

OKLAHOMA Water News

4th Quarter 2014

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Report of OWRB Activities for 2014

Throughout 2014, the OWRB fulfilled its mission of enhancing the quality of life for Oklahomans by managing, protecting, and improving the state's water resources to ensure clean, safe, and reliable water supplies, a strong economy, and a healthy environment.

Water for 2060

The Water for 2060 Advisory Group met quarterly in 2014 to review current information and discuss future strategies for meeting the goal of consuming no more fresh water in 2060 than is consumed today. During the meetings, public water supply managers, agriculture producers, and experts from other water use sectors provided insights to the group on existing conservation, efficiency, and reuse practices, encouraging the development of ideas for supporting and extending these activities. In November, the group began structuring an outline for recommendations that will be included in a report to the Legislature and Governor in 2015.



Advisory Group member meeting. The Water for 2060 Status Report, available online at www.owrb.ok.gov/2060, contains meeting summaries and other Advisory Group information.

Legal Developments

Permits for Water Reuse Projects Authorized by Legislature

Senate Bill 1187, enacted in May of 2014, authorizes the Oklahoma Department of Environmental Quality (ODEQ) to consider and issue permits for point-source discharges into sensitive public and private water supplies. This new development was vital for communities like Norman, whose long-term water plan through 2060 relies heavily on water reuse. Norman intends to discharge its "highly

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From the Director

Another productive and rewarding year is in the books for the Oklahoma Water Resources Board, and on behalf of our staff here I hope each of you had a great holiday season and will have an even better year to come.

First, I'd like to thank all the attendees, sponsors, speakers, and staff for making this year's 35th Annual Governor's Water Conference & Research Symposium a resounding success. I especially want to thank Governor Mary Fallin, US Congressmen Frank Lucas and Markwayne Mullin, Senator-elect James Lankford, as well as our keynote speaker, Patricia Mulroy, and a multitude of other presenters. I also appreciate our Symposium partners, OSU's Oklahoma Water Resources Center, for their contributions to making

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J. D. Strong, Executive Director
Oklahoma Water Resources Board



Report of OWRB Activities for 2014 (continued)

treated” wastewater effluent into Lake Thunderbird, which is one of the primary sources for its municipal water supply.

Well Spacing Rules: Sensitive Sole Source Groundwater Basins

In October of 2013, the OWRB issued its order determining the Maximum Annual Yield from the first sensitive sole source groundwater basin or subbasin (“Sensitive Basin”) recognized since the enactment of Senate Bill 288. Pursuant to the terms of that Order, the OWRB amended its administrative rules in 2014 by adding spacing restrictions for new wells overlying the Sensitive Basin. The new amendments interpret and implement 82 O.S. sections 1020.9, 1020.9A, and 1020.9B,

which were enacted as part of Oklahoma’s first legislative act addressing the connection between groundwater and stream water.

The new rule language prohibits the OWRB from authorizing the drilling of groundwater wells which are “likely to degrade or interfere with springs or streams emanating in whole or in part” from the Sensitive Basin. The rules now prohibit drilling new groundwater wells within 1320 feet from any spring which emanates from the Sensitive Basin and flows 50 or more gallons per minute (gpm), prohibit new groundwater wells within 2 miles from any spring which emanates from the Sensitive Basin and which flows 500 or more gpm, and

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From the Director (continued)

the conference Oklahoma’s premiere water policy and research event. And last but not least, congratulations again to our 2014 Oklahoma Water Pioneers, Jack Keeley and Mike Thralls.

I hope everyone enjoyed our format this year, especially with the added focus on roundtable discussions and more opportunities to engage presenters and ask questions. I particularly enjoyed moderating our final session on water rights administration in Oklahoma. In any discussion, whether on topics ranging from water rights to drought preparedness, it’s always important to have diverse perspectives from experts who are working closely on these issues every day. We’re already looking forward to another great conference next year, so I hope you will join us again.

As always, there are several important agency initiatives from 2014 that will continue throughout 2015, many of which you’ll see noted in the “Annual Report” portion of this issue of the *Water News*. Of particular note, the Water for 2060 Advisory Council held its fourth meeting of the year on November 18. The Council focused on finalizing the draft recommendations for the public water supply, crop irrigation, and industrial/power generation/oil and gas sectors. It was a productive session, and the Council is still on target to complete its report by the fall of 2015 for submission to the Governor and Legislature. I encourage you to check out some of the new resources we’ve created on the OWRB’s Water for 2060 information page at www.owrb.ok.gov/2060.

