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OKLAHOMA Water News

Bimonthly Newsletter of the Oklahoma Water Resources Board

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*Duane A. Smith
Executive Director*

From the Director

I am pleased to present to you the OWRB's Annual Report for 2000. As many of you know, this agency and its staff have experienced yet another year faced with interesting, exciting and challenging issues which influence the management and protection of Oklahoma's water resources.

This issue of the *Oklahoma Water News* provides an opportunity for us to inform Oklahoma citizens of agency accomplishments and developments during the recently concluded year. As usual, we've encountered numerous opportunities, as well as several tough issues, in our effort to fulfill legislative mandates and directives. During 2000, Oklahomans were assaulted by brutal weather-related disasters — torrential floods, crippling drought, mountains of snow, ice and, of course, severe storms and tornadoes — that tested, and once again affirmed, the capacity of our citizens to withstand sudden misfortune and tragedy.

Staff of the Oklahoma Water Resources Board continue to meet
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Tribal Water Compact, Southeast Plan Highlight OWRB Efforts in 2000

An ambitious attempt to resolve the Sardis Reservoir debt while initiating a ground-breaking water compact between the state and Tribal governments highlighted accomplishments of the Oklahoma Water Resources Board last year. It is with both pleasure and pride that the Water Board presents this summary of noteworthy agency activities during 2000.

State/Tribal Water Compact

In October, the State of Oklahoma and Choctaw and Chickasaw Tribal Governments signed a formal memorandum of understanding that established a course of action for establishment of a State/Tribal Water Compact. The agreement, which will unite existing state water law with century-old Native American water rights claims, represents the first step in an effort to develop a uniform water rights and water quality standards administration system in southeast Oklahoma. The MOU also provides the groundwork through which the Tribes and State will work together to achieve much-needed economic development in southeast Oklahoma.

The first State/Tribal Water Compact negotiations meeting was held November 27 at the State Capitol.

Southeast Oklahoma Water Resources Development Plan

On November 14, the Water Board and Choctaw/Chickasaw Tribes co-hosted the Joint State/Tribal Request for Qualifications (RFQ) Pre-Submission Workshop in Oklahoma City. The RFQ process is the first relevant task addressed under HCR 1109, which directs the OWRB and Choctaw/Chickasaw Tribes to evaluate all feasible proposals for the potential development of southeast Oklahoma waters. Information collected through the RFQ's, submitted December 29, will assist the OWRB and Tribes in determining the ability of potential applicants to finance and participate in the Southeast Oklahoma Water Resources Development Plan. Approximately 40 workshop attendees represented interests in the Sardis Lake and southeast Oklahoma area, Oklahoma City and

See 2000 Highlights, Page 2

Director . . . Continued

these challenges and enhance the ability of our state to respond to such events in the future. The OWRB continually strives to improve the manner in which we manage Oklahoma's abundant, yet finite, surface and groundwaters, protect supplies from pollution and neglect, and provide the financial resources for water and wastewater infrastructure that is so critically important to the prosperity of Oklahoma communities, especially in rural areas.

The commitment to Oklahomans exhibited by OWRB

2000 Highlights . . . Continued

metropolitan area, Texas municipalities, and various engineering and private firms. Revenue ultimately generated through the final selected proposal(s) will provide for repayment of construction costs for Sardis Reservoir to the Corps of Engineers, assist in establishment of a crucial regional water supply system in the Sardis area and fulfill various other economic development objectives in southeast Oklahoma, including the area encompassed by the Choctaw and Chickasaw Nations.

Drought Monitoring and Mitigation

During the destructive drought of August-September 2000, the OWRB supported an interim legislative study investigating various short- and long-term measures to deal with Oklahoma's extensive agricultural-related losses, including those related to livestock hay shortages and the substantial resources expended to fight wildfires. The committee studied the feasibility of creating an emergency contingency fund to alleviate costs associated with current and future agricultural-related disasters.

