

OKLAHOMA WATER NEWS

Bimonthly Newsletter of the Oklahoma Water Resources Board



**from
the desk
of the
Director**

Duane A. Smith

The Legislative Session that ended May 26 was very successful for the Water Resources Board. I am pleased to report that all of the major OWRB programs remained in place and were funded for another year. I see progress in resolving issues with the Federal Government in the Kiamichi River Basin in southeast Oklahoma. House Concurrent Resolution 1109 recognized the importance of the basin's water supply to economic development and quality of life for residents of the region, and directs the OWRB and U.S. Army Corps of Engineers to develop a water management plan. Such a plan will include long-term water supplies

for flood control, environmental and water supply purposes and identifies excess water available for export and sale. It directs the Water Board to accept proposals for the development of the Kiamichi River Basin, along with a schedule of implementation that the First Session of the 48th Legislature may consider in acting upon OWRB recommendations in the Water Resources Development Plan prepared last year. I am encouraged with our progress on behalf of the citizens of the Kiamichi Basin.

In closing days of the session, measures were approved to transfer \$1 million from the OWRB Gross Production Tax REAP Water Project Fund Account to underwrite next year's Beneficial Use Monitoring Program (BUMP) and provide the \$2.1 million match for the EPA Drinking Water State Revolving Fund.

Water projects funding in the amount of \$1.85 million was included in the Capital Improvements Bond Issue legislation. The Legislature approved means to create a Well Drillers/Pump Installers Advisory Council to assist the Board in setting rules and making decisions regarding the remediation of abandoned wells.

The Rainy Day Fund will provide \$1 million to support the OWRB Weather Modification Program for the sixth consecutive year of operation. The program is designed to mitigate hail damage and reduce the impact of drought. Senator Robert M. Kerr has championed the program and presided over the Weather Modification Board

Along those lines, on May 22, it was my pleasure to chair a meeting of the Oklahoma Weather Modification Board at the Capitol during which state and federal experts briefed us on the benefits of a 5-year research program to verify the effects of cloud seeding.

The research effort would rely on a partnership between the Oklahoma Weather Center at OU and NCAR, an agency of the National Oceanic and Atmospheric Administration.

We are convinced that the state's cloud seeding program works, but we believe it is imperative that we provide verifiable results to justify our investment. We will work toward procuring state/federal support for a research component.



Safety of State's 4500 Dams Focus of Water Board Program

Marking the anniversary of the worst U.S. dam failure, the first National Dam Safety Awareness Day was observed May 31. It was the anniversary of the South Fork Dam failure at Johnstown PA, in 1889, when a deadly rush of water and debris killed 2209 people. Since then, thousands of dams have been built nationwide, bringing life-sustaining benefits to society. However, over time, it has become clear that these structures - some massive and some

only a few feet high - require expert engineering and maintenance throughout their lifetime. Since that 1889 failure, hundreds of people have lost their lives and billions of dollars in property damage have been sustained due to dam failure.

To focus national attention on dam safety, the Federal Emergency Management Agency (FEMA) sponsored an event in Washington, D.C., featuring remarks by FEMA Director James Lee Witt.

The theme was “sustain the momentum,” achieved by keeping American communities safe from disasters through the joint efforts of all community stakeholders. The push of National Dam Safety Awareness Day is to make the public the primary stakeholder in safe dams, and to ensure citizen interest and involvement in safe dams is sustained over time.

There are more than 75,000 dams in this country, an estimated 58 percent of them privately owned. Although most are well maintained, many dams lack a responsible owner or are owned by individuals without adequate resources to maintain the structure. Some dams fail to meet modern safety standards, based on downstream development/population increases. Almost every state has these “unsafe” structures.

In Oklahoma, responsibility for dam safety is assigned to the Oklahoma Water Resources Board. According to OWRB Engineer Cecil Bearden, who administers the state dam safety program, there are approximately 4500 dams in Oklahoma, most of which are small, privately owned, earthfill structures. Bearden says 165 of these dams are classified “high hazard,” which means they possess the potential to inflict loss of life and property, should the structure fail. He emphasizes they present little ordinary danger and the classification simply means there are habitable structures, people or animals downstream.

