

OKLAHOMA WATER NEWS

Bimonthly Newsletter of the Oklahoma Water Resources Board



Duane A. Smith

**from
the desk
of the
Director**

The Water Resources Board is approximately midway in a series of meetings to gather comment on agency rules. In western Oklahoma November 17-18, we had productive meetings at which the interest focused on groundwater law and the agency's protocols for public hearings on permit applications.

On November 16, I was invited to visit with Senator Bruce Price's interim legislative study committee to present an overview of Oklahoma's water resources and the laws governing water use. I explained the different codes regulating stream water and groundwater and the means of prescribing water quality standards. I explained that the OWRB is designated by statute as the

agency responsible for promulgating water quality standards and developing the implementation framework. All state agencies implement the Standards in appropriate programs and work in a cooperative effort to protect the quality of the state's waters.

Another exciting program ongoing at the OWRB is the Beneficial Use Monitoring Program described in an adjacent article. Our specialists are in the second month of water quality monitoring, with funds provided by the 1998 Legislature from the Rainy Day Fund. We are requesting of the 1999 legislature funding to underwrite the second year of this critical program. As conscientious stewards of state monies, we will dedicate any new funding to accomplishing the goals of the program without the addition of more personnel. We believe this is our mandate from the citizens of Oklahoma.

As I review the agency's accomplishments in 1998, I am also proud that we completed another year of operations in a comprehensive weather modification program; completed a far-reaching state drought management plan; developed an OWRB website to serve our customers; initiated several important studies on water use, wastewater and water availability; made great strides in GIS applications; and provided financial assistance to dozens of Oklahoma communities for upgrading or replacing water and wastewater systems.

Water Board Develops Strategy For Beneficial Use Monitoring

**\$1 million legislative appropriation assists Board
in protecting beneficial uses of surface waters**

In the closing days of the legislative session, lawmakers reaffirmed their confidence in the Water Resources Board by appropriating \$1 million for a beneficial use monitoring program and awarding OWRB oversight in the effort.

The OWRB is the state agency charged with promulgating Oklahoma Water Quality Standards, rules that are the cornerstone of the state's water quality management programs. The Standards define beneficial uses of the state's waters, set out strategies to protect the beneficial uses, and declare an anti-degradation



**Derek Smithee
Water Quality Programs
Division Chief**

policy. A critically needed component of the Standards is a monitoring program to assure that the beneficial uses are protected and maintained.

Other state environmental agencies rely on the Standards to accomplish their missions related to water quality, and routinely gather water samples specific to the needs of their programs. The OWRB solicited the assistance of its sister agencies in accomplishing the enormous task assigned by the legislature.

“This is a program critical to the long-term success of maintaining Oklahoma’s water quality,” said Derek Smithee, chief of Water Quality Programs. “Without it, water quality management decisions may be handicapped by a lack of sound, reproducible and defensible data.”

The OWRB has developed a comprehensive, long-term, statewide monitoring program to detect and measure water quality trends, note impairments to beneficial uses, and identify pollution problems before they become crises. This will allow state and federal agencies to implement necessary water quality management activities, such as best management practices (BMPs), to address Oklahoma’s pollution problems.

Water quality specialists of the Board outlined five key tasks in setting the Beneficial Use Monitoring Program in place. They are fixed and rotational monitoring, load monitoring, lake monitoring, groundwater monitoring and intensive monitoring.

As Task 1, the OWRB will sample 125-200 river and stream sites annually, 84 of them fixed stations; 92 rotational. Smithee said fixed sites will be sampled 10 times a year for nutrients and general water quality parameters; once for metals, once for pesticides, and five times for bacteria during the recreation season.

“Rotating sites were selected with input from other state environmental agencies and should reflect the state’s short-term monitoring priorities for this year,” said Smithee. “In most instances, rivers and streams were selected because they were previously identified as having beneficial uses impaired. Those stream segments will be sampled 10 times annually for the specific parameters impairing them. As time, manpower and funding permit, an additional 75 sites may be added to the sampling program,” he pointed out.

To accomplish Task 2, fixed-station load monitoring, the OWRB will cooperate with the United States Geological Survey (USGS) or other agencies that collect flow data. The effort will focus on collecting both quality and quantity information in order to calculate pollutant loads, thus building the critical link with total maximum daily loads (TMDLs.)

Beneficial use monitoring is a critical component of the state's water quality program

Task 3, fixed station lakes monitoring, requires quarterly sampling of 35-40 lakes annually for a similar suite of parameters as sampled by the stream program. The OWRB will assess impairment of beneficial uses and enrichment/sedimentation trends.