The OWRB amplified its continuous drought monitoring duties as chair of the Water Availability and Outlook Committee of the Oklahoma Drought Management Team, created by Gov. Keating in 1996. The Drought Team held two formal meetings at OWRB offices and conducted numerous informal sessions to identify impacted sectors and identify drought mitigation options for Oklahoma.

The OWRB was successful in its efforts to secure \$150,000 in funding for two emergency drought assistance projects through the Bureau of Reclamation. Construction is imminent on a cooperative project to provide water supply for livestock and rural fire protection in Cotton County and a project in Tillman County that will extend water lines from the City of Davidson to thirsty cattle operations west of town. A second grant (\$50,000) from the Bureau of Reclamation augmented OWRB efforts to develop its drought monitoring web site. OWRB staff also worked closely with water users throughout the state to resolve water interference/shortage problems caused by the extended drought.

staff during the agency's recent Strategic Planning process has again reminded me of what competent and caring individuals I am fortunate to call my colleagues at the Water Board. All Oklahomans are indeed fortunate to have such dedicated professionals working on our behalf. In the coming years, rest assured that we will continue to seize opportunities and meet challenges that make a measurable impact on the citizens of Oklahoma and improve their quality of life through our collective role as "The Water Agency."

Beneficial Use Monitoring Program

The OWRB's Beneficial Use Monitoring Program completed its second highly successful year. A 300-page final report was submitted to the State Legislature in February 2000 and remains available for download on the OWRB's web site. The third BUMP report is in development.

Oklahoma Water Quality Standards

The Water Board promulgated groundbreaking Use Support Assessment Protocol (USAP) rules which have been nationally recognized and are now being considered as a template for other states. USAP rules prescribe how Oklahoma state agencies will make decisions regarding whether beneficial uses for individual waterbodies in the Oklahoma Water Quality Standards are impaired, threatened or supported. Specifically, they identify quality assurance and data requirements, statistical manipulation and interpretation options, and thresholds.

The OWRB led the way for the state's environmental agencies in developing Water Quality Standards Implementation Rules for Oklahoma, fulfilling requirements of SB 549, passed in 1999, which requires all state environmental agencies to promulgate into rule how the Standards will be addressed and adhered to through their individual programs. When completed, the agencies will promulgate rules stating how the Standards apply to permits, best management practices, pollution remediation, water rights and related issues.

Update of the Rural Water Survey

The OWRB initiated compilation of data to publish a third, updated survey of rural water systems in Oklahoma. Questionnaires and maps with instructions were mailed to more than 750 rural water suppliers in December 2000 for inclusion in the new "Rural Water Systems in Oklahoma" publication, anticipated for completion early in 2002.

Planning and Technical Studies

During 2000, the OWRB completed four studies in cooperation with the U.S. Army Corps of Engineers under authority of the Corps' Planning Assistance to the States Program:

- ◆ An investigation of a potential regional water treatment and distribution system in the Lake Tenkiller area.
- ◆ A study examining the marketing potential of the McClellan-Kerr Arkansas River Navigation.
- ◆ A geotechnical study of the proposed Mangum Lake reservoir site in southwest Oklahoma. Study results indicated that the location is unsuitable due to gypsum/salt deposits and recommended other potential sites for further study.
- ◆ A geotechnical study on the proposed Holson Creek reservoir site in east central Oklahoma. Study results indicated that the site is unsuitable due to fracturing and faults in the area.

Two special studies were completed during 2000. One study, conducted in cooperation with the Oklahoma Conservation Commission, evaluated groundwater which drains into Twin Caves, near Grand Lake. The second study resulted in identification of groundwater quantity and quality contributions to Lakes Eucha and Spavinaw.

The OWRB also initiated an instream flow study of the Baron Fork River, in eastern Oklahoma, in cooperation with Oklahoma State University. The study seeks to quantify instream flow requirements sufficient to protect the river's environmental benefits while balancing the water supply needs of area residents.



