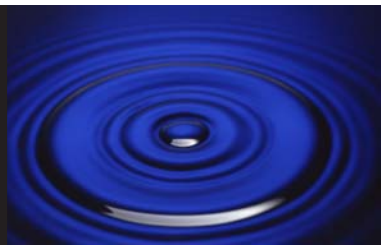
Annual Report

2006

Water Quality

Water Quality Division Activities



DEQ's Water Quality Division (WQD) plays a significant role in protecting Oklahoma's ground and surface waters. With its varied permitting, licensing, enforcement and technical assistance measures, WQD ensures that state water and wastewater needs are met in a manner that best serves public needs while being protective of the environment. WQD includes several function-based sections:

- Public Water Supply (PWS) Enforcement conducts compliance assistance visits and sanitary surveys to help drinking water systems achieve and maintain compliance with federal regulations.
- Compliance Tracking and PWS Administration collects and evaluates required compliance monitoring data from water and wastewater facilities, ensuring that the systems are operating in compliance with permit requirements.
- Operator Certification offers training sessions and examinations for water, wastewater and laboratory operators to ensure that qualified personnel manage the treatment of drinking water and wastewater.
- Municipal Permitting processes wastewater operations permits, ensuring that treatment methods are preventing negative impacts on state waters.
- Industrial Permitting reviews industrial and commercial wastewater permits to ensure that proposed treatment methods protect state waters.
- Municipal Wastewater Enforcement performs inspections, coordinates compliance monitoring, conducts pre-treatment audits and inspections of industries discharging to municipal systems, and offers technical assistance to municipalities.
- Industrial Wastewater Enforcement works with industries to maintain compliance with permit requirements, and conducts technical assistance, site inspections and complaint investigations related to waste water treatment and storm water management.
- The Drinking Water State Revolving Fund (DWSRF) and Construction Permitting review construction plans for proposed water and wastewater projects. In addition, they oversee a program offering low-interest loans to groups building new or improving existing water and wastewater systems.
- The Watershed Planning and Stormwater Permitting Section develops Total Maximum Daily Load calculations for state waters and manages storm water permitting. The section also coordinates water quality data assessment to determine whether public water bodies are able to support their designated uses.
- The Program Management section supports all of the division's day-to-day activities and provides administrative services such as reception, accounting, grant and permit tracking, and monitoring and enforcement. This section also is home to the technical staff for Information Technology, Geographic Information Systems and Geographic Position Systems.

H_2Oklahoma Festival a Huge Success

Students, representing pollutants that are commonly washed into rivers, lakes and streams, learn to reduce water pollution as they move under the pole in the Water Limbo activity.

The Oklahoma Environmental Education Coordinating Committee sponsors the annual H_2Oklahoma Festival, where children learn to enjoy and appreciate water as a precious natural resource. This year, about 380 Pontotoc County fifth graders attended and discovered how they could conserve and protect Oklahoma's water.

DEQ employees led in organizing the festival and hosted 12 of 31 hands-on environmental activity stations. Practical, engaging and thought-provoking activities accommodated diverse learning styles, making learning about water fun and exciting. Many of the planned activities are correlated to the Oklahoma State Department of Education's PASS objectives for language arts, mathematics, science and social studies, making the festival an attractive event for schools.

This year, students from the Environmental Health Program at East Central University helped representatives from 14 state and federal agencies host their activity stations. Representing every division, 30 DEQ volunteers taught students about water history, watersheds, conservation, environmental law, pollution prevention, the water cycle and resource preservation at their activity stations.

A particularly popular activity station was the Long Haul, where students gained an appreciation for running water. Students were divided into two competing teams, each carrying buckets of water from one barrel (the water source) to another (the home). The teams that filled their barrels fullest and those that filled them fastest were recognized, rewarding both efficiency and speed. Students began by discussing the variety of ways water is used in and around the home and how much water a typical household uses in one day — 200 gallons. They learned that in some areas of the world, families walk to collect water for their home every day. The activity engaged students in history, environmental science and mathematics. Fifth graders learned to estimate water volume, calculate water usage and figure out how long it would take to transport water each day.

