



# OKLAHOMA

## water news

MONTHLY NEWSLETTER OF THE OKLAHOMA  
WATER RESOURCES BOARD

Gerald E. Borelli, Chairman

Earl Walker • L.L. Males • Bill Secrest, Jr. • Ralph G. McPherson • Gary W. Smith • Ernest R. Tucker • Robert S. Kerr, Jr. • R.G. Johnson

## Hometown to Salute Red Males on July 7 "Appreciation Day"

On Saturday, July 4, L.L. Males' hometown of Cheyenne will turn out to celebrate "Red Males Day," their salute to an outstanding Oklahoman who has spent most of his life championing soil and water conservation. Expected to join the citizens of Cheyenne at the day-long celebration will be hundreds of guests from throughout the state.

Males, senior member of the Oklahoma Water Resources Board with 27 years continuous service, is the lone active member of the original Board created in 1957.

The industrious farmer-banker who has spent most of his life in Roger Mills County says, "As a young man in the early thirties, I could look out the window of the Strong City bank and see the fertility of our farms floating down the streams and our soil being carried away on the wings of the wind. It didn't take much



L.L. "Red" Males, long-time conservationist and OWRB member, and his wife, Lorena, musician, teacher, advocate for the arts, will be honorees at Cheyenne on July 7. At Red Males Appreciation Day, the town's citizens and guests will pay tribute to the couple who made enormous contributions to the culture and well-being of western Oklahoma.

imagination to see our schools, churches, homes and the bank going the same the way."

Males says he thought first only of soil conservation, but learned quickly that water conservation must be a partner in any effort to protect the land. He witnessed the devastation of repeated floods on the Washita River and the poverty and desperation of the Dust Bowl, and he was inspired to write a letter to the *Oklahoma Farmer Stockman*. In a letter written in 1934, he asked the rural newspaper how he and the bank could work in abating the wastes of soil and water wrought by nature.

In 1935, the bank was moved from Strong City to Cheyenne and Males was named its president, a title he holds today. It was about this time that upstream flood control caught the imagination of the young banker. A Spring storm had unleashed 11 inches of rain in the watershed and neighboring tributaries that caused the loss of 17 lives near Hammon.

"That gave us the impetus for the program," says Males. "Scores of homes were washed away, hundreds of livestock drowned and all the roads and railroad

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## Water Question to be on August Ballot; Back it with Your Yes

It is official!

The Oklahoma Legislature approved a joint resolution to let Oklahomans vote on adding a new section to the State Constitution. The addition of Section 39 to Article X would authorize use of the Statewide Water Development Revolving Fund and the Water Resources Fund to implement a financial assistance program for water and sewer improvements.

The measure recommending the water question be brought before the people in the August primary election was supported so strongly that the vote was unanimous in the House and just three short of unanimous in the Senate. Additionally, it was lauded by Gov. Nigh and Senate and House leadership.

Voters' "Yes" to the State Water Question (yet to be assigned a number) on August 28 would allow the Oklahoma Water Resources Board to use the Statewide Water Development Revolving Fund and Water

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bridges were gone. Yet the greatest loss to our river valley was the loss of the soil."

With the aid of the U.S. Department of Agriculture, Males and his neighbors initiated the Sandstone Creek Upstream Flood Control Project, the first of its kind in the nation. Upon its completion, visitors from every nation in the world came to see it, and Males traveled hundreds of thousands of miles speaking to people on their watersheds. "I took slides with me and spoke to all who would listen. I went to Kansas enough to be a voter up there!"

For his dedication in ramrodding the Sandstone Creek Project, the National Watershed Congress selected him the recipient of its first Watershed Man of the Year Award in 1959. Males has served as advisor to presidents and governors, has won every honor in soil and water conservation and has been recognized by his peers in state and national banking associations.

A cherished award is a plaque given by his friends and neighbors in Cheyenne, engraved "Presented to L.L. 'Red' Males in recognition of unselfish devotion to the City of Cheyenne, Roger Mills County, the State of Oklahoma, and to his Nation, in initiating the World's First Upstream Flood Prevention Project — Sandstone Creek — and in building a better tomorrow."