Owners of dams with the potential for loss of life or property in the event of failure are required to have on file with the OWRB an emergency action plan which includes notification of state and local authorities and the evacua-

tion of people and livestock downstream. The OWRB also requires a thorough annual inspection of these structures by a qualified engineer.

The most common challenges to the integrity of Oklahoma’s small dams are deteriorating conduits, tree and brush roots and holes made by rodents. These are

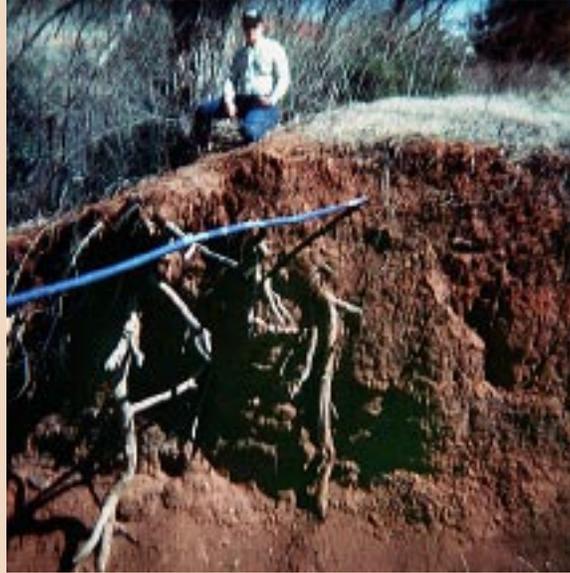
problems that usually can be headed off with routine inspection by the dam owner.

“If a dam owner suspects a problem, he/she may call the OWRB and we will try to help,” said Bearden. Although the program is handicapped by a shortage of personnel, Bearden is able to accomplish an enormous amount of work by utilizing computers to model the path of water loosed by a dam breach and a database containing specific information on each dam. He is assisted in the field by an all-terrain vehicle (ATV) equipped with a Global Positioning System (GPS) and laser range finder, which allow him to develop reservoir capacity data and determine the exact location of habitable structures in the breach inundation area. He tracks progress in his database to make certain the problem is

resolved. Bearden says the ATV saves hours of walking through rough terrain. He estimates the new equipment and technology have reduced the time spent in surveying and inspections by 80 percent.

The life span of an earthfill dam is anticipated to be 50 years and many Oklahoma dams are approaching that age. However, proper maintenance and regular inspection can significantly extend a dam’s life expectancy. Bearden points out as example, the state’s oldest dam at Lake Lawtonka at Lawton, constructed in 1905, modified to accommodate a growing population and still in service impounding a portion of the city’s water supply.

“There is an alarming lack of public education concerning the need for regular maintenance and repair,” Bearden said. “Dam safety is not usually in the public view, unless a dam fails. But, it is an issue that affects the safety of millions of people in the U.S. who may live or



Water seeping along tree roots that invaded and undermined the earthen structure caused the piping failure at Brixton Heights Dam in west Oklahoma City. Gas line through the dam possibly created a path for runoff to weaken the embankment and contribute to the breach. OWRB Engineer Cecil Bearden sits at the top.

