



UTAH
Report
on the Environment
2007

Air | Climate Change | Land | Water

Message from the Executive Director

It was both a surprise and honor to be asked by Governor Jon Huntsman, and later confirmed by the Senate, to serve as the executive director of the Utah Department of Environmental Quality. We owe a great deal to Dr. Dianne Nielson, but look forward to a close working relationship with her as the Governor's energy policy advisor. I do not plan any departure from our core mission and methods and only hope to improve on our strong record.



Rick Sprott

In January 2007, the [Utah Department of Environmental Quality](#) (DEQ) unveiled its first annual **Utah Report on the Environment**, looking at the environmental conditions over the past few decades that contributed to the condition of our environment today. [The 2006 report](#) began an annual review about how we are doing to fulfill our mission at DEQ – to safeguard public health and our quality of life by protecting and enhancing our environment.

As we look over the past year, we see some success – and some challenges. Clean air, land, and water continue to be the focus of Utah's quality of life and economy. We continue to emphasize the best science and collaboration to achieve environmental success as my predecessors were committed to when DEQ was created in 1991.

We made some important strides in 2007 in addressing the challenges of climate change and ensuring a sustainable energy-efficient future. In October 2006, Governor Huntsman created the [Blue Ribbon Advisory Council on Climate Change](#) (BRAC) to provide recommendations on how to reduce greenhouse gas emissions (GHG) in Utah and encourage continued growth of our renewable energy sector. In November 2007, the group concluded its work, under the leadership of Dr. Nielson. That work has provided the framework of continued progress. Utah is one of the eight members of the [Western Climate Initiative \(WCI\)](#) with a long-term commitment to significantly reduce GHG emissions. By May 2008, Utah will establish a specific GHG reduction target.

Air quality continues to be a focus of this Administration. Although air pollution levels have declined in recent years, the ongoing challenge is to meet tougher environmental standards while population and businesses grow. We continue to find ways to solve these seemingly impossible problems. Through our [Choose Clean Air](#) campaign, we have developed a three-day forecast to provide information about current and pending air quality conditions, to inform individuals about actions they can take to curb air pollution. This program has become even more crucial now that scientific evidence shows that ever smaller amounts of air pollution can be harmful.

We continue to work closely with city leaders, local residents and businesses to clean-up contamination that is often the result of historic, unregulated practices that harmed the environment. Through the [Superfund](#), [Brownfields](#) and Utah's [Voluntary Cleanup](#)

[programs](#), thousands of acres of commercial and residential properties have been cleaned and put back into beneficial use.

We continue to protect [drinking water](#) sources for Utah's 2.7 million residents and countless visitors. We also oversee the quality of 14,250 miles of [rivers and streams](#), and nearly 3,000 lakes and reservoirs that sustain a wide variety of wildlife, provide recreation and enjoyment, and support agriculture production.

Our ongoing success continues to be our dedicated employees who work in partnership with our various stakeholders. I invite you to learn more about DEQ and the issues we are following by visiting our Web site at www.deq.utah.gov.

Cleaner Air



Introduction

Utah's air quality continues to be a growing concern. Our mountain-and-valley topography, diverse economy, and a vastly growing population create some air quality challenges for the state. Despite these challenges, Utah's air continues to improve. Stricter regulations for motor vehicles and industry, as well as other emission reduction programs, have helped reduce smog and improved visibility. As noted in the 2006 report, in the early 1980s, Utah struggled to meet the health standards for four of the six criteria pollutants identified by the U.S. Environmental Protection Agency (EPA). During 2006, all Utah counties attained current federal air quality standards.

The 2007 air quality season proved to be more challenging. In 2007, Utah's population grew to nearly 2.7 million – a record 3.2 percent increase over the previous year. Air

quality concerns have prompted Governor Jon Huntsman to address the issue as one of his top priorities during the second half of his administration.