Meteorologists and pilots with the Oklahoma Weather Modification Program utilize two radar bases, high-precision aircraft and a host of sophisticated weather tracking and evaluation tools to pinpoint prime cloud seeding opportunities throughout the state.

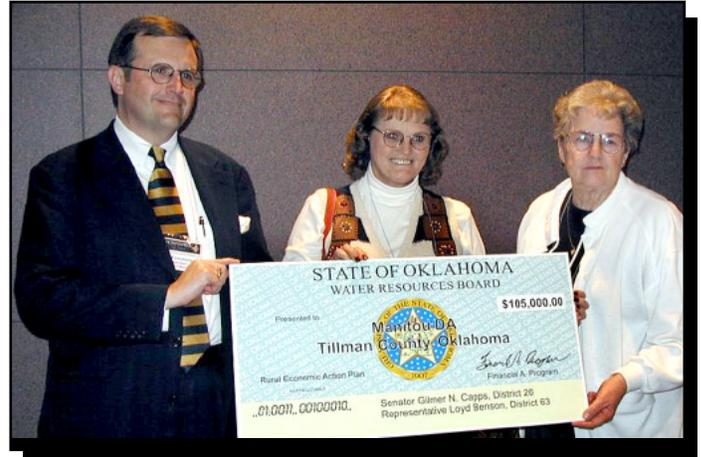
2000 pro-ject season; 156 total seeding flights were flown last year — 86 for hail suppression and 70 for rainfall enhancement. The program, initiated in 1996, completed its fifth year of operations.

Financial Assistance Programs

In June, the Water Board closed a \$2.3 million two-year note issue that resulted in the receipt of a \$10,996,702

EPA capitalization grant to help sustain the Board's Clean Water State Revolving Fund loan program. This was the seventh consecutive year that the Board has issued debt to obtain state matching funds without the assistance of any appropriated dollars for the program. The CWSRF debt issuances have resulted in approximately \$73.6 million in capitalization grants for the State of Oklahoma.

During 2000, the Financial Assistance Division completed its eighth Drinking Water State Revolving Fund loan.



During 2000, the OWRB's Financial Assistance Program provided more than \$6.6 million in emergency program and REAP grants and many millions more in loan funds to subsidize the water/wastewater system needs of Oklahoma communities.

Although the DWSRF is the Board's newest loan initiative and, therefore, only minimal funding has been made available for the program, the OWRB has closed 31 percent of all DWSRF loans that have been provided in EPA's five-state Region Six area. In comparison, the State of Texas has completed nine DWSRF loans, only one more than in Oklahoma.

The OWRB's Revenue Bond Issue Loan program was substantially strengthened in 2000. The Board's bond loan portfolio increased to 85 percent ratable from a low of less than 80 percent earlier in the year. The Board approved more than \$62.9 million dollars in loans during 2000. This amount accounts for almost 10 percent of all loans approved in the 15-year history of the Board's loan programs. Total loan amounts outstanding (bond issue, CWSRF and DWSRF) increased to \$320.8 million dollars. Total loan program assets increased to more than \$470.3 million during 2000.

The Board's Emergency Grant and Rural Economic Action Plan (REAP) programs continued to fund the water/sewer infrastructure needs of Oklahoma cities, towns and rural water districts. During 2000, the Board approved 17 emergency grants for \$1,136,479 and 67 REAP grants for approximately \$5.5 million.