Males says, "Our community is so proud of the Sandstone Creek Project we put up a sign. We claim we are the first in the world and nobody disputes it, so we go ahead claiming it."

If Red Males' energy and dry sense of humor set him apart, there is another in the matched set — his wife Lorena. Pianist, performer, music teacher and advocate for the arts, Lorena has made enormous contributions to the culture of western Oklahoma. She met and married Males early on in their careers in Strong City, then made the move to Cheyenne. While Mrs. Males taught in the Cheyenne school system, her students won award-after-award in state music competitions, and performances for the homefolks found Lorena at the piano "showing off her kids," as she says. Teaching, encouraging, working with children, she assembled touring casts of plays and musical programs.

And the beat goes on. Today, she gives piano lessons to dozens of children each week, many of whom are the children of earlier students. Music and the children are her delight. Lorena is fond of saying, "When I leave this old world, I hope I am with a student sitting on the piano bench. It will probably scare the poor child, but that is how I want to go!"

She is the organist at the United Methodist Church in Cheyenne, director of Security State Bank, member of a touring cast of entertainers called "The Oklahoma Skit," civic leader and grandmother of five.

Red Males Appreciation Day is just about the only honor that had not yet been bestowed upon the Maleses, and organizers are quick to point out that their tribute is directed to *both* Lorena and Red. To round out the day, the citizens of Cheyenne will rename Main Street. Beginning with a ribbon-cutting ceremony July 7,



On July 7, a new sign will declare that Cheyenne's Main Street is now L.L. Males Avenue.

the street that runs through the heart of Cheyenne and right outside the window of Males' bank, will be called L.L. Males Avenue.

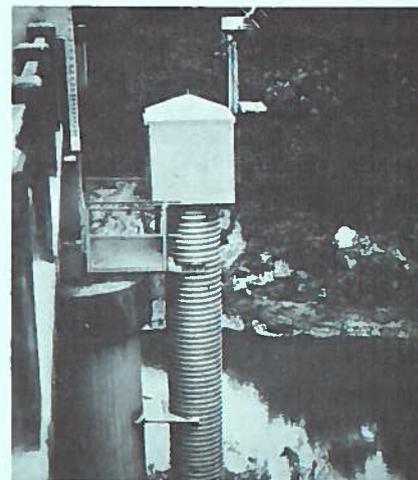
According to Judge K.C. Perryman, who is coordinating the event, the celebration will include a "shirttail" parade; a noon barbecue for 2500 at the fairgrounds; open houses at the bank, library and museum; speeches, street music, drawings for prizes, playday rodeo, a dance that evening and a special edition of the *Cheyenne Star* newspaper.

More information on Red Males Appreciation Day is available by calling Judge Perryman in at (405) 397-3359.

## USGS Gages Guide Board in Planning, Allocating Water

How much water is "a lot of water under the bridge?" Chances are, the U.S. Geological Survey can tell you. This information and much more is available from the USGS, proprietors of the network of 204 gages which has furnished streamflow data since 1899. The records, complete for most of the 85-year period, detail for scientists and permit writers the flow characteristics of any monitored stream.

The Oklahoma Water Resources Board bases allocations of stream water on such information, specifying to each permit holder just how much of the stream's contents he may use and for what term. Without such historical background, fair appropriation would be an unmanageable task, according to J.A. Wood, Stream Water Division chief.



Scores of stream gages enclosed in protective housing and suspended from bridges throughout the state provide continuous data on water quality, volume of flow and sediment content. Such gages are the bases for allocation of water.

USGS data is also critical to the fair division of waters shared by two or more states in interstate stream compacts. Federal construction agencies such as the Corps of Engineers and Bureau of Reclamation consider sedimentation information from the gages in planning reservoirs and projecting their lifespan. The Corps of Engineers operates its own system of water quality, sediment, flow and flood control gages. Verl Parney of the Corps' Tulsa Office, says their major interest is flood control.