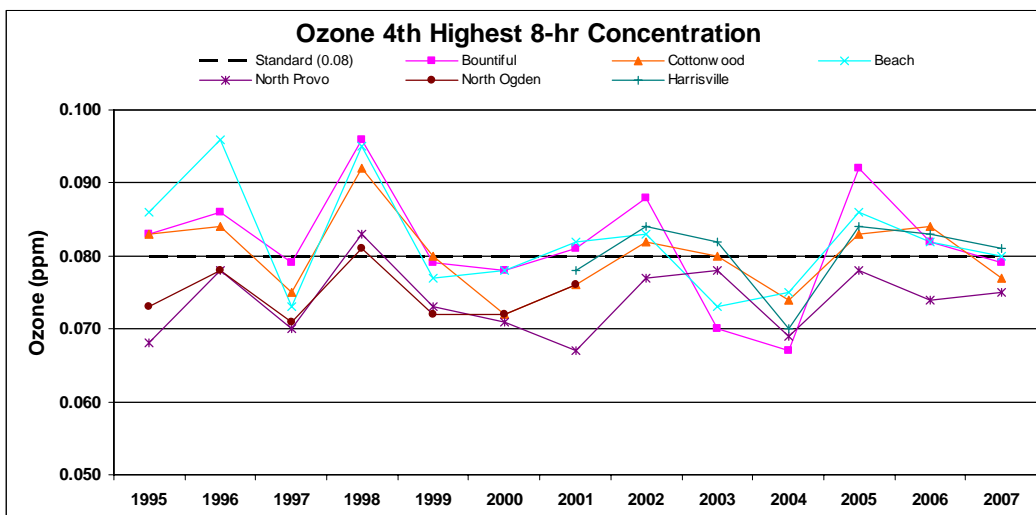
The growing concern is partly due to the fact that scientific evidence about the health effects of air pollutants have prompted the EPA to tighten the standards for ozone and very fine particles known as PM_{2.5}. On December 18, 2006, the allowable daily average of fine particles standard went into effect, reducing the standard from 65 micrograms per cubic meter (ug/m³) to 35 ug/m³. Since the standard has been in place, Utah has achieved a mere 20 percent compliance. Anticipated this spring of 2008 is a change to the 8-hour ozone standard. If that standard changes, it is anticipated that Utah counties won't be able to meet those tougher new health standards either. For more information on the new standard visit: <http://epa.gov/pm/naaqsrev2006.html>

This section focuses on the progress and the challenges the Division of Air Quality has made to reduce air pollution.

Ozone

Ozone is formed when volatile organic compounds (VOCs) and nitrogen oxides (NO_x) mix with sunlight and heat. Ozone, or sometimes referred to as smog, is principally a summer time problem when temperatures are high and daylight hours are long, but it may have implications to wintertime particulate problems as well. It is a mix of chemicals emitted mainly from vehicle tailpipes, diesel engines and the smokestacks of coal-fired power plants. It becomes a more acute problem on hot summer days and can lead to shortness of breath, chest pains and lung inflammation.

In June, EPA announced it would propose tightening the new ozone standards in response to mounting evidence of health risks. The current allowable ozone standard of 84 parts per billion could be lowered to 75 parts or even lower, to 70. Most counties along the Wasatch Front would not comply with the toughest standard.

