McIntosh County RWD #7 Receives First OWRB Loan

Soon residents of McIntosh County Rural Water District #7 will no longer have to depend on water hauled from the nearby City of Checotah, thanks to a loan recently approved by the Oklahoma Water Resources Board. The $200,000 loan approved by the Board in November is the first one granted under the OWRB financial assistance program created by the legislature in 1979.

The firm of Stifel Nicolaus & Company, Inc., was awarded the bond sale with a bid of 9.05 percent on a package of revenue bonds offered by the OWRB. Robert M. Cochran, financial consultant to the Board, said the timing was right in a bond market at its strongest in 120 days.

Proceeds from the bonds will provide a water resources fund from which the McIntosh County project will be financed.

“We are delighted with this first sale,” said James R. Barnett, OWRB executive director. “We consider it a very attractive interest rate in a marketplace where rates have exceeded 12 percent. I hope this bond package will encourage other cities, towns and rural water districts to consider the OWRB loan program as an alternative to scarce federal funding.”

Traditionally, communities and rural water districts facing repair or expansion costs to their facilities have relied on the Federal Government for assistance. Travelers on that road may now face a dead-end due to Washington budget cutting, according to Barnett.

“The Administration is transferring responsibility for funding these projects to the state by reducing and even eliminating their programs.

“Look at the Farmers Home Administration. Oklahoma’s allocation of the water and waste disposal funds is now targeted at about $8 million, but they already have requests for $125 million. There are ten times as many applications on file as can be funded.”

With passage of SB 215 by the First Session of the 37th Oklahoma Legislature, OWBR was given the means of ministering to some of the state’s water supply and sewage treatment problems. However, the legislation limited loans to eligible entities to $1.5 million and authorized a grant mechanism without grant money.

Comprehensive statewide development of water resources, a dream struggling toward reality, will be a major topic addressed by the 1982 Legislature.

“Water will be one of the most important subjects facing the upcoming session, and one with which all of us should be concerned,” said Senate President Pro Tempore Marvin York.

“If the Legislature fails to enact a water program, complete with funding mechanism, we will be shirking our responsibility.”

Many legislators believe the most feasible way of funding water improvements for Oklahoma communities would be to dip into the tax fund which contributes most to Oklahoma’s growing financial health — the gross production tax on oil and gas.

Drawing the most attention is SB 353, authored by Sen. Ray A. Giles, which would create a revolving water development fund by diverting 10 percent of the gross production tax presently deposited in the General Revenue Fund.

The proposal would limit the water fund to $200 million, with excess monies turned back to the General Revenue Fund. The “revolving” nature of the account would allow it to be replenished after water project expenditures, providing flexibility in the number of projects being financed at any time.

The revolving fund would serve several functions. Of primary benefit is the section that allows use of the fund as security and collateral for bonds sold by the OWRB to finance water and sewer improvement projects. Under the current financial assistance program, the project itself is used as security.

“Using these finds as security will allow our bonds to have a higher rating in the marketplace, which in turn will lower the effective interest rate,” James R. Barnett, executive director of the OWRB pointed out.

Paying a lower interest rate would be a way of lowering the cost of water supplies and sewage treatment treatment.
facilities, a necessity for the many communities in Oklahoma lacking the financial base to make improvements without aid.

It would be welcome help, according to Bill Moyer, associate director of the Oklahoma Municipal League, an association numbering 315 Oklahoma Cities.

"Something’s got to be done. So many communities are financially strapped paying for roads, equipment and so on, that it’s difficult to pass bonds for more projects."

Very seldom are there federal or local funds available for water. We feel this sort of program would help fill a void in that area."

Interest accrued from the fund could help many of the same communities in the form of direct grants.

Monies in the fund could also be spent for reservoir construction and operation, cost sharing in federally funded water projects and in fulfilling contractual obligations for water supply storage.

The need for such a multifaceted program is a factor behind its sudden prominence, York says the state is already locked in a water crisis, and that SB 353 would be a “pretty good instrument” in providing immediate relief to beleaguered communities.

Why the need? A look at Oklahoma’s past indicates that while it may be true that there is no such thing as free lunch, water has always been handed out free with the menu.

“We’ve seen so many communities that have retained low water rates unchanged for 20, 30, even 50 years,” said Rick Smith, OWRB Planning and Development Division chief. “Some communities set their water rates only high enough to pay off the debts of constructing the system, with no money left over for routine maintenance or improvements. Naturally, there’s been a lot of deterioration.”

The addition of $200 million in backing provided by SB 353 plus deletions of restrictions such as the present $1.5 million per project limit would greatly improve the current program, and the significance of the change would not go unnoticed by cities and towns in Oklahoma.

“Based on the interest we are aware of, I think there would be good response from city officials. Our position would be very supportive of such legislation,” Moyer said.

The Senate approach may face competition from the House, since Rep. Cal Hobson of Lexington has proposed a water fund created by a three percent increase in the natural gas portion of the gross production tax. Hobson made the proposal in mid-August, saying that if the natural gas tax is increased from its present seven percent to 10 percent, $359 million could be accumulated in the first three years.

Barnett points out that the unique concept of setting aside revenue from a non-renewable resource (oil and/or gas) to develop a renewable resource is an idea gaining in stature.

“We’re optimistic that the various approaches which have been mentioned are close enough in concept that a compromise can be reached,” he said.

“Oklahoma’s future is riding on this. The key to our present strong economic growth is the oil and gas industry, but those resources will run out some day. If the state could use revenue from those sources now to pay for water development, we could establish a new base for our economy in the future.”

**Madill Flooding, Dam Break Stress Value of Board Efforts**

Floodwaters caused by torrential rains and a dam rupture at Madill reemphasized the critical importance of the Board’s dam safety and floodplain management programs.

On October 12 Madill reported 1.70 inches of rain to the national Weather Service, an inauspicious signal of a coming crisis.

“They’d had a pretty good rain in that area,” said National Weather Service Meteorologist Joe Kendall. “After four or five inches the previous week, the ground was good and wet, and it looked like everything from that point on was going to be runoff.”

More than 10 inches fell overnight, and by Tuesday morning, Kendall’s prediction was materializing in an alarming way.

“It had been raining all night long. When I came to work, the water was awfully deep, even in areas where it shouldn’t have been. As soon as I walked into my office, the calls started, and off I went,” recalls Jerry Harwell, a Madill engineer advising the city.

Most in danger were 123 patients of a southside Madill nursing home on the floodplain of Whiskey Creek, an unruly stream frequently out of its banks. Worried city officials had been up since early morning working out problems created by mounting waters.

Continued on page 7
Reagan Water Policy Defended by Carruthers on Three Points

Oklahomans with an interest in future water development and federal subsidies for water-related programs were not surprised to hear Assistant Secretary of Interior Garrey E. Carruthers resketch Washington's dark picture for the state's water programs in his luncheon address to the Governor's Water Conference December 1.

In defining the Reagan-Watt policy to more than 900 conferees, Dr. Carruthers asked, "Who is really in charge of water in Oklahoma? Who is in charge (of water) in this country?"

He asked Oklahomans to consider the three basic economic principles that guide the Administration — those of economic recovery, states' rights and the (free) enterprise system.

Carruthers warned that, "We just have got to get away from 20 percent interest rates, double-digit inflation, crowding in the capital markets, and we've got to quit paying a hundred billion dollars interest a year on our national debt. That hundred billion dollars would do a lot in water resources, if we were not paying it on an ever-increasing national debt."

He told conferees that the Reagan Administration's goal of a balanced budget requires budget cuts, tax cuts and the return of part of the tax base to state and local governments so they can afford to finance some of the programs abandoned by the Feds.

"In short, it means less government with less money. This president — one of the toughest guys in the United States — is dedicated to putting the government's economic house in order." He pointed out that $1.4 billion cut from the 1982 Interior Department's budget reduced to zero funding the Office of Water Research and Technology and trimmed $164 million from Bureau of Reclamation funds for the construction of water projects.

He pledged that the Federal Government is streamlining processes such as reducing the average planning period for a major water project from 26 years to 12, and seeks to decentralize decisionmaking by sending it downward to the regional representatives of the federal agencies. "No longer will people have to go to Washington for the answer," he said.

Carruthers believes the enterprise system should be more involved in the allocation and conservation of water, and he declared that presently there is no incentive to conserve water. "It is a failure of the marketing system that in some of our cities, water rates discourage conservation by setting a fixed rate for the first 10,000 gallons used, charging a lower rate for the next 10,000 gallons and charging nothing for water used beyond that point. For example, New York City charges every residential water user one fixed fee, and as a result, the city has no money to repair and renovate their system. Incredible in these times," he exclaimed.

He said the Administration will look to the private sector to provide certain water services more economically, such as the construction of expensive hydropower units on federal dams, traditionally accomplished by the Corps and the Bureau. Right now, there are hundreds in the private sector willing to build privately financed hydropower units on public facilities because they can make money at it, the Assistant Secretary told conferees. He pointed out that it would save state and federal governments from having to reach in the till, and that the money saved could be diverted to other purposes.

"To put it in a nutshell, YOU may be in charge of national water policy. In the new partnership with the Federal Government, Oklahoma will have to look for state financing here, where the projects are," he emphasized. "And other functions such as planning and water research belong to the state because we believe that planning and research directly benefit Oklahoma. The state is in the driver's seat and you must stand ready to assume responsibility in water resources matters. I believe the enterprise system is willing to join you in water development."

Carruthers stated that the new partnership demands that Washington take a responsive posture instead of a leadership posture. "But the cornerstone of our ability to work out any kind of partnership is cost-sharing or revenue-sharing programs in which the states, other nonfederal interests and the federal government agree on who should finance the future of water development in the United States. I'm going to tell you plainly that cost-sharing and finance-sharing are here to stay — in this Administration and those to come," he declared.
Governor's Speech to 95 Legislature to Approve

Creation of a water development fund is the key element in dealing with the state's water problems, a necessity because water is the "common denominator" involved in all aspects of Oklahoma's growth and economic prosperity, Governor George Nigh told the audience in his keynote address at the Second Annual Water Conference at Lincoln Plaza Inn.

"We can't wait any longer without putting the future public welfare and our economic well-being in jeopardy," he said. "Refinements and revisions to what we act on this year may be needed in future years, but we have to, above all else, establish an effective mechanism for funding water development."

State and local governments can no longer depend on our federal tax dollars being returned to meet all our water needs, Nigh observed, citing considerable cutbacks in federal loan and grant programs such as Farmer's Home Administration, the Soil Conservation Service, HUD and EPA.

"In the process of balancing the federal budget and in light of new federal policy there will be less federal funds available to local government for water project construction and maintenance. We need to create a water development fund so the state can more adequately and appropriately assist local government in financing needed water development."

Nigh indicated that solution of the state's water problems would also require the bridging of a "communications gap through the putting aside of regional differences."

"No one clearly understands the problems of water beyond their own particular area. Yet, if we hold out for only our way, only our thoughts or only our perspectives, there will be no water program," he said.

According to Nigh, the conference gave citizens from all sections of the state an opportunity to sit down and talk about
Water Conferees Urge Funding Measures

the problems, something he said that people interested in water sometimes are reluctant to do.

"I am hosting this conference," the governor said. "in hopes that this will further stimulate interest throughout the state and encourage communication, cooperation and understanding among Oklahomans with regard to the many and varied water issues we must address."

Those issues were discussed in diverse sessions in the daylong meeting designed to channel the state's energies into concrete recommendations for action on water problems.

After hearing and questioning more than three dozen state and national water experts, conferees reassembled in the afternoon to present Nigh with their recommendations. Through conference co-chairs Gerald Borelli, Patty Eaton and Dr. Tom Hurst, the governor was advised that:

— Action on water problems is needed immediately. No action or delayed action is not a viable option for addressing the critical water problems that face Oklahoma.

— It's imperative that a water fund be created now, as financing needed water improvements is the most pressing issue. Communities in Oklahoma will continue to face water distribution and supply problems until money's made available to alleviate such problems.

— The source of money for the fund should be the gross production tax levied upon oil and gas, an idea that will be under consideration in the 1982 legislative session.

— Additional monies beyond the amounts currently being considered may be required, and increased gross pro-

Continued on page 6

Center: Conferees listen to Dr. Larkin Warner's comments on the costs and availability of "Water for Commerce and Industry."

Lower right: The registration gazebo handles a rush of early morning registrations from water enthusiasts throughout the state.
Reagan Water Policy, continued from page 3

He noted that the Federal Government is now working on cost-sharing options, strategies which soon will be proposed to the Cabinet Council on Natural Resources and Environment.

Carruthers commended Sen. Ray Giles’ proposed measure to establish an investment fund which would be available for the cost-sharing proposals. “I endorse the concept of developing these investment funds from Oklahoma oil and gas revenues,” he said, “for if you don’t put together some coin, you aren’t going to have any money to ante up when the water projects are developed in the future.

“To answer the question, Who’s in charge of water in Oklahoma, I must say that you are. Yours is the responsibility for prioritizing, planning and financing your water projects. President Reagan and Secretary Watt are very pro-water development, but until Oklahoma and all other states assume their rightful role, there will be no national water policy and no new partnership,” Carruthers concluded.

Governor’s Speech, continued from page 5

duction taxes on natural gas should be examined as the potential source of such funds.

—Conservation should be a viable and active part of Oklahoma’s water management strategy.

The Governor and members of the Legislature also asked for specific recommendations from the conference body. Analysis of the conference evaluation forms attached to the program expectedly revealed the consensus presented by conference co-chairs, but also some innovative ideas.

When asked for specific measures to serve as solutions to Oklahoma’s water problems, almost 60% of the respondents suggested the creation of a water development fund financed through a severance tax on oil and gas production as a means to assist community water improvements through loans and grants.

However, some proposed that those communities in need of financial aid be required to develop and implement water conservation programs as a prerequisite. In fact, over half of those answering the questionnaire called for a strong conservation effort, whether through educational programs, financial incentives or legislative mandate.

Nearly a quarter of the evaluating participants advocated action in water quality enforcement, with most asking for a strengthening of standards, especially where oil and gas activities are concerned.

Another area targeted by conferees was a need for encouraging and developing regional water distribution systems.

“We need to take maximum advantage of the economics of scale, one respondent noted. “There’s no doubt that the most cost-effective way to handle our water needs is to do so regionally.”

Nigh accepted the conference recommendations again recognizing and stressing the need for a water fund.

“If we can create a fund that starts with a goal of $200 million, it will be a major accomplishment. As I understand your consensus, we’ve got to take that first step now,” he said.

Nigh urged attendees to encourage their legislators to address the water problems, saying that the conference would “be for naught” unless the legislators felt comfortable with their position.

The spirit of the conference suggested to Nigh that such support would be forthcoming.

“The increased number of sponsors, larger attendance and obvious excitement of the participants have made this conference a success. It gave us an opportunity to work together, and to demonstrate cooperation and cohesiveness,” Nigh declared. “I hope next year’s conference can be a day of celebration that a major step forward in water programs was taken by the legislature.”

Conference Stimulates Interest in Financial Assistance Program

The Governor’s Second Annual Water Conference has focused attention on financial assistance available from the Oklahoma Water Resources Board, according to Rick Smith, OWRB Chief of Planning and Development.

“The main message was that financing water development is difficult these days. Since the conference, we’ve received a lot of calls from people inquiring about our program,” Smith said. “And with three more water districts tentatively approved for assistance at our December Board meeting, people are becoming aware that we’ve got a good, low-cost program.”

Excitement over the program has to be tempered with caution momentarily, Smith warned. The Board’s first bond sale remains to be approved by Attorney General Jan Cartwright, a statutory requirement for any bond sale.