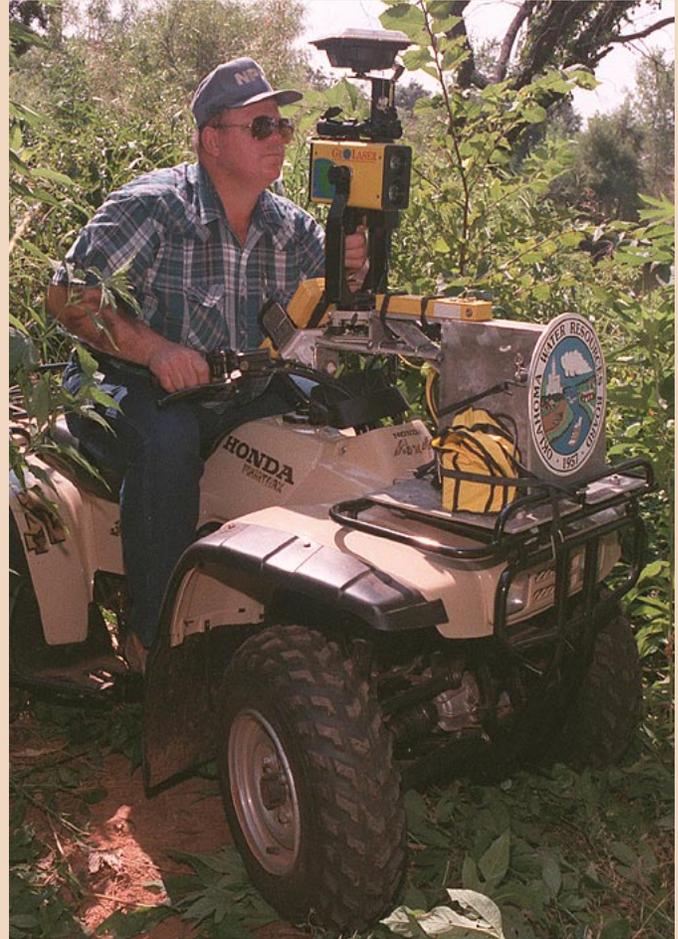
work in the path of a potential dam failure,” Bearden points out.

Increasing public safety and sustaining resources means funneling dollars toward improvements to the nation’s dams. The lack of funding for dam upgrades has become a serious national problem. According to preliminary results of an Association of State Dam Officials study, the total investment to bring U.S. dams into safe and working condition and to remove out-of-service structures exceeds \$40 billion. It will require a concerted public/private partnership to provide funds over the long term to accomplish that goal.

The Association of State Dam Safety Officials emphasizes that there are hundreds, perhaps thousands, of dams in every state, the vast majority bringing irreplaceable resources to millions. These resources include water supply, irrigation to millions of acres of farmland, effective flood control, recreation, and clean, renewable energy through hydropower.

However, Bearden, who is an ASDO member and western region board representative, warns that these dams may be sleeping giants -- “out of sight, out of mind.” He says it is critical that development does not continue to encroach into the dam breach inundation zones. State dam safety officials continue to see local zoning boards and land developers unaware of the need to stay out of potential flood pathways. This is a serious trend that needs to be reversed in Oklahoma and all across the U.S.

For more information about dam safety and the Association of State Dam Safety Officials, see www.damsafety.org. For information on the Oklahoma Dam Safety Program, call Cecil Bearden, OWRB, 405-530-8800 or see www.state.ok.us/~owrb.



Cecil Bearden, oversees the Board's dam safety program with the assistance of an all-terrain vehicle equipped with GPS and laser range finder. The ATV saves hours of inspection time in rough, overgrown terrain. The specialized computer equipment helps develop reservoir capacity and determine the precise location of habitable structures in the breach inundation area.



Resolution Asks Support in Compact Dispute

Board convinced all other remedies are exhausted in securing Oklahoma’s share of Palo Duro water

A resolution forwarded to Governor Keating and state leaders in April, recommended the State of Oklahoma pursue redress from Texas concerning the Palo Duro (TX) River Authority’s failure to abide by terms of the 1950 Canadian River Compact. Specifically, the Board wants Oklahoma’s share of water from Palo Duro Reservoir completed in 1991 on Palo Duro Creek, a tributary of the Beaver-North Canadian River in Hansford County, TX. The reservoir lies about 12 miles upstream from the Texas-Oklahoma state line.

The Beaver-North Canadian River supplies water to Canton Reservoir, a critical component in Oklahoma City’s water supply regime. The Board recommended that Oklahoma file a lawsuit in the U.S. Supreme Court to address long-standing compact violations.

Complaints concerning allocation of Palo Duro waters date to 1990, when Lewis Kamas, then Oklahoma Commissioner, lodged objections that Texas had failed to construct conduit or gates to release sufficient flows of water to reach the Beaver-North Canadian River and Canton Reservoir, farther downstream.