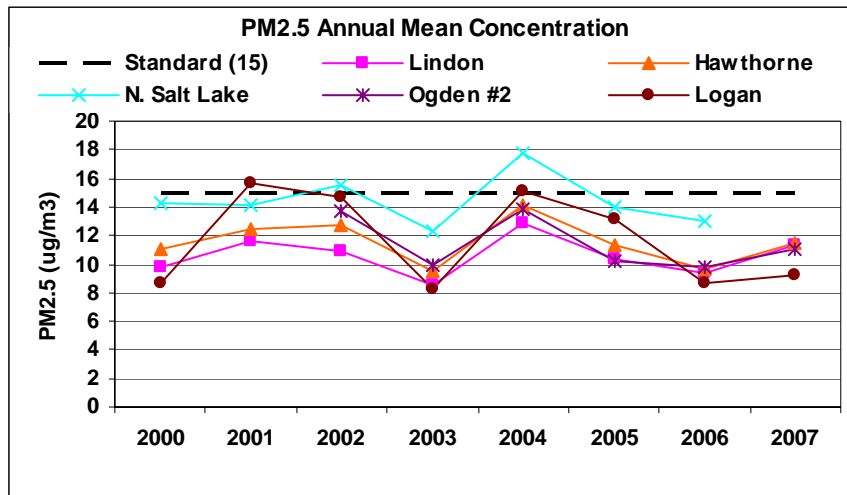


Particulate Matter

Particulate matter refers to the tiny particles found in the atmosphere that range in size from less than one tenth of a micron (about one-tenth the size of a human hair) up to 50 microns. Fine particulate matter known as PM_{2.5} – those particles less than or equal to 2.5 micrometers – is a more serious health problem. As noted earlier, EPA adopted new standards for PM_{2.5}, setting the standard at 15 micrograms per cubic meter (g/m³) on an annual basis and 35 g/m³ for the 24 average – about half the limit of the previous standard.

Much of the particulate pollution can be attributable to emissions from automobiles. Industry, woodstoves, lawn mowers – among many other sources – also contributes to poor air quality. Wildfires also produce air pollution. Because a major source comes from automobiles, the Division of Air Quality continues its public outreach by encouraging people to take mass transit when air pollution levels are on the rise.

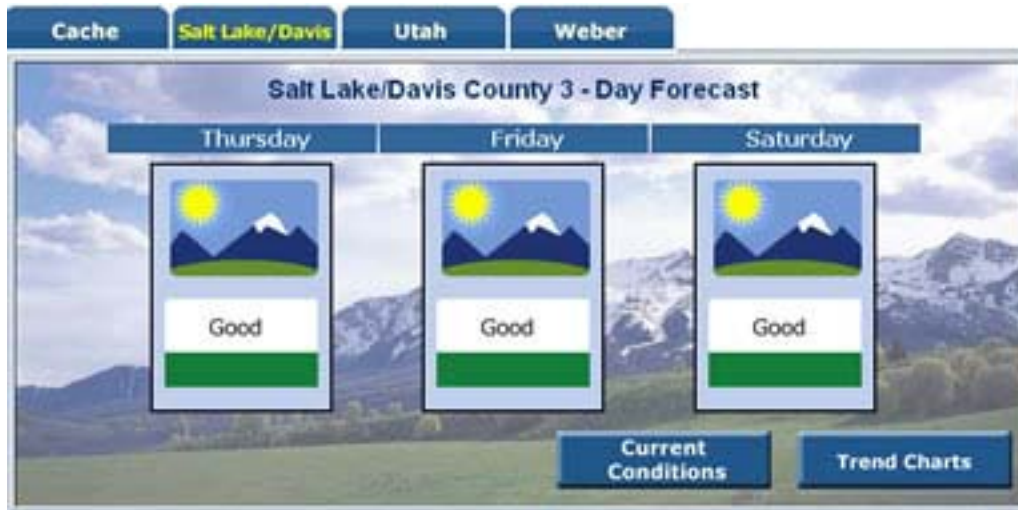
Particulate matter is associated with both respiratory-related and cardiovascular effects. For instance, short-term exposures may aggravate asthma and bronchitis and have been associated with heartbeat irregularities and heart attacks. Long-term exposures have been linked to deaths from heart and lung diseases.



Cache County Success Story:

A study conducted in 2006-07 at Greenville Elementary in Cache County will help school officials better determine when to keep children inside during recess when the air quality is unhealthy. Data collected during the winter showed there was no difference in a child's ability to breathe when playing outside for a 15- to 20-minute recess on days when the air quality is less than perfect. It also showed that there was no difference between those who have asthma and those who don't. The findings are preliminary and the results may suggest that more studies are needed to determine at what level is the air more harmful that may suggest it is better for children to stay indoors during recess.

Three-day Air Quality Forecasting:



In February 2007, the Division of Air Quality's Web site www.airquality.utah.gov began three-day forecasting of air quality conditions intended to help the public decide when it is healthier to stay indoors and ride mass transit. The forecasts use the same "red, yellow and green" color-coded information that emphasizes the air pollution warnings. A yellow means it is an 'ACTION' air quality day, asking people to reduce pollution by minimizing driving. A red 'ALERT' notifies the public on days when pollution is high and especially harmful for sensitive people. The new system is now used year round and emphasizes vehicle pollution over wood smoke since over half of the emissions are from cars and trucks.

