

OKLAHOMA Water News

Bimonthly Newsletter of the Oklahoma Water Resources Board

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From the Director



*Duane A. Smith
OWRB Executive Director*

The 2005 legislative session ended on May 27. Although the session began with significant momentum, including Governor Henry's support, for recapitalization of the Statewide Water Development Revolving Fund and funding to update the Oklahoma Comprehensive Water Plan, both initiatives failed to advance. However, these programs remain integral components of the Water Board's mission as well as critical factors in securing safe and reliable water supply for the citizens of Oklahoma.

On a positive note, Governor Henry signed SB 932, which amended the Oklahoma Floodplain Management Act to require all persons designated to administer floodplain regulations be accredited by the OWRB. Our appropriation bill, funded at a level comparable to last year, included \$2.2 million for the Rural Economic Action Plan (REAP) Grant Program. It also authorized

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Federal Grant Awarded to Lugert-Altus Irrigation District

A \$300,000 federal grant from the U.S. Bureau of Reclamation has been awarded to southwest Oklahoma's Lugert-Altus Irrigation District to improve the efficiency of its water delivery system.

The funding was announced in May by Interior Secretary Gale Norton as part of the Bureau's Water 2025 Challenge Grant Program, which encourages voluntary water banks and other market-based measures, promotes the use of new technology for water conservation and efficiency, and removes institutional barriers to increase cooperation and collaboration among federal, state, tribal, and private organizations. Including the matching contributions of non-federal partners, the Water 2025 grant program has generated more than \$27 million in water improvements. The grant to Lugert-Altus Irrigation District is one of 43 recently approved for 13 western states for a total of \$9.9 million.

According to Secretary Norton, western states are facing some hard realities. "Explosive population growth, chronic water shortages—particularly during this time of drought—environmental needs, over-allocated water-



Lugert-Altus Reservoir provides water supply for more than one-half of the state's cotton crop. More than 300 miles of canals and lateral water lines tap Lugert-Altus Reservoir, providing more than 43 billion gallons of water each year.

sheds, and aging water facilities all combine to create opportunities for crisis and conflict. These competitive grants support realistic and cooperative local approaches to stretch existing supplies and improve aging facilities

See Federal Grant Awarded, Page 3

the use of \$600,000 from the Gross Production Tax REAP Water Fund as matching funds for the Arbuckle-Simpson Hydrology Study (\$500,000), which will soon begin its third year, and the Lugert-Altus Water Augmentation Studies (\$100,000). Finally, it allocates \$287,578 in pass-through funding to the Oklahoma Rural Water Association for water district training purposes.

On May 11, at the invitation of the Senate Energy and Natural Resources Committee, I traveled to Washington D.C. to testify on behalf of the Western States Water Council (WSWC), of which I serve as vice chair, and Western Governors Association in support of Senate Bill 895, the Rural Water Supply Act of 2005. The bipartisan legislation, introduced by Committee Chairman Pete Domenici (R-NM) and Ranking Member Jeff Bingaman (D-NM), would authorize the U.S. Department of the Interior, through the Bureau of Reclamation, to establish a program to plan, design, and construct rural water supply projects. The committee also received testimony from representatives of rural water associations, tribes, small towns, and the Administration.

State and local agencies face numerous challenges in providing adequate supplies of high quality water for household and other purposes. As Sen. Domenici pointed out in his statement supporting S. 895, according to a 1995 needs assessment conducted by the U.S. Department of Agriculture's Rural Development State Offices, over one million people in the U.S. had no water piped into their homes and more than 2.4 million had critical drinking water needs. In many cases, increasingly stringent water treatment regulations create hardships. In Oklahoma, the Department of Environmental Quality estimates that as many as 60 percent of Oklahoma's 1,700 water supply systems, most of them rural, fail to satisfy at least one federal standard.

Congress' appropriations for the Clean Water and Drinking Water State Revolving Funds remain the primary source

of financing for many rural communities. But I reminded Committee members that future funding for these programs is in danger. Provisions of S. 895 constitute an important new strategy to help rural communities, water associations, and tribes provide the rural public with reliable water infrastructure. Furthermore, I emphasized that cooperation between state and federal governments is imperative to the

identification and investigation of water supply projects.