More than a year ago, OWRB was forced to go to District Court to gain a declaratory judgment labeling the bond program constitutional after Cartwright had withheld a ruling for 10 months.

Having waited more than the 10 days allowed the Attorney General under a state law to certify a bond sale to provide funds for a loan to McIntosh Rural Water District Number 7, Board members have authorized OWRB General Counsel Tom Lay to secure final approval through whatever means necessary, including litigation.

“A court of law has already ruled it constitutionally sound,” Lay pointed out.

“It’s possible that the Attorney General just wants to review it carefully because it’s the first sale in a new program. But we feel like it’s a good program, and we don’t want this sale or future sales to be jeopardized. The need for this program is too great.”
Primary cause for concern was a privately owned earthen dam two miles upstream from the nursing home. It had been inspected by OWRB engineers in June at the request of the City Manager’s office. At that time, Board engineers pointed out structural and hydrologic inadequacies and seepage problems in the dam, and recommended impounded water be lowered four feet as a safety measure until the deficiencies were corrected. Inspectors also reminded the dam’s owner that he had failed to submit plans to the OWRB for review prior to construction as required by Oklahoma law.

City officials recalled the warning they received about the potentially hazardous dam.

“We were advised that in a heavy rain, it would give way,” said Acting City Manager Gene Christopher. “And it did.”

“When it broke, we had no way of knowing how big the headwaters would be. There were a number of bedridden people in the home, and we knew it would take some time to move them. We all considered the situation and then the Civil Defense Director made the decision to evacuate them.”

Harold Springer, OWBR Engineering Division Chief, analyzed the dam failure.

“It was relatively slow, eroding over a period of two hours or more rather than a sudden failure. The damage could’ve been heavier if the structure had exploded, leaking a wall of water downstream,” he said.

As it was, the relentless 36-hour attack that swept away the dam also washed out rural bridges, closed area roads and highways, drowned livestock and destroyed vast croplands.

Repairs which might have prevented the dam failure and lessened the damage were never made. Springer pointed out that the dam safety program which established the dam’s flaws seeks first to identify “high hazard” dams.

“High hazard doesn’t refer to the structural integrity of the dam, but to the loss of life that might occur should a dam fail,” Springer said.

Continued on page 8

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**Water Use Report Mailing Delayed**

Jann Silvey, supervisor of OWBR’s computer operations, announced in mid December that the Board’s annual mailing of water use reports will be delayed beyond the normal January mailing date.

The forms which help OWBR estimate the amount of water used annually from stream and ground water sources are mailed to approximately 12,000 water rights holders statewide. Silvey said computer problems have forced the delay, but the reports utilized to recap 1981 water use should be mailed in early 1982.

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**ACTIVE CONSERVATION STORAGE IN SELECTED OKLAHOMA LAKES AND RESERVOIRS AS OF DECEMBER 11, 1981**

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<th>PLANNING REGION</th>
<th>LAKE/RESERVOIR</th>
<th>CONSERVATION STORAGE (AF)</th>
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**STATE TOTALS** 11,463,327 95.6%

1. In initial filling stage
2. Temporarily lowered for maintenance
3. Conservation storage for Lake Optima not included in state total

Data courtesy U.S. Army Corps of Engineers, Bureau of Reclamation, Oklahoma City Water Resources Dept., City of Tulsa Water Superintendent's Office

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**Higher Waterway Rates Proposed**

A bill before Congress proposes a system of segment charges on the nation's waterways which could increase freight rates on the McClellan-Kerr waterway 50 percent or more. Annual operation and maintenance costs on the

Continued on page 8
Flooding, continued from page 7

Oklahoma statutes require that OWBR Engineering Division staff inventory all non-federal dams 25 feet or more in height or impounding 50 acre-feet or more of water. A statewide survey completed September 30, 1980 identified 4,123 such structures, 166 of them classified as high hazard. The breached dam in Madill was not in the high hazard category.

"That's because the area was rather sparsely populated," he said. "The problems they had, though, demonstrate a need for floodplain management, which discourages building in the lowlands adjacent to streams. A normally tame and harmless stream can become a raging giant with even less rainfall than Madill had."

Springer noted that the Board serves as the coordinating agency in the National Flood Insurance Program under a cooperative agreement with the Federal Emergency Management Agency. The program offers residents of participating communities low-cost flood insurance in exchange for implementation of certain floodplain management guidelines.

In an effort to discourage development in floodplain areas, the OWBR makes available to city and county floodplain boards information and maps identifying areas of high flood hazard.

Harwell, witness to the destruction, sees a need for better planning.

"We ought to be prepared. We can't afford to be complacent just because this is a flood that's supposed to happen only once in 100 years. If people would look at the floodplain when they are building or thinking about building, we would avoid a lot of these problems."

The misfortune brought by the flood remains firmly entrenched in the memory of Christopher.

"We had one man who lost his entire business. Water was chest deep in his TV repair shop, and all that electronic gear was under water. It really hurts to lose your only source of livelihood."

The lessons to be learned from the calamitous flood waters are often lost on those who haven't experienced their havoc, Springer believes.

"Our biggest problem is with public perception. We've got the mechanisms to help, but no one ever thinks there will be a flood. We've been relatively lucky so far, but when we have one, it's a tragedy."

Mainstream, continued from page 7

Arkansas River segment from Catoosa to the Mississippi River amount to $18 million — a sum the pending Senate bill would assess from users.

Larkin Warner, OSU economist who has studied the proposed measure, said the Senate bill would raise rates for shipping wheat to New Orleans from $9 or $10 a ton to $15 or $16. "That would drive wheat and coal off the waterway and put the system out of business for navigation purposes," said Warner.

He pointed out that shippers, the U.S. Army Corps of Engineers and port operators agree that the segmented toll would virtually put a stopper in the Arkansas at mile 600, where the Arkansas flows into the Mississippi River.

Annual Well Measurement Begins

OWRB field personnel will again measure water levels in approximately 1,400 selected wells statewide as part of an annual program to collect and update information on Oklahoma's fresh ground water basins.

The program begins in early January with OWBR staff accompanying USGS personnel in measuring wells in seven northwestern counties. Ground Water Division employees continue work in the field until the measurement program culminates in March. Landowners on which the wells are located are asked to allow access to OWRB personnel.

This monthly newsletter, printed by the Central Printing Division of the State Board of Public Affairs, Oklahoma City, Okla., is published by the Oklahoma Water Resources Board as authorized by James R. Barnett, executive director. 10,000 copies are printed and distributed monthly at an approximate cost of 20 cents each, defrayed in part by funds provided by the U.S. Water Resources Council.
OWRB Coloring Book Teaches Conservation to School Children

At what point in life are people most receptive to new ideas? The Oklahoma Water Resources Board hopes they have found the answer with the printing and release this week of a free water conservation coloring book designed for grades K-3.

Oklahoma teachers may order them in classroom quantities through the Curriculum Section of the State Department of Education.

The book, "Be a Water Watcher," is intended to help instill an early awareness of water and its impacts on life by teaching conservation techniques through line drawings captioned with simple, bold-type messages.

"We wanted younger children to learn that conservation doesn't have to mean doing without — just doing with less. If they are made aware of waste, they can make more responsible decisions for themselves and their communities as they grow," said Mary Whitlow, Informational Representative at the Oklahoma Water Resources Board.

The state's water problems in 1980 provided the impetus for the development of the books. During the long, hot summer, heat and drought combined to create water problems in hundreds of communities. Many localities were pumping water 24 hours a day to keep up with customer demand, leading to frequent breakdowns in pumps and delivery lines. By mid-August, the physical damages stood at $2 million, and 362 communities had curtailed their water service. Rationing was the rule.

"People weren't conscious of the water they were using. They just weren't aware of the water-wasters in their homes and what conservation measures they could take," Whitlow recalled.

During the development of a Water Use Reduction Education and Information Program instituted in response to the critical situation, the idea of a coloring book was advanced. The concentrated, low-budget campaign didn't allow time for development of the books, so the idea was temporarily shelved.

Still, in the months that followed there was a demand from teachers for water conservation materials. Whitlow knew that most of the available materials could be obtained only at a price.

"We wanted something to give them free of charge. School systems were already burdened with costs," she said.

With encouragement from the State Department of Education and an offer to distribute them, the OWRB decided to go ahead with the project. Marie Kash, a Central State University senior art student and OWRB summer intern, developed the appealing characters that illustrate the conservation theme.

Hopes for greater water awareness are higher now that the books have been released. Even adults can benefit from the publication, as inside the front cover is a list of water conserving ideas aimed at parents and teachers.

"The books are designed for children, of course, but parents usually look at the things their children bring home," Whitlow explained.

If old habits truly do die hard, then it may be a while before adults get the water conservation message. Perhaps when water crises become as consistent as the energy crises, a time experts predict is coming, adults will switch their ways of using water.

But unconstrained by experience, the natural impulse of children to explore and imagine may allow them to experiment with reduced water use. With further cur-

Continued on page 2
Tar Creek Solutions Elusive, Governor Asks Further Study

Despite great strides toward effecting a solution to the problem of acidic mine waters contaminating surface and ground water in the Tar Creek area of northeastern Oklahoma, definitive answers may still be a year away, according to Ron Jarman, OWRB Water Quality Division Chief and Tar Creek Task Force co-chairman.

"In these past 18 months of study a considerable amount of effort has gone into this work, and we now know a great deal more than we did. Nevertheless, there are still some gaps to be filled in before we can make an informed, intelligent decision as to the best way to approach the problem," Jarman said in a briefing for the Governor on January 8.

Ed Pugh, Senior Administrative Assistant for Natural Resources to Governor Nigh, concurred with Jarman.

"We find the problem is so large, so complex and potentially so expensive to solve that some additional studies are needed to assure that a sound technical base is available to us for decision making," Pugh said.

Although the work of the Task Force was to end in January, Nigh extended the life of the study group after being apprised of the status of the project and viewing a work plan proposed for the next year.

The Task Force will soon turn to the job of determining the extent of contamination to the Roubidoux aquifer lying 400 feet beneath the abandoned mines holding the polluted water. A minimal level of water sampling in the mines and surface water will be employed to alert the Task Force if unforeseen changes in water quality occur.

Jarman said the group would analyze all available data to more closely approximate the amount of water present the mines. The work plan also calls for locating exact sources of pollutants and determining the environmental impacts of drainage from chat piles left when mining operations ceased in the mid-1960's.

The contamination of stream and ground water in the area is traced to 435 abandoned lead and zinc mines that have left the water showing concentrations of aluminum, arsenic, iron, manganese, nickel and cadmium in addition to lead and zinc. In late 1979, a rising water table inside the mines began to spill onto the surface, causing widespread fish kills.

Jarman emphasized that there is no immediate danger to public health despite the possibility of leakage from the mines downward to the Roubidoux aquifer.

"Our biggest problem now is the great extent to which the contamination is damaging the local environment," Jarman said.

Bruce Schiebach, Senior Hydrologist with the consulting firm of Hittman Associates, told Nigh and members of the Task Force at a briefing session that the most feasible solution currently would be the collection of stream and mine waters for surface treatment at a 2 mgd facility. Such action would reduce the potential for further contamination of the Roubidoux formation in a 23-year program carrying a $20.6 million price tag.

Jarman said that with so many questions still to be answered, the Task Force was not tied to any specific solution.

"There are half-a-dozen or more options available to us, including future alternate water supplies for affected areas. We're seeking the most cost-effective measures possible to minimize contamination," Jarman said.

Finding answers to the problems will bring the Task Force and the EPA into a closer working relationship, according to Pugh.

In November, 1981, the EPA designated the Tar Creek area as one of the ten most hazardous waste sites in the nation, qualifying the state for "Superfund" assistance in cleaning up the mining region.

"I think the fact that the pollution is spread over such a wide area and the issues involved are so complex is why the EPA selected this site as one of the worst environmental problem areas in the nation," Pugh pointed out.

Appropriations from the "Superfund" to help cover the cost of further study may be forthcoming in March or April, Jarman said.

"Of course, we were working on this problem long before there was a possibility of Superfund money," Jarman said. "We're in a hurry to clean it up. We want it cleaned up as fast as possible, but at this point we need additional information. A year from now we should be able to give the answers."
Board Cites Fresh Water Waste, Denies Permit to Oil Company

Strongly reemphasizing its interest in efficient use of the state's supply of fresh ground water, the Oklahoma Water Resources Board denied Superior Oil Company a permit for use of fresh water for tertiary oil recovery in Garvin County. The ruling was made by the Board at its January 12 meeting in response to Superior's application for the use of the 141.2 acre-feet of fresh ground water annually to support its 16-year waterflood operation.

J.A. Wood, former OWRB Ground Water Division chief, and Board General Counsel Tom Lay had held months of strife-ridden hearings and concluded that the company's proposed 3-phase procedure to extract oil from the Hart Sand would waste water.

The strategy proposed by Superior would require a preliminary flush of fresh water through the oil zone, followed by circulation of fresh water mixed with caustic sodium hydroxide, and a final flush of fresh water.

No provisions were made for treating or recirculating the briny waters produced in the three steps. Those brines, along with the calcium, magnesium and caustic fluids, would then be immediately and permanently disposed of in a waste injection well. During the hearings, company representatives had explained that the first flood was designed to remove calcium and magnesium from the formation, the caustic flush to reduce tension in the particles so they released oil, and the third flood to again remove the calcium and magnesium before another circulation of the caustic mixture. This process would be repeated again and again. Each step in the process would begin with a new supply of fresh ground water which, in its circulation, would accumulate heavy loads of salt — up to 160,000 parts per million — too much, the company maintained, to economically treat for reuse.

Only after nine years of the 3-stage caustic flooding would any salt water be used.

Wood and Lay maintained that such fresh ground water use would be an inefficient, nonbeneficial and wasteful use. Wood declared that salt water slightly exceeding 5,000 ppm — the Board's standard for distinguishing salt water from fresh — was available for the company's use from the shallow, underlying Wellington and Pontotoc formations.

Wood also contended that other alternatives, such as flushing the oil-bearing formation with a sodium orthosilicate mixture (an alkaline solution prepared from soft water or reservoir brine) were available and possibly could recover more oil than the caustic fresh water-sodium hydroxide mix prescribed by Superior representatives.

In denying the Superior Oil Company permit, the Board said that after being used once, the fresh ground water would be lost for any further or additional future beneficial use. Oklahoma law defines "waste" as "the use of fresh water in an inefficient manner or any manner that is not beneficial... taking or using fresh ground water in any manner so that it is lost for beneficial use"... and "using fresh ground water in such an inefficient manner that excessive losses occur."

Wood anticipates more and more applications for water use for tertiary oil recovery as the search for energy intensifies in the state. "The Board will examine every one of those applications to be sure Oklahoma's water resources are safeguarded against waste."

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STATE TOTALS 10,503,319 87.7%

1. In initial filling stage
2. Temporarily lowered for maintenance
3. Conservation storage for Lake Optima not included in state total

Data courtesy U.S. Army Corps of Engineers, Bureau of Reclamation, Oklahoma City Water Resources Dept., City of Tulsa Water Superintendent's Office.
Water Conference Summary Available

Proceedings from the Governor’s Second Annual Water Conference staged December 1, 1981 in Oklahoma City have been condensed and are now available in summary form. Copies may be obtained by writing Librarian Susan Lutz at OWRB offices, P.O. Box 53585, Oklahoma City, 73152 or calling (405) 271-2555.

Tourism and Recreation Conference Feb. 16

The Governor’s Tenth Annual Conference on the Recreation and Tourism Industry will be held February 16 at the Sheraton Century Center in Oklahoma City.