Water Quality Studies and Projects

The Water Quality Division completed several vitally important Clean Lakes Program projects, including:

- ◆ a revegetation project at Lake Wister to control sediment loading problems;

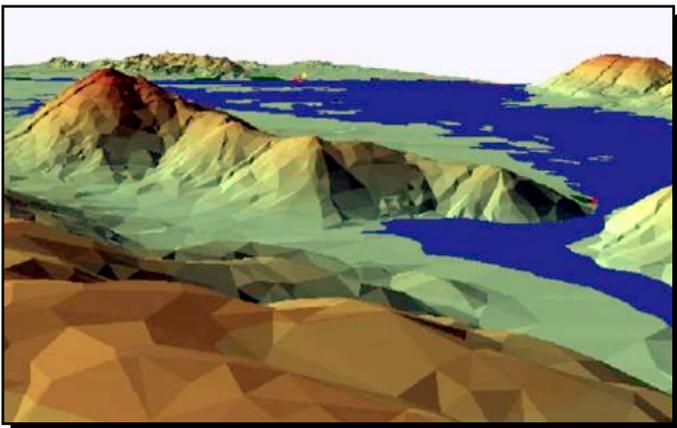
- ◆ the Meadow Lake (Enid) Clean Lakes Program restoration project;
- ◆ a Clean Lakes Program study on Arcadia to investigate ongoing or potential problems with the City of Edmond's water supply reservoir;
- ◆ a four-year Clean Lakes Program project to restore the recreational benefits of Carmen Lake, in north central Oklahoma; and
- ◆ a special study of southwest Oklahoma's Lake Frederick to mitigate deteriorating water quality in the reservoir.

In addition, two far-reaching water quality studies – involving the City of Tulsa's water supply in the Eucha/Spavinaw watershed and Oklahoma City's multi-reservoir water system — also neared completion at the closing of 2000. The studies seek to assess the impacts of suspected contaminants from poultry and confined animal feeding operations, respectively, to those valuable water resources

Technology Development and Implementation

The agency continued to maximize efficiency through investment in emerging technologies, including the OWRB's Geographic Information System (GIS) – implemented, developed and maintained by the OWRB's Information Services Section – which continued to play an invaluable role in the planning and policy-making decisions of various agency projects:

- ◆ GIS tools have enabled the OWRB to comprehensively analyze the hydrological makeup of southeast Oklahoma's water resources, including surface water availability and lake storage capacities, under the Southeast Oklahoma Water Resources Development Plan.
- ◆ GIS coverages were finalized for the Lugert-Altus



The Board's GIS has provided unique and invaluable 3D perspectives of Sardis Lake and surrounding topography in the Kiamichi River Basin.

Irrigation District Project. The resulting enhanced ability to display and demonstrate the District's irrigation canals, water flow control structures and related facilities will enable the District to optimize its water usage.

- ◆ Bathymetric mapping and volumetric studies were completed on eight lakes in the state (Eucha and Spavinaw for the City of Tulsa, Frederick Lake for the City of Frederick, and Atoka, Draper, Hefner, McGee Creek, and Overholser lakes for the City of Oklahoma City). The studies included 3D and contour mapping to determine current lake storage capacities.
- ◆ GIS assisted the agency's Dam Safety Program in several dam breach analysis projects during the year. GIS enabled staff to predict areas of floodwater inundation resulting from a dam breach. 3D maps and graphics were produced to help identify the effected areas.
- ◆ The OWRB's GIS and Global Positioning System (GPS) were used to map and display more than 900 individual plant locations around Lake Wister for the Plant Inventory and Growth Study. The data will be used to track and monitor the growth of aquatic plants around the lake.
- ◆ Customized maps and GIS programs were created to facilitate the distribution of wetland maps to the public. The maps and programs allow staff to quickly locate and reproduce requested maps.
- ◆ The Information Services Section continued implementation and refinement of the agency's electronic document management and workflow system for water rights administration, including the imaging of 61,806 pages of water rights and well log documents.

OWRB Web Site

The Information Services Section and various OWRB staff expanded, maintained and improved the OWRB's award-winning web site, including the Drought and Water Resource Monitoring and Oklahoma Weather Modification Program pages. In addition, continued development and expansion of online agency forms, reports, rules, financial documents and related materials during the year resulted in a noticeable decrease in staff time/workload as well as postage expenses.