I also took this unique opportunity in front of the committee to state the WSWC's strong support for enactment of the National Drought Preparedness Act, introduced by Senators Domenici (R-NM) and Max Baucus (D-MT). The Act would also provide additional technical and financial assistance to rural communities while affirming state responsibilities in water rights allocation and administration.

Finally, at the June Board meeting, new officers were elected. Rudy Herrmann is Chairman, Mark Nichols is Vice Chairman, and Bill Secrest remains Secretary. We also welcomed new Board member Kenneth Knowles. An experienced farmer and rancher in western Oklahoma and avowed conservationist, Mr. Knowles brings proficient knowledge of water issues to the Board as well as great respect for the inherent value of the state's water resources. Of course, we will all greatly miss Board Chairman

Ervin Mitchell. Rest assured that Ervin will remain a vocal advocate of water use and protection, as he was prior to his initial appointment by Gov. George Nigh almost 21 years ago. I personally wish to thank Ervin for his service and commitment to Oklahomans.

Senator Domenici's Statement On The Rural Water Supply Act of 2005

In support for the introduced Reclamation Rural Water Supply Act of 2005, Senate Energy & Natural Resources Chairman Pete V. Domenici issued the following statement regarding rural America's water challenges.

"I consider it tragic that millions of Americans still live without safe drinking water in this day and age. This privation is unacceptable in a country of our wealth and resources. This problem is especially prevalent in rural America where some small towns and counties can't afford to build new or upgrade deteriorated water infrastructure. The USDA has estimated that more than 1 million people in the United States have no water piped into their homes, and more than 2.4 million have critical drinking water needs that are not being met.

"In my state alone, the New Mexico Finance Authority estimates more than 100 rural communities don't have sufficient water supply and water treatment facilities. "While Congress has authorized various programs to address the problem over the past 30 years, there isn't enough federal money in these programs to meet the great need in rural America. The EPA estimates that \$75 billion needs to be spent on rural water systems around the country in the next 20 years to bring them up to current standards. Many areas of the country can't afford the needed improvements.

"The bill I have written with Senator Bingaman establishes a federal loan guarantee program within the Bureau of Reclamation that would allow rural communities access to the money they need while respecting the limits of the Reclamation's budget. It also expedites the appraisal and feasibility studies which allow these communities to assess how best to address their water supply needs and act accordingly."

May 11, 2005

**Governor's Water Conference
November 1-2, 2005
Cox Convention Center, Oklahoma City**

For early registration, call 405-530-8800

Federal Grant Awarded . . . Continued from page 1

and help prevent conflict over our limited water resources in the West.”

The Lugert-Altus Irrigation District will use the grant to expand its remote irrigation monitoring and automation sites, improve flow measurement, and replace and rehabilitate farm turnouts throughout the delivery area. District officials anticipate water savings of up to 10,000 acre-feet (almost 3.26 billion gallons) per year. The total project cost will be in excess of \$600,000.

Tom Buchanan, general manager of the District, reported that at a cost of about \$200,000, the initial phase of the infrastructure modernization project is nearing completion, and that the Bureau’s grant will provide the necessary funding to implement phase two of the project.

According to Duane Smith, OWRB Executive Director, the grant validates the commitment of the District’s water users to intelligent management and preservation of their resource. Smith commends the District’s board and customers for past, present, and future actions to maximize availability of often limited water supplies.

Lugert-Altus Irrigation District and other agencies and groups receiving grants will now work with the Bureau of Reclamation to secure cooperative agreements and complete regulatory processes. Ground-breaking on the projects is expected soon and all must be completed within 24 months. For more information on the Water 2025 initiative, visit www.doi.gov/water2025.

New Mesonet Station To Assist Arbuckle Study

The Oklahoma Climatological Survey (OCS) and Oklahoma Water Resources Board (OWRB) have partnered to establish a Mesonet weather monitoring station in Pontotoc County.

The new site, 6.3 miles southwest of Fittstown, houses the 117th Oklahoma Mesonet station in the program’s world-class environmental monitoring network, which includes at least one automated station in every county in the state. The Water Board’s involvement came about due to the agency’s need for data related to the ongoing Arbuckle-Simpson Hydrology Study, currently in its third year.