Registration costs $15 (which includes lunch) or $40 (which includes Legislative Appreciation Dinner). Tickets are available at the Department of Recreation and Tourism, 500 Will Rogers Building, Oklahoma City, 73105.

Water Activist Orville Saunders Dies

Former OWRB Member Orville B. Saunders, 75, died on January 19 in Oklahoma City. His distinguished career in water resources development included Oklahoma compact commissioner on the Red River Compact, chairman of the Mountain Park Master Conservancy District and leader in the development of Tom Steed Reservoir. Mr. Saunders was also former mayor of Altus, active in church, civic and higher education circles and principal organizer of Westview Boys’ Home in Hollis, Oklahoma.

Fred Simpson Dies, Former Board Engineer

Longtime OWRB engineer Fred Simpson died in San Antonio, Texas, on January 24 at the age of 89. He retired from the Board in November 1970. During his 20-year career with OWRB and the Oklahoma Planning and Resources Board, Simpson was instrumental in negotiating two interstate stream compacts on the Arkansas River and served as compact engineer on the Red River Compact. He was a WW II veteran and member of several professional engineering societies.

**JANUARY CROP AND WEATHER SUMMARY**

Adaptable moisture combined with favorable pasture conditions have enabled state cattlemen to provide supplemental feeding on a normal basis as livestock were reported in good condition at mid-month. Damage to wheat from recent cold temperatures was minimal, and cattlemen took advantage of generally good weather by utilizing 45% of the wheat for grazing.

Wheat, oats and barley were in good to excellent condition at mid-month, despite growth and development retarded by cold weather passing through the state.

Temperatures averaged seven degrees below normal in the Panhandle to 17 degrees below normal in the south central section of Oklahoma. Precipitation varied from a trace in the north central area of the state to .53 in the southeast. Both topsoil and subsoil moisture supplies were adequate to surplus in most of the state.

_Oklahoma Crop and Livestock Reporting Service_

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This monthly newsletter, printed by the Central Printing Division of the State Board of Public Affairs, Oklahoma City, Okla., is published by the Oklahoma Water Resources Board as authorized by James R. Barnet, executive director. 10,000 copies are printed and distributed monthly at an approximate cost of 20 cents each, defrayed in part by funds provided by the U.S. Water Resources Council.

MARY E. WHITLOW, Editor

STEVE LINDLEY, Writer

MIKE McGAUGH, Layout

OKLAHOMA WATER NEWS

Oklahoma Water Resources Board
1000 N.E. 10th  P.O. Box 53585
Oklahoma City, Okla. 73152
Coaching by OWRB Helps State Girl Scouts Earn Merit Badges

One of the first things a devoted Girl Scout must do is learn the code by which every Scout tries to live. This year there is extra emphasis on one part of the Girl Scout Law which calls for Scouts to “do their best” in using resources wisely and protecting and improving the world around them.

Why? It’s what Girl Scout literature calls “the big one.” This year is the 70th anniversary of the organization, and the Girl Scouts, U.S.A. theme is “the Gift of Water to the Nation.”

It’s a big one in Oklahoma, too. An unlikely set of circumstances has made water the focus of many local activities, and girls have the opportunity to earn coveted patches for participation.

The program got rolling in March, 1981, when the Oklahoma Department of Energy approached the Girl Scout Councils of Oklahoma with a proposal to develop an energy conservation awareness program. While discussions on that project were proceeding, the Diamond Jubilee Commission called to inquire about instiuting a program recognizing the state’s history. When the Girl Scout national water theme was announced a short while later, local officials decided to combine the three interests in the design of one Energy Allies patch.

“It’s very unusual for people to approach us with specific program ideas or requests, but it just couldn’t have worked out better,” said Paula Koos, Program Services Director with the Red Lands Council of Girl Scouts.

“We’ve had over 7,000 girls statewide participate in the program, and the more they learn, the more they appreciate the importance of water in everything they do.”

Eight requirements toward earning the Diamond Jubilee patch deal specifically with the state’s water resources. Girl Scouts and Brownies seeking the patch need to know Oklahoma’s average annual rainfall, whether or not the state has received enough rain this year, the number of lakes, whether the lakes are natural or manmade, the condition of the water table, reasons

Continued on page 2

Prior Rights Determinations Set in Caddo County in April

Members of the Board’s Ground Water Division will be in Anadarko April 5-9 and April 19-23 to assist applicants and claimants in filing for prior rights for the beneficial use of ground water in Caddo County.

Work sessions will be held in the Municipal Complex of Anadarko’s City Hall Monday, April 5 from 1 p.m. to 4:30 p.m.; Tuesday, Wednesday, Thursday from 8:30 a.m. to 4:30 p.m. and Friday from 8:30 a.m. to 12 noon.

Work sessions are also planned Monday, April 19 from 1 p.m. to 4:30 p.m.; and Friday from 8:30 a.m. to 12 noon. Hearings will begin at 9:30 a.m. on Wednesday, April 21, with work sessions scheduled from the close of hearings until 4:30 p.m.

Any person who used ground water under the requirements of laws prior to July 1, 1973 is given the opportunity to establish a prior right. Exempt from permit requirements are ground water users who use water solely for domestic purposes or for watering livestock up to the normal grazing capacity of the land.
for water rationing, whether or not the state’s water resources are evenly distributed and something about current water legislation.

The program has given Board Hydrologist Jim Schueler and Informational Reps Steve Lindley and Mary Whittlow the opportunity to answer these questions and coach as many as 200 girls at a time on their local water sources, how water gets to their houses, water problems and conservation. A plastic gallon jug full of water helps the girls envision average per capita water use of 150 gallons a day, and a fruit jar of sand, pebbles and water shows them roughly the structure of a ground water aquifer.

Printed handout material shows the many steps between water sources and indoor taps, and a coloring book to take home teaches them easy conservation rules.

"Their range of concerns is very wide and a little bit unpredictable. At one meeting their biggest concern might be over water rationing, and at the next, I'll be asked question after question about snakes in the water," Lindley said.

"On the whole, though, their level of awareness is very impressive, especially where water conservation is concerned. The kids I've talked with were eager, excited and perceptive."

Last in a Series of Nine

Water Shortages in the West May be Decade’s Biggest Issue

Water plays a prominent part in many aspects of Gary Smith’s life. As an avid outdoorsman living only a strong cast away from the clear, tranquil waters of Grand Lake, Smith, his wife Barbara and son Cory are in perfect position to take advantage of the tremendous recreation industry that thrives in the area.

As vice-president of the Grand Lake Bank in Grove, Smith knows all too well how much the area depends on the lake waters for its economic health.

"If we didn’t have that lake, there wouldn’t be much of a town there," Smith says.

Gary Smith is the newest member of the Oklahoma Water Resources Board, his appointment confirmed unanimously by the Senate on January 11. Yet his proximity to and familiarity with water doesn’t fully explain why he accepted the position, or why he derives such satisfaction from it even this early in his 7-year term.

"I’m very involved in this town and this area. It’s a beautiful place full of good people, a place that I really like," Smith says of his environs for the last eight years.

"I think perhaps the people in this area have confidence in me, so when my name came up I jumped at the chance. I also love challenges, and this is probably the biggest I’ve ever faced."

Smith was aware of some challenges even before he started serving on the Board in October. The same summer, the Grand Lake area was plagued by water shortages.

"Here we were on a magnificent lake with 1300 miles of shoreline and we had a water problem. That got my attention," Smith recalls.

His attention spans to the western part of the state in concern for the depleted, water-short part of Oklahoma, too. A native of Dumas, Texas, Smith is no stranger to dry, flat lands where farming and ranching can be a struggle for survival against little rainfall and declining ground water levels. Smith labels potential water shortages in western Oklahoma as one of the most important issues the state will face in the 1980’s.

The water development fund proposals being worked over in the legislature this session are appropriate responses, Smith believes.

"The approach is sound in that all the bills before them help communities help themselves. Given current conditions and political climate, this is the most responsible and rational way to address water problems in western AND eastern Oklahoma."

Smith says.

The role of the Board in times ahead, he feels, is to inform the citizenry as to the nature and extent of the state’s water problems, and then work with them to achieve solutions.

Of the part he’ll play, Smith says, "I’ve got so much to learn, so much reading to do, so much studying to do... but I’m enjoying every minute of it. It’s going to be very, very challenging."

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**Bureau to Supplement Mcgee Creek EIS**

The Bureau of Reclamation plans to prepare a supplement to the 1978 Final Environmental Statement for Atoka County’s Mcgee Creek Reservoir to incorporate changes mandated by PL 97-88 in December 1981. The supplemental environmental statement will address plan
changes necessary to protect the integrity of the project and allow mineral resource development by present mineral owners in the scenic and wildlife areas acquired for the project.

The Bureau expects to have the supplement ready for review by late 1982. More information is available by contacting Al Hill, Regional Environmental Affairs Officer, 714 South Tyler, Suite 201, Amarillo, Texas 79101, (806) 378-5463.

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STATE TOTALS 11,327,454 94.5%

1. In initial filling stage
2. Temporarily lowered for maintenance
3. Conservation storage for Lake Optima not included in state total

Data courtesy U.S. Army Corps of Engineers, Bureau of Reclamation, Oklahoma City Water Resources Dept., City of Tulsa Water Superintendent's Office

Many Oil and Gas Operators Defy Water Permit Regulations

With oil and gas rigs springing up in 71 of the state's 77 counties like sunflowers along the roadside, it is necessary to understand the rules and regulations that govern water use in the oil patch.

Once drilling commences, the average rig uses 10,000 to 15,000 gallons of water a day. Water comprises 96 percent of drilling mud, cools the drill bit, flushes the hole and washes down the drilling platform. While water is indispensable to the production of oil and gas, it is often a commodity of conflict.

Water to supply the operation may be pumped, piped or hauled to the site or purchased from the landowner having a water right permitting such use. Cities often make similar deals, selling the first thousand gallons of water for as little as $7.50 and refilling the tank truck at city taps for half that amount. Another option open to oil and gas companies is to have their own water well drilled near the well site.

It is at this point that state water laws begin to impact on oil and gas activity by requiring the operator to obtain a permit from the Oklahoma Water Resources Board. Last year, there were 11,699 new oil and gas wells drilled in the state, but fewer than 700 applications for permits from oil and gas companies for the use of stream and ground water. Granted, many are buying water, but the vast disparity between the number of new rigs and the number of new permits indicates a staggering number of operators are acting either in ignorance or defiance of state law.

When seeking to comply with the law, most drillers request a 60-day, nonrenewable "Temporary Provisional" permit from OWRB's Ground Water Division. Last year, 584 such permits were issued to oil and gas companies, along with fewer than 20 permits authorizing use for a longer period. Procedures require that the surface owner be sent a copy of the permit application, the water well be drilled by a licensed driller in compliance with minimum standards, the water well driller file a copy of his log with the OWRB, and that the oil company file a well disposition report within 30 days after final use.

If there is surface water near the site, oil and gas companies may apply for a 90-day "Provisional Temporary" permit for stream water use.

Simply stated, in the absence of a contract to buy water from individuals or municipalities, all oil and gas operators are required to obtain a permit in order to use from either a stream or ground water source.

The procedure for obtaining a Provisional Temporary permit is simple; the application form is brief; and obtaining the permit application can be only a phone call or postcard away. For information on permit procedures or to obtain applications for a 90-day stream water use or 60-day ground water use, call Board offices at (405) 271-2555 or write to P.O. Box 53585, Oklahoma City, Oklahoma 73152.
Mainstream, continued from page 3

OWRA Annual Meeting Set March 25-26

The 12th annual meeting of the Oklahoma Rural Water Association will be held in Oklahoma City at the Holiday Inn West on March 25-26. R.K. Johnson, Executive Secretary of the National Rural Water Association, will be the luncheon speaker. Others appearing on the program include OWRB Executive Director James R. Barnett, Speaker of the House Dan Draper and Farmer's Home Administration State Director Larry Stephenson.

Feds Revising, Relaxing Clean Water Act

Changes to the Clean Water Act prompted by the Administration to be released later this month are expected to scrap many national water quality standards which require some 20,000 industries to treat their wastes prior to discharge in municipal sewer systems; abandon the "zero discharges" goal as impossible; make it easier for companies to receive waivers from clean water standards; and extend the current 5-year life to 10 years for the licenses industries and cities are required to have for the discharge of pollutants into surface waters.

Water Quality Standards Under Revision

The OWRB staff has begun the task of revising Oklahoma's Water Quality Standards in fulfillment of federal law that requires standards review every three years, OWRB Water Quality Division Chief Ron Jarman announced.

Individual meetings with interested parties and public hearings will be held through July to gather concerns and comments to help identify needed changes. Revised standards will be presented to the Board in January, 1983, for approval before being going to the legislature for endorsement.

Board Extends Review Period on Rules

Public comment and review on the proposed revision of the Oklahoma Water Resources Board "Rules, Regulations and Modes of Procedure" will be accepted in written form through March 19, 1982. Review was to have been completed at a public hearing in February, but requests for further opportunity have brought an extension. Comments should be addressed to the OWRB, P.O. Box 53585, Oklahoma City, 73152.

Kansas Scientists Take Aim on Water

Shoots from an ordinary rifle are being used as an energy source in seismic reflection studies at the University of Kansas to identify water-bearing sources as shallow as 25-feet below the surface. Kansas Geological Survey scientists say that seismic records produced by rifle shots are much clearer than those produced from other energy sources and give a much clearer picture of shallow aquifers.

FEBRUARY CROP AND WEATHER SUMMARY

The Panhandle's 11 degrees over average topped the state at mid-month as temperatures were generally above normal statewide. Light precipitation at mid-month on top of substantial rain and snow the previous week created abundant topsoil and subsoil supplies throughout the state. The favorable temperatures and moisture levels allowed some wheat to break dormancy, and wheat was generally in good condition. Cattle owners reported their stock in good condition with few health problems.

Oklahoma Crop and Livestock Reporting Service
Rural Water Systems Pushed to Crisis by Funding Shortages

“High interest rates and funding decimated by federal budget cuts have made the plight of rural water districts more desperate now than ever,” says Oklahoma Rural Water Association Director Gene Whately, sounding a note epidemic across the nation. Lack of funds is a problem touching nearly every rural water system in Oklahoma, Whately says, and failure to provide loan money may leave systems ill equipped to rise to the growing demands.

Like missionaries, rural water districts go where no one else will. Rather than the forgotten reaches of developing nations, the districts lay pipe and carry water to the families of rural Oklahoma’s farms and suburbs. Currently, there are 475 rural water districts serving over one-half million Oklahomans, growing at an annual rate of 12 percent.

“Rural water districts have accomplished what they set out to do by distributing good water to people living in rural areas. It’s worked well, but still more needs to be done,” Whately says.

Getting it done requires money. With the “easy systems” already built, RWDS across the state face financial crises in trying to upgrade systems by providing additional lines and expansions to serve existing or expected customers.

“We’ve still got people out there hauling water. More and more people are moving to the country, and housing developments are going up in rural areas. Some districts have tripled their number of customers since they were built. Every way you look at it, our needs are growing,” Whately says.

Money to pay for improvements is seldom available to rural water districts. The average district has just 400 meters and depends solely on water sales for revenues. Without a tax base or other revenues in reserve, investment bankers aren’t as likely to give RWDS loans as they are cities and towns.

Small water systems historically haven’t been able to go to the marketplace for funds, so they’ve turned to government. For nearly two decades, the success of rural water systems has been tied to the financial assistance

Continued on page 4

All Commercial Well Drillers to be Licensed by New Law

For the first time in state history, all commercial water well drillers will be required to pass an examination and be licensed by the OWRB in order to operate within the law.