Another important development from the past few months is the finalization of this year’s updates to the OWRB’s Strategic Plan for 2016-2020. Each year, the OWRB undertakes the strategic planning process to make sure we’ve set a clear path for successfully meeting our mission on behalf of all Oklahoma citizens. I invite you to review the OWRB’s Strategic Plan in the “About Us” section of our website.

I’m especially proud of this year’s iteration of the Strategic Plan as each of our four Divisions have really taken ownership of the overall agency mission and goals, as well as what the plan outlines for each of their respective programs. The divisions also wanted to ensure that the objectives and key performance measures outlined in the Plan are closely aligned with the Priority and Supporting Recommendations featured in the 2012 Update of Oklahoma’s Comprehensive Water Plan. The

result, in my opinion, is that we have an agency strategy that is a cohesive and effective resource for managing the OWRB’s multitude of programs and projects.

As we close the chapter on 2014, I’d like to take a moment to acknowledge some important personnel changes and staff activities from the last year. First, the OWRB became a two-time winner of The Oklahoman’s “Top Oklahoma Workplaces Award.” We remain the only state agency to have achieved the distinction for two consecutive years. As Governor Fallin said herself, “Once again, the OWRB epitomizes the type of efficient and responsible government that our citizens deserve.” However, most important to me is the fact that the OWRB was named a Top Workplace as a result of the anonymous, candid results of employee surveys.



The OWRB was awarded a consecutive “Top Workplaces” rating for 2014. The Top Workplaces program recognizes good employers based purely on employee opinions gathered through anonymous surveys.

Also, a special thanks to our OWRB staff for another banner year of giving and community involvement. As anyone who follows the OWRB on Twitter has likely seen (follow us at [@OKWaterBoard](https://twitter.com/OKWaterBoard)), our employees are committed to public service both in their careers and on their own dime. Whether it’s volunteering for educational programs like ScienceFest and H2Oklahoma, surpassing our agency-wide goal in the State Charitable Campaign, bell-ringing to raise money for the Salvation Army of Oklahoma, or participating in the United Way of Central Oklahoma’s Day of Caring event, our staff gives back with impressive generosity. I’m extremely fortunate to work with a close-knit family of employees that always sacrifices for the betterment of others.

And last but never least, several dear friends and colleagues here at the OWRB retired and moved on to bigger and better pastures. I’d be remiss if I didn’t take a moment to acknowledge the contributions of our 2014 retirees: Jerry “Rowdy” Barnett, Barry Fogerty, Anita Ray, Kim Sullivan, Brian Vance, and Shelly Whitmire. Thanks to each of you, and indeed to all of our retirees, for helping shape the OWRB into an agency that serves the public with such distinction and commitment. 💧

Report of OWRB Activities for 2014 (continued)

prohibit new wells within 1 mile from any stream segment which emanates from the Sensitive Basin and has a base flow of 500 gpm and is identified as perennial in the USGS National Hydrology Dataset.

While the new rule language permits certain exceptions to the new well spacing requirements, it puts the burden on applicants seeking an exception to show that the new well is not likely to degrade or interfere with springs or streams emanating from the Sensitive Basin. Specifically, applicants seeking an exception will have to demonstrate that the dimensions of the applicants' land preclude them from complying with the new well spacing restrictions. Applicants must also demonstrate that the cumulative impact of pumping from the proposed well combined with pumping from existing wells will cause less than a 25% reduction of flow in the subject spring or stream to qualify for the exception.

Finally, the administrative rules governing the taking and use of groundwater were further amended to add tables that identify and describe springs known to emanate from the Sensitive Basin by name, USGS Identification Number, GPS coordinates, and legal description. The tables are organized to identify which springs flow at least 50 gpm and which springs flow at least 500 gpm.