Fittstown is the first Mesonet station located over the Arbuckle-Simpson aquifer and in the watershed of the Blue River. Real-time climate data transmitted by the station, which was activated May 24, will also provide researchers with information essential to understanding the aquifer and how it responds to variations in precipitation and other factors. An observation well may also be drilled at the site to provide local groundwater level data.

At each Mesonet site, the environment is measured by a set of instruments located on or near a 10-meter-tall

Knowles Appointed to OWRB

Kenneth Knowles of Arnett has been appointed by Governor Henry to serve a seven-year term on the OWRB. A third generation farmer and rancher, Knowles also serves as President of the Northwestern Electric Cooperative located in Woodward, Chairman of the Oklahoma Wildlife and Prairie Heritage Alliance, and Secretary of High Plains Resource Conservation and Development. Knowles received a B.S. in Agricultural Education from Oklahoma State University in 1974. In 2001, he was named the Oklahoma Department of Wildlife Conservation’s Landowner Conservationist of the Year due to his ongoing efforts to enhance wildlife habitat on the 11,000 acres he owns and manages in Ellis County. He was also recognized for playing an integral role in prairie chicken restoration efforts by traveling to Washington, New Mexico, and Mexico to share his knowledge, experience, and support of the Lesser Prairie Chicken Interstate Working Group with policy makers and other ranchers and conservationists.



Kenneth Knowles, OWRB

tower. Measurements of precipitation, temperature, soil moisture, and other climatic variables are packaged into periodic observations, which are transmitted to a central facility and over the Internet every 15 minutes, 24 hours per day year-round. The Fittstown location satisfies OCS Mesonet siting requirements related to accessibility, geography, and vegetation. In addition, the area contains few obstructions and the site maintains consistency with spatial distribution of other Mesonet stations.



The new Mesonet environmental monitoring station near Fittstown

Geochemistry Unlocking Mysteries of Aquifer's Flow System

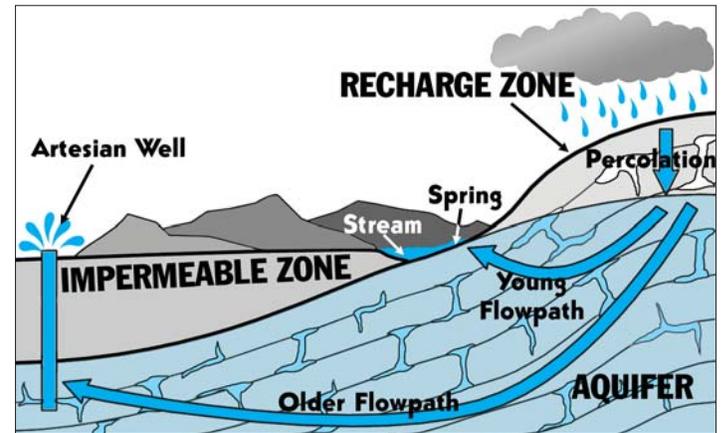
Data collected during last fall's Arbuckle-Simpson Hydrology Study geochemical sampling effort is providing researchers with a better understanding of the flow paths of local groundwaters.

Estimates of the rate of groundwater movement through the Arbuckle-Simpson aquifer's highly-fractured system have been made by calculating the age of groundwater in different locations based on the concentration of environmental tracers. Investigators have employed a computer simulation to project path lines and travel times of water moving through the aquifer. As a tool to age-date groundwater in the aquifer, water samples have been analyzed for levels of naturally occurring helium.

Preliminary results of the study data estimate that water from Vendome Well, an artesian well issuing from the Arbuckle-Simpson aquifer in Sulphur, is very old, possibly more than 10,000 years. In addition, USGS researchers calculate that the sampled water entering the aquifer at that time had a temperature approximately eight degrees cooler than that of the present day. The difference corresponds to mean annual air temperatures

that existed in the area about 10,000 to 14,000 years ago.

Laboratory analysis of the water samples, collected last October and November, will also be used to determine the general water quality of the aquifer and identify possible water quality problems. More detailed geochemical analyses will also be conducted.



Groundwater age can be defined as the travel time of water from its point of recharge to its point of use or discharge. This illustration shows water from a recharge zone travelling along two flowpaths: a short distance to a spring, where it is discharged into a stream, and a much longer distance to an artesian well located in an impermeable zone.