Water Limbo, another popular activity, helped children learn about watersheds. They saw the various types of non-point source water pollution or "run-off" that could wash into rivers, lakes and streams. Students named sources of run-off pollution and wore placards to represent pollution sources. Then they lined up to go though an imaginary stream, ducking under a limbo pole that was lowered each time they provided examples of how to stop water pollution. "Pollutants" that made it under the pole made it into the "stream." This game was an opportunity to discuss water quality and the importance of protecting water at its source.

At other stations, students could build an edible wetland, imitate the sound of rain while decorating rain sticks, and learn about the cultural importance of water by making their own pictograph carvings. They learned about environmental law as DEQ attorneys argued a water rights case with students as the jury.

H_2Oklahoma prepared a student journal for students to record what they had learned after returning to their schools. Teachers had their own journals and received an information-packed resource guide with three water-related lesson plans, a map with a description of each activity, and contact information for each exhibitor.

DEQ Develops Regulations Working with Aggregate Industry

During FY 2005, working with representatives of the aggregates industry, DEQ determined that sand and gravel mining operations should be reviewed to clarify their permitting requirements. The group met several times to review the permitting process and to discuss ways to simplify applications. The rulemaking session produced a common understanding among the parties of the nature of sand and gravel mining operations. Specific wording for the revised regulations was reviewed and adopted in Chapter 616 (Industrial Wastewater Systems).

DEQ staff and industry representatives visited several facilities to review sand and gravel mining operations and discuss the applicability of Chapter 616 regulations. Three site visits on July 24, 2005, provided the basis for further discussions. DEQ determined that such facilities require only an OPDES (storm water) permit, provided that no point-source discharge of pollutants to Oklahoma waters exists.

DEQ representatives also participated in Oklahoma Aggregates Industry Day at the State Capitol on February 15, 2006. Staff attended from the Industrial Wastewater Section, Water Quality Division and Legal Division; also attending were staff from three other state agencies and aggregates industry representatives. The dialogue and cooperation between the aggregates industry and DEQ has helped the industry operate without unnecessary restriction while ensuring that applicable environmental regulatory requirements are met.

DEQ staff at Oklahoma Aggregates Day at the Capitol.

Students visit the DEQ exhibit at Aggregates Day at the Capitol.

Dolese Brothers, Inc. representatives describe dredge operations to DEQ staff.

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GIS Day FY 2006 at the Capitol

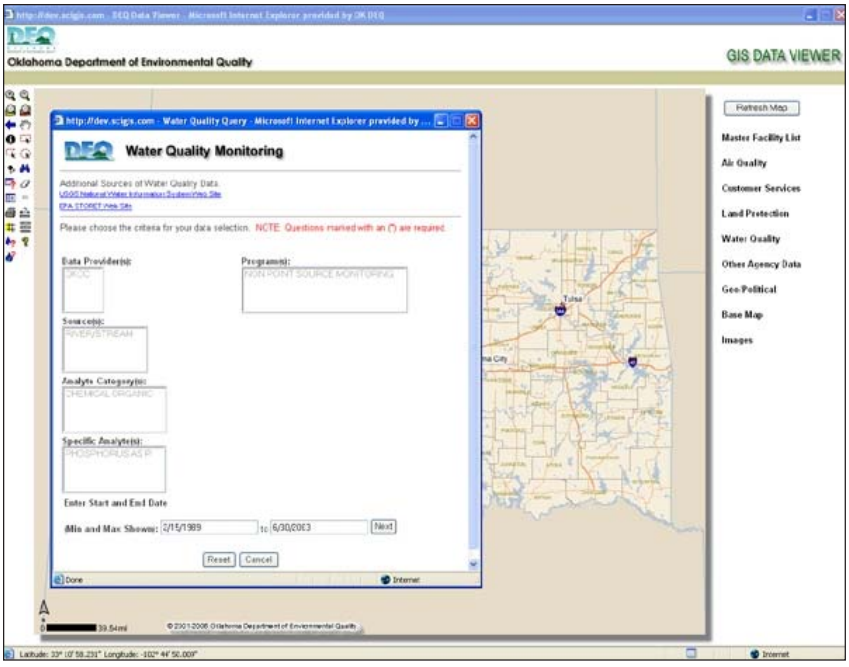
DEQ staff participated in the 12th annual GIS Day at the Capitol, some as exhibitors and others as visitors to the more than 30 groups showing new Geographic Information Systems applications. DEQ exhibited its enhanced Web-based access to environmental monitoring data along with a new Source Water Assessment Program (SWAP) tool that defines protection areas around public water supply wells and generates system assessment reports.

