



OKLAHOMA

water news

MONTHLY NEWSLETTER OF THE OKLAHOMA
WATER RESOURCES BOARD

Gerald E. Borelli, Chairman

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

Cold Greet Board Field Staff in Well Measurement Program

The January cold born in the Arctic lays its mantle on the western mountain ridges then marches onto Oklahoma's High Plains with winds that slice across one's face with the intensity of a razor cut. A pump that watered lush, warm fields a summer ago stands sentry over the pinched winter landscape.

The white pickup with the blue insignia is the only intruder on the frozen stubble. A bundled lone figure gets out to hover near the silent pump, reeling out then in a hundred feet or more of steel tape, and is gone again. Over and over that day the scene will be played in the Panhandle, and a similar scene will play out more than a thousand times across the state before the end of March.

It's part of the OWRB Ground Water Division annual well measurement program, accomplished cooperatively with the U.S. Geological Survey. Data gathering begins each January when irrigation has ceased for the season and water levels drawn down by heavy pumping are restored to normal.

Depth-to-water measurements are taken by feeding a steel tape down the pipe of an observation well or through the access port provided on the pump base of an active well. Blue chalk applied to a section of the tape marks the zone where past years' records indicate a likely water level. Where the tape encounters water, the chalk darkens. The depth-to-water below land surface is determined by subtracting the length of the wet zone on the tape from the total footage lowered into the well. In the hands of an OWRB veteran, the procedure may require 10 minutes or less.

According to Duane Smith, OWRB Ground Water Division chief, 1985's effort began on January 7 when three of the Board's Oklahoma City staff took to the Panhandle and western counties underlain by the Ogallala Aquifer. Hydrologists Dannie Spiser and Gary Glover measured wells in the Panhandle counties, while Geologist Norma Aldridge worked four other counties which draw water from the Ogallala — Ellis, Harper, Woodward and Roger Mills. Spiser, Glover and Aldridge were joined in the field by personnel of the USGS.

Before the program winds down at the end of March,

some 1550 wells will have been measured representing all major ground water basins in all 77 counties. "Since there is greater concern about possible depletion of the Ogallala, more wells are measured per county in that area than anywhere else in the state," Smith pointed out. He said water levels are gauged in 93 wells in Cimarron, 142 in Texas County, 80 in Beaver and 129 in Ellis — counties almost entirely underlain by the giant basin.

Indeed, the massive Ogallala stretching for 800 miles under part of Oklahoma and seven other states, is a critical water source. Earlier, the world's largest aquifer seemed inexhaustible with some 650 trillion gallons of fresh water available. Today, in the 8-state area, more than 200,000 high-capacity wells drain it. National water experts monitoring the Ogallala point with alarm to drops of 10 to 15 feet in the water table over a vast 60,000 square mile area. Although Oklahoma's figures are cause for concern, perhaps they're not as bleak as those registered in other areas of the aquifer.

Oklahoma, with an estimated 2500 wells in the Ogallala, in the 1983 well measurement survey registered declines greater than 80 feet in some heavily pumped areas near Guymon.

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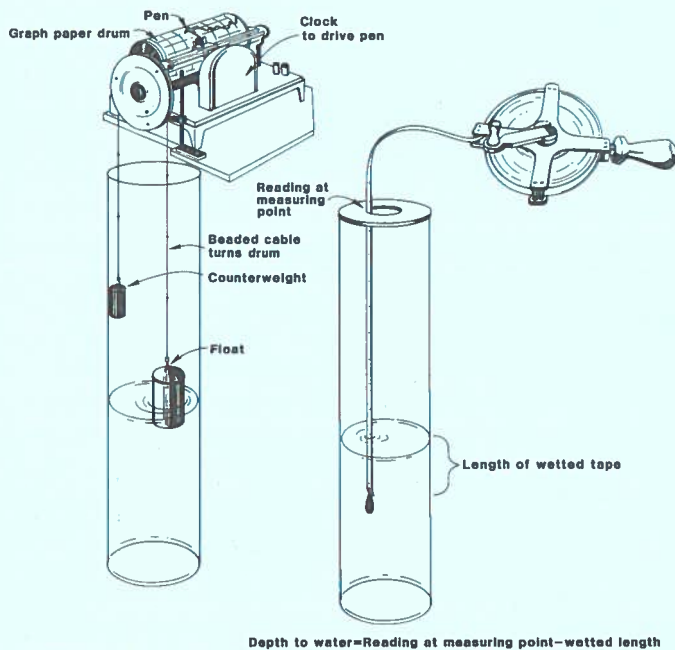


Dannie Spiser, OWRB senior hydrologist and 33-year veteran of the OWRB-USGS cooperative well measurement program, measures a well in central Oklahoma's Logan County.

Well Measurement, continued from page 1

Once the hundreds of wells in the Ogallala were measured by OWRB-USGS teams, the effort spread across the state, bolstered by personnel from OWRB branch offices in Lawton, Tulsa and McAlester. In all, four from the Oklahoma City office, four from Tulsa, two from Lawton's branch and one from the new McAlester office will measure wells in their regions.