During 2000, the agency also established the intra-agency Web Site Development Team to identify web issues, assess agency needs and plan web site development. A web site plan was developed to outline incremental phases for implementing the agency's web site goals. In addition, the OWRB's Data Collection and Dissemination Committee initiated a comprehensive inventory and evaluation of the agency's extensive set of stored data for eventual public distribution.

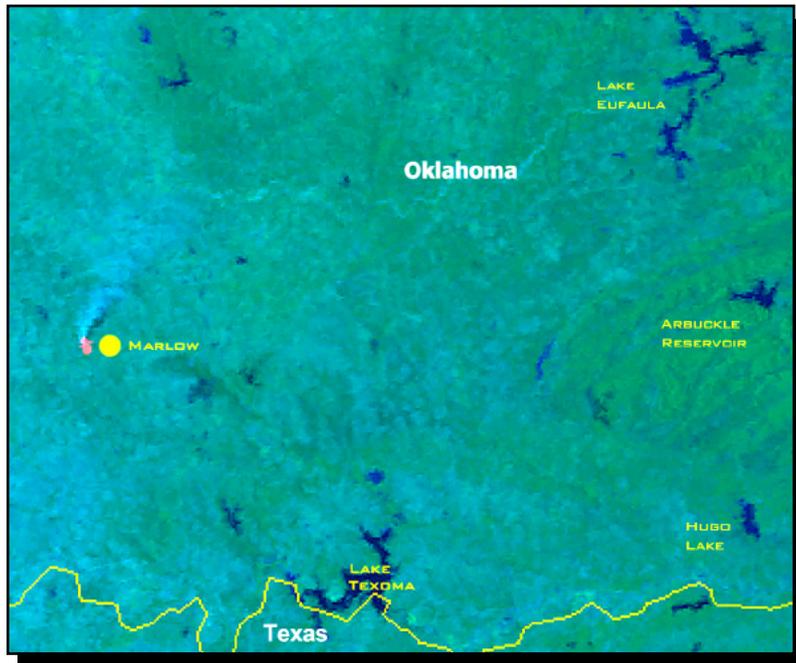
to promulgate into rule how Oklahoma's Water Quality Standards will be addressed and adhered to though their individual programs, the OWRB will continue to modify its permitting, financial assistance and other programs to best comply with Standards requirements.

During 2001, Board staff will conduct extensive research, keyed through public input, to develop appropriate Standards Implementation language and rules pertinent to water management programs. Particular emphasis will be placed upon development of biological thresholds, establishment of Nutrient Limited Watershed impairment determination procedures, refinement of Use Support Assessment Protocol (USAP) procedures and further development of increasingly important groundwater quality standards.

The Water Board will also continue to build upon past successes as the custodian of Oklahoma's Water Quality Standards. In 2000, the agency promulgated groundbreaking, nationally recognized USAP rules which are now serving as a template for other states. USAP rules prescribe how Oklahoma state agencies determine whether beneficial uses for individual waterbodies in the Oklahoma Water Quality Standards are impaired, threatened or supported.

Drought Response Preparedness

In 2001, the OWRB will play a key role in improving the effectiveness of Oklahoma's drought response and in mitigating the extensive social and economic hardships associated with drought events. As chair of the Water Availability and Outlook Committee of the Oklahoma Drought Management Team, created by Gov. Keating in 1996, the Water Board coordinates the collection of critically important weather- and moisture-related data that signals the potential onset of all-too-frequent drought events in Oklahoma.



This NOAA satellite image shows the significant heat signature and smoke visible from a drought-induced wildfire in early October just west of Marlow, in south central Oklahoma.

funding source(s) for BUMP as well as opportunities for expansion of the program into other sampling arenas, including groundwater monitoring and assessment.

Through BUMP data collection efforts, decision-makers ensure that state surface and groundwaters are maintaining beneficial uses and waters are meeting numerical/narrative criteria assigned to them in Oklahoma's Water Quality Standards.

