B. Comprehensive Groundwater Protection and Management

Background

Ground water is a vital and finite resource. In Nevada, aridity, complex hydrogeology, rapid population growth and diversifying public interests are factors substantiating the need for comprehensive ground water protection and management. The increasing importance of this water resource is indicated by statewide ground water supply data. Forty percent of the combined water use for domestic, commercial, industrial, mining and agricultural purposes is now withdrawn from ground water aquifers. All public supply water use in 11 of Nevada's 17 counties was met in 1995 with ground water withdrawals.[1] In 1997, a total of 1930 wells were drilled for domestic (1748), industrial/public-supply (145) and irrigation (37).

A number of factors suggest that dependence on ground water will increase. Surface waters in the state are essentially fully appropriated. Furthermore, ground water resources are considered to be more drought resistant than surface supplies, thus more reliable. At present, ground water supplies generally require less treatment for removal of pollutants than surface water, due in part to the pollutant filtering effect of soils and aquifer materials. (Pending changes to federal drinking water quality standards may result in new water treatment requirements.) Also, where ground water occurs near and at the surface in an integrated system of springs and seeps, it forms an important resource for upland and aquatic ecosystems, thereby contributing to the number and value of outdoor recreation opportunities, the protection of biological diversity, a higher quality of life statewide.

Most ground water basins in Nevada contain aquifers with water of adequate quality and quantity for one or more beneficial uses.[2] However, some aquifers are showing the effects of increased demand and water quality deterioration. People commonly associate ground water pollution with drinking water concerns, but agricultural, industrial and resource conservation uses may also be affected. Ground water pollution comes from many sources, both human induced and natural, potentially limiting the types of uses and further development of aquifers. Thus, the importance of taking a comprehensive approach to ground water pollution protection and management has been well established.

Allocation of ground water resources is managed by the state engineer in the Nevada Division of Water Resources (NDWR) in conformance with the Nevada Revised Statutes (NRS) Chapter 534. The statutes are intended to provide for the protection of existing water rights and to encourage

[1] *Draft State Water Plan,* Section 2. Public water supply refers to residential, commercial, and industrial water use by customers supplied by a public water supply system.

[2] The major exception may be basins where underground nuclear weapons testing has occurred. Matters related to accessibility and quality of ground water in these areas is beyond the scope of this paper.

efficient and non-wasteful use of the state's limited supplies. A fundamental principle is that additional allocation or appropriation of ground water will be restricted if the state engineer determines that additional wells would cause undue interference with existing wells or prove detrimental to the public interest. Where it appears that the average annual replenishment to the ground water supply may not be adequate for the needs of all permitted water right holders, the state engineer must investigate basins or portions thereof and may restrict withdrawals if recharge is found to be inadequate, or take other appropriate administrative measures (NRS 534.110).

Nevada's policy is to protect all ground water against deterioration in quality, in order to maintain supplies that are suitable for beneficial uses. In general, the approach to ground water quality has been centered on controlling specific sources of pollution. All ground water in Nevada is considered to be a potential source of drinking water. Therefore the federal Safe Drinking Water Quality Act standards (i.e., U.S. Environmental Protection Agency established Maximum Contaminant Levels) as adopted by the Nevada State Environmental Commission are applied when evaluating the potential impacts of different pollutant sources and setting remediation, or clean up, actions levels.

The Nevada Division of Environmental Protection (NDEP), in cooperation with other agencies, has developed and is now implementing a Comprehensive State Ground Water Protection Program (CSGWPP) to complement the existing water quality regulations. Program elements include assessment of ground water quality conditions, prioritization of pollution control and remediation needs, and implementation of pollution prevention and control strategies such as the Wellhead Protection Program. A primary objective of the program is to coordinate development of program elements between state, federal and local agencies, thereby taking advantage of complementary roles, responsibilities and resources to enhance the effectiveness and efficiency of ground water quality protection statewide.

