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Donna Kemp Spangler, Editor

Great Salt Lake

Water Quality Strategy Targets Unique Lake Ecosystem

The Great Salt Lake is one of the defining features of the state. Its location along the heavily populated Wasatch Front, however, has resulted in intense pressure on lake resources, raising concerns about the sustainability of the lake ecosystem and resource use.

The Division of Water Quality (DWQ) has the regulatory responsibility to protect the lake's water quality. The Division's [Great Salt Lake Water Quality Strategy](#), a year in the making, aims to increase understanding of the unique qualities of the lake and its wetlands, establish a monitoring plan that supports adaptive management for improved resource protection, and boost stakeholder participation in lake management through increased opportunities for input, review, and coordination.

"The Great Salt Lake is important both economically and ecologically to Utah," explains Walt Baker, director of DWQ. "It provides mineral and aquaculture resources that pump \$1.3 billion into the economy. The lake and its wetlands provide critical habitat and resources to millions of migratory waterfowl and shorebirds."

Given the lake's international importance as a major North American migratory flyway, adequate control of pollutants entering the lake is critical to protection of these wildlife resources. Yet the unique qualities of the lake make it difficult to establish water quality rules that take into account the distinctive features of the lake ecosystem.

With the exception of selenium, the lake lacks numeric water quality standards for pollutants. This presents a challenge for DWQ when establishing allowable discharge concentrations for Utah Pollution Discharge Elimination System (UPDES) permits for effluent discharges to the lake.

“This creates a lot of uncertainty for regulated entities” said Baker. “DWQ is required by federal and state law to protect the beneficial uses of the lake. Without clear standards, permits may be overprotective or under protective of water resources.”

“By expanding our knowledge of the effects of pollutants at different salinity levels, we can better address the needs of both the lake and its users.”

Unique Lake, Unique Challenges

True to its name, the Great Salt Lake is...salty. Salinity levels in the lake range from seven times greater than ocean water to freshwater. Since the lake is relatively shallow, water levels can vary dramatically. Changes in surface water elevation have a considerable impact on the salinity of the lake's four bays and surrounding wetlands.

Up to twelve million birds visit the lake each year. Eighty percent of Utah's wetlands are located along the lake's shoreline. Brine shrimp and brine flies depend on the saline waters and are a critical part of the lake's food web. The ecosystem contains a diverse array of habitats, including open water environments, freshwater and brackish wetlands, mudflat/playas, uplands, dunes, and ephemeral ponds.

In the absence of numeric standards, narrative standards define the water quality objectives to protect the beneficial uses of the lake. These standards prohibit undesirable conditions and offer some safeguards for water quality. However, the highly complex, dynamic interaction of pollutants in highly saline water cannot be adequately addressed through narrative standards. Without numeric criteria, it is difficult to ascertain the behavior and toxicity of pollutants in the lake environment. Better understanding of the effects of pollutants in this ever-changing environment will result in better management of lake resources.

Strategy for the Future

The comprehensive water quality strategy relies on five key components. These include numeric criteria development, strategic monitoring and research, and a wetland program plan. A public outreach plan and resource plan developed in collaboration with lake partners and stakeholders will facilitate feedback during implementation of the core strategy components.

“This integrated approach ensures that we combine the best available science with public participation and outreach,” explains Baker.

Full implementation of the strategy, including new water quality criteria and alternative protection measures, will take about ten years. DWQ is meeting with key stakeholders this month to gather input on the strategy. The Division plans an open house and a 45-day public comment period beginning June 19, 2012 to start the plan development process.

“We're in this for the long term,” adds Baker. “ Working together, we can protect this priceless treasure for future generations.”

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This article was written by Christine Osborne, policy analyst for the Office of Planning and Public Affairs.

Refineries Expansion Plans

Division of Air Quality Taking Public Comments on Tesoro Upgrade

Three refineries in North Salt Lake have announced plans for facilities upgrades that will improve their processing capabilities for black and yellow wax crudes from the Uintah Basin that in the end produce cleaner-burning fuels.

Tesoro is the only one of the three refineries to submit a proposal, and the Utah Division of Air Quality (DAQ) has extended the public comment period to June 7 to allow members of the public concerned about the refinery expansion to provide their input under a new appeals system.

“We want to make sure everyone has an opportunity to weigh in on the proposal,” said Bryce Bird, director of DAQ. Under a bill that takes into effect May 8, only comments made on the record will be considered during an appeal process.

Tesoro is Utah’s largest refinery, and plans to spend \$180 million to expand its crude processing capacity. HollyFrontier and Chevron have signaled their intention to expand their facilities but have yet to submit applications. Holly proposes to invest \$225 million, while Chevron’s plan calls for a comparatively modest \$83 million towards upgrades. Both Holly and Tesoro have entered into long-term crude oil supply agreements with Newfield Exploration Company in the Uintah Basin. Taken together, these upgrades promise to increase the total refining capacity for waxy crudes at these three refineries by 18,000 barrels per day.

The projects include equipment upgrades and changes to the current refining processes to accommodate these heavier crude oils. Boosting refining capacity and production could lead to increased emissions, particularly for sulfur dioxide (SO₂).

Tesoro plans to install a tail gas treatment unit (TGTU) at its Sulfur Recovery Unit (SRU) to reduce SO₂ emissions, resulting in a 66 ton/year reduction in sulfur dioxide emissions at the refinery. The largest increase in emissions will come from volatile organic compounds (VOCs), which Tesoro reports will increase by 16 percent.