“Under Task 4 of the Beneficial Use Monitoring Program, we will cooperate closely with the Oklahoma Department of Environmental Quality (DEQ) to develop standardized groundwater monitoring methods,” said Bill Cauthron, program coordinator. “We’ll spend the first year evaluating existing groundwater data to see where we have gaps in information,” Cauthron pointed out. “Then we’ll work with DEQ to determine a comprehensive groundwater sampling program for the future.”

Task 5 requires the state agency with appropriate jurisdiction to undertake intensive monitoring on any site where a beneficial use impairment is noted to determine the source, or sources, of impairment. “We’ll work closely with other agencies to identify high priority waters and provide critical input toward determining where remediation money should be spent,” Smithee said.

The Water Board is grateful to the Oklahoma Legislature for this appropriation, Smithee, acknowledged. They realize that clean water is one of Oklahoma’s most dynamic and highly prized resources.

“However, the dynamic nature of water and the environment makes it imperative that we integrate beneficial use monitoring into the state’s long-range water quality management program,” Smithee emphasized.

THE FLOOD CURRENT

Floods Point Out Driving Dangers, Futility of Damage/Repair Cycle

Ken Morris, Oklahoma NFIP Coordinator

Once again, on the heels of fierce drought conditions, Oklahoma has been struck by severe flooding after the Chikaskia and Salt Fork Rivers spilled over their banks in early November. One life, that of a young Aline woman, has already been lost after driving into always dangerous and deceptive floodwaters. Although homes and businesses were impacted in Alfalfa, Grant, Tulsa, Creek and Ottawa Counties, Kay County, especially the Towns of Blackwell and Jefferson, suffered the most severe damage. As mentioned elsewhere in this issue of the Flood Current, I traveled to Blackwell on November 2 to tour flood-damaged homes. After meeting with local and county officials at the Red Cross Center and Emergency Operations Center, we experienced first-hand what a devastating impact flooding can have on both possessions and lives.

Representatives of the Cherokee Strip Red Cross, Kay County Emergency Management and the Town of Blackwell were instrumental in assisting hundreds of flood victims, from evacuation to providing temporary shelter and other personal items. In the wake of this disaster, many victims have pledged to stop future flood damage here and break the damage/repair cycle that continually drains communities and state governments of available funds and services.

On another note, it's time for all certified floodplain managers in Oklahoma to renew their certification, which expires each fall after the Oklahoma Floodplain Management Annual (OFMA) Conference. This year's conference, held September 16-17, was one of the best ever. Also, keep your eyes open for The BFE, OFMA's newsletter, which will contain the Certified Floodplain Managers renewal form. Please complete and return it to the OFMA in Tulsa, along with the \$10 renewal fee. For more information about the renewal procedure, contact Joe Remondini at (918) 669-7198.

Officials Visit to Assess Damage in Blackwell, Seek Federal Aid

On November 6, a team of federal and state officials, including Oklahoma Water Resources Board representatives, assessed damages as Kay County citizens sifted through the muck and destruction left in the wake of devastating floods which inundated the town five days earlier.

The survey of flooded homes in Blackwell and other hard-hit areas of Kay County was conducted by specialists from the OWRB, Oklahoma Department of Civil Emergency Management, FEMA and U.S.

Small Business Administration. The agencies seek to determine the nature and amount of uninsured losses and needs of affected communities in Kay, Alfalfa and Grant



In Blackwell, 160 homes were evacuated, two completely destroyed and 300 "affected" by floodwaters.



Estimating preliminary damage in some flooded areas of Kay, Alfalfa and Grant Counties was possible only by boat.

Counties, where the Chikaskia and Salt Fork Rivers overran their banks and inundated more than 100 homes and businesses.

Governor Keating has declared disaster emergencies in those areas. FEMA and SBA officials will analyze gathered information to determine if a federal disaster declaration is warranted.

According to Ken Morris, OWRB coordinator of the National Flood Insurance Program in Oklahoma, those impacted, including the 160 evacuated in Blackwell, will feel the brunt of the disaster for years to come.

“It’s one thing to witness first-hand the impact that flooding of this magnitude can have on physical structures, homes and businesses. But it really hits home when you see the personal damage inflicted, the impact on families and livelihoods,” he said. On November 2, Morris assisted ODCEM staff in a preliminary damage assessment conducted, in some areas, through the use of small water craft.