Ground Water Quality

Contamination has occurred in many areas of the state, both in rural and urban settings. Sources found to cause ground water pollution include drainage from crop lands and urban lawns and golf courses treated with pesticides and fertilizers, livestock feed lots, clustered septic systems, underground chemical and fuel storage tanks, mining sites, federal facilities, oil wells and pipelines, and solid and hazardous waste disposal sites. Pollutant releases and ground water contamination from such sources are minimized through administration of regulations that require implementation of preventative measures and monitoring. Public education and awareness raising programs are elements of the cooperative strategy. Some pollution events are obvious, such as chemical or fuel spills, and can be cleaned up quickly enough to avoid aquifer contamination. However, there continues to be concern with less obvious pollutant releases which gradually become water quality problems. The presence of man-made contaminants such as pesticides, industrial solvents, and gasoline components in shallow monitoring and drinking water wells in urban areas are examples. Another example is the occurrence of high nitrate and/or pathogenic bacteria levels in some suburban and rural domestic wells. This problem often occurs in locations where the density of septic systems and residential livestock holdings are high and where the ability of soil and microorganisms to

assimilate and dilute the percolating effluent is relatively low.

Much deterioration of ground water occurs through natural processes, such as leaching of mineral from rock formations, soil and playas. Salts are the most pervasive naturally occurring pollutant. Salt concentrations generally are measured as total dissolved solids (TDS).[3] Geothermal systems and volcanic rocks impart iron, manganese, fluoride, arsenic, boron and sulfates. Radon is another contaminant of concern that is commonly associated with granitic rock types. In some basins with natural contaminants, decisions to increase pumpage rates or locate new wells must take into consideration potential for migration of contaminants. Some persistent forms of natural contaminants (e.g., TDS, metals) may become more of a problem as an aquifer is depleted. Several municipal and industrial water suppliers in Nevada have had to change supply resources or implement other measures to mitigate naturally occurring high levels of TDS, iron, manganese, arsenic or nitrates.

Ground Water Recharge

Aquifers may be recharged by natural, incidental or artificial mechanisms. Natural replenishment occurs slowly in Nevada, so protecting or enhancing aquifer recharge areas and processes should be an important element of land use planning in the state. On average, only 3 to 7% of the state's annual average precipitation (9 inches, the lowest of all states) is available for ground water recharge because of high evaporation and transpiration rates, periodic droughts, and land use factors. The quantity of ground water recharge is influenced by changes in hydrologic conditions of contributing source areas and by climate. Changes of land use in a watershed that interfere with infiltration and percolation of rainfall, snowmelt and streamflow (e.g., impervious areas, road cuts, and gully erosion) can diminish both the amount of percolating water and the water quality benefits from dilution of salts.

Ground water quality and quantity can be related to recharge rates and locations. Incidental recharge by different land uses (i.e., wastewater or stormwater impoundments, urban, agricultural and golf course irrigation, septic systems) is an important ground water protection consideration because saturated conditions are created that more readily conduct pollutants into an aquifer. Both urban and agricultural areas have experienced recharge benefits and pollution impacts due to incidental recharge. In contrast, artificial recharge is accomplished under controlled conditions through the use of injection wells and infiltration basins. Artificial recharge projects proceed under permits issued by the NDWR and NDEP that require careful study and monitoring to ensure that ground water quality and permeability of aquifer formations are not significantly affected. In fact, artificial recharge can be implemented to improve overall water quality by blending with higher quality water. The NDWR has issued permits for 5 artificial recharge projects. Project sites are in Eagle Valley (Carson City), Las Vegas Valley, the Truckee Meadows (Washoe County) and in Golden and Lemmon Valleys, north of Reno. The Las Vegas Valley aquifer storage and recovery program, started in 1988, has resulted in over 150,000 acre feet of Colorado River water being injected during the winter to help meet demand in the future. Subsidence control and ground water level stabilization may be additional

[3] Total Dissolved Solids is a measure of mostly inorganic salts (e.g., sodium and chloride) dissolved in water. High TDS is often associated with taste, water hardness, and salinity problems.

benefits.

The Ground Water/Surface Water Connection

Interconnections between shallow ground water and surface water systems (i.e., integrated water systems) may exist to varying degrees in some basins. The influence of ground water discharges on the amount of water available to streams, springs and wetlands is basin specific, dictated largely by the occurrence of subsurface flow paths through aquifer formations and climate conditions. Springs in the mountains and on valley floors provide important watering opportunities for many animals and habitat for diverse assemblages of fish, wildlife and plant species. A water table in decline due to pumping can diminish surface water resources that are dependent on ground water discharge, and in turn impact biological resources and water quality. For example, dewatering of mines in the Humboldt River Basin has the potential, both during and after mining, to interfere with ground water flow and quality, thereby altering the availability and suitability of surface water for natural resources. (These cause and effect relationships are being studied jointly by mining companies and federal and state agencies.)