Until passage of the bill authored by Sen. Cal Hobson and Sen. Lee Cate in mid-April, approximately half the drillers engaged in drilling wells for pay in the state had been excused from licensing laws that had regulated the rest of the drillers since 1973. The new law exempts only non-commercial drillers such as a farmer drilling his or a neighbor’s wells at no charge.

The OWRB had long advocated such legislation because by exempting half of the state’s drillers from meeting standards for well construction and the sealing and plugging of abandoned wells, the state had exposed its most valuable natural resource to potential pollution.

Paul Wilson, OWRB Ground Water Division chief, points out that poorly constructed wells lacking adequate sanitary protection and uncapped abandoned wells can serve as uncontrolled recharge sites, allowing

Continued on page 2
Well Drillers, continued from page 1

contaminants in surface runoff to penetrate underground water supplies.

"Such contamination poses a serious threat to the state’s aquifers, source of 61 percent of total water used in Oklahoma and providing drinking water to approximately 300 cities and towns," said Wilson. "We simply can’t afford to allow a straight shot through an open hole to our ground water resources."

Wilson emphasizes that ground water pollution is longer lasting and more significant than surface water pollution in that cleanup is often virtually impossible.

The new licensing law has the added benefit of providing OWRB with valuable information concerning the state’s ground water basins. With the licensing of many more drillers who are required to submit their logs to OWRB, more extensive data concerning pollution, depth to water, availability of water, aquifer yields and pumping and drawdown will be available.

Wilson pointed out that the costs of drilling the number of test wells throughout the state required to yield reliable hydrologic information have in the past been beyond the means of the Board.

"The new law has advantages for the consumer as well," said Wilson. "By upgrading the water well drilling industry and raising standards to those of surrounding states, consumers will be assured of responsible operators using acceptable products and procedures. Every adjoining state except Missouri requires the licensing of commercial drillers," Wilson concluded.

The Ninth and Newest Board Member

Interest in Oklahoma’s Water Runs in the Family, Says Kerr

If heritage, experience and knowledge are of worth, then the state has acquired a substantial asset in the appointment of Robert S. Kerr, Jr. to the Oklahoma Water Resources Board. Kerr was appointed by Gov. Nigh to complete the unexpired term of James Norick.

The Kerr name has been linked with water since his father’s inauguration as Governor of Oklahoma in 1943. Service in the Senate from 1947 to 1963 saw creation of a seaway to Oklahoma, the 440-mile McClellan-Kerr Arkansas River Navigation System.

"My father’s central interest in all the years of his public service was water resources, so I was born into it," Kerr said. "But I like to think I came to this area of my own convictions, too."

Kerr’s history of involvement with Oklahoma’s water is long and impressive. Since the early 1960’s, he has served as president of Oklahoma Water, Inc.; president of the Water Development Foundation of Oklahoma; chairman of the Arkansas River Basin Interstate Commission; vice-president of the Arkansas Basin Development Association; and vice-chairman of the Board of the National Waterways Conference. Kerr also served at the request of Lyndon Johnson from 1968 to 1971 on the President’s Air Quality Advisory Board, helping to devise and promulgate the original air quality standards employed by the EPA.

"Next to air, water is the most vital element in our environment. We simply cannot live without it. And we need it not only in the survival sense, but as an essential ingredient in providing so much else. It’s basic to our lives and lifestyles," Kerr said.

Adequate supplies of water are just as essential in the future well-being of Oklahoma, Kerr pointed out. Until supplanted by oil and gas in 1974, agriculture was the largest industry in the state. Because petroleum is a "depletable resource," Kerr believes it’s only a matter of time until agriculture, with its strong reliance on water, resumes its leading role in shaping Oklahoma’s economy.

According to Kerr, the key to meeting water needs is providing the means for cities, towns and rural water districts to finance distribution improvements.

"It’s ionic that in the eastern part of the state where supply is not a problem, they have significant distribution problems which inflict the same result as lack of water supply in western Oklahoma. A water development fund would go a long ways toward solving their problems."

The proposal before the legislature to create a water development fund is "the most positive step we could take" in assuring a healthy future for Oklahoma, Kerr believes.

East-west rivalries do not preoccupy Kerr, as he sees eastern Oklahoma justifiably being the first beneficiaries of such a fund. In the meanwhile, western Oklahoma will have to work with alternatives which Kerr said are being developed to augment their supplies. Transfer of water may eventually be needed to sustain the economy in that part of the state, Kerr asserted.

A practicing attorney, Kerr sees his new duties clearly spelled out in state laws.

Robert S. Kerr, Jr.
“Oklahoma statutes make us an appropriative state. Our laws are well designed to bring together supply and demand in an equitable way,” Kerr said. “As I see it, the basic responsibility of the Board is to appropriate equitably the water that is available so that everybody gets his fair share and uses his fair share.”

### APRIL CROP AND WEATHER SUMMARY

Scattered thunderstorms near the end of the month brought much needed moisture to many areas of the state, helping replenish critically short topsoil moisture. Prior to the rains, topsoil moisture supplies were short over 85 percent of the state.

Unseasonably cool weather was the rule across the state, with temperatures averaging from 7 degrees below normal in the Panhandle to 10 degrees below normal in the southeast as the month ended.

Shortage of rain earlier in the month left wheat evidencing moisture stress in all of the state’s major wheat producing areas, and the crop was rated in only good to fair condition. Dryland wheat was showing the most severe effects of insufficient moisture in the form of blue and brown spots in fields.

The state’s alfalfa crop, in fair condition, continued to show signs of drought stress last week with several fields being cut early to salvage as much as possible of the first cutting. Pastures and ranges continued to grow at a slow rate due to low temperatures.

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### Oklahoma Crop and Livestock Reporting Service

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### Hoyt Shadid Named to Compact Commission

Appointed by Gov. Nigh in late April to represent Oklahoma on the Red River Compact Commission is Hoyt Shadid, former mayor of Altus. He is currently manager of the Mountain Park Master Conservancy District.

Shadid fills the vacancy created by the death of Orville B. Saunders earlier this year. He attended his first meeting of the Commission in Little Rock on April 27. Shadid is a civic leader and businessman and has been invited several times to appear before congressional committees as an expert on weather modification.

### Surface Owner Must Consent to Water Use

In a case filed in Oklahoma County District Court in March by Ricks Exploration Company, the court ruled that oil and gas drilling, exploration or production companies with leases to mineral rights must also obtain specific written permission of the landowner to drill a well or withdraw ground water from an existing well.

As a result of the ruling, companies which may have previously relied on the standard oil and gas lease as permission for water use will be required to attach a copy of the surface owner’s consent to any application submitted to the OWRB for the use of ground water. Continued on page 4
Bureau Names Webber Southwest Director

Commissioner of Reclamation Robert N. Broadbent recently announced the appointment of Darrell W. Webber to regional director of the Bureau’s Southwest Regional headquarters in Amarillo. A civil engineering graduate of the University of Kansas, Webber first joined the Bureau in 1957. He has served most recently as assistant regional director in Denver. The Southwest Region includes Texas and Oklahoma, most of New Mexico and parts of Colorado and Kansas.

OWRB Boosts Water Conservation Activities

By proclamation of Gov. Nigh, Water Awareness Day was observed in the state on May 4. A dozen exhibitors displayed water conservation products and educational materials on the fourth floor of the State Capitol.

Gov. Nigh visited the exhibits and commended the Board for its sponsorship of the conservation event.

“Rapid growth in industry and population have sharply increased competition for available water,” Nigh pointed out. “It forces more people to share the same water resources, so conservation must be an integral part of our management strategy.”

Conservation as a lifestyle will be emphasized year-round by the OWRB, and speakers, films, educational programs, printed materials and conservation devices will be available throughout the year. For further information, contact Rick A. Smith, chief, Planning and Development Division, P.O. Box 53585, Oklahoma City, 73152, or call Board offices at (405) 271-2555.

Rural Water Systems, continued from page 1

programs of the Farmers Home Administration. According to Whatley, all but a few of Oklahoma’s rural water districts began with loans from the FmHA.

In fiscal year 1982, however, FmHA funds available to Oklahoma were cut from $14.3 million to $8.5 million. The 1983 budget may bear more bad news with an allocation predicted in the $6 million range. With requests from cities, towns and RWDs totaling over $123 million, the FmHA has approximately 20 times as many applications as can be filled.

“It looks like they’re getting out of the funding business,” Whatley sighs.

It’s not only the amount of funds that counts. Whatley points out the current interest rates make it hard for a water district to afford improvements, and with such high interest rates, we’ll be pricing people right out of water.”

With the money crunch on, Whatley encourages RWDs to build reserves of cash to cover costs of minor improvements and maintenance.

“We suggest a move away from declining rates to increasing rates, where the price per unit of water increases as the quantity of water used increases. This brings in more revenue and emphasizes conservation, which we think is important.”

The FmHA, which already requires a rate structure sufficient to repay the loan and establish a reserve fund equal to a one-year payment, also encourages such a reserve. It is also lobbying to persuade private sources to get involved in funding water projects, perhaps on a joint basis.

It’s action, not encouragement, that will provide the services necessary to sustain the growth in rural living. Whatley looks to the state to provide funds.

“It depends on the legislature because there’s no one else who can provide enough low-interest money.

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OKLAHOMA WATER NEWS
Oklahoma Water Resources Board
1000 N.E. 10th P.O. Box 53585
Oklahoma City, Okla. 73152
Non-Use Usual Cause to Cancel, Reduce Stream Water Permit

On almost any given day in Oklahoma, scores of new families arrive to seek shelter in the economic stability of the Sunbelt, thousands of farmers go about their tasks of greening plowed lands, dozens of new drilling rigs are hoisted in place, and new businesses and industries spring up like dandelions. Many of them are unaware of the others, yet all are related by a common bond.

All are water users who will compete in the coming years for water to supply their homes, farms and industries. As demands are pressed upon the available supply, the OWRB, as stewards of the state’s waters, will scrutinize more closely stream water permits which claim water but fail to put it to beneficial use in the quantities stated on the dotted line.

Unlike ground water, which is considered property of the landowner, water forming a definite stream is “public” water, and is subject to appropriation by the OWRB for the benefit and welfare of the people of the state. To facilitate the tasks of determining the amount of water available and fairly apportioning the surface waters, the OWRB Stream Water Division has identified 49 stream systems.

Statutes require that once a permit is issued, its holder can retain his appropriation only by complying with the specific conditions of the permit and putting the entire amount of water to beneficial use within seven years. Exempt from the 7-year requirement are those permits which contain a long-term schedule of use based on the life of a specific project. In such case the applicant must demonstrate to the Board that there is a future need that the project would promote the optimal beneficial use of water and that it would be impossible to put the entire amount to beneficial use within seven years.

Holders of valid permits from the OWRB are required to report water use once each year on forms provided by the Board. For permits that are at least seven years old, the next annual water use report is listed with that of the six previous years. In order to judge whether water use complies with the permit, this 7-year record of water use is compared to the amount appropriated. The permit may be reduced, canceled or revalidated according to the maximum used in any continuous 7-year period.

If the water user fails to return his card to the OWRB, it has the effect of reporting no water use for that year. In the example below, assume the permitted annual amount is 100 acre-feet.

Irrigation Nears Pre-OPEC Level, New OSU Report States

Water planners interested in detecting trends in irrigation in one or all of Oklahoma’s 77 counties can check the new 1981 Irrigation Survey compiled by Delbert Schwab, OSU Extension Irrigation Specialist. With the assistance of county extension directors and U.S. Department of Agriculture personnel, Schwab has estimated the crop acreage actually irrigated and harvested for the year.

Schwab, who has been publishing the report biennially since 1968, said one of the most significant trends is that irrigated agriculture is making a gradual comeback after a decline in the mid-to-late 1970’s.

Recent irrigation history is related directly to the energy situation in the United States. In 1973, OPEC cut production of oil and embargoed shipments to the U.S. When the embargo was lifted, energy prices soared, and by 1976, the dimensions of the crisis were becoming fully visible.

In Oklahoma the 1975 figure of 941,000 acres under irrigation dropped sharply to 891,102 acres in 1977 as farmers refused to pay the high energy costs necessary to pump water to their crops.

“They were not only unable to afford new systems, but often they opted not to run the ones they had. Irrigation systems that were profitable when energy prices were low suddenly became only ‘break even’ or marginal, at best,” Schwab said.

Since the low point in 1977, farmers gradually have been bringing their systems back on-line in seeking to
Review of the years 1974-1980 would've shown water use in compliance with the permit at 100 acre-feet. The next year's review of the same permit for 1975-1981, at which time the year 1974 would be dropped from consideration and 1981's total added, would result in the permit being reduced to 37 acre-feet, the greatest amount used in that continuous period.

It is this continuous review of information contained in 3,955 permits which constitutes one of the primary functions of the Stream Water Division. Since November 1981, 342 permits have been reviewed, resulting in the reduction or cancellation of 315 permits and revalidation of 27.

J.A. Wood, OWRB Stream Water Division chief, concedes that the task of permit review has grown nearly unmanageable with so many permits on file. The Board has recently contracted with the Department of Civil Engineering at OU to develop a computer model which soon could assume the tasks of review, reduction and cancellation of stream water rights.

"When the new computer system is in place, it will become even more important that permit holders who have beneficially used their allotment complete annual water use reports and return them to the Board promptly," said Wood.

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Irrigation, continued from page 1

reclaim profits. It’s a carefully calculated risk, since they must grow enough extra crop to cover the fixed costs of the irrigation equipment plus the cost of operating it. Even so, the number of acres under irrigation rose to 908,070 in 1981.

"We’re not quite back to where we were before the embargo and escalation of energy prices, but we’re getting there," Schwab said.

Schwab pointed out that the periodic surveys of the state’s irrigation situation has observed other trends as well. Since 1979, acreage irrigated by self-propelled center pivot sprinkler systems increased by about 31,033 acres. Because labor is scarce in many areas, irrigators increasingly are looking for ways to reduce manual labor by using a system that can run itself.

Most common in Oklahoma is gravity irrigation, systems that flow water into furrowed fields. Gravity irrigation is used to water 470,405 acres of land, an increase of 52,000 acres since 1979. Sprinklers now irrigate 436,735 acres, down 43,000 from the 1979 count. Water-saving trickle irrigation, wherein water is applied near the roots of each plant, is used on 1,191 acres of land.

Ground water is far and away the most-used source, watering 760,240 acres, 14,618 more than in 1979. Use of surface water for irrigation has decreased since 1979 and now irrigates 147,856 acres.

For the first time, estimates were obtained on the application of agricultural chemicals by injection into irrigation water.

Fertilizer elements (nitrogen, phosphorus and potassium) were applied to 75,622 acres. Fungicides were applied to 19,390 acres, insecticides to 5,865 acres and herbicides to 1,920 acres.

Of the estimated 6,069 farms using irrigation in 1979, grain sorghum was the crop with the most acres under irrigation, standing at 222,666. Wheat had 201,995 acres under irrigation and alfalfa 136,232.

The report serves mainly as resource material for city, county, state and federal planners. Other persons interested in the results of the study may check with their county extension director.

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June Cleanups Will Mark “Oklahoma Rivers Month”

Cleanups along Oklahoma’s three scenic rivers will be the primary activities during “Oklahoma Rivers Month,” proclaimed by Gov. Nigh for the month of June.

"Many of the rivers of Oklahoma possess outstanding esthetic, recreational and economic value," Nigh said in announcing the designation.