The preliminary survey identified two homes completely destroyed, eight homes suffering major damage, 36 homes with minor damage and an additional 300 homes “affected” (flooded basements, wet floors, etc.) by flooding in the three-county region. “Many of the those most severely impacted do not have flood insurance,” Morris said..

“For those who have no alternative to living in the floodplain, flood insurance is critically important; it’s affordable and easy to get,” he emphasized. “It seems like such an easy choice, especially when you see what hardships flooding can inflict on a home and its residents. It appears that damage in Kay, Alfalfa and Grant Counties will be insufficient to qualify for federal aid specifically for individuals and/or families,” he said.

He pointed out that federal and state disaster agencies are implementing strategies, such as buy-outs and other incentives, to permanently remove citizens from the floodplain.

“Our goal is to break the repeated cycle of damage and repair and, instead, restore floodplains and allow them to fulfill their natural purpose – the safe conveyance of floodwaters,” Morris said.



Drillers Schedule Seminars

Gary Glover, coordinator of the OWRB Water Well Drillers/Pump Contractors Program, announces educational seminars December 8 and 9 for drillers and pump contractors. Both sessions begin at 8:30 a.m. and end at 12 noon.

The December 8 seminar will be held at the Tulsa Technology Center (Southeast Campus), 4600 South Olive Avenue in Broken Arrow. For directions, call 918-455-1588.

The December 9 session will be held at Mid-America Vocational Technical Center at Wayne, 20 miles south of Norman. For directions, call 405-449-3391.

The seminars will feature information on new OWRB rules concerning the D/PC program, the annual well measurement program, properties of Bentonite sealing materials and questions and discussion.

Glover pointed out there is no charge for the program, however he requests that attendees register by calling him at 405-530-8800.

Ogallala Economics Projected

Texas Tech researchers have implemented two studies to answer the question: “how would the viability of agricultural be affected by further depletion of the Ogallala Aquifer?”

In one study, researchers have examined how changing levels of the Ogallala Aquifer may impact a 14-county area of the Texas High Plains between now and 2035. The objective is to determine future cropping patterns resulting from declines in water levels. A special computer program using site-specific data determined the best solutions for producers on a county-by-county basis, given the availability of water and the

profitability of each crop choice.

The 18-month study concluded that, as the saturated thickness of the Ogallala diminishes, and the cost of irrigation increases due to pumping at ever-deeper levels, the cropping patterns will begin to favor more dryland agriculture. Farmers may have to focus on crops that use less water during the growing season and display high returns.

In scenarios considered for the study, irrigated and dryland cotton were the optimum choices. In comparing net returns of all combinations of crops and technology, irrigated cotton surpassed all crops.

A companion study examined the short- and long-term economic benefits of making irrigation systems more efficient. It focused on cotton, grain sorghum and corn, which comprise 97 percent of the total irrigated area and 47 percent of the nonirrigated area in Lubbock County. Researchers used a dynamic system of computer models to determine optimal groundwater use, cropping patterns, cropping practices, irrigation technology and marginal user costs, while adjusting groundwater availability and pumping costs.

According to study results, widespread conversions to efficient irrigation systems may not necessarily result in regional water savings. Instead, more efficient methods may bring into production more land that would not otherwise have been irrigated.

Precision irrigation techniques deliver 98 percent of the water instead of 50 percent delivered by furrow irrigation, so farmers may have the economic incentive to bring more acres into irrigated production.

Research favors cotton as the crop of choice, with irrigation increasing productivity from 200 pounds of cotton per dryland acre to 800-1100 pounds per precision irrigated acre.

Researchers point to the development of hardier strains that require less water without sacrificing productivity as another hope for the future.

America's Water Use Declines

The country's use of water declined by about 9 percent from 1980 to 1995 -- even as the United States' population grew by 16 percent during the same period. Experts attribute the decline, which followed decades of increase, to a shift in focus from dam building toward devising ways of using water more efficiently.

According to the report by the U.S. Geological Survey, the trend runs contrary to the belief that water use rises with economic and population growth and that priority must be given to developing new sources.

The use of water per person declined by about 20 percent from 1980, the all-time peak year, to 1995. Domestic water use has stabilized at about 100 gallons per person per day.

The USGS study points out that agriculture and industry have become more frugal in water use. For industry, it became less expensive to recycle water than to remove pollutants from it and return it to the stream, as federal law required. And industrial expansion slowed down.