Studies of the ecology of springs found throughout Nevada have identified many unique, long-lived species of fish, snails, and water insects which are threatened, endangered or have been extirpated. In some circumstances, ground water pumpage and water level decline has been linked to lost or impaired habitat. This suggests more research is needed to better understand the integrated relationships between ground water use, aquifer/surface water response, and natural resource resiliency.

State Agency Involvement with Ground Water Management

State agencies have the lead role in establishing a comprehensive approach to ground water protection and management. Authority lies in various federal and state statutes, regulations, and policies. More detailed information can be found in the *State of Nevada Comprehensive State Ground Water Protection Program Profile* (CSGWPP) report and the *State of Nevada Comprehensive State Ground Water Protection Program Self Assessment* report, both of which were updated by NDEP in March 1998. The NDWR has the primary authority to allocate, adjudicate, and manage underground water resources. Regulations for ground water quality protection are implemented by NDEP, the Bureau of Health Protection Services (BHPS) in the Nevada State Health Division, and the Nevada Division of Agriculture (NDOA). The Nevada Division of Water Planning (NDWP) cooperates with these agencies to forecast water supply needs and to recommend alternative management plans to meet them. Federal, local and regional agencies participate extensively in ground water protection also.

Nevada Division of Water Resources

Ground water use is managed by the State Engineer in NDWR according to Nevada water law (Chapters 533 and 534, NRS). Well construction and ground water use permits are issued by the State Engineer's office. Authorization for a new ground water use is contingent upon the availability of unappropriated water, the protection of existing water rights, and consideration of factors that may prove detrimental to the public interest. Ground water use is also subject to a permit that conditions the location, timing and manner of beneficial use. However, a water right permit is not required for a domestic well.[4] The State Engineer will only appropriate as much water in a basin as can safely be expected to recharge on average over the long run.

An important set of regulations administered by NDWR are those pertaining to well construction and abandonment measures that address concerns over direct aquifer contamination from the surface or aquifer to aquifer contamination. Construction codes require measures that prevent movement of pollutant through the wells, including surface seals and plugging of abandoned wells. Well drillers are licensed by NDWR, and they must adhere to the code or face license revocation. Drillers are also required to file well logs with NDWR.

Other ground water management duties include estimation of annual pumpage and collection of various types of data where required by the water right permit, including ground water use, withdrawal, and water level data.

Nevada Division of Environmental Protection

The state's integrated approach to ground water quality protection is described in the CSGWPP, mentioned above. This report lists and describes regulatory and cooperative programs aimed at preventing, mitigating and remediating ground water contamination. The NDEP is now in the process of implementing elements of the CSGWPP to complement the existing pollution control programs. The core elements of the comprehensive program are existing pollution control programs that address potential water quality impacts from pesticide use, mining, underground storage tanks, underground injection control, landfills, and hazardous waste disposal. Bureaus within NDEP involved in these programs include Water Pollution Control, Mining Regulation and Reclamation, Corrective Actions, Federal Facilities, Waste Management, and Water Quality Planning. The Nevada Division of Agriculture's (NDOA) pesticide regulation and monitoring responsibilities is also in the process of being integrated into the comprehensive state program.

An emphasis on prevention is an important aspect of NDEP's comprehensive approach to ground water protection. Water pollution control regulations mandate that preventative measures be designed into facilities that are potential pollution sources, such as impermeable leak containment structures for chemical and fuel storage tanks. Solutions to controlling diffuse source pollution from urban, industrial and agricultural areas include voluntary and mandatory use of Best Management Practices (BMPs), public education, and land use regulations (e.g., ground water protection district

[4] The exemption for domestic well owners applies if the use is for a single family dwelling and where the use does not exceed a daily maximum of 1800 gallons (about 2 acre feet per year) (NRS 534.180). Metering of domestic ground water use generally is not required.

overlay zoning).

The NDEP is committed to developing a comprehensive ground water assessment, under which a process will be established for identifying "critical basins". Criteria will include the impact of potential contaminant sources, inherent sensitivity of ground water, and the degree of local dependence on water. The assessments may be used to set priorities for basins needing additional attention in terms of coordination between programs and targeting pollution prevention efforts.