Sale of "Surplus" Water under OK Stream Water Statutes

A recent Oklahoma Court of Civil Appeals opinion, Rural Water, Sewer & Solid Waste Mgmt Dist. No. 1 v. City of Guthrie, rejected a claim that Oklahoma's stream water laws required a municipality to sell surplus treated water to a rural water district. The plaintiff in that case, a rural water district, argued that the defendant, a municipality adjacent to the district's service area, was required to sell its surplus

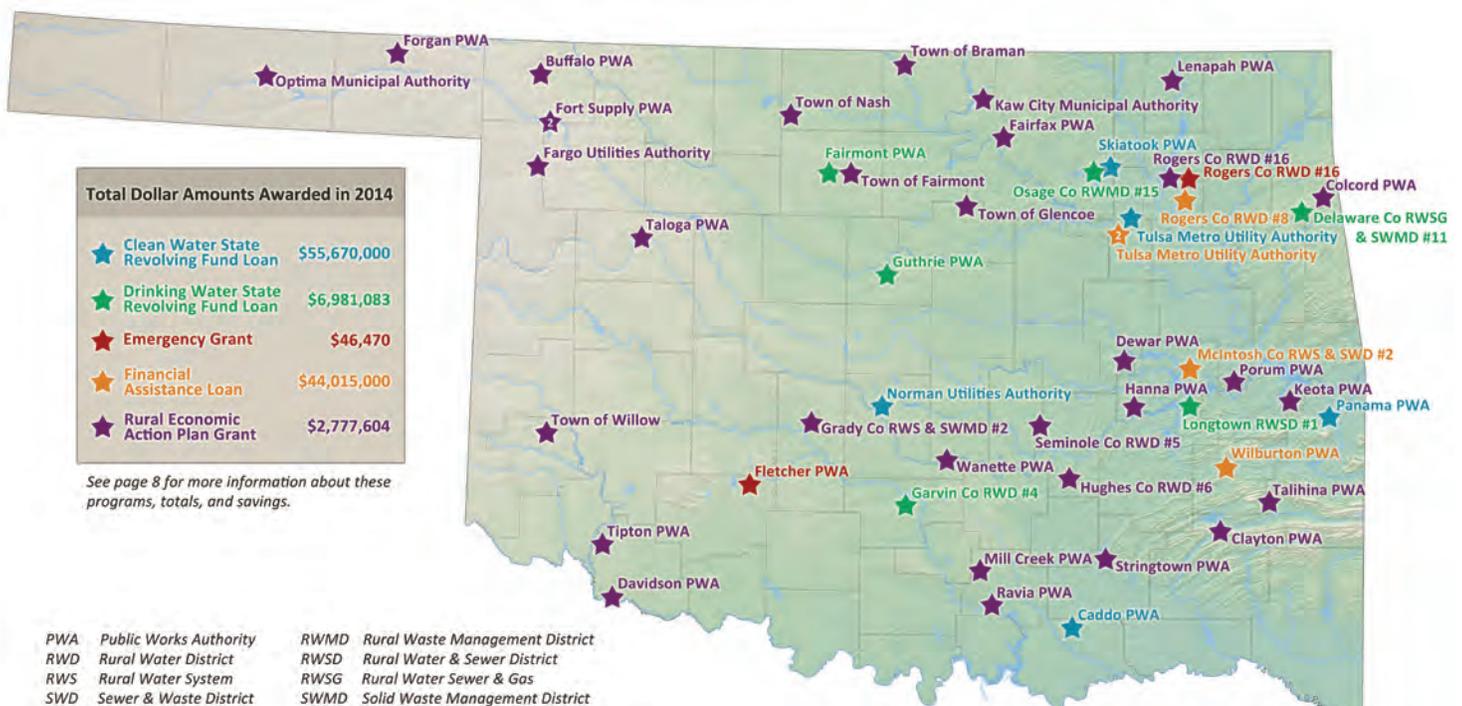
treated water to the rural water district, which would then be sold to customers in the rural water district's service area. Section 105.21 of Title 82 of the Oklahoma Statutes requires the owner of any works for storage, diversion or carriage of water containing water in excess of the owner's appropriation for beneficial use shall be required to sell such water at reasonable rates. The Oklahoma Court of Civil Appeals affirmed the District Court's grant of summary judgment to the municipality, holding that section 105.21 applied only to stream water, and did not apply to "water that has been appropriated by or is in treatment facilities of a municipality."