The OWRB also uses USGS gaging data in monitoring water quality, planning new water supplies, projecting quality of proposed reservoirs and determining areas of safe development along streams, based on historical records of flood flows.

Some of the data is collected using a "real time" system, in which the USGS computer requests information via a satellite in a fixed orbit. The satellite sends an electronic signal to a selected gaging station, which relays the information back to the satellite, then down to the computer. Data gathered in this manner is only seconds old, hence the term, "real time."

L.D. Hauth, USGS section chief who oversees the program in the state, says other information is harvested from the gages by hand by 15 field technicians who also maintain the gages. The technicians make their rounds monthly, more often if vandalism disables a gage.

Information from the stream gaging network is now available to the OWRB by telephone within two hours, although a new computer system soon will allow instant access.



### New Study Compares Tulsa, OKC Water Use

A 3-month study comparing water use in Tulsa and Oklahoma City and the factors that influence water use will soon be available in printed form, according to Richard Cochran, OWRB Tulsa Branch manager, who accomplished the study with Planning Specialist Art Cotton.

The purpose of the study is to give city planners a reliable tool in predicting how much water treatment capability will be needed to keep up with expanding populations. The factors thought to affect water use were rainfall, temperature, cost per 1000 gallons, individual income and population density.

A computer analysis of data collected in the survey shows that environmental factors (temperature and rainfall) have little effect on consumption of treated water; water use rises with per capita income; water use decreases as population density increases; and as cost of water increases, use decreases in Oklahoma City but increases in Tulsa.

Cochran says a surprising statistic generated by the study showed that in terms of 1961 dollars, cost of water per 1000 gallons has decreased in Oklahoma City from

### ACTIVE CONSERVATION STORAGE IN SELECTED OKLAHOMA LAKES AND RESERVOIRS AS OF MAY 15, 1984

| PLANNING REGION<br>LAKE/RESERVOIR | CONSERVATION<br>STORAGE (AF)  | PERCENT OF<br>CAPACITY  |
|-----------------------------------|-------------------------------|-------------------------|
| <b>SOUTHEAST</b>                  |                               |                         |
| Atoka                             | 107,600                       | 86.7                    |
| Broken Bow                        | 918,100                       | 100.0                   |
| Pine Creek                        | 77,369                        | 99.6                    |
| Hugo                              | 157,600                       | 100.0                   |
| <b>CENTRAL</b>                    |                               |                         |
| Thunderbird                       | 105,258                       | 99.4                    |
| Hefner                            | 71,000                        | 94.2                    |
| Overholser                        | 15,600                        | 98.1                    |
| Draper                            | 70,700                        | 70.7                    |
| <b>SOUTH CENTRAL</b>              |                               |                         |
| Arbuckle                          | 62,571                        | 100.0                   |
| Texoma                            | 2,504,800                     | 95.0                    |
| Waurika                           | 203,100                       | 100.0                   |
| <b>SOUTHWEST</b>                  |                               |                         |
| Altus                             | 67,104                        | 50.5                    |
| Fort Cobb                         | 78,423                        | 100.0                   |
| Foss                              | 155,990                       | 64.0 <sup>2</sup>       |
| Tom Steed                         | 80,787                        | 90.8                    |
| <b>EAST CENTRAL</b>               |                               |                         |
| Eufaula                           | 2,329,700                     | 100.0                   |
| Tenkiller                         | 627,500                       | 100.0                   |
| Wister                            | 27,100                        | 100.0                   |
| Sardis                            | 265,200                       | 100.0                   |
| <b>NORTHEAST</b>                  |                               |                         |
| Eucha                             | 79,567                        | 100.0                   |
| Grand                             | 1,491,800                     | 100.0                   |
| Oologah                           | 544,240                       | 100.0                   |
| Hulah                             | 30,594                        | 100.0                   |
| Fort Gibson                       | 365,200                       | 100.0                   |
| Heyburn                           | 6,600                         | 100.0                   |
| Birch                             | 19,200                        | 100.0                   |
| Hudson                            | 200,300                       | 100.0                   |
| Spavinaw                          | 30,000                        | 100.0                   |
| Copan                             | 43,400                        | 100.0                   |
| <b>NORTH CENTRAL</b>              |                               |                         |
| Kaw                               | 428,600                       | 100.0                   |
| Keystone                          | 616,000                       | 100.0                   |
| <b>NORTHWEST</b>                  |                               |                         |
| Canton                            | 97,500                        | 100.0                   |
| Optima                            | 3,870                         | ---                     |
| Fort Supply                       | 13,900                        | 100.0                   |
| Great Salt Plains                 | 31,400                        | 100.0                   |
| <b>STATE TOTALS</b>               | <b>11,923,803<sup>1</sup></b> | <b>96.9<sup>1</sup></b> |