Mitchell Honored

Ervin Mitchell, OWRB Chairman and 21-year member of the OWRB, concluded his career at the agency in May. Mitchell served the Board under five governors as both Chairman and Secretary. He and his wife Emma were honored by other Board members and staff at the May 10 Board meeting, where Executive Director Duane Smith presented him with an award outlining his contributions, including his intense interest in and passion for the vital surface and groundwater resources of Oklahoma, both as a member of the Board and as a model farmer and rancher.

Mitchell was also commended for promoting the utilization of Oklahoma's water resources to provide maximum benefit to the economic, social, and environmental welfare of Oklahomans, and for his efforts to ensure the proper use and protection of Oklahoma's water resources in a manner consistent with the intent of state and federal laws. As both a member of the Board and its Finance Committee, Mitchell has been an important contributor to the Board's continuing efforts to provide financing to hundreds of Oklahoma communities, both rural and urban, to fund vital water and sewer infrastructure through the agency's Financial Assistance Program.

During his career of distinguished service to the state, Mitchell also served on the Board and as President of the Oklahoma Association of Conservation Districts and on the Beaver County Conservation District. He currently serves on the Oklahoma Farm Bureau's Board of Directors working to achieve educational improvement, economic opportunity, and social advancement for the state's farming and ranching communities. He also served on the State School Board Association and Balko School Board.



OWRB Executive Director Duane Smith presents Ervin Mitchell with a resolution of appreciation from the Board and staff.

Experts Examine Weather Modification

On May 18-19, national, state, and university weather experts gathered at the University of Oklahoma's Max Westheimer Airport to conduct operations in the second phase of a two-year regional cloud seeding study that began in Norman last fall, referred to as the Southern Plains Experiment in Cloud-seeding of Thunderstorms for Rain Augmentation (SPECTRA).

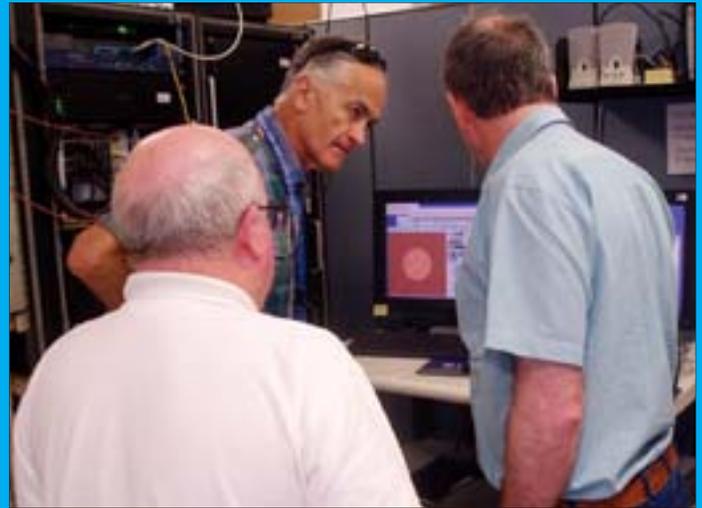
The study--involving the states of Oklahoma, Texas, and New Mexico--utilizes research scientists and agencies of the Oklahoma Weather Center in Norman. The Center is a world-renowned alliance of federal, state, and University of Oklahoma organizations, including the Oklahoma Climatological Survey and National Severe Storms Laboratory (NSSL). The Bureau of Reclamation is funding the study through the Texas Department of Licensing and Regulation.

What is Dual Polarized Radar?

Non-polarimetric radars, such as NEXRAD, transmit and receive only horizontal pulses of radio waves. Therefore, they measure only the horizontal dimension of cloud and precipitation particles. Dual-polarimetric radars transmit and receive both horizontal *and* vertical pulses of radio waves. As a result, they measure both the horizontal *and* vertical dimensions of cloud and precipitation particles. This additional information leads to improved predictions of precipitation type and rate.



NSSL's dual-polarization radar facility in Norman



Doppler radar expert Dusan Zurnic with the National Severe Storms Laboratory in Norman demonstrates dual polarized radar capabilities to cloud seeding research scientists.

The fundamental goal of the study is to determine the effectiveness and applicability of cloud seeding in mitigating severe weather events in western Oklahoma and the Texas Panhandle. Field exercises will help determine the impact of timely seeding on the behavior of growing convective clouds and their capacity to produce rainfall and hail. Throughout operations in Oklahoma, researchers will utilize the National Severe Storms Laboratory's state-of-the-art dual polarized radar.