The issue continued to be the focus of discussions by Les Kamas of Freedom, who succeeded his father as Oklahoma's commissioner to the compact involving Oklahoma, Texas and New Mexico. Texas officials on the Canadian River Commission have refused to acknowledge any violation.

Other infractions of compact provisions include Texas' use of the reservoir for recreational purposes, not municipal and domestic uses, the sole uses set out by the compact.

Duane A. Smith, OWRB executive director, points out that Oklahoma's challenge in the high court would be expensive, in excess of \$1 million. However, it is critical that the state proceeds in protecting its rights to water impounded in Palo Duro Reservoir.

"We have simply exhausted all other possible remedies, and the only avenue remaining is for the State of Oklahoma to initiate action against the State of Texas in the U.S. Supreme Court," he asserted.

Smith said Oklahoma is party to four interstate stream compacts with neighboring states. Compacts clearly spell out how much water a signatory state is allowed to develop or store on the interstate stream. It is the role of the Water Resources Board to support the compact commissioners appointed by the Governor with technical assistance and background information. He pointed out that any state that tolerates a violation of any compact sets a dangerous precedent.

"The City of Oklahoma City stands to lose a portion of its water supply, as well," Smith pointed out. "Oklahoma City holds a 1939 decreed right perfected by beneficial use of waters of the North Canadian River. Texas' Palo Duro construction does not secure and protect present developments in Oklahoma," he said.

Smith said the Resolution signed by members of the Water Resources Board was forwarded to Attorney General Drew Edmondson, Governor Frank Keating and both houses of the Oklahoma Legislature. He said legislative leaders would be asked to consider an additional appropriation to the OWRB for legal and background expenses in initiating the action.



Planning Takes Sting Out of Drought

Drought is an inevitable part of every climate on the planet, even the tropical rainforests, according to the National Drought Mitigation Center. The impacts of drought hit hardest when people place too high a demand on the water supply. As the human population grows, so does the amount of water that humans will need. It appears that vulnerability to drought and water shortage is increasing as well. However, the effects of drought can be mitigated by balancing water supply and demand.

Risk management rather than crisis management will have positive effects:

- ◆ Although drought is a low-profile natural disaster, it can be more costly than floods and hurricanes.
- ◆ Planning ahead to mitigate drought gives decision makers the chance to relieve the most human suffering at the least expense.

Drought planning is essential, but there are obstacles, among them:

- ◆ No single definition of drought works in all regions.
- ◆ During crisis, people conserve, but once the

crisis is over, they lose interest in planning for the next one.

- ◆ Responsibility is divided among many governmental jurisdictions.
- ◆ The U.S. lacks a unified approach to managing natural resources, including water.
- ◆ Historic responses have been ad hoc, responding only to specific drought events.
- ◆ Policies such as disaster relief and outdated water allocation practices may deter sound, long-term natural resources management.

El Paso Experiments with Water Conservation

Researchers from the University of Texas at El Paso are working to convince residents of the city that the region is running out of water. Despite an arid climate that provides a meager 8.65 inches of rainfall annually, water seems available at every turn of the tap. However, doomsayers warn that the Hueco and Mesilla aquifers that supply El Paso, as well as Las Cruces (NM) and Juarez, Mexico, face depletion by 2025.

Several strategies have been advanced to induce water conservation, especially in summer months. Early on, researchers recruited 100 volunteers who were promised monetary rewards of \$250 if they reduced their May-August water use by 35 percent, and \$100 if they cut consumption by 20 percent. At the end of the study, participants' meter readings were compared to those of previous summers.

Study seeks incentives to promote conservation

It seemed to work and it appeared that paying out incentives cost less than providing the saved water would have. However, the possibility occurred to researchers that perhaps study participants had been self-selecting. They may have been people who would have conserved water anyway.

The next summer's study used a random group including homeowners and businesses. Researchers are comparing participants' data to two neighbors' data because rainfall and different factors affect water use. They pointed out that it might rain in one area, but remain perfectly dry three blocks away, requiring lawn watering.

Participants who save 16 to 30 percent will earn \$50; those who save 30 to 45 percent will make \$150; those who cut back 46 percent or more will earn \$250.

