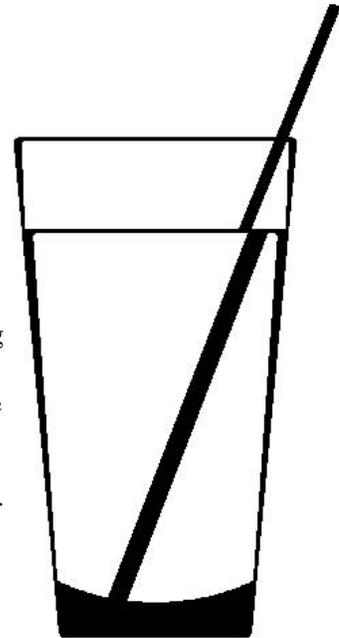
Subdivision Review

The NDEP and the NDWR conduct a comprehensive review of all subdivisions for ongoing development to ensure protection of public health and safety (NAC 278.010 - 278.530, and 445A.342). NDWR's review determines whether or not the water purveyor has sufficient water rights to serve any proposed subdivision. Within NDEP, the Bureau of Water Pollution Control's review determines the availability of proper and adequate wastewater disposal services to minimize wastewater disposal's impact on ground water quality. BSDW's subdivision review includes evaluation of the historical

land use and current zoning of the area. BSDW also reviews soil characteristics if individual septic systems are used. In addition, BSDW requires a will-serve letter if public water systems supply drinking water to the proposed subdivision. If domestic wells are used to supply drinking water, then BSDW requires ground water quality monitoring to ensure that the water quality meets drinking water standards.

Public Water Systems

The Bureau of Safe Drinking Water (BSDW) within NDEP is the primary enforcement authority for the supervision of public drinking water systems as authorized under the federal Safe Drinking Water Act. The BSDW is responsible for the monitoring and regulation of public drinking water systems. NAC 445A.450 - 445A.67644 contains regulations regarding the public water system supervision program.



Prevention is the best solution . . .

Public water suppliers have the responsibility to protect public health and safety by providing safe drinking water. Public water suppliers need to identify potential sources of contamination and work with the appropriate agencies to protect ground water resources. Appropriate preventive measures to protect ground water are less expensive than clean up of contaminated ground water. Managing potential sources of contamination, in part through State and Local regulations and authority, will potentially save millions of dollars in the long term and protect public health.

For More Information Contact:

Nevada Division of Environmental Protection

901 S. Stewart Street, Suite 4001
Carson City, Nevada 89706-0851
(775) 687- 4670

Nevada Division of Minerals

400 West King Street, Suite 106
Carson City, Nevada 89703-0062
(775) 687 - 5050

Nevada Division of Water Resources

901 S. Stewart Street, Suite 4001
Carson City, Nevada 89706-0851
(775) 684 - 2800

Nevada Department of Agriculture

350 Capitol Hill Avenue
Reno, Nevada 89502-2292
(775) 688 - 1182 ext. 251

Nevada State Health Division

4150 Technology Way
Carson City, Nevada 89701-5405
(775) 684 - 4200

For More Information about Wellhead Protection:

Contact the Bureau of Water Pollution Control, NDEP at (775) 687- 9422

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