Indoor Air/Radon

The Division of Radiation Control (DRC) has seen a substantial increase in radon testing. Radon is an odorless gas and the second leading cause of lung cancer behind smoking. The DRC's Indoor Radon Program, funded by the State Indoor Radon Grant from EPA, attempts to reduce the indoor radon concentrations in homes throughout the state to concentrations less than EPA's 4.0 picocuries per liter. DRC does this through public outreach and providing individualized assistance to homeowners and public agencies on all aspects of the indoor radon hazard problem.

In 2005 about 900 radon tests were conducted throughout the state of Utah resulting in about 150 mitigation systems installed in residential housing. So far 2007, a total of 2,500 radon tests have been conducted with approximately 316 mitigation systems installed.

The successes can be attributable to increased outreach. The Radon Program has continued its longstanding cooperative alliance with IHC Hospitals throughout the state and works in partnership with the Utah Department of Health, the American Cancer Society, the American Lung Association, the Utah Safety Council, the Wasatch Front

Regional Council, and other community groups to provide accurate information and awareness about Radon to the general public.

In 2007, Governor Huntsman declared January “Radon Action Month” to coincide with the national awareness campaign. Boy Scout Troop 115 created an education video on radon gas that continues to be shown to schools and community groups. A national poster contest is held each year, with local winners recognized. For more information, visit: www.radon.utah.gov.

Climate Change/Energy Efficiency

The state is making strides in addressing the challenges of climate change. There is consensus among the scientific community that global warming is a reality and the impacts projected in the future may include more severe droughts, less snowpack and more wildfires.

In 2006, the Division of Air Quality (DAQ) received a grant from the Hewlett Foundation to help develop policy and program options to reduce greenhouse gas emissions (GHG) in Utah. The grant helped support the Governor’s Blue Ribbon Council on Climate Change (BRAC), a stakeholder work group established by Governor Huntsman to provide recommendations. The group was chaired by Dianne Nielson, former executive director of DEQ whom Huntsman appointed as his energy adviser last spring.

Huntsman’s commitment to climate change was evident when, in May 2007, Utah joined the eight-member Western Climate Initiative (WCI). As part of that commitment, Utah also agreed to participate in a vehicle emission standard, a state GHG emissions goal, and a regional market-based mechanism to achieve the regional GHG reduction goal.

On November 9, 2007, the BRAC concluded its work by presenting the Governor a list of 72 alternatives that include incentives for renewable energy development and investment in technology that capture and store carbon dioxide emitted at coal-fired power plants. The group concluded that the solutions to GHG reductions in Utah call for a combination of reducing vehicle emissions and new technology for coal-fired power plants, which account for about 90 percent of Utah’s electric power.

The report also included the findings of the Renewable Energy Initiative (REI) Focus Group, which identified several important considerations that need to be addressed if the state establishes renewable energy targets for electric use.

That work will continue in 2008 with a new advisory panel to study the recommendations, as well as addressing the group’s suggestions for reducing air pollution that contribute to climate change. For more information on this issue, visit: http://www.deq.utah.gov/Climate_Change/index.htm.

Cleaner Land



Introduction

Protecting the environmental quality of the land is integral to ensuring Utah's air is clean and its water pure. To this end, the Utah Department of Environmental Quality (DEQ) focuses on the prevention, management, control and cleanup of toxic chemicals. This chapter highlights the continued progress made to protect human health and the environment.

Toxic Chemicals

Utah continues to make improvements in its national ranking for the amount of toxic chemicals released to the environment. In 2005, Utah moved from a third place ranking in the nation to No. 6 – a continued improvement for releases to toxic chemicals to air, land, and water.

Under the Emergency Planning and Community Right to Know Act of 1986, and the Pollution Prevention Act of 1990, facilities must report their releases of more than 650 toxic chemicals and chemical compounds to the U.S. Environmental Protection Agency (EPA) and state officials. It is important to note that the majority of the releases include properly permitted activities allowable under federal law. This data is available to the public through the [Toxics Release Inventory \(TRI\)](#). In 2005, the latest annual TRI available, the total toxic releases in Utah were about 172.6 million pounds of chemicals. Although this represents a 5.3 percent increase to last year's estimated 164 million

pounds in 2004, it is because EnergySolutions, the operators of a low-level radioactive disposal facility in Tooele County, accepted more waste than the previous year.