A number of local organizations and citizens from areas near the state’s scenic rivers will join state agencies in efforts to promote public awareness of rivers. John Shannon, Administrator of the Oklahoma Scenic Rivers Commission, said that local groups would be involved in cleanup activities on public access lands leading to the Illinois River and two of its tributaries, Flint Creek and Baron Fork. A “floating cleanup” and tree planting efforts are also possibilities, he said.

"Oklahoma Rivers Month" follows on the heels of “Illinois River Appreciation Week,” observed May 23-29. State rangers presented water safety and anti-litter talks in public schools as part of the week’s events.

"Litter is a big problem. Our three scenic rivers have 230 miles of bank and more than 200 square miles of public access areas, but we have just one maintenance person," Shannon pointed out.

Forty tons of refuse a month was hauled from the rivers and adjoining lands last summer.

"We found everything from beer cans to kitchen appliances. Volunteer help and cleanup drives are absolute requirements.”

Shannon said the two designations recognizing the beauty and value of Oklahoma’s rivers are also timely. The City of Fayetteville, Arkansas, has proposed the con-
struction of a sewage treatment plant that would
discharge up to nine millions gallons per day into the
Illinois River.

"I hope 'appreciation week' and 'rivers month' will
draw the attention of Oklahomans to the issue," Shan-
non said.

Figures show there are plenty of state residents who
have reason to be interested. More than 400,000 people
canoe down the Illinois, while three million visit the Il-
inois-fed Lake Tenkiller each year.

The Oklahoma Water Resources Board unanimously
adopted a resolution at its May 11 meeting opposing
construction of the plant on the Illinois, saying that the
river "cannot assimilate any additional sewage without
environmental damage."

The resolution is similar to those adopted by the Ok-
lahoma Legislature and several other state agencies
which argue that the proposed plant could also signifi-
cantly diminish the scenic and recreational value of the
Illinois River.

Shannon said that activities in Oklahoma correspond
with a proposed "American Rivers Month" sponsored by
Sen. Paul Tsongas of Massachusetts. Tsongas expects
about 30 states to declare June a "rivers month."

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**Board Mails Water Use Reports**

The OWRB has adopted a new format for those peo-
ple reporting water use for purposes other than irrigation
in the annual water use report forms recently mailed to
approximately 11,000 water rights holders. The revised
forms ask for more specific water use information to
assist the OWRB in better estimating water use and de-
mand. Water users are asked to take care in completing
all portions of the form applicable to their operations.
Signed reports are due back in Board offices 30 days
after receipt.

**City of Chandler Plans New Reservoir**

Land acquisition for a new Chandler lake on Bell Cow
Creek is due to begin this summer, with construction
slated to begin by October, 1983. The new reservoir is
expected to provide more than three million gallons of
water a day, allowing the sale of water to the town of
Davenport as well as nearby rural water districts.

With funds provided by the Soil Conservation Service
and the Farmers Home Administration, the $8 million
lake's construction will also provide flood control and
recreation for the area. Plans call for boating and fishing
on the 1,070 acres of water, with hiking, bike trails, pic-
nic areas and a nature habitat on the 1,180 acres of land
surrounding the lake.

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**ACTIVE CONSERVATION STORAGE IN SELECTED
OKLAHOMA LAKES AND RESERVOIRS
AS OF MAY 18, 1982**

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**STATE TOTALS** 11,594,627 96.7%

1. In initial filling stage
2. Temporarily lowered for maintenance
3. Conservation storage for Lake Optima not included in state total

Data courtesy U.S. Army Corps of Engineers, Bureau of Reclama-
tion, Oklahoma City Water Resources Dept., City of Tulsa Water
Superintendent's Office.

**Budget Cuts Impacts Expected in 1990's**

The most influential factor in water management in
the future is likely to be the current direction of Con-
gress and the Administration concerning federal spen-
ding, according to a new General Accounting Office
report. The report matches the results of a survey of
water experts by the Bureau of Reclamation indicating
the shift of federal responsibilities to the states will have
the greatest impact on water resources matters in the
1990's.
Legislative Allocation of Water Funds to Face Voters in Fall

In 1980, a hot dry summer forced 362 Oklahoma communities to curtail water services. Frequent breakdowns in overtaxed pumps and delivery lines left physical damages at $2 million by mid-August. In 1981, a much less severe summer found 68 communities imposing some form of water use restrictions.

Oklahoma faces yet another summer with water problems that rationing can lessen but not cure: inadequate treatment and distribution systems with little money available to improve them.

Oklomans will get their chance to impact the problems directly in the November general election when they will be asked to consider a constitutional amendment authorizing the legislature to allocate state funds for local water projects. The House of Representatives added their approval May 17 to an earlier favorable Senate vote to place the question on the ballot.

Voters will be asked to allow the legislature to enact laws “authorizing the pledging, apportionment, use and expenditure of state funds and revenues for water resources development and sewage treatment purposes.” The amendment would also authorize the sale, issuance and backing of bonds by the state to provide financial assistance to cities, towns and rural water districts.

Doubts have surfaced during the current legislative session over the constitutionality of the state assisting local governmental entities with their water problems, but House Speaker Dan Draper has said that allowing the people to vote on a constitutional amendment should alleviate any possible problems.

OWRB Executive Director James R. Barnett hopes the amendment can clear the way for aid to communities needing assistance in order to pay for improvements to their distribution and treatment systems.

“We’ve felt all along that the state can already constitutionally pledge and use public funds,” he said.

MAY CROP AND WEATHER SUMMARY

Intermittent showers produced excellent filling conditions for wheat and other small grains, although some flooding occurred in lowland areas and some lodging was observed. Sunshine is needed to advance the maturity of the crop. With harvest near, the crop is rated in good condition and prospects are improved for an excellent wheat harvest throughout the state.

Wet fields prevented ground preparation and planting of summer crops across the state. Some replantings of cotton will be necessary due to washed-out fields in the southwest. Rains have destroyed much of the first cutting of alfalfa which was mowed but not yet baled.

Forages were responding well to recent rainfall, with grasses and clover growing rapidly. Cattle remained in good condition.

Rainfall for the week ending May 23 ranged from .38 inch in the east central to 3.15 inches in the north central. Temperatures ranged from two degrees above normal in the panhandle and north central to four degrees above normal in east central sections.

Soil temperatures measured at the 4-inch depth ranged from 70.9 degrees at Mutual to 81.7 degrees at Tuskaahoma for highs. Lows ranged from 55.9 degrees at Goodwell to 69.4 degrees at Ada.

Oklahoma Crop and Livestock Reporting Service

This monthly newsletter, printed by the Central Printing Division of the State Board of Public Affairs, Oklahoma City, Okla., is published by the Oklahoma Water Resources Board as authorized by James R. Barnett, executive director. 10,000 copies are printed and distributed monthly at an approximate cost of 20 cents each, defrayed in part by funds provided by the U.S. Water Resources Council.

MARY E. WHITLOW, Editor
STEVE LINDLEY, Writer
MIKE McGAUGH, Layout

OKLAHOMA WATER NEWS
Oklahoma Water Resources Board
1000 N.E. 10th P.O. Box 53385
Oklahoma City, Okla. 73152
Oh, What a Relief It Is!
To Have 21 Student Employees

"We’ve depended on them a lot. They feed vast amounts of data into our records, organize our files and help us get caught up on clerical chores and field work. Their contribution to the agency cannot be overstated," says Oklahoma Water Resources Board Executive Director James R. Barnett, speaking about the people that "make the difference." The people are summer employees, hired under state regulations that allow temporary employment of extra personnel from May through October.

More often than not, the seasonal employees are college students, working to gain valuable "hands-on" experience in their field. This year, the OWRB has 21 temporary helpers, with college majors ranging from biology to natural resources management to engineering to botany. And it's not only those with scientific backgrounds who find their way to the OWRB — students from education, English and history are "summering" within the Stream Water, Ground Water, Engineering, Water Quality, Planning and Development and Administration Divisions.

The workers get what they come for. Barnett says the practice of hiring people for the summer is a sound one, providing the students practical experience and an opportunity to learn more about Oklahoma’s water.

Vahan Hoonanian, who holds a master's degree in environmental science from OU, agrees with Barnett that the training has been worthwhile.

"I'm learning something every day, whether it's about contaminants in the water or public relations as expressed in public hearings. I've always wanted to do this type work and I find it very exciting," he says.

The work experience has added to the concern over the state's waters for Jami Mueller, a microbiology graduate from OU by way of Cyril.

"Working out in the field I've really become aware of how much industrialization is increasing in Oklahoma. Where I come from, there's not much water. I'd hate to see growth jeopardize what water there is," she says.

Continued on page 2

Citizens Helpful in Reporting Suspected Pollution Incidents

A woman calls the Oklahoma Water Resources Board offices, concerned that there is gasoline in her family’s water well. A rural resident calls to report seeing a milky liquid spilling from the rear of a cement plant into a stream. A man calls to report an oil slick on a creek running through his property. What can be done about it?

The answer depends on the responses the citizen with a pollution complaint gives to a series of questions posed by OWRB Water Quality enforcement personnel. Investigators must first determine which agency should receive the complaint. Overlapping jurisdiction between state agencies with regard to pollution problems sometimes creates confusion among citizens seeking to contact the agency with appropriate regulatory powers.

A breakdown of basic pollution responsibilities looks like this: The OWRB handles complaints regarding industrial discharges into the state’s waters, including the regulation of refinery discharges; the State Department

Continued on page 3
Mueller, who works in the Water Quality Division investigating citizens' pollution complaints, sees her job as not only enforcing compliance to standards, but also as "preventive medicine" through acquainting industries with rules and regulations before problems develop.

The state profits as much from the arrangement as the individuals do.

"Ninety-nine percent of them are an asset. They fill in manpower gaps, and bring new ideas and new ways of looking at things," Barnett says.

James Adams, Water Quality Division enforcement section head, adds that the boost in personnel is a planned for and necessary part of his section's operation.

"They're worth their weight in gold. Knowing that we can acquire that type of employee, we take advantage of it by scheduling our heaviest workload between May and September.

"By using them for complaint investigation, we can switch our experienced regular personnel to industrial inspections. With the talent and enthusiasm of summer employees, they can get the basic information needed—and then we can follow up and finish the work with less time expenditure than we'd have needed otherwise," Adams says.

The experience has been positive enough to attract some summer employees to seek permanent status. Ten current OWRB employees started as seasonal workers, supporting Barnett's assertion that hiring summer personnel is a good way to "recruit" people for careers in water.

Aside from those already mentioned, the OWRB employs on a seasonal basis the following: In the Water Quality Division, Connie Keating, OU environmental sciences major, assisting in the Tar Creek investigation; Ann Crocker, a Wayne State University history graduate, coordinating data and serving as a clerk; Jan Walstrom, a graduate in botany from the University of Tulsa, investigating citizen complaints; Laura Stout, geography major from OU and Gary Shapiro, holder of a master's degree in biology from OU, taking water samples and collecting data as part of the Clean Lakes Program at Lake Overholser and Northeast Lake in Oklahoma City.

In the Planning and Development Division, Beverly Graham, CSU public relations major is editing reports and organizing the conservation library, Erin O'fill, OSU English graduate, is compiling and writing the monthly water supply report and monitoring the return of water use cards; John Oliver, photo-journalism major at OCU, is shooting pictures for use in a conservation slideshow, the annual report, and the newsletter; and Jim Bryant, a natural resources management major from Rutgers, is serving as a planning assistant.

In the Ground Water Division, CSU education major Barbara Bowens is serving as a typist clerk; Georgia Slaughter, a Connors State sociology major, is also working as a typist: clerk, as is Sonia Keathley of Choctaw. John Nostrand of Oklahoma City is drafting a map detailing well locations throughout the state.

In the Stream Water Division, George Reimer, a student at Southwestern Oklahoma State University, is apportioning Soil Conservation Service sites; and June Elkins, criminal justice major from CSU, is working as a file clerk.

Lorree Lockhart of Mustang is assisting as a clerk in the Engineering Division, and Linda Shelton, an engineering and science major at Oscar Rose, is working in the Administration Division microfilming files. Kevin Case is working out of the Tulsa office, investigating pollution complaints.

Corps Studies Poteau River Proposal

The preliminary phase of a $470,000, two-year study of the possible channelization of the Poteau River and construction of a port at Panama is due to be completed by the Corps of Engineers this summer.

Study of the $20 million Poteau River Project, proposed as an offshoot of the McClellan-Kerr Arkansas River Navigation System, was originally limited to a channel and flood control project. Concerns over water and energy shortages caused expansion of the study to include water supply and hydropower for the area.

Schuelein to Head New OWRB Division

James R. Barnett, executive director, announced in mid-June creation of a new division in the OWRB and named as its chief Jim Schuelein, formerly of the Board's Planning and Development Division.

Continued on page 4
Citizens Helpful, continued from page 1

of Agriculture deals with pollution resulting from all cultural or silvicultural activities; the Oklahoma Department of Health has responsibility for pollution from municipal waste treatment plants or controlled industrial (hazardous) waste sites; the Corporation Commission is empowered to investigate pollution problems stemming from oil and gas activities; and the Department of Pollution Control functions as a coordinating entity between all agencies with pollution enforcement activities, serving as a central registry for citizen complaints.

“Residents of an area know what a body of water should look like, and they usually recognize right away when something is wrong. And although they may have some idea what the problem is, they aren’t always quite sure,” says James Adams, head of the OWRB Water Quality Division’s enforcement section.

Agricultural pollution in a pond or stream can often be identified by an “algal bloom,” a sudden, heavy growth of algae caused by nutrients carried in runoff from heavily fertilized lands.

Municipal waste treatment plant contamination of waters will also be marked by increased algae, Adams says, but often accompanied by a strong odor.

Oil pollution may be the easiest to identify, floating on the surface of the water as a filmy coating. Drilling mud on the bottom of ponds or streams often can be distinguished by a white, tan or gray color in contrast to the normal dark brown or red color.

Persons contacting the OWRB enforcement section with a pollution complaint receive the rudiments of a water quality education over the phone. A caller will be asked if the contamination is in pond, stream, lake or ground water; what about the water leads the caller to believe it is polluted; what the source of the pollution is; how the pollution traveled to the contaminated area; and the extent of the contamination. The questions reduce an expanse of information to data that keys in on identification and resolution of the problems.

When the Board receives a complaint from any citizen concerning pollution or a report of a fishkill or oil spill, investigation of such complaints takes priority over all other Division activities. As soon as possible after receiving the complaint, an investigator will be at the site to confirm the source of the pollution and develop a strategy to halt it.

The number of complaints has been rising. In 1980 the staff responded to 147 complaints, an increase of 44 over 1979. Last year, the OWRB investigated 157 complaints, and while not even halfway through 1982, the enforcement section already has answered 81.

Adams says that in about 80 percent of the cases, investigators were able to determine the source of the pollution. Approximately one-quarter of the investigations resulted in official state inspections, with the other complaints being resolved by simply calling the problem to the attention of the party responsible for the pollution.

### ACTIVE CONSERVATION STORAGE IN SELECTED OKLAHOMA LAKES AND RESERVOIRS

AS OF JUNE 22, 1982

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**STATE TOTALS**: 11,821,229

1. In initial filling stage
2. Temporarily lowered for maintenance
3. Conservation storage for Lake Optima not included in state total

Data courtesy U.S. Army Corps of Engineers, Bureau of Reclamation, Oklahoma City Water Resources Dept., City of Tulsa Water Superintendent's Office.

An added bonus of citizen complaints is that the investigation may take a staff member to an area of the state that had not been looked at before. Recently, an OWRB investigator discovered eight water quality violations merely driving through a town en route to an inspection elsewhere.