In a related case between the same rural water district and the same municipality filed in the US District Court for Western District of Oklahoma, the rural water district obtained a \$1.27 million jury verdict and injunctive relief against the municipality. In that case, the district sued for the return of customers and for damages suffered when the neighboring municipality encroached upon the district's service area, in violation of 7 U.S.C. §1926(b), which mandates that districts must be allowed to operate free of competition within their respective service areas during the term of repayment of their loan from the federal government.

Financial Assistance Program

During 2014, the OWRB's Financial Assistance Program provided more than \$100 million in financing to Oklahoma communities and water systems for water and wastewater infrastructure projects. This included 34 grants for the year totaling \$2,823,075 and 16 loans totaling \$106,666,083, saving borrowers an estimated \$30,702,133 when compared to traditional financing options.

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Report of OWRB Activities for 2014 (continued)

Water Quality Standards

The 2014-15 proposed amendments to Chapter 45 include the following: clarification and modification of language associated with dissolved oxygen criteria, the addition of several amendments regarding the development of water quality standards applicable to wetland waterbodies, and the addition of site-specific Water Effect Ratio and Dissolved Translator for use in calculating permit limits for copper and zinc for Broken Bow Public Works Authority’s permit related to discharge of municipal and industrial wastewater to a tributary of Yanubbe Creek. The proposed amendments to Chapter 46 include clarification of language associated with Fish and Wildlife use support assessments for dissolved oxygen. A public hearing will be held on January 20.

The OWRB continues its joint participation in a study of phosphorus levels and Oklahoma’s scenic rivers to determine the total phosphorus threshold response level at which algae production results in undesirable or harmful conditions. In 2002, the Oklahoma Water Resources Board promulgated into its Water Quality Standards a total phosphorus criterion of 0.037 mg/L for all of its Scenic Rivers. Both Oklahoma and Arkansas have since worked to reduce phosphorus inputs into these waters, resulting in substantial reductions, but falling short of achieving full compliance with the criterion. The two-year, \$600,000 study has been funded by stakeholders in Arkansas, with both states’ Governors appointing three members to a committee overseeing the effort. The OWRB’s Water Quality Division Chief, Derek Smithee, is serving as co-chair. Several update meetings were held in 2014; the next meeting is scheduled for the spring of 2015 in Tahlequah and will be open to the public.

OWRB FY14 Expenditures and FY15 Budget

Activity Name	FY14 Expended	FY15 Budgeted
Administration	\$2,153,505.46	\$2,516,576.00
Water Quality	3,984,921.51	4,181,859.00
Financial Assistance	2,564,282.51	5,475,516.00
Planning & Management	3,899,275.27	5,372,367.00
Information Technology	650,842.56	997,815.00
Totals	\$13,252,827.31	\$18,544,133.00
Fund Name		
General Appropriations	\$5,365,456.38	\$5,068,102.00
Drillers & Installers Indemnity Fund	0.00	20,000.00
OWRB Revolving Fund	1,389,057.52	2,814,951.00
Water Resources Revolving Fund	1,000,636.89	1,171,092.00
Drillers & Installers Regulation Fund	25,000.00	32,798.00
Water Infrastructure Development Fund	1,196,390.76	2,284,137.00
Federal Funds - OWRB	1,774,834.32	1,822,943.00
USGS Cooperative Agreement	279,154.00	275,275.00
DW Loan Administration Fund	480,942.43	2,090,539.00
CW Loan Administration Fund	1,741,355.01	2,534,296.00
CW Loan Fund	0.00	400,000.00
Totals	\$13,252,827.31	\$18,514,133.00

Monitoring

Through the Beneficial Use Monitoring Program (BUMP), lake sampling was conducted quarterly at 75 lakes across Oklahoma in 2014 (as part of a five-year rotation for the 130 lakes included in the program). Stream sampling was conducted at 84 stations on a 6-week rotation. The physical, chemical, and biological data collected at these sites are used to identify water quality trends, document impairments to beneficial uses, and identify sources of pollution in support of Oklahoma’s Water Quality Standards and federal Clean Water Act requirements.