Toxic Chemical Releases

2005

Air Releases: 10.0 million lbs

Land Releases: 162.1 million lbs

Water Releases: 54,524 lbs

2004

Air Releases: 9.8 million lbs

Land Releases: 154 million lbs

Water Releases: 56,412 lbs

Waste Management

The Division of Solid and Hazardous Waste provides regulatory oversight of the management of hazardous waste generated by industries and businesses along with municipal solid waste generated by residential and commercial sources.

A growing population gave rise to an increase in waste management in 2006. (The 2007 population grew by 84,425 people – a record 3.2 percent increase over 2006). About 2.5 million tons of municipal solid waste was disposed of in properly-engineered landfills – an increase over the previous year. Another 127,415 tons of municipal waste was incinerated in 2006.

Federal Facility

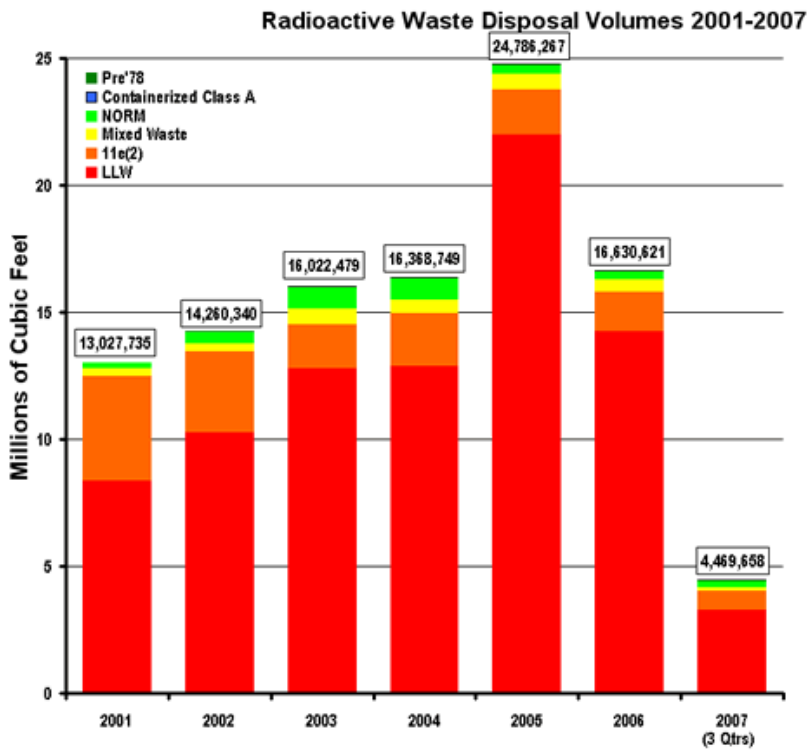
The Deseret Chemical Depot, located in Tooele County, is on schedule to close in 2011 after it finishes the mission of destroying 45 percent of the nation's chemical weapons stockpile. As of October 2007, about one-third, or 2,172 one-ton containers of the total of 6,400 containers of chemical mustard agent have been processed. All nerve agents in containers and munitions have been destroyed.

Low-Level Radioactive Waste Disposal

On the national front, one site, Duratek in Barnwell, S.C. is ramping down disposal volumes until 2008 when the site will only be open to members of the Atlantic Compact. Duratek receives all classes (A, B and C) of low level radioactive waste. The U.S. Ecology facility at Hanford, Wash., serving the Northwest Compact (Alaska, Hawaii, Oregon, Washington, Montana, Wyoming, Utah and Idaho) also receives all classes of low level radioactive waste and partners with the Rocky Mountain Compact (Colorado,

New Mexico and Nevada) in receiving limited amounts of low level radioactive waste. A new facility, Waste Control Specialists in Texas is in the process of licensing a low-level radioactive waste facility to take care of low-level wastes from Texas and Vermont. Discussions are ongoing nationwide to ensure that the 36 states that will be excluded from Barnwell will have a disposal option after July 1, 2008.