The enforcement section relies heavily on citizen complaints, Adams says.

Continued on page 4
Mainstream, continued from page 2

The new Administration Division consolidates sections in mapping and drafting, public information, accounting, data processing, library and personnel. Some previously had been part of the Planning and Development Division and others had been either directly under the assistant director or the executive secretary. Barnett said the reorganization, necessitated by growth and expansion of activities, will provide better service to the public and streamline the Board's internal operations.

Citizens Helpful, continued from page 3

"I'm not sure we could ever calculate the total costs of cleanup required by pollution, but I would estimate they are several magnitudes greater than the price of preventing pollution by eliminating the sources.

"We don't have the manpower to be everywhere. That's why calls from concerned citizens are so important. They are at the source of pollution and can alert us. With that kind of help, we can get out, investigate a problem and stop it before it requires expensive cleanup," Adams says.

JUNE CROP AND WEATHER SUMMARY

Cool temperatures and recurring thundershowers continued to slow harvesting of wheat and small grains for the month, further testifying to the urgent need for sunshine to dry moisture-saturated fields. Wheat was generally in good condition, although some rain-soaked areas of the state showed signs of crop deterioration. Only extreme western areas of the Panhandle indicate short moisture supplies.

Alfalfa harvest was also hindered by showers that virtually stalled hay baling across the state.

Row crop planting was hampered by wet fields that allowed farmers only three and one-half days of field work, although drier conditions in the southern part of the state at mid-month did permit considerable planting of cotton and peanuts.

Pastures and ranges have flourished due to the cool, wet conditions, with over 95 percent of the state's pasturage in good to excellent condition.

Temperatures ranged from three degrees below normal in the southeast to seven below in the west.

Oklahoma Crop and Livestock Reporting Service
$25 Million Appropriation Lets State Cost-Share With Feds

The Second Session of Oklahoma’s Thirty-Eighth Legislature took a big step toward solving the state’s water problems with a July 12 appropriation of $25 million to a statewide water development fund. The appropriation gives financial life to SB 145, a bill passed in late May setting up the mechanics of the fund.

The appropriation will be made to the fund to be used as collateral for revenue bonds issued by communities, water districts and other qualifying entities for development of water systems. Interest accumulated on the appropriated money may be used for emergency grants to these entities after approval by the Contingency Review Board, composed of the current Governor, Speaker of the House and Senate President Pro Tempore.

“This is something the people of the state have needed for a long time,” said OWRB Executive Director James R. Barnett.

A statewide survey by the Planning and Development Division identified more than 350 cities, towns and rural water districts that need financial help from some source to correct water problems.

Adding to Barnett’s concern is the expected increase in the number of people and industries moving to the state. Oklahoma Employment Security Commission studies project a net gain of 700,000 people for the state in the next 18 years. The Oklahoma City metropolitan area alone is expected to surge to over one million people by the year 2000, boosted by immigrants from other states looking for jobs in factories, industries and businesses.

With so many cities and towns lacking systems to adequately handle current needs, Barnett said the situation could only worsen without correction over the next several years. The $25 million first-year appropriation is a step in the right direction, he said.

One little talked about feature of the bill is the provision that allows expenditure from the fund to cover... Continued on page 2

Board Opens Lawton Branch

A new OWRB branch office opened in downtown Lawton in early August should mean savings in time and money for the public, OWRB Assistant Director Mike Melton said in announcing the agency expansion to southwestern Oklahoma.

Citizens with water problems and needs characteristic of the area may now find help close at hand, reducing travel time and expenses often required in a trip to the OWRB offices in Oklahoma City, Melton pointed out.

The office, located at 601 C Avenue, Suite 101, initially will be staffed by an office manager, administrative assistant and field investigator. The staff will be able to assist area residents by processing ground and stream water right applications, assisting in the enforcement of minimum water well construction, well plugging and other well drilling laws, in the investigation and enforcement activities related to pollution complaints and generally working to protect the water in southwestern Oklahoma.

“Eventually, just about everything we can do here in Oklahoma City we’ll be able to do at our branch offices. By spreading our technical capabilities and expertise, we can provide better service to the people of the state,” Melton said.
Oklahoma’s portion in cost-shared water projects with the federal government, such as bank stabilization, flood control, weather modification, hydropower, water supply, irrigation and recreation.

In the past, the federal government put up all the money for construction of multipurpose reservoirs, requiring that a non-federal entity repay 100 percent of the water supply costs and 50 percent of the recreation costs over a 50-year period.

In that sense, state and local governments have always had to cost-share. For example, the present state or local share of cost on all Corps of Engineer projects averages 37 percent.

The concept of cost-sharing is undergoing change in the current administration. Although the new policy is still awaiting White House clearance, Assistant Secretary of Interior for Land and Water Resources Garrey Carruthers has indicated that “up-front” financing for projects is one component.

Upfront financing would require state or local governments to have cash on hand to pay a given percentage of the projects’ costs.

In January, the Assistant Secretary of the Army for Civil Works instructed the Corps of Engineers to use the following guidelines for upfront financing by state and local sponsors of Corps projects when negotiating for new starts in 1983: for hydropower and municipal and industrial water supply parts of multipurpose projects up-front financing by state and local sponsors is to be 100 percent; recreation, 50 percent; flood protection, 35 percent; commercial navigation, 75 percent with agreements to repay the other 25 percent through long-term contracts; and planning and engineering costs are to be shared 50/50.

Continued on page 4

Four Thousand Permits Allocate Water in 49 Stream Systems

When an individual, municipality or other entity seeks a stream water permit from the Oklahoma Water Resources Board, what determines whether the permit is granted? Already, almost 4,000 such permits have been given, and from July 1981 to June 1982, the OWRB processed 266 new applications, a 30 percent rise from the year before. The complexity of sheer numbers added to the intricacy of studies necessary to fairly apportion the surface waters of the state have created a situation that sometimes requires clarification.

To simplify the task of equitably allocating surface waters, the OWRB Stream Water Division has identified 49 stream systems. Divided into two basins that catch and carry precipitation falling in the state, Oklahoma’s rivers and streams are composed of the Arkansas River Basin’s 26 stream systems in the north and the Red River Basin’s 23 stream systems in the south.

“Stream system” is a term given to areas designated by the OWRB according to drainage area, where the amount of water available can be determined with reasonable accuracy. Considerations such as climatic zone and hydrologic factors sometimes help define a stream system.

For example, stream system 1-10 in Love and Carter Counties is a relatively small one. The system encompasses Walnut Bayou and its tributaries in an area where soil and vegetation conditions are fairly homogeneous. Only six permits are held in the system, one for water supply for the city of Healdton and the rest for irrigation and commercial uses.

To determine if water can be appropriated in a given stream system, OWRB staff members must address three issues.

First of all, the question of whether water is available must be answered. Reviewing continuous records of streamflow registered by approximately 120 gauges maintained statewide by the U.S. Geological Survey, reasonable estimates of the quantity and variability of flow for a given stream can be made. Where gauges are not located in the proper position for circumstances at hand, OWRB personnel undertake a study of the relationship between precipitation and runoff in the area. Combined with a look at other gauge records in the stream system, division staff members can ascertain the amount of water likely to be available.

Increasing population and escalating water demand haven’t put all the state’s stream water to use, but the strain is being felt. Two stream systems are fully appropriated: stream system 2-5-4 in Texas and Cimarron Counties, consisting of the North Canadian River and its tributaries (excepting the yield of Optima Lake, which has not yet been appropriated), and stream system 1-15-2 in the southwestern Oklahoma counties of Kiowa, Greer, Beckham and Roger Mills, where the North Fork of the

JULY CROP AND WEATHER SUMMARY

Near normal July temperatures and only slight precipitation have spelled good news to state farmers. The seasonable weather allowed virtual completion of wheat harvesting statewide, although some wet, overripe fields in the south central part of the state were abandoned.

Peanuts and cotton, rated in good to fair condition, were the only row crops not rated good all around as clear weather permitted steady row crop activity. Alfalfa and other hay harvesting made excellent progress in weather suited to cutting and baling. Pastures and ranges also continued to make excellent growth due to sunshine and adequate moisture.

Temperatures ranged from two degrees above normal in the northeast to two degrees below normal in the southwest.

Oklahoma Crop and Livestock Reporting Service
Red River flows above Altus dam. No permits in those systems can be granted on a regular, year-round basis.

Secondly, the applicant must assure the OWRB that there is a present and future need for water as it is applied to a beneficial use. Farmers seeking stream water must show how much land they intend to irrigate, while cities and towns must present population estimates in combination with consumption rates. Generally, then, the present and future need for any kind of use should be justified.

Finally, it must be determined if the permitted water use would interfere with domestic or prior appropriative users downstream. Domestic use—the use of water by an individual or family for household purposes, growing lawns, garden or orchards and for farm and domestic animals up to the normal grazing capacity of the land—has preference over any other use. The OWRB must also protect the dependable yield of any lakes or reservoirs downstream in the same system.

When all conditions are met, an applicant may be granted a permit for stream water and given two years to commence construction of works necessary to put the water to beneficial use. It's the "beneficial use" phrase, says J.A. Wood, OWRB Stream Water Division Chief, that best sums up the intent of Oklahoma stream water law.

"The permit requirements which applicants have to meet are safeguards. Stream water is public water, not private, so the laws were constructed to benefit and protect each member of the public," Wood said.

Survey Shows Western Water Levels Down
Results from the annual cooperative OWRB-U.S. Geological Survey program measuring 1100 wells in 77 counties show water level decreases in western Oklahoma and increases in the central and east. Ground Water Division chief Paul Wilson reports.

Comparing 1982 levels to those recorded in 1981, Texas County wells dropped .59 foot, while Cimarron County wells increased 1.06 feet and Beaver County wells increased .50 foot. Southwestern Oklahoma as a whole registered a decline of .68 foot. The largest decline was in southeast Texas County, where 28 wells averaged a drop of 4.14 feet.

Central Oklahoma reported an increase over 1981 of .07 foot, northeast Oklahoma an increase of 3.75 feet and southeastern Oklahoma an increase of .49 foot, Wilson said.

Bureau Names Hinds Regional Director
Oklahoma native Eugene Hinds, a veteran manager with the Bureau of Reclamation, has been appointed Regional Director of the Agency's Southwest Region headquartered in Amarillo, Texas. Hinds, who began his career with the Bureau in 1961, holds an agronomy degree from New Mexico State University.

Conservation Coloring Books Reprinted
The popular "Be A Water Watcher" coloring book has been reprinted and is again available to Oklahoma teachers. The book is intended to help instill an early awareness of water by teaching conservation techniques through line drawings with simple bold-type captions.
Court Rules Water "Article of Commerce"

The Supreme Court moved in July to strike down state laws imposing bans on interstate water transport, saying that ground water is an "article of commerce" and thus subject to federal regulation under the interstate commerce clause of the Constitution.

"The multistate character of the Ogallala aquifer underlies appellants' tracts of land in Colorado and Nebraska, as well as parts of Texas, New Mexico, Oklahoma and Kansas, confirms the view that there is a significant federal interest in conservation as well as fair allocation of this diminishing resource," the opinion stated.

Well Drillers Symposium Set August 20

Geology for water well drillers, how to complete well logs, the value of logs, OWRB Rules and Regulations as they apply to drillers and a testing period for water well drillers seeking licensure will be on the agenda of the August 20 Oklahoma Water Well Drillers Symposium. Featured speaker will be Wayne Pettyjohn, PhD, head of the Department of Geology at Oklahoma State University.

The Symposium will be held at Oscar Rose Junior College in Midwest City from 9 a.m. to 3 p.m. under the sponsorship of the OWRB, Oklahoma Water Well Drillers Association and National Water Well Drillers Association.

There is no fee for the symposium and more information is available by calling Duane Smith at the Oklahoma Water Resources Board, (405) 271-2555.

$25 Million, continued from page 1

With the appropriation to the fund, Barnett said that Oklahoma becomes one of only about 12 to 15 states that have "read the handwriting on the wall" and can afford to participate in cost-sharing programs.

"It's a whole new world out there in financing water development. With the huge federal deficits, I don't think we'll ever see the federal contribution even close to what it was," Barnett said. "But even with the new guidelines, we'll be able to keep the federal programs going."

Some of the money has already been committed. Early next year, the OWRB will begin paying the state's share of water supply costs for Sardis (Clayton) Reservoir in southeastern Oklahoma. The OWRB has also told the Corps of Engineers that they may be interested in negotiating a cost-sharing deal on Parker Reservoir, a lake proposed in east central Oklahoma to provide flood control, recreation and water supply to the local area as well as several central Oklahoma communities.

Barnett said that even taking into account the significant contributions to be made through conservation over the years to come, water development is still a necessity.

"The appropriation was timely. It would have been irresponsible not to have put the state in a position to share in what federal funds will still be available. It's a way of increasing the investment in our future."

Barnett pointed to State Question 558 on the November 2 general election ballot as a way for Oklahomans to put their stamp of approval on the loan and grant provision of the bill. A proposed constitutional amendment would authorize the legislature to allocate state funds for local water projects, and a "yes" from a majority of voters would clear away constitutionality doubts so that the program could forge ahead.

MARY E. WHITLOW, Editor

STEVE LINDLEY, Writer

OKLAHOMA WATER NEWS

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Oklahoma City, Okla. 73152

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McAlester Bank Helps Finance Improvements to Water District

It's the sort of thing that doesn't happen very often, but the 9,000 people served by the Pittsburg County Water Authority in southeastern Oklahoma are glad it did. "It" was a loan — a $120,000, 10-year deal with the First National Bank and Trust Company of McAlester that will pay for a number of long overdue improvements to their water system.

The story of the Pittsburg County Water Authority is a common one in Oklahoma. Historically, their water treatment and distribution facilities have been challenged in attempts to meet the needs of their customers, spread over 2,510 meters and a good portion of the county east of McAlester. Inefficiency at the treatment plant has caused relatively high water rates, occasional water quality problems and water rationing four out of the last five years.

Conditions should change. The next 10 months will see construction of a new pumping station to pull water from Lake Eufaula, a new supply line to carry it and the cleaning and dredging of the detention pond to hold it. Additionally, the treatment plant's filtration system will be improved, and a new, 1,000-gallon-per-minute pump will boost distribution capabilities.

The loan was arranged by Tom Smith, director of the bank's newly organized Community Development Department, set up to work with public and private entities to enhance the quality of life for area residents. Members of the PCWA approached the bank mired in what Smith calls a "no growth" situation — no money available to make improvements or issue new meters.

"We didn't look at their situation in the same light

Continued on page 2

Board and ORWA Cooperate in Leak Detection Program

What weighs five pounds, has modular construction and a true fidelity amplifier possessing high usable gain? It's a leak detector, now being used in a 6-month pilot project operated by the OWRA in cooperation with the Oklahoma Rural Water Association. Together, the two organizations hope to determine the effectiveness and long-term value of leak detection through actual use.

Looking something like a kid's portable, belt-attached stethoscope, the device enables a listener to detect the sound of moving water in lines and hydrants. Initially, the leaks may be found by noting unusually noisy or abnormally pitched water moving through a system. Turning off the water in a suspicious sounding section allows the operator to pinpoint the leak by listening at specific points.

The OWRA has dedicated a $1700 "Aqua-Scope" to the OWRA on a trial basis, also agreeing to pick up travel costs for the operator. An assigned OWRA staff member will take the leak detector on routine jobs, and also respond to any special request made for the use of the detector. After each use, the operator must send a report to the OWRA noting what system the equipment was used on, what the problem was, what action was taken and how much water was or could have been saved. OWRA Planning and Development Chief Rick Smith says that from such reports he hopes to determine if a leak detection and repair program is cost-efficient.