DEQ also demonstrated the Web-based, interactive Data Viewer that gives public access to information on DEQ's regulated activities, water quality monitoring data and basic geographical information in support of fact-based environmental decision-making. The entire audience, ranging from elementary schoolchildren to state legislators, enjoyed getting acquainted with the latest applications of the powerful GIS technology and tools.

Sherri Tilley demonstrates various GIS capabilities at the Capitol.

Public Access Increased to State's Environmental Data

DEQ is developing a Web-based query tool that will allow the public to easily research ambient environmental monitoring data. The data are collected by state environmental agencies and stored in a standardized format that meets state, federal and local needs. The information is housed in the Oklahoma State Storage and Retrieval, or STORET, database, but accessing it now takes special expertise. The query tool, soon to be available using the DEQ Data Viewer, will give even non-technical users the ability to query and search for information. The tool is being tested now. If all goes well, it will become available to the public by the summer of 2006.

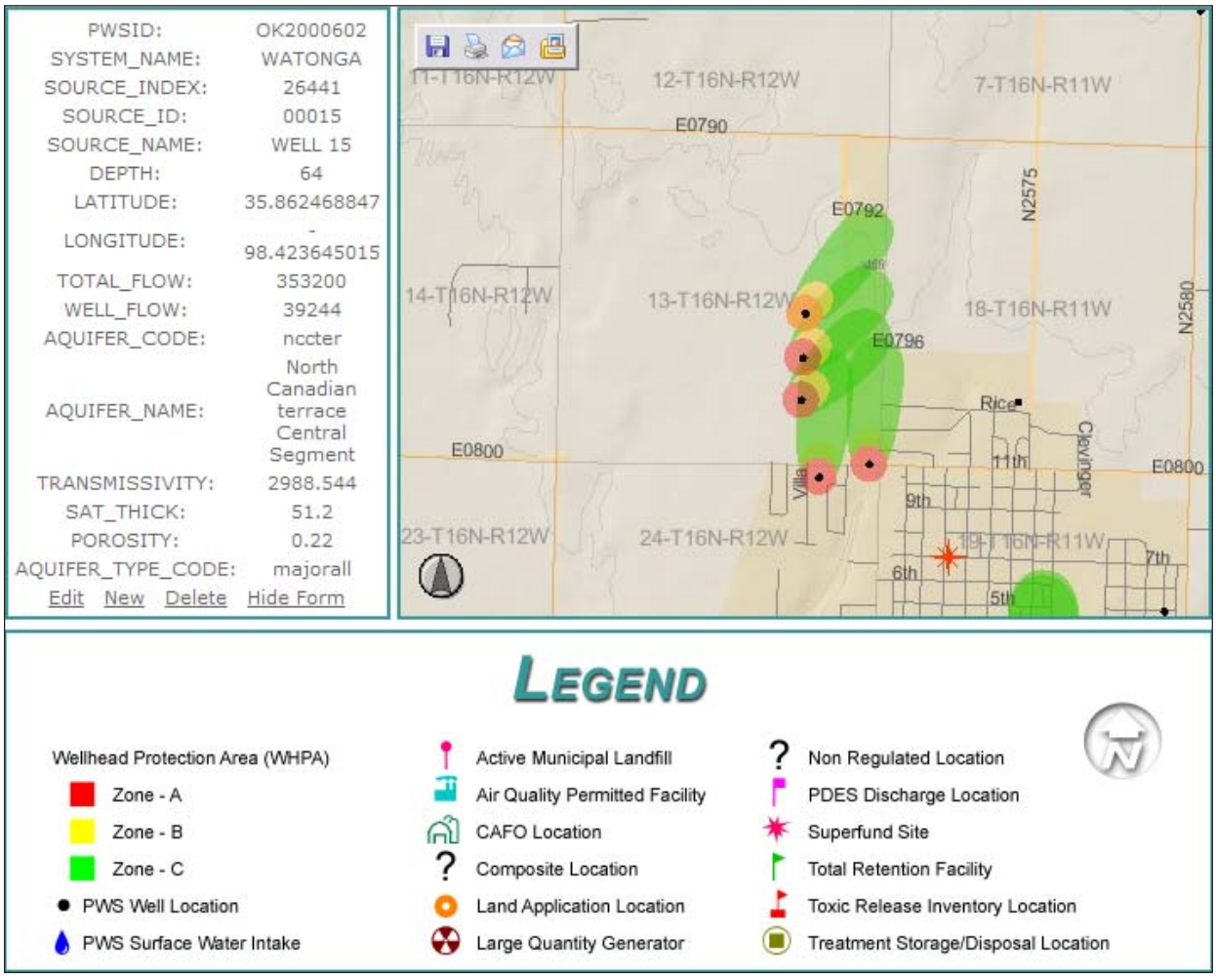


Query Tool for State STORET.

Source Water Protection Tool to Aid Local Staff, Water Systems

Local DEQ staff and water system personnel soon will be able to update and display information about wellhead protection areas (WHPAs) for public water supply wells and intakes more easily, thanks to a new DEQ Web-based application. In addition to facilitating data updates, the new application will generate on-demand Source Water Assessment Program reports containing delineated WHPAs for all of the state's regulated water systems. With the application's predecessor, updating information about wells, intakes and potential sources of contamination was difficult and report generation had been time-consuming and inflexible.

WHPAs are designated land areas surrounding public water supply wells and surface water intakes. The areas are of particular interest because certain activities within them are potential sources of contamination to public water supplies. Examples include municipal and industrial wastewater discharges, wastewater lagoons, landfills and air emissions. The size and shape of WHPAs are determined by factors such as well depth, flow, and the type and characteristics of the aquifer from which the well draws. Knowledge of WHPA boundaries helps municipalities and rural water districts protect sensitive areas from contamination.