Volumes of waste received for proper disposal at EnergySolutions increased from 13 million cubic feet in 2001 to 24.7 million cubic feet in 2005, but have decreased in 2006 and 2007. The decrease in volumes can be attributed to several major cleanup projects (Fernald and Rocky Flats) coming to completion. This volume represents Class A low-level radioactive waste, uranium mill tailings, mixed waste, and Naturally Occurring Radioactive Wastes known as NORM.



Uranium Mills

Denison Mines (USA) Corporation, (formerly International Uranium Corporation) operates a mill in Blanding, Utah, where it extracts uranium from ores and alternate feed materials. Denison Mines processed 4,355 tons in 2006 and 42,537 tons thus far in 2007. Uranium One Utah (formerly Plateau Resources) in Ticaboo has been going through a license amendment to resume operations. The Division of Radiation Control is currently working through the technical issues regarding the amendment. Rio Algom in Lisbon Valley, southeast of Moab, is in the process of reclamation activities. Most of the reclamation activities are completed.

High-Level Nuclear Waste

Utah continues to succeed in its quest to keep high-level nuclear waste out of Utah. In 2006, the federal government rejected proposals by Private Fuel Storage to temporarily store nuclear fuel rods on the Skull Valley Band of Goshute Indian reservation in Tooele County. And, in 2007, the federal government considered conducting a massive blast known as Divine Strake at the Nevada Test Site. At the urging of Governor Huntsman and Utahns, the Pentagon's Defense Threat Reduction Agency backed off and killed the Divine strake proposal that would have detonated 700 tons of explosives aimed at creating computer models to simulate attacks on underground bunkers.

Pollution Prevention

Waste Tire Program

The Waste Tire Recycling Program continues to achieve success. During 2007, nearly 100 percent of all tires collected in the state were recycled or reused. That amounted to 42,183 tons of tires recycled. Of that total, 894 tons of waste tires, roughly 58,110 tires were removed from the waste tire piles stored at landfills or abandoned sites.

Used Oil Recycling

In 1993, the Utah Legislature enacted the Used Oil Management Act, which required DEQ to develop a statewide Used Oil Recycling Program. The volume of used oil recycled per year from household participation has grown from 512,549 gallons in 2005 to 520,615 gallons in 2006. The increase is largely due to a "Do-It-Yourself Program," which promotes use of statewide collection centers by individuals who change their own oil.

Reclamation Projects

The Division of Environmental Response and Remediation (DERR) is charged with protecting public health and Utah's environment by administering the superfund and state voluntary cleanup programs in order to clean up chemically contaminated sites by ensuring that underground storage tanks are properly managed.

During 2007, 100 sites were mitigated with a total of 3,874 Underground Storage Tank sites cleaned up as of June. In 2007, 91 new sites were identified to be added to the 484-site list currently undergoing remediation.

Voluntary Cleanup Program

The Utah Legislature in 1997 passed a law that created the Voluntary Cleanup Program (VCP). The VCP allows for property owners or others wanting to voluntarily clean up

environmentally impaired sites to do so with DEQ oversight. During 2007, six sites in the VCP completed cleanup activities and were issued Certificates of Completion. This makes a total of 23 completed VCP sites. Additionally, DEQ received and accepted 9 new applications into the VCP during 2007.

Cleaner Water



Introduction

Utahns and countless of visitors continue to enjoy safe drinking water and pristine waterways for swimming and catching fish. Although significant strides have been made in protecting water resources since passage of the 1972 federal Clean Water Act, challenges remain. High levels of mercury continue to be found in certain fish species in various lakes and reservoirs throughout the state, prompting state and federal agencies to issue fish consumption advisories. Work continues to address this problem.

Groundbreaking new studies, however, are about to shed light on the Great Salt Lake – a significant refueling stop for millions of migratory birds. A group of dedicated scientists are nearing the completion of a four-year study aimed at developing a numeric selenium standard for the Great Salt Lake and entering the start of an investigation into the mercury issue in the lake.

Condition of Utah's Waters

Under section 303(d) of the Clean Water Act, Utah must assess the condition of its waterways and provide a list of "impaired" waters. It then must prepare a restoration plan based on a "Total Maximum Daily Load" (TMDL) study that calculates the maximum amount of pollution a body of water can receive in order to still meet water quality standards.