"At the end of these six months, I'd like to say we spent X amount of dollars and saved X gallons of water.

Continued on page 2
we'd look at a commercial loan. We ended up charging an eight percent interest rate, but the real dividends will be in encouraged growth and new development for the area," Smith said.

It was a loan to cheer the holders of tightened pursestrings in Washington who had broadcast the message that the private sector should assist the states in shouldering some of the shifting financial load. Smith said that even though the loan was in tune with the Administration's policies, it would have occurred under its own initiative.

James McKeown, executive director of the Oklahoma Independent Bankers Association, said that it's the exception rather than the rule for banks to make the initial loans required for water system improvements.

"It's not common. Out of 500 member banks, I'd guess only a few have done that. More banks get involved in interim financing, where they tide a water district over until a long-term government loan is available," he said.

The length and amount of the loan exemplify the dissimilar capabilities of the private sector and the government when it comes to making money available for water projects. Banks generally loan "smaller" amounts of money—anywhere from a couple of thousand to several hundred thousand dollars—for "shorter" periods of time, usually 10 years or less. In the case of the OWWRB financial assistance program, the State has appropriated $25 million dollars to be used as collateral for loans. The commitment puts the state in position to offer high-dollar, long-term, low-interest deals—just the sort of arrangement that many low-on-water, short-on-money Oklahoma communities need.

"We support the water development fund because the kind of problems this district had are the kind of problems you'll find all over the state. And even though we financed this one alone, we can envision participation with the state on projects like it in the future," Smith said.

There's an old adage that says if you want to know what's going on in a town, stop in at the bank. With the work being done by Smith's department, things are looking fine in McAlester.

Leak Detection, continued from page 1

and to be able to draw a clear correlation between the two."

There has not yet been a definitive judgement as to the "soundness" of leak detection programs. Smith says there is no consistent point at which it becomes profitable to control loss of water in the system. With the increasing scarcity of water, though, Smith says every drop of water a community can save will be beneficial.

Leak detection and repair is one way in which a municipality or water district can cope with the problem known as "unaccounted for" water. A community can calculate the amount of their problem by taking the total water plant output delivered to the distribution system over a given period of time and comparing it to the quantity of water registered on customer's meters. The difference is "unaccounted for" or "non-revenue producing" water. Some of that total is spent for firefighting and watering of city parks, but the largest part is lost in system leakage.

In Oklahoma, relatively new distribution systems have held system loss to an estimated eight to 12 percent as a statewide average. Although few utilities have actual leak detection and repair programs, a few have well planned priority systems that use customer reports as a basis to evaluate water loss and potential damage caused by leaks. Leaks are then repaired from a priority list in the most cost-effective fashion.

Several of Oklahoma's larger water suppliers also have annual replacement programs which systematically replace older mains. Tulsa reduced a 21 percent unaccounted-for water figure to 16 percent between 1979 and 1981 through an intensive pipe maintenance and replacement program.

Nationally, it's estimated that water system loss averages 15 percent, the actual amount varying from system to system according to such factors as the age and condition of pipes, prevailing system pressures and ground conditions. In Boston, where water is pumped through lines sometimes as old as 200 years, unaccounted-for water measured 50 percent in 1981, which means half of the water collected, purified and pumped never got to the customers' houses.

Predicted water shortages may find Oklahoma communities emulating the example set by the city of Atlanta, where a leak detection program has been in operation since 1950. Every year, 200 miles of water mains are surveyed for leaks, thereby covering the entire system in a 10-year span. In its first 25 years, the program uncovered and repaired leaks reclaiming more than 12 mgd. Over the past 10 years, the cost of fixing the leaks has been only two cents per thousand gallons.

"This project is part of a good-sense approach to water resource management because it cuts down on

A leak detector incorporating a battery-operated amplifier, probe test rod, ground microphone and headphones is shown off by Oklahoma Rural Water Association Director Gene Whatley and OWRRB Assistant Director Mike Mellon.
waste. Even though leaking water may percolate to a usable aquifer, it must be pumped, treated, stored and usually pumped again to customers,” Smith says.

If the pilot project brings positive results, Smith’s goal eventually would be to have a leak detector available in all parts of the state, possibly through OWRB branches.

**Enid Well Driller Scores First Perfect Grade on State Exam**

Ralph Jerry Richter of the VRV Drilling Company of Enid registered a “first” in Oklahoma last month, scoring the top possible grade on the state-required exam for licensure as a water well driller. It’s the only time a “100” has been awarded since 1973 when the test was instituted.

Richter and 27 other candidates took the test in Oklahoma City on August 20 during the first Oklahoma Water Well Symposium hosted by the OWRB, Oklahoma Water Well Association and the National Water Well Association. Twenty-five of the group became eligible for licensing, bringing the total number of licensed drillers to 144 — up from 98 in January.

Oklahoma law formerly exempted from licensing companies drilling wells for domestic use, but new legislation effective October 1 will require any company or individual drilling wells for compensation to be licensed, whether the water use is municipal, industrial, domestic or other uses.

Duane Smith, OWRB Ground Water Division staff member in charge of the water board’s portion of the event, said the symposium that drew 54 drillers from all sections of Oklahoma benefited both the state and the drillers. The session gave the drillers a chance to become acquainted with state regulations governing their industry and an opportunity to test for licensure.

In addition, the drillers were presented with information to help in their livelihood. A morning program presented by Dr. Wayne Pettyjohn, head of the Department of Geology at OSU, included practical geology and hydrology plus instructions on how to fill out well logs.

Smith pointed out that well logs are the most important data the OWRB has concerning ground water basins.

“Properly filled out, we can tell depth to water, what type of formation the water is in, areas of pollution and a great deal more. Any hydrologic investigation we make begins with an inventory of well logs,” Smith said.

Before taking the test, drillers spent an hour in a question-and-answer period conducted by Smith, asking how state law affected their industry, especially in the enforcement area. The drillers made it clear that they wished to work with the state in maintaining strong regulation as well as in developing a vigorous, comprehensive industry education program.

With more than 200 expected to be licensed before the new law’s effective date October 1, Smith said more such training/testing sessions might be in order.

**ACTIVE CONSERVATION STORAGE IN SELECTED OKLAHOMA LAKES AND RESERVOIRS AS OF AUGUST 20, 1982**

<table>
<thead>
<tr>
<th>PLANNING REGION</th>
<th>LAKE/RESERVOIR</th>
<th>CONSERVATION STORAGE (AF)</th>
<th>PERCENT OF CAPACITY</th>
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<tr>
<td>SOUTHEAST</td>
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<td>Great Salt Plains</td>
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**STATE TOTALS**

|                          | 11,125,220 ³  | 92.8°                  |

1. In initial filling stage
2. Temporarily lowered for maintenance
3. Conservation storage for Lake Optima not included in state total

Data courtesy of U.S. Army Corps of Engineers, Bureau of Reclamation, Oklahoma City Water Resources Department, and City of Tulsa Water Superintendent’s Office.

**New System Collects Instant Rainfall Data**

A contract with the Climatological Survey at the University of Oklahoma will allow the OWRB staff to receive rainfall amounts almost "as it falls", OWRB Executive Director James R. Barnett announced in early

*Continued on page 4*
Mainstream, continued from page 3

August. The Board currently relies on reports from persons reading rain gauges across the state, but the $10,000 pilot project will allow the use of a faster and more comprehensive computer system.

"This is a basic tool for providing surveillance and alert during flash flood situations. With this system, we hope to be able to warn high hazard dam owners of possible problems and provide early technical assistance," Barnett said.

Recreational Facilities Face Budget Axe

Unless local sponsors come forward to share costs, Skiatook Lake may have limited recreational facilities. Corps of Engineers spokesman Jack Thisler says roads, parking, boat ramps, and bathrooms are definitely planned for the area, but Congressional cutbacks may force the deletion of such usual facilities as water taps, fireplaces, picnic tables, shelters, campgrounds and hiking trails. So far, no offers to share in funding have come from the state, the city of Skiatook or private sources. The reduced funding may have similar effects at Copan and Sardis (Clayton) Reservoirs, Thisler says.

Aging Water, Sewer Systems Near Collapse

Many of the nation's city water and sewer systems are on the verge of collapse, according to the new "Good Water America" coalition which has launched a public education program to call attention to what it believes to be an impending national water crisis. The coalition points out that in the next 10 years, 170 of 756 urban areas will be served by water systems 90 or more years old and that in the next 20 years, some 95,000 miles of sewer pipe will have to be installed or replaced.

"America's water delivery and wastewater treatment systems will require a tremendous infusion of effort and funds during the next two decades," says a coalition spokesman.

Illinois Firm Wins Arcadia Construction Bid


The rolled earth embankment which will rise 104 feet above the streambed, will be 5250 feet long and require 2.5 million cubic yards of earth. The job will also require a mile of road, soil-cement slope protection, an uncontrolled spillway 350 feet wide with concrete sill and retaining wall, stone protection, a service bridge to the gate tower, a drain system, instrumentation and turfing. Completion of the Arcadia project is scheduled for 1987.

AUGUST CROP AND WEATHER SUMMARY

Although warm, dry weather permitted continued crop development in all areas of the state, additional rainfall is needed to boost depleted soil moisture conditions. At the end of the month, topsoil moisture supplies were short in 80 percent of the reporting counties, while subsoil moisture was short in 10 percent.

Crops are beginning to show signs of stress due to the hot weather. Corn, sorghum, soybeans, peanuts and cotton were all in very good or good condition but showing signs of stress. Rain was needed to help settle plowed wheat fields as producers apply fertilizer in preparation for planting.

Temperatures averaged near normal in the southwest to three degrees above normal in the central and northeast. For the month, rainfall ranged from over an inch in the Panhandle to .13 inch in the north central.

Oklahoma Crop and Livestock Reporting Service

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STEVE LINDLEY, Writer

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BULK RATE
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Voters’ Approval on SQ 558 Will Boost Water Development

“The key to Oklahoma’s future is water. We have a great opportunity to succeed and set in place the mechanisms to address the most serious problem that looms on the horizon of our State’s future. There is no excuse for delay.”

With those words in his “State of the State” address in January, Gov. Nigh sent members of the Thirty-Eighth Legislature to work, their efforts resulting in the framework of a water development fund in May and a $25 million appropriation to the fund in July. But the words could just as well be directed to citizens of Oklahoma for their consideration November 2, when voters will be asked to approve or reject State Question 558, a constitutional amendment that would clarify the authority of the Legislature to allocate state funds for local water projects.

A quick glance at the $25 million appropriation might lead one to think the legislature already has that authority, as many believe it does. The odd timing of asking voters to legitimize what has already been done resulted from intensive legislative bargaining in May. With some legislators harboring doubts about the constitutionality of the water development legislation before them, a deal was struck; the mechanics of the fund were set up with the passage of SB 145 while SJR 33 directed that a constitutional amendment be submitted to a vote of the people. The $25 million appropriation was added in July’s special session so that the fund would be available if the amendment passed.

A “no” from the voters will stall the program until constitutionality questions can be answered some other way. A “yes” vote will erase all doubts and allow the loan program to forge ahead. OWRB Executive Director James R. Barnett feels an affirmative response would be best for the state.

“Water is an economic issue, one that has direct bearing on Oklahoma’s continued well-being. Failure of the amendment may not be devastating, but it wouldn’t be meeting our needs, either,” he said.

Water, a necessary ingredient for the successful operation of every factory, farm and home in the state, is the virtual lifeblood of cities and municipalities. An emergency transfusion of loan money is necessary to prevent that life from draining away. A January survey by OWRB’s Planning and Development Division identified nearly 400 communities with immediate, short-term water and sewer problems that would require more than $480 million to correct. As the water systems deteriorate across the state, it’s hard to forget Gov. Nigh’s warning to the Legislature that “nothing survives without water.”

Those in favor of the amendment often point to the summer of 1980, when a long stretch of hot, dry weather created water problems statewide. Many localities were pumping water 24 hours a day to keep up with customer demand, leading to frequent breakdowns in pumps and delivery lines. By mid-August, physical damages stood at $2 million, and 362 communities had curtailed their water services.

Even though Gov. Nigh declared a “water emergency,” experts say that probably won’t be the worst Oklahoma sees. Meteorologist and hydrologist Jim Schuelein, chief of the OWRB’s administrative division, said the dry weather experienced during the summer of

Continued on page 2

Financial pressures are being felt most keenly by small and medium-sized towns and rural water districts which lack the funding alternatives available to cities.
1980 didn’t begin to approach the magnitude of droughts Oklahoma suffered during the 1930’s, 1950’s and 1970’s. "Judging from past experience, Oklahoma will undoubtedly experience another serious drought at some time in the future. The only way to mitigate the effects of such a drought is to get our water supplies, treatment plants and delivery systems in good operating condition," he said.

If improvements must be made, who will pay for them? Requests for help are finding fewer takers these days. Historically, the federal government has been the major provider of aid, but that era is ending under the budget-cutting knife in Washington.

Assistant Secretary of the Interior for Land and Water Resources Garrey Carruthers spoke at the Governor’s Second Annual Water Conference last December and told 900 Oklahomans that the responsibility for financing water improvements now rests with the states. Increasing federal debts probably assure that the federal aid situation will worsen rather than improve.

It’s already a gloomy situation. The budgets for the Environmental Protection Agency, Corps of Engineers, Bureau of Reclamation and Soil Conservation Service were reduced, while the Ozarks Regional Commission was eliminated entirely. Most damaging was the diminished funding for the Farmers Home Administration, the main source of water improvement loans in Oklahoma for nearly two decades. In fiscal year 1982, FmHA funds allocated to Oklahoma were reduced to $8.5 million, down from the $14.3 million the year before. Interest on regular loans zoomed from a fixed five percent to a quarterly adjusted 12 to 13 percent.

There is currently a financial assistance program offered by the OWRB under authorization of SB 215, passed in 1979. Under provisions of the legislation, the OWRB is empowered to sell bonds, with proceeds of the sale used as loan money for qualified entities to assist in construction, development and improvement of water resource works. The project itself serves as security for the loan, repayment coming from revenues generated in the water system.

In August, the OWRB issued bonds to finance water improvements in Haileyville, Geary and Eufaula for two years at 9.45 percent interest. Had the Board been able to make the sale under the new program, in which the $25 million serves as security or "collateral," a deal could have been made at a lower interest rate over a longer period of time. Using the $25 million as security for the investment certificates would allow them to have a higher rating in the marketplace, thus lowering the effective interest rate.

"As a result of making the certificates a more secure investment, the applicants would end up paying less, in effect creating cheaper water supplies and sewage treatment facilities," Barnett said.

Perhaps the best way to understand the differences between the existing program and the one a "yes" vote would bring is to look at a hypothetical case. Since the state’s water needs are particularly critical in rural areas and small communities that lack the financial base to make improvements without loan help, consider the example of a system serving 500 customers in need of a $350,000 loan. Under the current program, the system could likely acquire a 25-year loan at 13 percent interest, making yearly payments of nearly $48,000 and monthly payments of almost $4000. Total payment: over the 25 years would be in the neighborhood of $1.1 million.

Using the $25 million as security, the OWRB would be in a position to offer a much better deal. For the same loan of $350,000, the entity could probably acquire 15-year terms at eight percent interest. Annual payments would be just over $40,000, and monthly payments not quite $3,500. The big advantage comes when one looks at total payment, which should be approximately $613,000. In this case, total payment would be reduced by about one-half million dollars by using the newer program—a gold mine for any system.