In the West, where most of the nation's irrigated land lies and where water is more scarce, the steady depletion of groundwater and rising pumping costs drove users to more efficient use. Many farmers have abandoned the huge sprinkler systems that lose much of the water to wind and evaporation, opting for equipment that places the water directly to the root systems of plants. Although the number of irrigated acres remained constant, water use for irrigation fell 16 percent from 1980 to 1995.

Recycling of water and conservation measures, along with new technologies, reduced industrial water use by 35 percent.

Public water -- that withdrawn from natural sources and conveyed to users -- is one of the categories in which use has increased, growing by 18 percent between 1980 and 1995.

Among regions of the country, the northeastern quadrant (the Midwest, Northeast and Middle Atlantic regions) led in the overall drop in off-stream use with a decline of about 17 percent between 1980 and 1995.

Whether the decline in water use will continue is unclear, but the steady, upward trend over the last century has at least been halted.

OWRB Chili Chefs Inflict Heartburn on Staff for Good Cause



Executive Director Duane Smith presents blue skillet denoting first prize to Mike Melton, assistant to the director. Melton returned to cook-off competition, undaunted by the 1996 failure to place with his “Roadkill Chili” recipe.

First place in the hot competition was Mike Melton, assistant to the director, who credits the success of his recipe to a “secret ingredient.” (Shhhh...peanut butter!) The coveted blue skillet trophy displaying Melton’s name will hang in his office until next year’s winner claims it.

The red skillet marking apprentice standing was awarded to Harold Springer of the Financial Assistance Division. Executive Secretary Mary Schooley was awarded the third place beginner’s skillet.

Guest judges were Lisa Durham, Celebrations Pre-School; Toni Faris, Eateries, Inc.; and Billy McDaniel, Communications Federal Credit Union.

Tantalizing aromas of homemade chili drifted seductively from a dozen crockpots as 73 Water Board staff tested the craft of their fellow workers at the Fifth Annual OWRB Chili Cook-Off November 12. Co-chairs of the heart-warming event were Shelly Bacon and Laura Oak of the Board’s Financial Assistance Division.

The indigestion inflicted by the 12 chefs was borne nobly for the worthy cause of United Way. At \$3 per fiery bowl with all the fixin’s and dessert, the effort raised \$220 over and above the \$4,415 pledged to the United Way by employees.



Harold Springer, first time competitor, was pepperin’ to win, but settled for an honorable second place and a red skillet in the blistering competition.



The spicy concoction entered by Mary Schooley, a Water Board cook with a reputation, placed a blazing third to garner her the red skillet.

Enroll Now for Floodplain Managers Course

The OWRB will sponsor a week-long training course January 11-15 for state floodplain managers. According to Ken Morris, state NFIP coordinator, the course is entitled “Managing Floodplain Development through the National Flood Insurance Program.”

Morris pointed out this is the same course previously offered only at FEMA headquarters in Emmitsburg, Maryland. He said the expense of sending Oklahomans so far had restricted the number of state floodplain managers who could attend.

The course will be held at the Center for Continuing Education on the University of Oklahoma campus in Norman, with the first session underway Monday, January 11 at 1:30 p.m. Morris encouraged early enrollment because the class size will be limited to 36. Instructors will be federal, state and local officials.

Lodging at the Sooner Hotel, adjacent to the Center for Continuing Education, is free to course participants and

continental breakfast is provided. Morris emphasized that although there is no lodging charge, it is important to call the Sooner Hotel at 405-329-2270 to make reservations. Participants may bring spouses, but lodging expenses will be billed.

Participants may purchase other meals at the nearby Couch Cafeteria. For more information, call Ken Morris, NFIP coordinator, or Pat Kirkpatrick at 405-530-8800.

OWRB Partners with Tulsa In Project Impact

A ceremony held at Tulsa's Gilcrease Museum November 4 recognized Tulsa as the Oklahoma Project Impact Community for 1998. James Lee Witt, Federal Emergency Management Agency director, presented the award to Mayor Susan Savage and noted that Tulsa is a model community in floodplain management activities.

Witt emphasized that now is the time for Tulsa to move toward the next level to become resistant to disasters associated with earthquakes, tornados, wildfires and floods. Project Impact challenges communities across the



Members of the Oklahoma Floodplain Management Association presented FEMA Director James Lee Witt with an OFMA briefcase when he visited Tulsa early in November.