Glitches could happen if people decide to do laundry at the laundromat to save water or if they go on vacation during those months. Perhaps people engage in water-saving behavior only to earn money, then revert to their wasteful ways. During the study participants were using water left over from showering to water plants, but skeptics doubt if such conservation efforts carry through the winter months.

Researchers also point out the futility of Texans' efforts if citizens across the border in Juarez shun conservation measures. El Paso is in the process of converting to a renewable source, the Rio Grande River, by purchasing water rights from farmers in the fully allocated river. It is of little importance unless residents on both sides of the river cooperate in conserving the dwindling water supplies. El Paso water officials say Juarez is finally acknowledging that something must be done, and done very soon. They see hope in the International Boundary and Water Commission, a cooperative effort between Texas, New Mexico and Mexico, formed to address common water problems.



Employee Appreciation Breakfast

Mainstream

Execs Treat Employees to Bountiful Appreciation Breakfast

On May 3, in observance of Public Service Recognition Week May 1-7, OWRB management treated employees to a breakfast party as kickoff to the monthly staff meeting. Shown enjoying dishes prepared by their bosses are, left, Ken Morris, Mike Sughru and Mary Whitlow; right, Michael McGuire, Paul Koenig and Lisa Penderson.



New Bottle Sports Filter

Mainstream

A new sport water bottle features its own filter system, conveniently incorporated in the straw. With each sip, water is pulled up through the filters, purifying the water as one drinks.

The bottles are being test-marketed at two Arizona universities, and if they are successful, they may soon be offered on other campuses.

The high-tech water bottles have a two-filter system in a 2-inch long plastic straw. According to Environmental Solutions' developer, the first filter is made out of natural materials, such as crushed shells, which remove floating particles, metals and chemicals. The second section is a traditional carbon-based filter that removes chlorine and lead.

The bottle filters will purify 100 gallons of water – about four months' supply of drinking water. Replacement filters cost about \$20 for three, which is considered a year's supply. The high-tech water bottle costs \$30 — a bargain, says its developer, if a person drinks a couple of bottled waters a day. The bottle is a one-time purchase and requires refitting with a new filter about three times a year.

Drillers Ask More Enforcement

Mainstream

The Drillers/Pump Contractors Committee, an ad hoc advisory group to the OWRB, has long favored creation of a Well Drillers and Pump Installers Advisory Council to oversee the industry. House Bill 2033, signed by Governor Keating May 8, will do precisely that.

HB 2033 authorizes the Oklahoma Water Resources Board to establish the Advisory Council, appoint members and hold meetings at the call of the OWRB executive director. Once rules are in place, the Advisory Council will review rules and recommend specific uses of money in the Drillers/Pump Installers Remedial Action Indemnity Fund. The fund is composed of license and renewal fees paid to the OWRB annually by the state's drillers and pump contractors.

The drillers had encouraged the OWRB to "put teeth" in the laws regulating water well drillers and pump contractors as means of ensuring all well construction meets minimum standards. They recommended earmarking a portion of the Drillers Indemnity Fund to hire inspectors to make impromptu visits to water well drilling sites.

According to Gary Glover, who administers the OWRB Drillers/Pump Contractors program, HB 2033 also allows Indemnity Fund monies to be used for remediation of faulty or abandoned wells or boreholes that pose an immediate threat of pollution.

Rain Barrels are Back in Style

Mainstream

A couple in Portland, OR, are the first in their city to apply for and receive a permit to harvest rainwater. In a climate that provides plenty of rain, the couple say it's easy and economical and the technology that drives the system is 50 years old.

The rainwater that falls on their home is transported by storm drains to a 1500-gallon barrel. Then the water is sanitized, pumped into the house and ready to be used just like city water. The system collects about 750 gallons of water every time it rains an inch.

The owners say all parts needed to construct the system were purchased at local farm supply and hardware stores for about \$1500. To ensure a safe drinking water supply, they agreed to test the water twice a year. The system purifies the water with a set of two microbial filters and an ultraviolet light sterilizer. The filters remove certain bacteria, while the sterilizer disables the remaining bacteria from reproducing. The barrel is scoured once a year with bleach.