Mike Mathis, chief of the OWRB's Planning and Management Division and coordinator of weather modification operations in Oklahoma, says that seven cloud seeding missions were flown in May, and in several instances, investigators using a tracer were able to document that when mill salt seeding material was dispersed into cloud towers, there was significant growth and subsequent rainfall. Unfortunately, the statewide dry period experienced throughout much of May hurt prospects for further data collection, but researchers hope to return and conduct additional operations during the late summer or fall.

OCS Climatologist Honored

The Oklahoma Climatological Survey (OCS) has received a national award for its publication *The Oklahoma Drought of 2001-2002* by Derek S. Arndt, Oklahoma's Acting State Climatologist. *The Journal of Government Information* has honored Arndt for winning the Outstanding Publication category of their national competition. OCS and Mr. Arndt also received a Governor's Commendation from Gov. Brad Henry.

Nominated by the Oklahoma Department of Libraries, the publication was selected from 2,610 state documents. Susan McVey, Director of the Oklahoma Department of Libraries, said the publication was, "an outstanding presentation of technical information in an easy-to-understand format. It can easily be used by the general public and students as well as the research community."

USGS Director Resigns

U.S. Interior Secretary Gale Norton has named Dr. P. Patrick Leahy as acting director of the U.S. Geological Survey. Leahy will replace Dr. Charles G. Groat, who resigned on June 17 to accept an appointment at the University of Texas. A permanent replacement for USGS director must be nominated by President Bush and confirmed by the U.S. Senate.

Leahy has been with the USGS since 1974 and is currently the associate director for Geology of the USGS. He has responsibility for federal Earth-science programs, which include worldwide earthquake hazards monitoring and research, geologic mapping of land and seafloor resources, volcano and landslide hazards, and assessments of energy and mineral resources. He also is responsible for all USGS international activities.

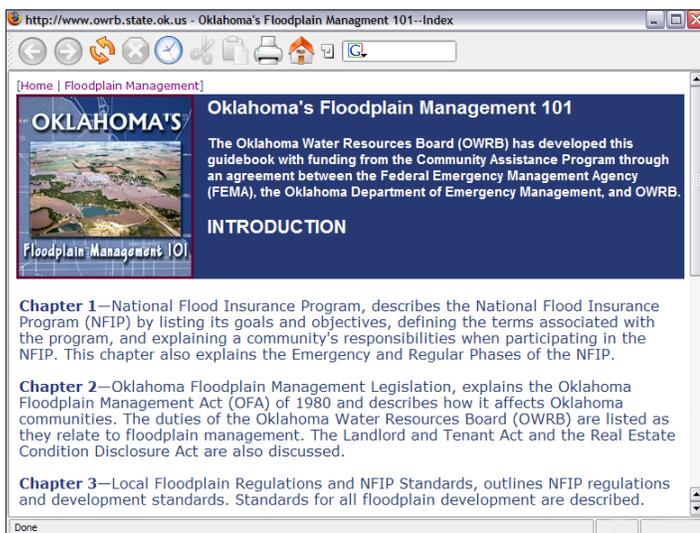
Source: National Water Resources Association

Workshops Benefit Floodplain Officials



During Flood Awareness Month in May, the OWRB sponsored 10 one-day workshops throughout Oklahoma. Hundreds of city, county, and tribal floodplain administrators received valuable advice and training on floodplain management, development, and regulations governing compliance with the National Flood Insurance Program (NFIP). In addition, the Certified Floodplain Manager (CFM) exam was offered to local floodplain officials.

Rhonda Bowers (above) coordinated workshop registration and distribution of training materials, including the updated and improved Oklahoma's Floodplain Management 101 guidebook, also available on the OWRB's Web site (below).



Floodplain management training workshops, such as this one in McAlester, featured speakers from the Federal Emergency Management Agency, Army Corps of Engineers, Department of Emergency Management, Department of Environmental Quality, and other experts.

Public Service Recognition Week Celebrates Staff



OWRB employees line up for chow

OWRB staff were treated to a breakfast buffet at the annual Employee Recognition Breakfast on May 2 as part of National Public Service Recognition Week, celebrated since 1985. During the week, men and women who serve America as federal, state, and local government employees were recognized for their dedication and contributions.