During the past year, 69 percent of lakes and streams met water quality standards – a slight increase over the previous year.

Permitting Surface Water Discharges

The Division of Water Quality (DWQ) issues permits to all entities that discharge pollutants to surface waters, including discharges of domestic and industrial wastewater and storm water to protect the quality of our waters. Currently there are approximately 3,000 active construction storm water permits – an increase of approximately 1,000 over the previous year.

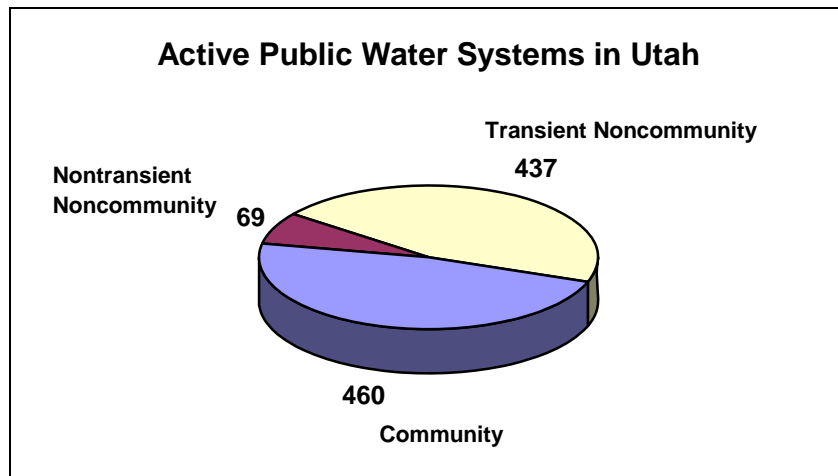
But the number of domestic and industrial discharge permits has declined. DWQ currently oversees 207 domestic and industrial discharge permits – 64 fewer than the previous year. These permits typically require daily sampling of the discharge to determine if it meets the water quality requirements that are imposed. Currently there is a 93 percent compliance rate, slightly down from last year's 97 percent compliance rate for all the regulated domestic and industrial facilities.

Storm water permits are required for municipal separate storm sewer systems which serve populations of at least 10,000 people and a population density of at least 1000 people per square mile. These permits require the entity, usually cities, to develop a system-wide storm water management program that includes developing ordinances, stream surveys of discharge pipes into waters of the state and outreach activities to assist permittees in meeting their obligations. As of 2007, sixty-nine Utah communities and jurisdictions fall into this category.

Drinking Water

The vast majority – 99.8 percent – of Utahns drink water from approved public water systems, with only a small number of individuals and businesses get their drinking water from private wells. Ninety-six percent of the public water systems meet all health-based standards of the Safe Drinking Water Act. No cases of water borne disease outbreak has been reported in Utah.

Public Drinking Water Systems



Utah has 938 water supply systems. A public water system is defined as any water system, either publicly or privately owned, which provides drinking water for 15 or more connections, or 25 or more people, at least 60 days of the year. These include community systems serving people year round; non-transient non-community water systems that serve workers at a factory, and transient non-community water systems such as seasonal campgrounds or highway rest stops.

Utah's Water Loan Programs

An additional 14 municipal wastewater projects were funded in 2007 with the assistance of the U.S. Environmental Protection Agency grants, the State Revolving Fund or the Utah Wastewater Project Assistance Program. To date, these projects have totaled \$683 million – an increase from the \$575 million since 1972. The number of municipal wastewater projects that have received funding total 294.

Last year, the Utah Drinking Water Board funded 20 projects, totaling \$10.9 million. These loans have helped to construct new treatment plants, replace aging pipes and develop new sources of water (wells and springs).

Groundwater Management

Many rural communities are served by public drinking water systems that depend on groundwater, private wells and groundwater systems for their water supply.

Groundwater also is a source of water for industrial and agricultural uses. A groundwater discharge permit is required for facilities which could discharge pollutants into groundwater. Currently there are 35 active groundwater discharge permits regulating about 90 facilities.