Left to right: Fred Liebe, Oklahoma Department of Emergency Management, Paul Zachary, City of Tulsa Floodplain Administrator and OFMA chair; Ken Morris, Water Resources Board; James Lee Witt, Gavin Brady, OWRB Tulsa Field Office manager.

nation to build local partnerships, assess vulnerabilities to natural hazards and implement actions that protect lives and property by preparing for and reducing effects of natural disasters.

The ceremony distinguished Tulsa as a Project Impact Community and delivered mitigation funding from FEMA.

Ken Morris, state NFIP coordinator, received a "Tulsa Partners" certificate recognizing the assistance lent by the OWRB in floodproofing the city.

"This country spends \$2.5 billion each year in damage response and recovery," Witt said. "It makes sense to spend one mitigation dollar before the disaster to save \$100 in damages later."

Mayor Savage pointed out that the Project Impact designation represents the proactive approach to disaster preparedness that's been present in the city for more than 15 years. It was Tulsa's Memorial Day Flood of 1984 that

mobilized Tulsa citizens. According to Savage, the disaster killed 14 people, injured 280. The flood damaged 6,800 structures and 700 vehicles, and losses totaled \$183 million for the city.

Before that storm, Tulsa had endured 75 years of flooding and other weather-related disasters.

"People had grown to accept flooding as a way of life, until the Memorial Day flood changed the attitude and course of events for the city," said Savage. She pointed out that voter-approved utility fee increases allowed the buyout of structures along the Arkansas River floodway and conversion of the land to parks and other uses that did not involve structures.

FEMA's Project Impact initiative goes beyond celebrating specific mitigation measures, said Albert Ashwood, director of the Oklahoma Department of Civil Emergency Management. "Mitigation is not a new idea. It is an effort that requires community-wide effort. It's a public safety issue and also an economic development issue," Ashwood declared.

At the November 10, 1998 Board Meeting

Executive Director Duane Smith provided the Board with an update on many topics including proposed water-related legislation, agency budget request, progress on FAP bond issue, negotiations on Red River Boundary Commission and outcomes of bond oversight and audit committee meetings. Schedules for informal meetings concerning rule changes were discussed.

At the request of Joe Freeman, FA Division chief, the Board approved an order for contract financial assistance for the Chelsea Economic Development Authority for \$40,000 and an increase of \$2,427,500 in the previous loan to RWSG&SWMD #4, Wagoner County. An extension of time was approved for the following previously approved emergency grants: RWSD #15, Pittsburg Co., \$75,000; Town of New Alluwe, Nowata Co., \$100,000; Crowder PWA, Pittsburg Co., \$93,755; Cardin SUA, Ottawa Co., \$79,500 and RWD #15, Osage Co., \$25,000.

A vote by the Board approved the suspension for one year of the well drilling license of James A. Nelson, operator of Nelson Pump Co., and imposed an administrative fine. Geo Systems Engineering, Inc. added David Ritter as a licensed well driller/pump contractor. Certified operators' licenses were approved for Michael E. Stone, Layne Christensen Co.; Rodney Culberson, Associated Environmental Industries, Inc.; and Rick Bridges, Geo Systems Engineering, Inc. The Board approved three temporary permits for groundwater use; four regular permits to use stream water.

Derek Smithee of the Water Quality Programs Division updated Board members on the ongoing revision of the Oklahoma Water Quality Standards, emphasizing the agency's efforts in seeking input from the public at all phases of the revision process. He stressed to participants that Oklahoma has designed a rules system to protect the water quality of lakes and streams. He gave the attendees insight into how streams are categorized by beneficial use and how designated Scenic Rivers like the Illinois, Mountain Fork, Glover and Baron Fork are afforded extra protection.

FINANCIAL ASSISTANCE PROGRAM UPDATE

Approved at November, 1998 Board Meeting

FAP Loans

1997 Bonds; 29-year maximum term - Variable Rate
0

CWSRF Loans

Wagoner Co. RWSG&SWMD #4 \$ 2,427,500.00*

Emergency Grants

0

REAP Grants

0

DWSRF Loans

0

Hardship Grants

0

TOTALS AS OF 11/10/98

	FAP Loans	CWSRF Loans
APPROVED	205	77
Amount	\$296,070,000.00	\$278,612,057.48
	Emergency Grants	REAP Grants
APPROVED	423	132
Amount	\$23,922,226.35	\$9,903,401.65
	DWSRF Loans	Hardship Grants
APPROVED	2	2
Amount	\$10,677,000.00	\$1,038,752.30

*An increase in the previous loan amount.

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