Data Collection and Dissemination of Water-Related Information

To further establish and expand the OWRB's role as the water agency in Oklahoma, the Water Board will strive to provide more and better quality information that enables targeted customers to make more effective water quality- and quantity-related decisions. Enhanced data management, organization and prioritization will be required to maintain and expand the agency's data collection and dissemination role. A major component of the data/information dissemination process is the continued development of the agency's web site and associated web resources to provide improved customer service.

In 2001, the OWRB will nurture existing partnerships with other involved state agencies and organizations in an effort to identify, explore and implement measures – including update of the Oklahoma Drought Management Plan, potential survey of the raw water supply adequacy of Oklahoma's rural water systems, expansion of uses of the State Hazard Mitigation Program/Fund and identification of other potential sources of financial assistance — to improve Oklahoma's ability to prepare for and respond to state drought situations.

Beneficial Use

Monitoring Program

During the third year of the OWRB's highly successful Beneficial Use Monitoring Program (BUMP), the agency will seek to refine and expand the program and increase its stability as a long-term state water quality monitoring effort. The Water Board's Strategic Planning Team has targeted identification of a long-term

Water Resources Update

Reservoir Storage

Reservoir storage levels in Oklahoma remain very good throughout most of the state. As of February 26, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 99.4 percent full, a 1.8 percent increase from that measured on January 16, according to information from the [U.S. Army Corps of Engineers \(Tulsa District\)](#). Only two reservoirs – Fort Supply and Foss — have experienced lake level decreases since that time. Five reservoirs are operating at less than full capacity (compared to 9 last month). Two reservoirs (Lugert-Altus and Tom Steed) remain below 80 percent capacity;

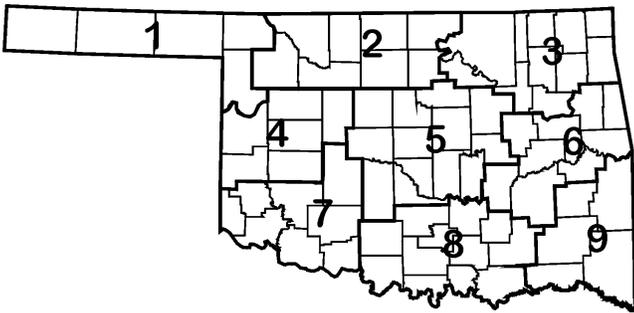
Storage in Selected Oklahoma Lakes & Reservoirs

As of February 26, 2001

Climate Division	Conservation Storage (acre-feet)	Present Storage (acre-feet)	Percent of Storage	
			Conservation	Flood
NORTH CENTRAL	412,635	411,953	99.8	8.78
NORTHEAST	3,484,317	3,480,858	99.9	26.61
WEST CENTRAL	276,790	274,318	99.1	0.53
CENTRAL	154,225	154,225	100.0	8.34
EAST CENTRAL	3,022,323	3,022,323	100.0	48.65
SOUTHWEST	301,810	234,298	77.6	1.47
SOUTH CENTRAL	2,795,156	2,795,156	100.0	28.73
SOUTHEAST	1,464,929	1,464,929	100.0	43.04
STATE TOTALS	11,912,185	11,838,060	99.4	23.35

Drought Indices

According to the latest [Palmer Drought Severity Index](#) (February 24, below), moisture/drought conditions continue to improve dramatically throughout Oklahoma. None of the state's nine climate divisions have undergone PDSI moisture decreases since January 13; the Southwest climate division ("very moist") experienced the most modest increase during the period. The "driest" region is the Northeast ("unusually moist").



The latest monthly [Standardized Precipitation Index](#) (through January, below) indicates that no climate divisions in Oklahoma are experiencing long-term dryness (among the selected time periods: 3-, 6-, 9- and 12-month). In addition, no regions are experiencing dryness over various time spans within the past six years.