A major component of the CSGWPP is the Wellhead Protection Program (WHPP).[5] Wellhead protection involves integrated water resource planning and preventative actions intended to reduce the risk that the quality of current and future drinking ground water supplies will be contaminated from known or potential causes. Wellhead protection programs already have been started in twenty Nevada communities. Developing a WHPP requires coordinated effort by cooperating agencies and organizations to delineate wellhead protection areas, inventory potential and existing contamination sources, select and implement contaminant management strategies, develop plans for locating new wells, and develop a contingency plan. Public participation and education is an important part of wellhead protection.

Bureau of Health Protection Services, Nevada State Health Division

The Bureau of Health Protection Services (BHPS) supervises compliance of public drinking water supply systems with federal Safe Drinking Water Act (SDWA) requirements and permits domestic septic systems. SDWA Vulnerability Assessments of ground water sources supplying public water systems are done by BHPS to determine the risk of contamination and evaluate the need for periodic contaminant monitoring. A more comprehensive approach being implemented under provisions of the 1996 SDWA Amendments is the Source Water Assessment Program (SWAP). The SWAP will build upon Vulnerability Assessments with added provisions to evaluate surface water supply resources and conduct risk analysis. The source water assessment process is being integrated into wellhead protection programs in some municipalities. As SWAPs are completed, BHPS, NDEP and other cooperating agencies will encourage the development of Source Water Protection Plans. The BHPS also collects and monitors water quality data submitted by the public water supply systems.

[5] State of Nevada Wellhead Protection Area Delineation Recommendations. Nevada Division of Environmental Protection. August 1995.

Nevada Division of Agriculture

The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) and the Nevada Pesticides Act is administered by the NDOA. The division has authority to regulate pesticide use, and may impose a local or statewide ban on the use of specific pesticides. NDOA has drafted the Nevada State Ground Water Protection Pesticide Management Plan, and is coordinating with EPA and the USGS in the plan's implementation. Ground water monitoring in agricultural areas that have been targeted as vulnerable to pesticide contamination is done on a rotating basis around the state. Other agricultural areas are monitored randomly. Public education on safe pesticide and fertilizer use is provided by NDOA, as well as the University of Nevada Cooperative Extension and Conservation Districts.

Other State Agencies

The Nevada Division of Wildlife (NDOW) and the Nevada Division of State Parks (NDSP) hold ground water rights for various wildlife and recreation purposes, including drinking water, irrigation, wetlands, and fish rearing stations. If NDOW or NDSP has reason to believe an application to appropriate ground water will be detrimental to recreational or natural resources under their jurisdiction, the agency may object through the statutory protest process administered by the State Engineer. State water law protects springs and seeps on which wildlife customarily subsist (NRS 533.367). The Nevada Natural Heritage Program can play an important ground water management role by providing information on threatened, endangered and other sensitive aquatic species that inhabit unique shallow ground water-fed surface waters found throughout the state, and then help to develop recovery and habitat conservation plans.

Non-Governmental Organizations

The Nevada Rural Water Association (NRWA) provides ground water protection assistance to rural public and private water systems. The organization helps with the design and implementation of wellhead protection programs, satisfying Safe Drinking Water Act requirements, technical assistance, and public education.

Local and Regional Agency Involvement with Ground Water Management

Local governmental agencies and organizations are active in ground water resource protection. Local governments have the authority to pass ordinances and make land use decisions to protect ground water. An important element of master land use planning should be the evaluation and consideration of the accessibility and suitability of ground water supplies to meet future development. Several counties have environmental health departments that review land use and development proposals for potential ground water impacts, monitor ground water conditions, and implement public education programs. Twenty communities are developing or implementing wellhead protection programs, although some are encountering difficulties in implementing the programs due to limited resources, data, and expertise. Many local agencies and utility districts are advancing ground water protection public awareness and education, with programs implemented individually or in partnerships

with different organizations such as the Ground Water Protection Task Force, University of Nevada Cooperative Extension, and local Conservation Districts.

In Clark County, the Advisory Committee for Groundwater Management and the Southern Nevada Water Authority (SNWA) will be seeking 1999 legislative approval to enhance and expand the Las Vegas Valley Groundwater Management Program.[6] Program elements include the construction of dedicated recharge facilities, the permanent storage of up to 5,000 acre-feet per year, public education and a comprehensive well inventory, among other activities. To meet increased water demands from 2007 until 2025, the SNWA intends to utilize Colorado River surpluses (if available), the Southern Nevada Groundwater Bank, the Arizona Banking Demonstration Project and the future Arizona ground water bank (if necessary). Under the Southern Nevada Groundwater Bank, the Las Vegas Valley Water District is recharging available Colorado River water into the regional ground water system for later use. Under the Arizona Banking Demonstration Project, the Authority paid the Central Arizona Water Conservation District to store a portion of Arizona's Colorado River apportionment in Arizona aquifers for use by Nevada. Under certain conditions, Nevada will be able to divert additional Colorado River water in exchange for the water stored in the Arizona aquifers.