Staff faced several challenges due to low water levels, particularly in southwestern and western Oklahoma. For example, two sites at Waurika Lake were inaccessible due to shallow water conditions.



As of mid-December, the conservation pool at Waurika Lake was only at about 30%, leaving two out of five sampling sites inaccessible to OWRB monitoring staff.

In July, a Nutrient Limited Watershed (NLW) pilot study was initiated at Crowder Lake, which is currently listed in the Water Quality Standards as nutrient threatened. This study is designed to assess water quality in the reservoir and streams in the watershed to determine which beneficial uses are impacted and if the impairment is due to elevated nutrients.



OWRB biologist Josh Bailey collects winter macroinvertebrate (aquatic insect) samples from the Mountain Fork River near Smithville in southeast Oklahoma. An analysis of these samples provides critical information about the water quality conditions of the stream segment.

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Report of OWRB Activities for 2014 (continued)

The OWRB's biological monitoring team completed a two-year National Rivers and Streams Assessment in September. Funded through the US Environmental Protection Agency (EPA), the probability-based study included collection of a variety of biological samples, including fish, benthic macroinvertebrates, and benthic algae, as well as a stream habitat assessment at each site. Water quality samples were also collected to determine concentrations of various nutrients, cations, anions, turbidity, and toxicants. During 2013-14, 57 sites were sampled for the study; an additional 100 sites will be sampled over the next three years using the same probability-based design.

Sampling has been completed for year two of the Groundwater Monitoring and Assessment Program (GMAP), the OWRB's new statewide groundwater quality and quantity monitoring program. Staff visited more than 170 quality monitoring sites during the year, and collected data from more than 1,000 sites for water-level measurements. Data from six aquifers monitored in 2013 are currently available online in the 2014 BUMP Report. Data from the eight aquifers monitored in the second year of the program will be published next spring in the 2015 BUMP Report.



OWRB groundwater specialist Kevin Kilhoffer measures and samples an irrigation well at a GMAP site in the Arkansas River alluvial aquifer.

Hydrologic Studies

The OWRB continued several ongoing hydrologic studies during 2014. The Rush Springs aquifer study, initiated in 2011 in support of the Upper Washita River Basin project, is scheduled to be completed by the end of 2015. A 20-year update of the Enid Isolated Terrace aquifer hydrologic investigation is nearing completion as well.

Hydrologic investigations of the Elk City Sandstone and Gerty Sand aquifers are now underway. Through a contract with the US Geological Survey (USGS), the OWRB is also conducting hydrologic investigations on the North Canadian River and Canadian River alluvium and terrace aquifers (due for completion in 2015), North Fork of the Red River aquifer (due for completion in 2016), and Salt Fork of the Red River aquifer (due for completion in 2017).

Lake Rehabilitation

Despite the extreme drought in Southwest Oklahoma, EPA-funded aquatic plantings at Fort Cobb Lake have done well. The Oklahoma Department of Wildlife Conservation (ODWC) will continue to maintain these founder colonies of plants with hopes for their spread in the next several years.

OWRB staff surveyed and supplemented aquatic plantings in Lake Stanley Draper after an extended draw-down period (approximately 6 years). Unfortunately the invasive species *Phragmites australis*, Common Reed, has also survived the drawdown and will require additional treatment for control. Work on Stanley Draper is a cooperative effort between the City of Oklahoma City, the ODWC, and the OWRB.



OWRB staff team up with the Oklahoma Department of Wildlife Conservation and the OKC Parks and Recreation Department in September to plant both emergent and submersed plants at various sites around Lake Stanley Draper.

An evaluation of Lakes Hefner and Overholser was completed in 2014 to determine the feasibility of implementing in-lake best management practices to improve water quality for water supply and fish and wildlife beneficial uses. This project showed that withdrawing deeper water from Lake Hefner during the stratified period would improve water quality; however, wholesale improvements cannot be expected for either lake until significant reductions of nutrient loads from the North Canadian River are made.

Staff continued to work cooperatively with the Central Oklahoma Master Conservancy District (COMCD) to monitor and improve water quality in Lake Thunderbird, where an innovative system to oxygenate lake water has been installed. COMCD operation of the system has resulted in progressively improved quality of the raw water supplied to Norman, Del City, and Midwest City over the last three years.