Palmer Drought Severity Index

Standardized Precipitation Index

Through February, 2001

Climate Division (#)	Current Status 2/24/2001	Palmer Drought Severity Index			Standardized Precipitation Index			
		Value 2/24	1/13	Change In Value	3-Month	6-Month	9-Month	12-Month
NORTHWEST (1)	VERY MOIST SPELL	3.11	1.56	1.55	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
NORTH CENTRAL (2)	EXTREME MOIST SPELL	4.19	2.89	1.30	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY WET
NORTHEAST (3)	UNUSUAL MOIST SPELL	2.54	0.76	1.78	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
WEST CENTRAL (4)	VERY MOIST SPELL	3.14	2.11	1.03	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY WET
CENTRAL (5)	EXTREME MOIST SPELL	4.00	2.73	1.27	MODERATELY WET	NEAR NORMAL	MODERATELY WET	MODERATELY WET
EAST CENTRAL (6)	VERY MOIST SPELL	3.64	1.56	2.08	MODERATELY WET	NEAR NORMAL	MODERATELY WET	NEAR NORMAL
SOUTHWEST (7)	VERY MOIST SPELL	3.87	3.02	0.85	MODERATELY WET	MODERATELY WET	NEAR NORMAL	MODERATELY WET
SOUTH CENTRAL (8)	EXTREME MOIST SPELL	4.35	2.79	1.56	VERY WET	MODERATELY WET	NEAR NORMAL	NEAR NORMAL
SOUTHEAST (9)	VERY MOIST SPELL	3.47	2.02	1.45	VERY WET	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL

Financial Assistance Program Update

Approved at January 9 and February 13, 2001 Board Meetings

			Financial Assistance Program Update	
FAP Loans				
01/09/01	1 Tulsa Municipal Authority, Tulsa County	\$8,330,000.00		
02/13/01	1 Harrah Public Works Authority, Oklahoma County	\$605,000.00		
	2 Lawton Water Authority, Comanche County	3,495,000.00		
	3 Okeene Public Works Authority, Blaine County	300,000.00		
	4 Rural Water District #13, Cherokee County	1,195,000.00		
	5 Rural Water District #15, Osage County	565,000.00		
CWSRF Loans				
01/09/01	1 Tulsa Municipal Utility Authority, Tulsa County	\$4,995,554.11		
	2 Tulsa Municipal Utility Authority, Tulsa County	4,000,000.00		
02/13/01	1 Antlers Public Works Authority, Pushmataha County	\$14,242.80		
	2 Lawton Water Authority, Comanche County	2,035,000.00		
	3 Spiro Municipal Improvement Authority, LeFlore County	880,000.00		
DWSRF Loans				
02/13/01	1 Hennessey Utility Authority, Kingfisher County	\$1,417,150.00		
	2 Hominy Public Works Authority, Osage County	950,000.00		
	3 Okeene Public Works Authority, Blaine County	343,400.00		
Hardship Grants - None				
Reap Grants				
01/09/01	1 Hardesty Municipal Authority, Texas County	\$47,018.43		
	2 RWS & SWM District #3, Roger Mills County	149,510.00		
02/13/01	1 Maud Municipal Authority	98,704.28		
	2 RWS & SWM District #3, Osage County	43,110.00		
	3 Town of Braman, Kay County	48,189.00		
	4 Optima Public Works Authority, Texas County	96,940.00		
			Totals as of 2/13/2001	
			FAP Loans	
			#Approved	231
			Amount	\$697,234,745.00
			CWSRF	
			#Approved	105
			Amount	\$352,527,730.00
			DWSRF	
			#Approved	12
			Amount	\$32,132,504.90
			Hardship Grants	
			#Approved	2
			Amount	\$1,038,752.30
			Emergency Grants	
			#Approved	464
			Amount	\$26,963,033.26
			REAP Grants	
			#Approved	268
			Amount	\$21,995,333.18

OKLAHOMA Water News

Bimonthly Newsletter of the

Oklahoma Water Resources Board

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