Screenshot of the new source water protection software application tool.

DEQ Works with City of Tulsa to Reduce Wastewater Overflows

Not long ago, Tulsans would gather every Labor Day weekend to watch hundreds of homemade rafts attempt to float the Arkansas River with varying levels of success and to the amusement of all. The Great Raft Race attracted thousands of local spectators and tourists to the Arkansas River every year, but concerns about water quality in the Arkansas River, among other factors, led to the event's cancellation in the early 1990s.

The City of Tulsa's failing wastewater collection system was one of the main contributors to the deterioration of water quality in the river. During Tulsa's often intense spring rains, it wasn't uncommon for thousands of gallons of untreated wastewater to escape the collection system, much of it discharging directly into the Arkansas at a major junction box on the banks of the river. During this era, the City of Tulsa, the U.S. Environmental Protection Agency (EPA), and DEQ's predecessor agency, the Water Quality Service of the Oklahoma State Department of Health (OSDH), formulated a comprehensive plan to correct chronic wastewater overflows. In 1990, the city and OSDH signed a consent order establishing a timetable for making the much-needed upgrades.

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Sludge drying beds at the Southside Wastewater Treatment Plant were upgraded to provide interim storage prior to land application.

The Newblock Lift Station was rehabilitated to provide increased capacity to pump wastewater to the Tulsa Southside Wastewater Treatment Plant and a portable generator was installed to provide emergency power to operate the pump station in case of power loss.

The Central Park Lift Station was rehabilitated to provide increased capacity to pump wastewater from the Central Downtown Tulsa area to the Southside Wastewater Treatment Plant.

As part of the construction of the Flatrock Creek flow equalization basins and lift station, which is used to control excessive wastewater flow to the Tulsa Northside Wastewater Treatment Plant, a wetlands area was constructed south of the basin.