Regional and local comprehensive ground water management plans are under development in other counties as well. Ground water management is a major component of the 1995-2015 Washoe County Comprehensive Regional Water Management Plan. Ground water quality and supply elements address, among other matters, industrial and nonpoint source pollution remediation and prevention, aquifer accessibility and suitability, maintenance of minimum ground water level and need for recharge, conjunctive use options, and other matters. The Carson Water Subconservancy District (Douglas, Carson City and Lyon Counties) is developing a water supply management plan which will include analysis of the benefits and costs of ground water banking (recharge) and conjunctive surface/ground water use alternatives. Nye County has undertaken a comprehensive ground water management planning effort, partly to address the potential reoccurrence of overdrafting of a ground water basin in the southern part of the county (Pahrump Valley). Other counties in developmental stages of ground water resource management planning include White Pine and Lincoln counties.

A good example of a collaborative local ground water protection organization is Nevada GOLD, or Guard Our Local Drinking water, sponsored by the University of Nevada, Reno Cooperative Extension with the Retired Senior Volunteer Program (RSVP) in Fallon and Churchill County. Volunteers use several channels to inform the public about potential pollution sources and the effect on ground water such as presentations at schools and information booths at community events. The group visits residences with private wells and septic systems to educate homeowners and to survey potential contaminant sources, such as fertilizer and pesticide use, keeping livestock, fuel storage tanks, abandoned wells, and maintenance of wells and septic systems**.**

Federal Agency Involvement with Ground Water Management

[6] *Las Vegas Valley Groundwater Management Program, Report to the Nevada Legislature*. Advisory Committee for Groundwater Management and the Southern Nevada Water Authority. December 31, 1998.

Recognizing the need for greater ground water protection, yet realizing that many state environmental statutes already addressed the matter, the U.S. Environmental Protection Agency (EPA) established the comprehensive state ground water protection program framework in 1992. Conformance with the EPA framework includes three steps: (1) developing a state profile of programs protecting ground water; (2) instituting a task force, or round table, of interested and affected organizations; and (3) performing a self-assessment of existing programs relative to protection goals. The Nevada Ground Water Protection Task Force serves the round table function through interagency coordination and public outreach. The EPA endorsed Nevada's CSGWPP in 1997.

The U.S. Geological Survey (USGS) performs many ground water basin investigations throughout Nevada, adding greatly to the understanding of the behavior of underground water systems and aquifer formations under different levels of use. Major areas of research include land subsidence, urban and agricultural drainage quality, pit mining impacts, and characterization of regional ground water systems. Monitoring of ground water levels and quality is another important activity; however, it is commonly associated with specific, localized projects or programs, and is not part of a statewide comprehensive ground water monitoring network capable of defining trends in quality or quantity.

The U.S. Bureau of Land Management (BLM), U.S. Forest Service (USFS), and U.S. Fish and Wildlife Service (USFWS) also have ground water protection interests and responsibilities. Recreational use of geothermal hot springs is popular, and these unique resources are managed to protect specially designated plant and animal species. Springs and wells are important watering supplies for wildlife and stock animals. Through land use planning and permitting, and watershed management activities, federal agencies work to avoid or mitigate potential impacts to ground water quality and recharge potential. Federal land management agencies also participate in USGS field studies involving ground water impacts on federal land.

Comprehensive Ground Water Protection Issues in Nevada

1. Substantial amounts of data on ground water quality and quantity are collected by local, state and federal agencies. Unfortunately, most data sources are scattered among the various agencies making data access for external agencies a cumbersome and time consuming process. Some agency-collected data exist in paper files and reports and are not entered into electronic database for more efficient access. State and federal agencies have recognized the need for improved data management and availability and are beginning to develop solutions. Additional funding is needed to make significant progress. The *Water Resource Data Management* issue paper (Part 3, *Nevada State Water Plan*) addresses this issue in greater detail.