Dam Safety Program

In accordance with last year's initiative, OWRB staff completed 22 low hazard-potential dam inspections and provided inspection reports with breach inundation maps to dam owners at no cost. Staff also developed more than 2,300 simplified breach inundation maps for low hazard dams across the state. This process allowed the OWRB to determine which dams may require further hazard classification analysis. Breach inundation maps of 13 high hazard-potential dams were developed, provided to

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Report of OWRB Activities for 2014 (continued)

dam owners at no cost, and integrated into site-specific Emergency Action Plans to assist emergency managers in the event of dam failure. Technical workshops on hydrology and hydraulic dam breach modeling were conducted for engineers, and Emergency Action Plan training was conducted for high hazard-potential dam owners.



OWRB dam safety staff measure the elevation of a dam in Adair County to determine its hazard classification.

Floodplain Management Program

The OWRB is continuing with seven FEMA RiskMAP Discovery projects throughout Oklahoma. The first preliminary Flood Insurance Rate Maps for portions of the Polecats-Snake Watershed in the City of Broken Arrow and Wagoner County will be released in late 2014. Options for converting remaining communities with paper FIRM maps to a digital format are being explored.

The OWRB continues to train and accredit floodplain administrators in Oklahoma's 398 participating National Flood Insurance program (NFIP) member communities. With assistance from the Oklahoma Floodplain Managers Association, the OWRB conducted 15 Community Assistance Visits and more than 50 Community Assistance Contacts during the year.

Permitting

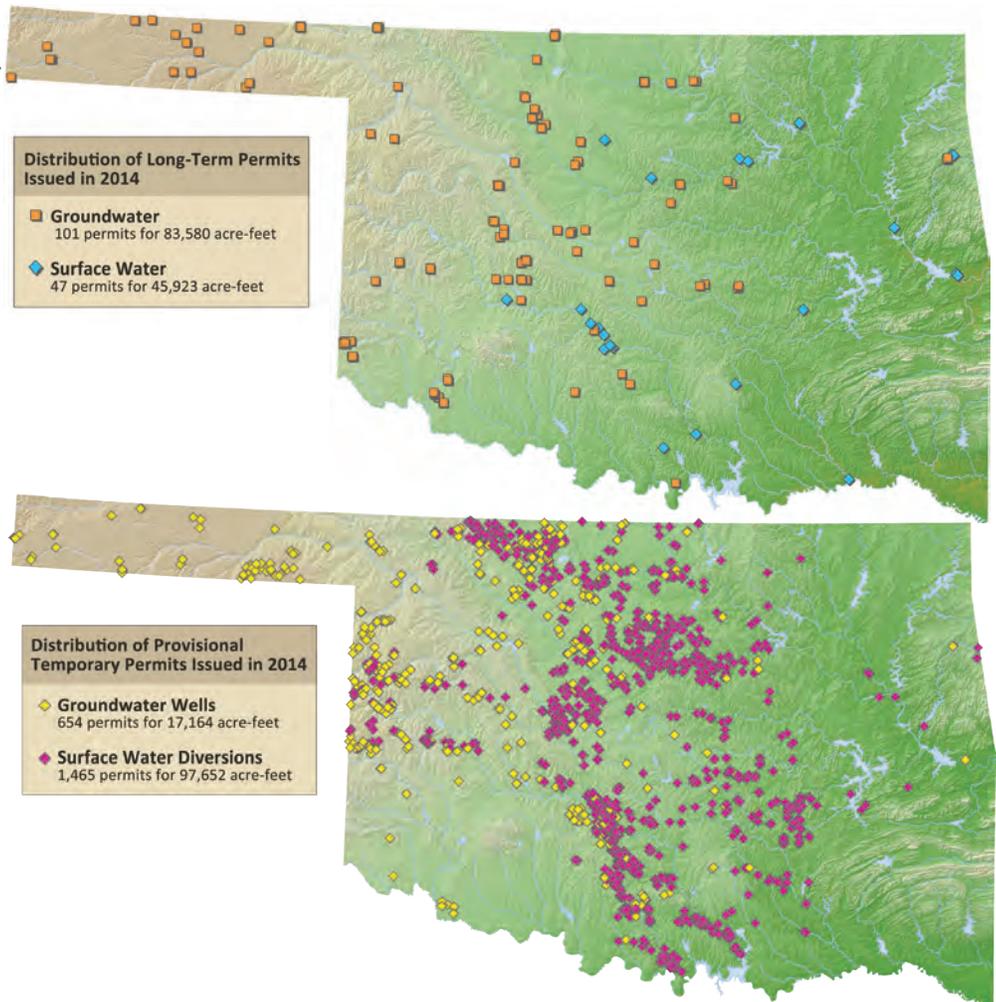
In 2014, OWRB permitting staff processed 101 regular groundwater permits and 47 surface water permits for a total of 129,503 acre-feet of water. More than 2,000 Provisional Temporary permits were also processed in 2014 for 114,816 acre-feet. (Provisional Temporary permits allow use for up to 90 days and do not require public notice and hearing.)