Great Salt Lake Water Quality Steering Committee



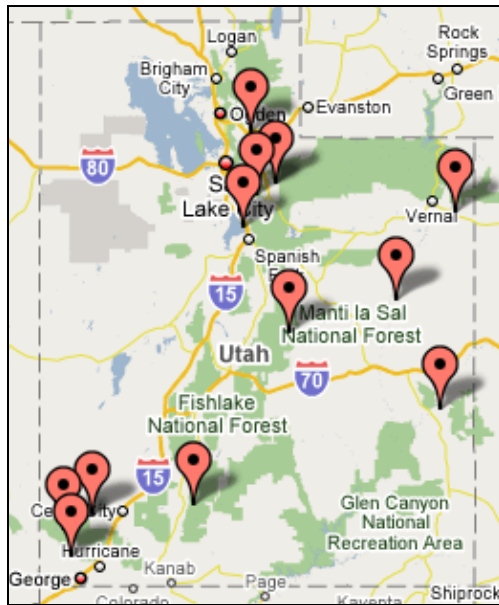
Working with a stakeholder committee, the Division of Water Quality (DWQ) is reaching the end of a four-year-long process to establish numeric standards for the Great Salt Lake, with an initial focus on selenium. Public concern over the potential of adding more selenium to the lake as a result of the Southwest Jordan Valley Groundwater Cleanup Project brought a renewed focus on the need for numeric standards. Under the committee's oversight, a science panel is reviewing the data gathered from the various selenium studies on the lake and conducting additional work where necessary. Based on the science panel's work, the committee will make a recommendation to DWQ. If the Utah Water Quality Board accepts the recommendation by the Division, the standard will be sent out for public comment before the action becomes final. For more information, visit: http://www.deq.utah.gov/Issues/GSL_WQSC/index.htm.

Mercury in Fish

When mercury is deposited in waterways, bacteria convert it to methylmercury, which can build up in the tissue of fish and other wildlife, which may be eaten by wildlife and people. Exposure to mercury occurs most frequently through eating contaminated fish.

In 2007, fish consumption advisories were issued for certain species of trout in six popular fishing areas, including two in northern Utah and four in southern Utah after state officials found elevated levels of mercury in fish.

The advisories were issued for brown trout from the Weber River near Morgan, Utah and Jordanelle Reservoir in Wasatch County; rainbow trout from the Upper Enterprise Reservoir in Washington County and Newcastle Reservoir in Iron County; brown trout from Calf Creek in Garfield County and splake trout from Joe's Valley Reservoir in Emery County. For more information visit: <http://www.fishadvisories.utah.gov/>



2007 Utah Fish Advisories

Animal Feeding Operations/Concentrated Animal Feeding Operations

The Animal Feeding Operations (AFOs) and the Concentrated Animal Feeding Operations (CAFOs) Committee is a partnership of the Division of Water Quality, Utah Department of Agriculture and Food, Utah Farm Bureau, Utah Association of Conservation Districts, Utah State University Extension, Natural Resources Conservation Service, and animal producer groups. In 2001, the AFO/CAFO Committee developed the Utah Strategy which is a compliance assistance agreement to help animal feeding operations (AFOs) with compliance to environmental regulations. AFOs are animal production facilities where animals are confined, such as dairies.

The Utah Strategy provides assistance to AFOs through the compliance and engineering experts of the partnership. The partners conduct on-farm assessments, prepare nutrient management plans, help provide waste containment structures, and assist in the implementation of proper management practices. In addition, the partners assist producers in obtaining cost-share and loan funding to address manure management problems. The Utah Strategy focuses compliance assistance on the smaller AFOs which do not require discharge permits. Under the strategy, AFOs with manure management problems are allowed timeframes to come into full compliance. AFOs with compliance problems are called potential concentrated animal feeding operations (PCAFOs).

To date, nearly 3,000 facilities have been assessed. Of those, 398 AFOs have been assessed as PCAFOs. Since 2001, 93 percent of the PCAFOs have had management plans prepared, 90 percent have received funding assistance, and 58 percent are in full compliance through the cooperative efforts of the partners. Through the AFO/CAFO Committee and the Utah Strategy, water quality impacts from animal agriculture have been greatly reduced.