2. The need for a statewide ground water level and quality monitoring network has been recognized for some time. In 1978, the USGS, with NDEP, produced a report titled *Ground-Water Quality in Nevada – A Proposed Monitoring Program* that outlined a program for systematically monitoring ground water conditions in Nevada and defined procedures for prioritizing basins for monitoring. A fundamental purpose for monitoring is to acquire data necessary for protection of existing rights and planning to accommodate increasing use of the state's limited supplies.

More information about ambient conditions and trends in water availability and suitability, and a better understanding of interactions between quality and quantity and between surface and ground water systems is needed. Extensive data are being collected in some areas, but these data collection efforts are typically driven by regulatory requirements or research projects; thus, insufficient data may exist for other areas, adding to the difficulty in current and future ground water supply planning and management efforts.

3. More reliance on ground water supplies to meet increasing demand creates a need for study of ground water supply management options. Obstacles to proposals for new dams and surface water reservoirs include high construction cost, potential environmental impacts, dwindling public funding and public opposition. There are few projects in Nevada which provide a basis for gauging the financial, socioeconomic and environmental benefits and costs of artificial aquifer recharge and recovery as a reasonable water supply alternative. In anticipation of increased ground water use, there is a need for more information about the technical, scientific, economic and legal feasibility of ground water recharge and recovery options. Additionally, research is needed to better identify important recharge zones and ascertain the potential impact of land disturbance and impermeable coverage over them.

4. Pollutants from such sources as irrigated agricultural land, golf courses, and lawns, from urban and industrial storm water impoundments and from septic systems, may cause significant ground water quality impairment. Nutrients, pesticides, salts and other pollutants can be transported through the subsurface not only to shallow wells and to deeper aquifers, but also to surface waters, contributing to nonpoint source pollution of streams. Consistent implementation of Best Management Practices (BMPs), public education programs are essential and wellhead protection programs are important ground water quality management strategies. Agencies and others recognize that higher mitigation and remediation costs can be controlled with ground water pollution prevention activities, however implementation costs may be an obstacle for some.

5. Relatively high densities of septic systems and stock animals in suburban areas have been associated with nitrate enrichment of ground water. This situation can occur where residential development proceeds incrementally over many years and the potential for cumulative water quality impacts are not recognized or studied. Domestic and municipal wells may be located in areas of impaired water quality. When larger developments are proposed, the NDEP and BHPS review project plans for potential water quality impacts and health risks. If necessary, agencies can require additional or enhanced protective measures. Remediation or mitigation measures required after water quality deterioration has occurred are often costly and controversial.

6. Relatively little is known about the cumulative effects of long term or seasonal lowering of water tables on stream or spring discharges, and whether upland and water dependent ecosystems are adversely impacted. More research is needed to gain a better understanding of seasonal and longer term ground water table changes and how fish and wildlife and their habitats, range and forest lands, and wetlands are affected by water level changes.

7. Municipal ground water supplies in California (e.g., South Lake Tahoe) have been contaminated

by methyl tert-*butyl* ether (MTBE), forcing the closure of many wells, and raising awareness and concern over MTBE use in Nevada. MTBE is mixed with gasoline to control pollutant emissions from vehicles. It was used in Clark and Washoe Counties in the past. Chemical and physical properties make MTBE a serious threat to drinking water supplies. A number of MTBE formulated gasoline fuel leaks have been discovered and are being remediated. In the absence of a federal safe drinking water standard, NDEP is developing an interim policy setting an MTBE clean-up level. Public water supply utilities with wells in the vicinity of gas stations are concerned over the present and future risk of contamination.

Recommendations

To further enhance comprehensive ground water protection and management, the following recommendations are offered.

1. The Department of Conservation and Natural Resources (Department) should continue to fully support the development and implementation by NDEP of the Comprehensive State Ground Water Protection Program (CSGWPP).

2. The Department should support the development of and funding for a more extensive, sophisticated and comprehensive ground water monitoring network as necessary to ensure that statutory water supply protection requirements and ground water management objectives are being met, including local recharge zone protection. The monitoring network should be a coordinated effort among state agencies, as well as cooperating federal and local agencies.

3. The NDEP should continue to evaluate MTBE and other gasoline additives with respect to the positive and negative impacts to both air quality and water quality, and the overall desirability of the use of such additives in Nevada.

4. The NDEP should continue to evaluate activities necessary to control sources of nitrate contamination, such as septic system discharges, which affect ground water.

5. The NDWP should research the possibility of modifying the AB 198 Grant Program or establishing a new program to fund the creation of new or expansion of existing public water systems where septic tank pollution of the ground water has become an issue.

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