Well Driller/Pump Installer Program

During 2014, OWRB staff licensed 14 new Well Drilling and Pump Installer firms and 57 new operators. Staff maintained licenses for 386 licensed firms and 678 licensed operators. The OWRB also received more than 8,500 well completion, boring, geothermal, and plugging reports for the year. There are currently more than 163,000 records in the OWRB's well log database, accessible to the public via the OWRB website. OWRB staff processed multiple variance applications and performed routine well inspections and firm visits, resolving complaints and discussing violations of minimum construction standards. Additionally, staff conducted multiple training sessions for well driller continuing education. ♠

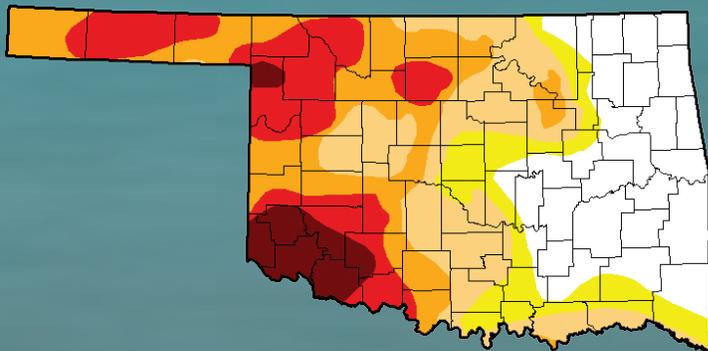
OWRB Fact Sheets

Eleven new OWRB fact sheets have been created on the following topics: Water for 2060, Dam Safety, Floodplain Management, Groundwater Monitoring, Lakes Monitoring, Lake Restoration, Provisional Temporary Permitting, Rivers & Streams Monitoring, Water Quality Standards, Water Use Permitting, and Well Driller Licensing. The fact sheets are available online at www.owrb.ok.gov/factsheets.



Drought Update

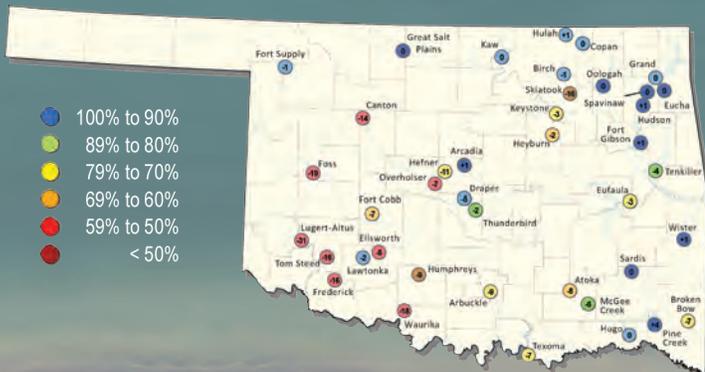
U.S. Drought Monitor
December 18, 2014



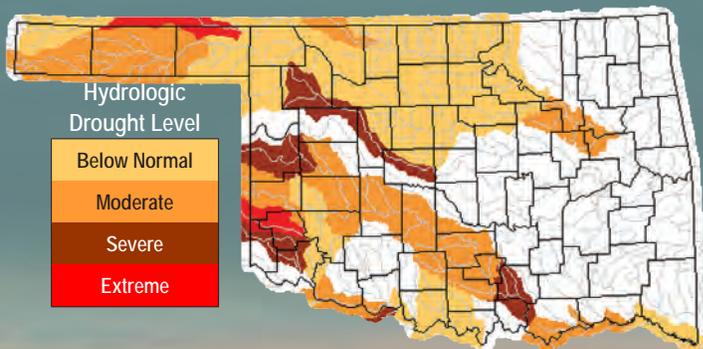
Drought Intensity & Percent of State in Drought Category