So far, declare the homeowners, the water tests cleaner than city water.

Officials who reviewed the permit application asked if such water harvesting could possibly damage the city's water system.

When a large amount of water is used on your street – by firefighters, for example – water in your pipes can be drawn out of your house to compensate. The water that was once in your house could possibly come out of a neighbor’s faucet. A “reduced pressure backflow prevention device” was installed to essentially remove the couple’s home from the city water pool, a modification which would not have been necessary, had rainwater been the exclusive supply.

However, in some unusually hot, dry summer months, the couple must depend on city water until rains refill their barrel.

New Groundwater Report Ready

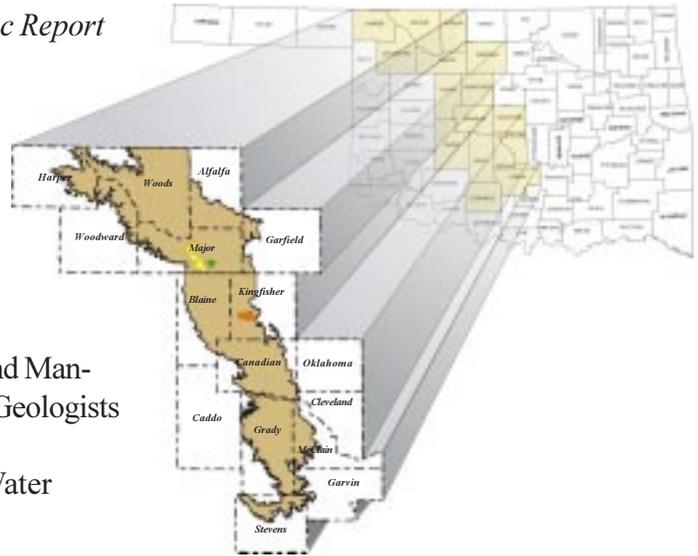
Mainstream

Librarian Susan Birchfield announces the availability of a new OWRB groundwater publication entitled *Hydrogeologic Report of the El Reno, Fairview, Isabella and Loyal Minor Groundwater Basins in Central Oklahoma* (Technical Report 2000-1).

The report contains information on the basin’s physical setting, descriptions of the aquifer parameters, storage and yield capabilities, water use and prior groundwater rights, color maps and analyses of water quality.

Geologist Mark Belden from the Board’s Planning and Management Division authored the report, with support from Geologists Noel Osborn and Bob Fabian.

The report costs \$5. To order, call the Oklahoma Water Resources Board at 405-530-8800.



Summers Wins Employee Award

Mainstream



Jim Summers

Jim B. Summers, 15-year employee of the Information Services Section of the Administrative Services Division, was named Employee of the Quarter at staff meeting on March 30. The award recognizes extraordinary performance and includes a certificate and food and entertainment passes. Executive Director Duane Smith, who presented the award, praised Summers’ work in keeping the OWRB Local Area Network (LAN) of computers functioning smoothly. “He does such a good job and so effortlessly that we sometimes forget just how good he really is. He is the ultimate team player,” says Smith.

Summers is a driving force in the agency’s effort to implement new technology and assists with day-to-day problem solving. He schedules much of the unit’s work after hours and on weekends to avoid interrupting the workflow of the agency.

Summers is a native Oklahoman, born in Midwest City. He is a graduate of Midwest City High School and University of Central Oklahoma. He holds a BS in computer science.

Summers and his wife, Daphne, have one son, Randall, and the family lives in Norman.

Water News Editor Retires

Mainstream

Mary E. Whitlow, longtime public information officer for the Oklahoma Water Resources Board, retires July 1. She is founder and editor of the *Oklahoma Water News*, the newsletter of the OWRB since June 1979. She joined the agency in March 1979.

In addition to overseeing the agency's newsletter, she wrote, edited or contributed to more than a dozen publications including the *Oklahoma Comprehensive Water Plan*, two editions of *Oklahoma's Water Atlas*, *Rural Water Systems in Oklahoma*, 20 annual reports, and booklets on water conservation, floodplain management, weather modification, loan/grant assistance, water rights, water well drilling and a number of other Board programs.