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.

56 cents in 1961 to 27 cents today and in Tulsa from 38 cents in 1961 to 16 cents in 1984.

### 1983 Annual Report Ready for Distribution

The Report of 1983 Activities of the Oklahoma Water Resources Board is completed and available for distribution to citizens interested in the Board's operations, Executive Director James R. Barnett announced.

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The report is available without charge by writing OWRB offices at P.O. Box 53585, Oklahoma City, 73152, or by calling the Oklahoma City office at (405) 271-2555.

### **Moffitt to Serve Again as Commissioner**

Governor George Nigh recently announced the re-appointment of John Moffitt of Ft. Gibson to a 4-year term as one of three commissioners representing Oklahoma interests on the Oklahoma-Arkansas Arkansas River Compact Commission. James R. Barnett, OWRB executive director, is designated by state law as a commissioner, with Dr. Lloyd Church of Wilburton completing the state's representation.

The Oklahoma-Arkansas Arkansas River Compact Commission is an agreement between the neighboring states of Oklahoma and Arkansas which apportions interstate waters, defining precisely how much water can be used by each state.

### **What Happens When a Lake "Turns Over"?**

If you live in a city, you are signaled the change from winter to spring by warm temperatures and the greening of plants. Residents of rural or lakeside areas, however, witness yet another phenomenon of the new season—the "turning over" of lakes and ponds. And as surely as the birds fly south in the winter, this same circulation recurs in the fall, twice each year bringing to the waters a distinct murkiness, flavor and odor.

When the sun warms the surface waters to about 39.2° F, the lake takes a deep breath, mixing the waters that have been stratified by temperature all winter. The oxygen-rich top water, made heavier by warming to 39.2° F, sinks to the bottom. Winds on the surface,

convection currents set up by night cooling and evaporation also contribute some energy to circulating the entire column of water. After this spring circulation, the waters re-stratify, the upper stratum (epilimnion) composed of warm, fairly turbulent water; the bottommost layer of cold, undisturbed water; and the two separated by a zone of steep temperature gradient called the thermocline.

In the fall, with the onset of cooler weather, the temperature of the surface waters drops until it is the same as that of the bottommost waters (hypolimnion). Then the water of the entire lake begins circulating and oxygen is returned to the depths.

*State Question, continued from page 1*

Resources Fund as the legislature originally intended—to help cities, towns and rural water and sewer districts build or improve facilities by making loans available to those entities at affordable interest rates.

"Yes" would put to rest all questions concerning validity of the program mandated by the legislature in 1982 and funded with a one-time appropriation of \$25 million. Without costing the citizens of Oklahoma a dime, it would put back on track the means of solving problems caused by enormous cutbacks in federal funding. The "Yes" vote to adding Section 39 to the Constitution would limit the state's liability in the loan program to money reserved specifically for such purposes in the Statewide Water Development Revolving Fund.

It would create for all time the sound and responsible means for the Oklahoma Water Resources Board to address the problems of Oklahoma's cities, towns and rural water and sewer districts.

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### **OKLAHOMA WATER NEWS**

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