“A significant portion of the upgrade costs will be for pollution control equipment to ensure that the best available pollution control technology is used to minimize emissions,” said Bird. “Uintah Basin waxy crude is purchased at a discount because it is harder to refine. Larger profits from increased black and yellow wax production place these companies in a better position to add controls that go beyond the current requirements for emissions.”

“While there will be an increase in actual emissions from the proposed Tesoro Refinery upgrade, these emissions are within their current permitted levels”, said Marty Gray, permitting manager with DAQ. “So long as the emission levels from the refinery upgrades fall within the permitting standards and rules established by the EPA and the requested action complies with state and federal regulations, DAQ is required to process their modification request.”

“It’s important to remember that refineries are regulated under state and federal standards which require the use of maximum achievable control technologies,” adds Bird, citing a long list of applicable regulations and performance standards.

Refinery upgrades will be subject to the requirements of the PM2.5 State Implementation Plan (SIP), due for completion in December 2012. The SIP will address overall emission levels in the airshed and determine reductions necessary to lower these emissions and attain the federal PM2.5 standard. Each refinery will be working with DAQ engineers to identify additional controls, focusing on the pollutants that are responsible for wintertime PM2.5 exceedances.

Concerns about increased air emissions from these expansions have sparked opposition from citizen groups. About 130 people attended a public hearing on April 17, raising general concerns about the negative impacts to public health and safety from refinery operations rather than technical comments about the expansion proposal.

DAQ will consider the issues raised in comments and diligently apply all relevant state and federal air quality rules and regulations in its reviews of refinery upgrades.

“Protecting our air quality is a top priority,” explains Bird. “We welcome comments from the public on our application of these regulations and reiterate our commitment to protect the health and safety of Utah residents.”

This article was written by Christine Osborne, policy analyst for the Office of Planning and Public Affairs.

DEQ Legal Team Soon to Be United

The attorneys representing the Department of Environmental Quality (DEQ) and its various Divisions will soon be joining together into a single, cooperative team of environmental law experts. This will greatly improve efficiencies within the Department.

A growing number of environmental appeals has DEQ looking to best utilize legal services within current budget restraints. The new approach pools all of the Attorney General’s environmental expertise into a one-stop location where all divisions can draw from the same talent pool.

“We think this will create a more cohesive unit with opportunities for cross-training in various environmental statutes and it will also allow us to be more involved with the agency,” said Denise Chancellor, environmental chief counsel at the Attorney General’s Office.

Amanda Smith, executive director of DEQ, couldn’t agree more.

“We think we can be more efficient in our legal efforts by having all the attorneys under one roof here at DEQ that all divisions can draw upon.”

Specifically, some attorneys representing DEQ who are housed at the [Attorney General’s Office](#) in the Heber Wells Building in downtown Salt Lake City will move to the Multi Agency State Office Building where DEQ is located. Offices being vacated by the Office of Energy Development, about to join the Governor’s Office of Economic Development at a new location in City Creek, will provide the new location for all DEQ legal representation.

DEQ uses AG attorneys for general legal advice and to help settle or defend permitting disputes, appeals of regulatory decisions, and notices of violations and other matters related to state and federal environmental laws.

With legal challenges on the rise and a limited budget to respond, DEQ anticipates the consolidation of legal services will allow the agency to respond more effectively without adding more attorneys.

“We need this kind of cross-pollination to help handle environmental challenges we face,” Smith said.

Las Vegas Pipeline Clears Hurdle **Concerns Remain Over Impacts to Air and Water Quality**

In a decision that brings Las Vegas closer to its thirst for a reliable water supply, the Nevada State Engineer (NSE) ruled last week to grant the Southern Nevada Water Authority (SNWA) the rights to pump up to 84,000 acre feet of groundwater from four valleys in the Nevada desert.

The Department of Environmental Quality (DEQ) remains cautious, however, about promises by SNWA to monitor and mitigate environmental impacts from the resulting water drawdown in the arid region. The Division of Air Quality (DAQ) is particularly concerned that man-made fugitive dust from the project area will make its way to the Wasatch Front.

“We are very concerned over assumptions by the Bureau of Land Management that there would be little or no impact to the Wasatch Front from fugitive dust emissions,” said Brock LeBaron, deputy director of DAQ. “Our models of seasonal dust storms originating from the southwest desert demonstrate that PM emissions could in fact reach the Wasatch Front and force us into nonattainment.”

According to analyses in the draft environmental impact statement (DEIS) released last summer by the BLM, water drawdowns from the project could ultimately result in more than 33,000 tons of annual particulate pollution (PM10) from fugitive dust emissions. The BLM does not believe this fugitive dust would reach the Salt Lake Valley.

Agency efforts in recent years to reduce PM10 levels along the Wasatch Front have been very successful. The only time the 24-hour PM10 standards are currently exceeded is during dust storms originating from the project area. Since groundwater pumping will occur in Nevada, the project is not subject to the state’s air quality plan, or State Implementation Plan (SIP) for PM10 and DAQ does not have the authority to apply direct control measures on emissions. The Clean Air Act, however, places requirements on Nevada regarding the interstate transport of emissions.

“Every state SIP must contain adequate provisions for prohibiting emissions that contribute to nonattainment in other states,” explained LeBaron. “Nevada may be required to address the transport of these fugitive dust emissions into nonattainment areas in Utah.”

Water quality and quantity impacts are also a great concern. The BLM acknowledged a high degree of uncertainty surrounding the long-term effects from massive groundwater pumping. Water quality could deteriorate as the groundwater level drops, threatening the water supplies for rural agricultural communities in Millard and Juab counties, Utah officials contend.

DEQ will monitor the progress of the SNWA pumping project and will continue to work to protect Utah's air and water from any adverse impacts from groundwater drawdown.

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