Employee Saves the Day

On May 12, Byju Sudhakaran, of the OWRB's Financial Assistance Program, found an engagement ring in the OWRB parking lot. Not knowing who the owner was, Sudhakaran tracked the ring to the jewelry store where it was purchased, and the store then contacted the owner, Billy Willis Jr. of Oklahoma City. Sudhakaran returned the \$6400 engagement ring to Willis, who brought donuts for the entire agency to show his appreciation.



Willis and Sudhakaran

Oklahoma Drought Monitor

Reservoir Storage

Lake storage in Oklahoma remains generally good although levels are beginning to show signs of stress. As of June 6, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 91.7 percent full, a 3.4 percent decrease from that recorded on May 9, according to information from the U.S. Army Corps of Engineers (Tulsa District). Thirteen reservoirs have experienced lake level decreases since that time; 10 reservoirs are currently operating at less than full capacity (compared to 13 last month). Two reservoirs—Lugert-Altus, only 70.9 percent full; and Tom Steed, 72.8 percent—remain below 80 percent capacity.

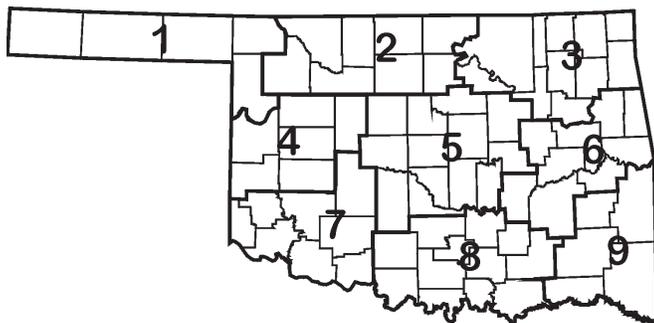
Storage in Selected Oklahoma Lakes & Reservoirs

As of June 6, 2005

Climate Division	Conservation Storage (acre-feet)	Present Storage (acre-feet)	Percent of Conservation Storage
North Central	460,745	460,745	100.0
Northeast	3,710,194	3,659,677	98.6
West Central	276,790	272,247	98.4
Central	154,225	151,345	98.1
East Central	3,183,243	2,867,469	90.1
Southwest	301,810	73,685	24.4
South Central	3,118,676	2,656,585	85.2
Southeast	1,561,859	1,561,457	100.0
State Totals	12,767,542	11,703,210	91.7

Drought Indices

According to the latest Palmer Drought Severity Index (June 4, below), five regions in Oklahoma are currently experiencing drought conditions, compared to three regions last month. The Central climate division is in “moderate drought” while the Southeast, South Central, East Central, and Northeast climate divisions are in “mild drought.” All nine of Oklahoma’s climate divisions have undergone PDSI moisture decreases since May 7. The greatest decrease occurred in the North Central climate division.



The latest monthly Standardized Precipitation Index (through May, below) reflects increasingly dry conditions in Oklahoma over the past several months. Among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), “extremely dry” conditions exist in Central and South Central Oklahoma over the past 90 days; “very” or “moderately dry” conditions are reported in all other regions, except the Northwest, during that period. The 6-month SPI indicates similarly dry conditions in five climate divisions, although none are suffering extreme dryness. Considering longer periods (through six years), the Southeast climate division reports “moderately dry” conditions over the past 30 and 36 months.

Palmer Drought Severity Index

Climate Division (#)	Current Status 6/4/2005	Value		Change In Value
		6/4	5/7	
NORTHWEST (1)	MOIST SPELL	1.72	3.03	-1.31
NORTH CENTRAL (2)	INCIPIENT DROUGHT	-0.69	0.94	-1.63
NORTHEAST (3)	MILD DROUGHT	-1.44	-0.65	-0.79
WEST CENTRAL (4)	NEAR NORMAL	0.11	1.39	-1.28
CENTRAL (5)	MODERATE DROUGHT	-2.09	-1.12	-0.97
EAST CENTRAL (6)	MILD DROUGHT	-1.80	-1.16	-0.64
SOUTHWEST (7)	INCIPIENT DROUGHT	-0.74	0.20	-0.94
SOUTH CENTRAL (8)	MILD DROUGHT	-1.88	-0.86	-1.02
SOUTHEAST (9)	MILD DROUGHT	-1.97	-1.48	-0.49