Loans aren’t the only provision in the new legislation that voters would be approving. There is also an allowance for emergency grants of no more than $100,000 per entity each year. Only the interest accrued on the $25 million may be spent for grants, and that only after approval by the Contingency Review Board composed of the Governor, Speaker of the House and Senate President Pro Tempore.

On November 2, Oklahomans will get their chance to demonstrate a commitment to recognizing and solving the water problems that have plagued Oklahoma for so long.

The fundamental resource upon which our homes, businesses, farms and recreation rely, water is where our future begins.
Competition for Water Intense as Western Water Use Soars

“The demand for water from all sectors is still growing. The water future in the western part of the United States could fairly be characterized by one word, and that word is competition,” says J.A. Wood, OWRB Stream Water Division chief.

Wood’s comments are on-target. Studies have shown that the national demand for fresh water is doubling every 20 years, and competition is expected to be especially sharp in the West, where Oklahoma is one of 17 states that combine to use approximately 80 percent of the nation’s water. It’s the job of Wood and the Stream Water Division staff to make sure Oklahoma fares well in the competition.

Oklahoma is party to four stream water compacts, organizations set up as forums to work out differences arising between neighboring states over waters they share. Oklahoma’s commissioners to the compacts rely on the Stream Water Division to provide them with the background information concerning conservation storage projects, water quantity and water quality data necessary to negotiate with other states in the compacts.

Arkansas and Oklahoma are joined in a compact to equitably apportion the Arkansas River and its tributaries, as are Kansas and Oklahoma; representatives from Oklahoma, Louisiana, Texas and Arkansas compose the Red River Compact; and Oklahoma, Texas and New Mexico are incorporated in the Canadian River Compact Commission.

Although the Governor’s appointees to the four compact commissions have water-related backgrounds, the issues necessarily stray from time-to-time into highly technical matters. Since an OWBRB staff member serves on the engineering sub-committee for each of the compacts, the commissioners have a reliable source for acquiring interpretation of detailed engineering data. As a group, the commissioners also make periodic requests for reports or studies, seeking to determine future quantities of water needed, what water should be covered by compact and what quality of water is available.

“From our standpoint, the primary objective is to see that Oklahoma gets its fair share of water,” Wood says.

Some states claim they don’t always get their fair share, as the legions of interstate water disputes attests to. California, Arizona, New Mexico, Utah and Colorado have all engaged in battles over the waters of the Colorado River, which has been called the most litigated river in the nation. In fact, the amounts allocated to each of the states added to the 1.5,000,000 acre-feet allocated to Mexico by international treaty has led to a situation where the total apportionment is considerably greater than the actual flow of the river.

The method for dividing waters in the compacts Oklahoma belongs to will hopefully prevent that from happening here, Wood points out.

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ACTIVE CONSERVATION STORAGE IN SELECTED OKLAHOMA LAKES AND RESERVOIRS AS OF SEPTEMBER 20, 1982

<table>
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STATE TOTALS 10,351,651 86.4%

1. In initial filling stage
2. Temporarily lowered for maintenance
3. Conservation storage for Lake Optima not included in state total

Data courtesy of U.S. Army Corps of Engineers, Bureau of Reclamation, Oklahoma City Water Resources Department, and City of Tulsa Water Superintendent’s Office.

“The mechanics of how they accomplish it vary, but all the compacts have the same goal—to insure that states upstream and downstream all receive their just allotment.”

The scarcity of water sometimes creates passions which make it a difficult and delicate matter to apportion it. It’s not surprising, then, that compact commissions almost always state as their purpose the intention to “promote interstate harmony” and “remove causes of present and future controversy.”

Continued on page 4
Competition for Water, continued from page 3

Even though Oklahoma has been involved in some disputes over water under the jurisdiction of the compacts, Wood says he wouldn’t want to apportion interstate water without them.

“The compacts don’t alleviate tensions, but they do provide a forum through which they can be addressed and resolved. Without compact commissions, every time there was a conflict the only recourse would be the courtroom. With the compacts, we have a standing body to use in protecting our interests.”

**Governor’s Water Conference Set December 7**

Gov. George Nigh and President Reagan’s top water policymaker, William R. Gianelli, will be featured speakers at the Governor’s Third Annual Water Conference scheduled for December 7 at the Hilton Inn West in Oklahoma City. “Meeting the Challenge” is the theme chosen for the conference, which is expected to attract more than 800 attendees.

Gianelli, Assistant Secretary of the Army for Civil Works, will help Oklahomans define the answers to water problems by presenting the Administration’s perspective of federal water programs. Recounting California’s successes in water conservation will be luncheon speaker Ronald B. Robie, director of the California Department of Water Resources.

Individuals or organizations can request further information by calling (405) 271-2581.

**Bureau Appoints Wright Regional Planner**

Oklahoma City native Gerald L. Wright has been appointed regional planning officer for the Bureau of Reclamation’s Southwest Region, Regional Director Gene Hinds announced in late September. Wright will supervise the extensive planning studies necessary for development of the water, power and related land resources through the construction of multiple-purpose public works projects.

The Southwest Region is composed of Oklahoma, Texas, New Mexico and portions of Colorado and Kansas.

**SEPTEMBER CROP AND WEATHER SUMMARY**

Accumulations of up to four inches of rain received in scattered showers in parts of the state substantially improved crop conditions late in the month, although dry weather continued in the northwest and in parts of the east. Rainfall amounts by region ranged from .38 inch in the Panhandle to 1.62 inches in the southwest. Only 20 percent of the reporting counties rated topsoil supplies adequate, while subsoil moisture supplies were adequate in 55 percent of the counties.

Although little rain was received in the Panhandle, cool temperatures helped advance crop development, particularly corn and sorghum. Soybeans, peanuts and cotton were mostly in fair condition across the state at the end of the month, and alfalfa was in good to fair condition.

Pastures and ranges were in good shape with grass supplies adequate to surplus in 85 percent of the counties. Cattle and livestock were in good condition with no major parasite activity reported.

Temperatures for the month averaged four degrees below normal in the Panhandle to one to four degrees above elsewhere.

_Oklahoma Crop and Livestock Reporting Service_
Nigh to Host National Experts at Governor's Water Conference

No matter what your question regarding the state's water resources, you’re likely to find an answer at the Governor’s Third Annual Water Conference in Oklahoma City on December 7.

Gov. George Nigh will introduce the conference theme, “Meeting the Challenge,” and set the stage for national speakers in his morning keynote address. The day-long seminar at the Hilton Inn West will assemble some of the nation's brightest water resources luminaries to assess Oklahoma's options in replacing diminishing federal dollars.

If your question concerns federal water programs and funding, your answers may come from Assistant Secretary of the Army for Civil Works, William R. Gianelli, the Reagan Administration’s top water policymaker. His illustrious career in water resources is distinguished by his directorship of the California Department of Water Resources during construction of the initial features of the $2.5 billion California State Water Project. Gianelli will update Oklahomans on federal cost-sharing proposals, and he is expected to bring to the conference innovative strategies states and localities could use in lieu of dollar contributions to cost-shared projects.

If your inquiries concern water quality, there's a good chance answers will come in an address by Frederic A. Eidsness, assistant administrator for the EPA's Office of Water. Eidsness is responsible for administering the Clean Water Act and the Clean Drinking Water Act, a role in which he must manage a multibillion-dollar sewage treatment program, direct the development of national guidelines to control industrial discharges of pollutants into the nation's waters and oversee drinking water programs to protect the public health. Eidsness will brief conferees on recent sweeping changes in EPA regulations that gave states more flexibility in meeting goals of the Clean Water Act by allowing them to set water quality standards on a site-specific basis, according to local needs.

Responses to state issues will likely come in the text of a speech by Glenn H. Sullivan, former OWRB assistant director who is presently principal water resources engineer and executive vice-president of the Benham Group, an international engineering consultant firm.

The luncheon speaker, Ronald B. Robie, executive director of the California Department of Water Resources, will brief conferees on the “exportable” portions of California's innovative and highly successful water conservation program. Termed by Gov. Nigh, “the country’s number-one water conservation expert,” Robie led in the development of a long-range conservation plan which is expected to save California as much as 1.5 million acre-feet of water annually by the year 2000.

Sharing the luncheon program with Robie will be Senate President Pro Tempore Marvin York and House Speaker Dan Draper, who will preview prospective water action in the 1983 Legislature.

Recognizing that more than 60 percent of Oklahoma's total water use is ground water and that many questions

Continued on page 4
Governor’s Water Conference
December 6 Early Bird Reception, 6:30-8 p.m.
in the Gazebo, Hilton Inn West

AGENDA - December 7

8 a.m. Registration, Coffee
9:00 Opening Remarks - Conference Chairman
9:15 Keynote Address
   The Honorable George Nigh
9:45 The Administration’s Perspective of Federal Water Programs
   William R. Gianelli, Assistant Secretary
   of the Army for Civil Works
10:30 New Responsibilities for Oklahoma
   Glenn H. Sullivan, P.E., Executive
   Vice-President, The Benham Group
11:00 The Changing Roles and Duties of the EPA
   Frederic A. Eidsness, Jr., Assistant
   Administrator, Office of Water,
   U.S. EPA
12:00 Luncheon Program
   Governor George Nigh
   The Honorable Marvin York,
   President Pro Tempore, Senate
   The Honorable Don Draper,
   Speaker, House of Representatives
   Conservation - California’s Hottest Export
   Ronald B. Robie, Director, California
   Department of Water Resources
2-4 Concurrent Sessions
   Water for Agriculture
   Water for Commerce and Industry
   Public Water Supply
   Water Awareness
4:15 Cracker Barrel Session
   Cheese and Crackers and an opportunity
   to visit with panelists and speakers and
   have your questions answered in a relaxed
   atmosphere “around the cracker barrel.”
5:30 Adjourn

Roy Smaltz of Cushing Keeps Water-Witching Art Alive

For two weeks last summer, Roy Smaltz and approximately 100 others represented Oklahoma at the Smithsonian Institution’s Festival of American Folk Life. His specialty is an art brought to Oklahoma by early settlers from England: water-witching.

As a young boy on the Oklahoma prairie shortly after the turn of the century, Roy Smaltz stood by with no little amount of curiosity watching a man hired by his father walk purposefully back and forth across his family’s land, systematically covering the area. In his outstretched hands was a y-shaped tree branch.

The man, of course, was practicing the centuries-old art of “water-witching,” a means used by many a pioneer for years to detect water under the flat, sandy land.

“I have to admit it. I was a skeptic,” Smaltz says.

His skepticism lasted until the mid-1930’s, when Smaltz’s brother-in-law suddenly thrust a switch from a

Tools of the trade for Smaltz are a forked elm branch, a couple of mineral-laden rocks and bottles containing oil, saltwater and clear, sweet ground water.

REGISTRATION

Please clip and mail to:
Governor’s Water Conference, Oklahoma Water Resources Board
Post Office Box 53585, Oklahoma City, Okla. 73152

Name ___________________________________________ Address ________________________________
City____________________________________________ State______________ Zip.__________
Title/Organization ________________________________________________________________

Conference registration costs $15 if paid in advance; $20 on the day of the Conference. Please make check or money order payable to the Governor’s Water Conference. No refunds after November 29, please.

I will attend the December 6 Early Bird Reception □
CONCURRENT SESSIONS — Check one:
   Water Awareness □ Water for Agriculture □ Public Water Supply □
   Water for Commerce and Industry □
"My feeling is that it's a gift. Some people can write and some people can paint. Some can preach and some can teach. My talent for finding water is a gift like all those others," says Roy Smaltz.

pinion tree into his hands and told him to "walk over thataway."

"The darn thing just went down, so hard I could hardly hold it. It frightened me," Smaltz recalls.

From that point on, Smaltz was a confirmed believer in and avid practitioner of water-witching. In the half-century that has followed since his first hands-on experience, Smaltz has added geology studies and some downhome reasoning-out of the phenomenon to his power in the successful witching of 150-200 wells in a rough 150-mile radius from his Cushing home.

Now 82-years old, Smaltz says that in all his years of water-witching he has only had wells come up dry four or five times.

"But then, I've been successful where others have failed, too," Smaltz maintains.

There is subtlety in his methods for locating water, somewhat in contrast to the style employed by some earlier dowsers who worked their trade in the late 1800's for settlers on the prairie. Usually colorful folk, those blessed with the gift would walk along the land holding a forked branch. At some point, the rod would dip toward the ground, and the diviner would begin to chant, pass into a trance, have muscular spasms or simply say, "Here's the water," depending on his or her personality.

What kind of style does Smaltz have?

"I don't have any. I just go out there and find water and I'm thankful for it. It always thrills me to be able to do it. I get a real joy from it," he says.

He cannot only find water, but he can also tell how deep it is and if it's of good quality. A 4-ounce glass medicine bottle filled with water and suspended from a length of chain begins to slowly swing in circles when held over the source of the water. Each oscillation equals one-foot of depth. Another bottle filled with saltwater shows a similar attraction if the water is degraded by salt.

The nature of the talent for water-witching is mysterious. Smaltz has no relatives who share the power and acclims that he knows only one or two other people with the aptitude for water-witching.

"You don't learn. You either have it or you don't. I don't know if it's something in your body that does it or just what. Nobody can explain it."

### ACTIVE CONSERVATION STORAGE IN SELECTED OKLAHOMA LAKES AND RESERVOIRS AS OF OCTOBER 15, 1982

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**STATE TOTALS**: 10,118,119^1  84.0^1

^1. In initial filling stage
^2. Temporarily lowered for maintenance
^3. Conservation storage for Lake Optima not included in state total

Data courtesy of U.S. Army Corps of Engineers, Bureau of Reclamation, Oklahoma City Water Resources Department, and City of Tulsa Water Superintendent's Office.
Aquifer restoration and ground water rehabilitation have come further than many are aware, Lehr hints while pointing to cases of successful "in situ" treatments with neutralizing chemical injections and with biologically activating nutrient injections. Lehr will speak in an afternoon session of the Governor’s Water Conference Dec. 7.

**OCTOBER CROP AND WEATHER SUMMARY**

Fair weather has left most crops across the state in fair condition at mid-month, but rain is needed to make up for below average precipitation. Harvest of most field crops was aided by dry, warm weather, but moisture is needed for the development of fall-seeded small grains and late-planted row crops. More rain is also needed in most areas for good growth of wheat that is already up-to-stand.

Winter oats and barley were in fair condition in all areas of the state, with corn and sorghum mostly in good condition. Lack of moisture continued to hurt the maturing of late-planted sorghum, particularly in the west. Cotton, peanuts and soybeans were generally in fair condition as some cotton and soybean growers waited for a killing frost to begin harvesting in volume.

Pastures and ranges were also in fair condition, but in need of more moisture for grasses to last through the winter months. Topsoil moisture supplies were rated short in 70 percent of the reporting counties, while subsoil moisture supplies were rated short in 55 percent.

At mid-month, temperatures ranged from nine degrees below average in the Panhandle to four below in the northeast.

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**Ground Water Cleanup Possible**

The maxim that ground water once polluted is lost forever may not be true, according to National Water Well Association Executive Director Dr. Jay Lehr. Lehr, writing in the October edition of the Water Well Journal, says that many talented people are actively cleaning up or immobilizing ground water pollution with great success but "little fanfare."

This monthly newsletter, printed by the Central Printing Division of the State Board of Public Affairs, Oklahoma City, Okla., is published by the Oklahoma Water Resources Board as authorized by James R. Barnett, executive director. Ten thousand copies are printed and distributed monthly at an approximate cost of 20 cents each.

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