Abnormally Dry	95.95
Moderate Drought	77.48
Severe Drought	50.67
Extreme Drought	24.03
Exceptional Drought	8.61

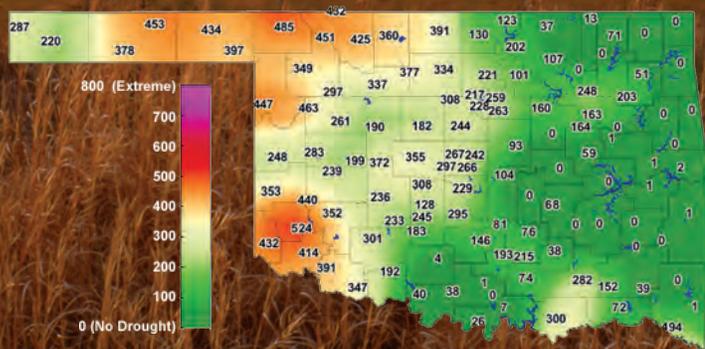
Reservoir Storage
December 16, 2014



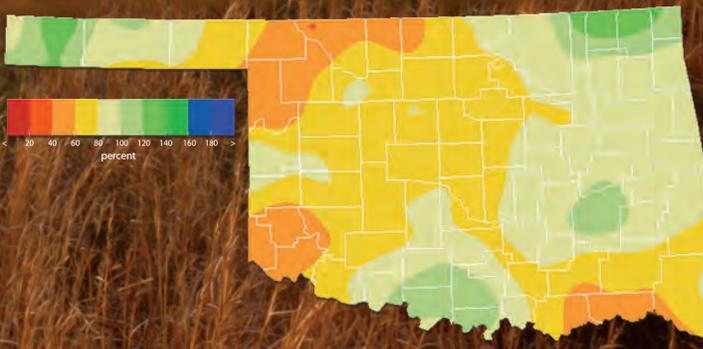
Streamflow (7-Day Average)
December 21, 2014



Keetch-Byram Drought Index
December 22, 2014



Percent of Normal Precipitation
Last 90 Days (September 23 to December 21, 2014)



Data obtained from the National Drought Mitigation Center, U.S. Geological Survey, U.S. Army Corps of Engineers and Oklahoma Climatological Survey. For more drought information, and to obtain updated information on Oklahoma's drought and moisture conditions, go to drought.ok.gov.

*Rudy Herrmann, Chairman • Linda Lambert, Vice Chairman • Tom Buchanan, Secretary
Bob Drake • Ford Drummond • Marilyn Feaver • Ed Fite • Jason Hitch • Richard Sevenoaks*

Protecting and enhancing the quality of life for Oklahomans by managing and improving the state's water resources to ensure clean and reliable water supplies, a strong economy, and a safe and healthy environment.

FINANCIAL ASSISTANCE PROGRAM UPDATE

Loans & Grants Approved as of September 16, 2014

FA Loans—366 for \$935,065,000

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 very competitive interest rates, averaging approximately 4.762 percent since 1986.

CWSRF Loans—281 for \$1,288,818,416

The Clean Water State Revolving Fund (CWSRF) loan program was created in 1988 to provide a renewable financing source for communities to use 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—171 for \$877,520,300

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.

REAP Grants—628 for \$55,671,358

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—568 for \$33,822,821

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

Drought Response Program Grants—10 totaling \$1,543,848

Through the OWRB's Drought Response Program, funding is available for communities in most dire need during state drought emergencies declared by the Governor. A maximum of \$300,000 is diverted from existing OWRB Emergency Grant funds to establish the Program.

For more information, call (405) 530-8800 or go to www.owrb.ok.gov/financing.

Total Loans/Grants Approved: 2,024 for \$3,192,441,742 Estimated Savings: \$1,203,414,463

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.