Standardized Precipitation Index

Through May 2005

	3-Month	6-Month	9-Month	12-Month
NORTHWEST (1)	NEAR NORMAL	NEAR NORMAL	MODERATELY WET	VERY WET
NORTH CENTRAL (2)	VERY DRY	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL
NORTHEAST (3)	VERY DRY	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
WEST CENTRAL (4)	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL	MODERATELY WET
CENTRAL (5)	EXTREMELY DRY	VERY DRY	NEAR NORMAL	NEAR NORMAL
EAST CENTRAL (6)	VERY DRY	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL
SOUTHWEST (7)	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL	VERY WET
SOUTH CENTRAL (8)	EXTREMELY DRY	VERY DRY	NEAR NORMAL	MODERATELY WET
SOUTHEAST (9)	VERY DRY	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL

Financial Assistance Program Update

Loans/Grants Approved as of June 14, 2005

FAP Loans—309 totaling \$552,560,000

The OWRB's Financial Assistance Program (FAP), created by the State Legislature in 1979, provides loans for water and wastewater system improvements in Oklahoma. The tremendous popularity of the bond loan program is due, in part, to extended payoff periods of up to 30 years at extremely competitive interest rates, averaging approximately 4.762 percent since 1986.

CWSRF Loans—164 totaling \$572,818,715

The Clean Water State Revolving Fund (CWSRF) loan program was created in 1988 to provide a renewable financing source for communities to draw upon for their wastewater infrastructure needs. The CWSRF program is Oklahoma's largest self-supporting wastewater financing effort, providing low-interest loans to communities in need.

DWSRF Loans—49 totaling \$189,433,938

The Drinking Water State Revolving Fund (DWSRF) loan program is an initiative of the OWRB and Oklahoma Department of Environmental Quality to assist municipalities and rural water districts in the construction and improvement of drinking water systems. These projects are often mandated for communities to obtain compliance with increasingly stringent federal standards related to the treatment of drinking water.

More information about the OWRB's Financial Assistance Program can be obtained by calling the OWRB at (405) 530-8800.

REAP Grants—422 totaling \$36,890,241

The Rural Economic Action Plan (REAP) Program was created by the State Legislature in 1996. REAP grants, used for water/wastewater system improvements, target primarily rural communities with populations of 7,000 or less, but priority is afforded to those with fewer than 1,750 inhabitants.

Emergency Grants—514 totaling \$30,203,180

OWRB emergency grants, limited to \$100,000, are awarded to correct situations constituting a threat to life, health, and/or property and are an indispensable component of the agency's financial assistance strategy.

Total Loans/Grants—1,458 totaling \$1,381,906,074

Applicants eligible for water/wastewater project financial assistance vary according to the specific program's purpose and requirements, but include towns and other municipalities with proper legal authority, various districts established under Title 82 of Oklahoma Statutes (rural water, master/water conservancy, rural sewage, and irrigation districts), counties, public works authorities, and/or school districts. Applications for agency financial assistance programs are evaluated individually by agency staff. Those meeting specific program requirements are recommended by staff for approval at monthly meetings of the nine-member Water Board.

Rudy Herrmann, *Chairman*; Mark Nichols, *Vice Chairman*; Bill Secrest, *Secretary*

Harry Currie, Lonnie L. Farmer, Ed Fite, Jack Keeley, Kenneth K. Knowles, Richard C. Sevenoaks

Brian Vance, *Writer/Editor* • Darla Whitley, *Writer/Layout* • Barry Fogerty, *Photography*

This bimonthly newsletter, printed by Oklahoma University Printing Services, Norman, Oklahoma, is published by the Oklahoma Water Resources Board as authorized by Duane A. Smith, Executive Director. Eighty-eight hundred copies have been printed and mailed bimonthly at an approximate cost of 45 cents each. Copies have been deposited at the Publications Clearinghouse of the Oklahoma Department of Libraries.

www.owrb.state.ok.us

Oklahoma City, OK 73118
3800 N. Classen Boulevard

OKLAHOMA WATER RESOURCES BOARD

Bimonthly Newsletter of the

Water News
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Oklahoma City, OK
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