Whitlow is coordinator of the Annual Governor's Water Conference, this year in its twenty-first year. She has arranged legislative and conference receptions and prepared printed pieces to support the conference. Her duties have included writing timely press releases, audiovisual presentations on OWRB programs, speeches for agency executives and awards for fellow employees.



Mary E. Whitlow

GIS Day Draws Hi-Tech Crowd

Mainstream



Kevin Koon, Water Board GIS specialist, explains the Board's application of GIS to Ruth Dews-Lounds of the USDA.

The State GIS Council sponsored the Sixth Annual GIS Day in the fourth floor Capitol Rotunda on April 12. Geographic Information Systems is a combination of computer equipment, software and data that allows the analysis and display of spatial (land-based) information on separate, specialized layers.

Water Board GIS Specialists Kevin Koon and Mike Sughru and Jann Hook, Informations Services Section Head, staffed the OWRB exhibit. The OWRB display was one of 30 demonstrating GIS applications. Exhibitors included state agencies, universities and vendors.

The day-long event attracted hundreds of visitors, including Governor Keating, legislators and students.

At the May 9 Board Meeting:

Executive Director Duane Smith reported that the trip to southeast Oklahoma to meet with Lt. Gov. Mary Fallin and residents was successful in resolving some local water supply issues. He pointed out that there are still some water line easements that need to be obtained, as well as an opinion from the bond counsel before financing can be finalized. He said resolution of the Sardis debt is "on the front burner." He said an Interlocutory Agreement is being prepared between the OWRB and the United States that would allow the Sardis Lake Water Authority the use of the lake storage needed for the initial phase of the local water supply project. Meanwhile, the Office of Management and Budget is developing a purchase price acceptable to the Corps of Engineers and the State of Oklahoma.

Smith, who had recently returned from the Red River Compact meeting, reported that negotiations were deadlocked concerning Texas' infractions in water use at Palo Duro Reservoir. He pointed out that Texas is planning to build another impoundment on Sweetwater Creek that could jeopardize the water supply available to the Altus-Lugert Irrigation District. The OWRB has recommended to Governor Keating and the Legislature that Oklahoma take the Palo Duro dispute to the Supreme Court for resolution.

Joe Freeman, chief of the Financial Assistance Division asked and was granted Board approval of emergency grants to Custer City Public Works Authority, City of Norman and Hugo Municipal Authority.

On the Planning and Management agenda, the Board approved five temporary permits and five regular permits for groundwater use and five regular permits for stream water use. The Board approved water well driller/pump contractor licenses for Harold Adney, Harold Adney Water Well Drilling; Eugene Daugherty, Tri-State Drilling; Gary P. Hill and Gregory P. Slade, Walker-Hill Environmental, Inc.

Financial Assistance Program Update

Approved at the April & May, 2000 Board Meetings

FAP Loans	
<i>Enid MA</i>	\$ 2,510,000.00
<i>Comanche Co. RWD #2</i>	\$ 1,045,000.00
CWSRF Loans	
<i>Duncan PUA</i>	\$ 8,749,000.00
<i>Norman UA</i>	\$ 4,850,000.00
<i>Enid MA</i>	\$ 1,374,000.00
Emergency Grants	
<i>Town of Mulhall</i>	\$ 100,000.00
<i>Custer City PWA</i>	\$ 23,900.00
<i>City of Norman</i>	\$ 100,000.00
<i>Hugo MA</i>	\$ 100,000.00
REAP Grants	
<i>Kingfisher County RWD #3</i>	\$ 29,975.00

TOTALS AS OF MAY 9, 2000

#APPROVED	FAP Loans - 22	CWSRF Loans - 94
Amount	\$316,770,000.00	\$330,991,191.52
#APPROVED	Emergency Grants - 448	REAP Grants - 228
Amount	\$25,860,363.08	\$18,390,718.60
#APPROVED	DWSRF Loans - 8	Hardship Grants - 2
Amount	\$26,226,954.90	\$1,038,752.30