One 10.2-million gallon flow equalization basin was constructed at the Coal Creek Lift Station to control excessive wastewater flow to the Tulsa Northside Wastewater Treatment Plant.

The19-million gallon and one 18-million gallon flow equalization basins were constructed at the Mingo Creek Lift Station to control excessive wastewater flow to the Tulsa Northside Wastewater Treatment Plant.

Over the life of the consent order, DEQ has reviewed more than a dozen engineering reports and countless sets of construction plans for Tulsa's wastewater collection system improvements. These plans have included replacement and expansion of miles of inadequate collection lines, construction of new wastewater lift stations and flow-equalization basins to control wet-weather flows, and rehabilitation of thousands of leaky manholes. One by one, city contractors have completed the impressive construction projects, greatly reducing the frequency and impact of wet-weather overflows from the system.

In January 2006, the city completed the last of more than 15 years of improvements to its wastewater collection system at a total cost of nearly $500 million. The impact of this work is obvious. Wet-weather overflows now are a rarity. Tulsans no longer need worry about the potential health effects of overflows and water quality in the Arkansas River. Perhaps before long, the city leaders may even revive the tradition of the Great Raft Race to highlight Labor Day festivities.

Cooperating to Preserve Public Resources

Showcasing Oklahoma's striking natural beauty, our 52 state parks provide exceptional recreational opportunities for residents and tourists alike. The year-round popularity of our parks, however, puts pressure on the systems that manage the human impact on the parks' environmental quality and safety. Wastewater systems help prevent human pollution of recreational lakes in the parks. As the FY 2004 annual report noted, DEQ has been engaged in a cooperative project with the Oklahoma Tourism and Recreation Department (OTRD) to identify the park wastewater systems most in need of upgrading.

Since then, the agencies have completed the design and construction of treatment facilities at two of Oklahoma's most heavily-used parks: Lake Tenkiller and Sequoyah Resort. New collection systems and expanded lagoon facilities at both parks have updated the formerly undersized, substandard systems that were prone to flooding. The new systems should serve Oklahoma citizens and protect public resources for years to come.

To date, OTRD and DEQ have identified other pressing water and wastewater needs at Oklahoma state parks that OTRD will include in its budget for the upcoming years. The five-million-dollar project list addresses environmental issues at nearly half of Oklahoma's state parks, including drinking water supply systems, wastewater treatment systems and erosion problems. DEQ appreciates the opportunity to join with OTRD to preserve and protect the natural wonders located in Oklahoma's state parks.

A new wastewater lagoon serving the Choctaw and Cherokee campgrounds at Sequoyah Resort Park.

An additional wastewater lagoon cell to serve Western Hills Lodge and Golf Course at Sequoyah Resort Park.

The old, undersized two-cell lagoon system serving the Blue Jay Knob campground at Lake Tenkiller State Park.

Two newly-constructed lagoon cells provide additional treatment capacity to serve a number of park units within Lake Tenkiller State Park.

New Certifications for Distribution and Collection Operators

DEQ's Operator Certification Section (Water Quality Division) introduced two new certifications for water and wastewater professionals in July 2005: Distribution and Collection Operator with a "C" designation and Distribution and Collection Technician with a "D" designation. (Designations refer to the operator's level of education and experience.) The standard water and wastewater operator certifications are designed for plant operation and maintenance, with limited attention to line maintenance.

Larger municipalities with dedicated line maintenance crews had requested that DEQ develop the new certification program to address training specific to those job tasks. The Water Works and Wastewater Works Advisory Council passed new rules enabling DEQ to develop the program, administer certification tests and issue licenses to qualifying individuals. Several subject experts were consulted to ensure that test questions would be relevant to work actually performed by line maintenance operators. After months of expert review and refining questions, the test was ready for administration.

Today, people interested in becoming a line maintenance operator have the option of taking the new test and receiving the job-specific certification. The Operator Certification Section continuously looks for ways to support operator safety and expertise, and to provide water and wastewater systems with accredited professionals.

Line maintenance operators work late into the night.

Clearing of water during a water line break.

Thanksgiving Day 2005; operators are on call 24/7.