The wells which make up the measurement network include typical wells used for irrigation, municipal and industrial water supplies and domestic purposes, as well as some unused wells constructed solely for observation purposes. In addition to wells measured by hand, 37 wells are equipped with continuous recorders which print hydrographs to feed into the final tally.



On the right, a steel tape used by the OWRB in calculating depth-to-water readings. Such a device can be read with an accuracy of about .005 foot. Left, a mechanically actuated drum recorder that can record water-level changes of less than .001 foot. Its clock-driven pen produces a hydrograph on paper on the drum.

Statewide water level data have been collected in Oklahoma by the USGS since 1937, with the OWRB enlisting as a cooperator in the program in 1950. Information collected by the Board and the USGS is summarized in a report as soon as possible after the close of the water year. Unlike the calendar year, the water year begins on April 1 and ends March 31, and is designated by the calendar year in which it ends. Thus, it is the close of the water year on March 31 which dictates the Board's deadline in completing the survey.

Ground Water Division Chief Duane Smith says the program provides valuable information on fluctuations in the water table, helps in assessing the amount of water stored for future use, predicts trends in water use and results in a published long-term continuous record. Additionally, Smith points out, the owner or user of any well measured in the program is provided depth-to-water information each year, printed on a waterproof tag wired to the well.

For several more weeks, Board staff will be in the field

while the wind blows and frost crisps the stubble underfoot. Huddles of cattle will watch the white trucks and droop before the winds that skim over their backs. From these weeks in the field will come the most complete information available on Oklahoma's ground water supplies, a well-by-well record bound in a volume an inch-and-a-half thick.

Stream Water Rights Review Continuous Process at OWRB

A review of 7304 stream water rights since 1976 has resulted in reduction or cancellation of 2756 permits, making available a total of 1,688,166 acre-feet of water annually for reappropriation by the Oklahoma Water Resources Board.

J.A. Wood, Stream Water Division chief, said each permit is reviewed on a continuous 7-year cycle or in accordance with a schedule of use approved by the Board. At each review, the OWRB must ascertain that the permit holder has met the requirements of the law regarding stream water use. If a permittee uses only a portion of the water authorized under a water right which has no schedule of use for any continuous 7-year period, the total authorized is reduced to the maximum amount of water used during any continuous 7-year period. If none of the authorized amount was used during that period, the water right is cancelled. The water freed by the review procedure becomes available for reappropriation.

Last year, 1804 water rights were reviewed, resulting in the reduction of 144 water rights and the cancellation of 118. A total of 13,924 acre-feet was made available to other applicants.

According to Wood, there are stream systems and reservoir areas in the state where the demand greatly exceeds the available supply.

Ninety-four new regular permits for stream water use were approved by the Board in 1984, appropriating 21,776 acre-feet. Short-term provisional temporary water rights totaled 106, allocating 1850 acre-feet of water.



SMU Slates Waste Management Workshop

A workshop addressing the sources and origins of potential ground water contaminants and techniques and alternatives for their control will be held on the campus of Southern Methodist University, Dallas, Texas, on March 26-28. One day of the 3-day workshop will be devoted to legal and regulatory aspects of hazardous waste disposal and its relation to ground water protection and monitoring, including discussion of Resource Conservation and Recovery Act (RCRA) regulations.

The workshop is intended for both the practitioner engaged in development and evaluation of hazardous waste sites and the manager responsible for operation and utilization of such waste sites. Registration costs \$190 for the 3-day workshop, \$130 for the single day (March 27) devoted to legal and regulatory aspects.

For further information, please write to Dr. Michael A. Collins, Workshop Director, Center for Urban Water Studies, School of Engineering, Southern Methodist University, Dallas, Texas, 72575, or call (214) 692-3061.

"Tourism Work\$" is Theme February 17-19

The 13th Annual Governor's Conference on Tourism and Recreation will be held February 17-19 at Oklahoma City's Skirvin Plaza Hotel. This year's theme is "Tourism Work\$ for Oklahoma."

Highlights will include addresses by Gov. George Nigh and Donna Tuttle, Under Secretary of Commerce for the U.S. Travel and Tourism Administration in Washington, D.C.; a Sunday evening Legislative Reception and Appreciation Dinner and two full days of Seminars February 18-19.

Two days' registration and Conference luncheon costs \$40 in advance or \$45 at the door, and the Legislative Reception and Dinner costs an additional \$25. For more information on the Annual Governor's Conference on Tourism and Recreation, call Whit Edwards at (405) 521-3411.

Nigh Inspects Progress on Tar Creek Cleanup

On February 1, Gov. George Nigh visited sites in the Picher Mining District where remedial activities are underway, supervised by the Tar Creek Task Force and the IT Corporation, the engineering firm overseeing the cleanup. The governor inspected some of the 10 wells already plugged in the project and watched logging and well clearing operations. He said he was impressed with the remarkable progress in the area — a model of cooperation between state, federal and local organizations.

Earlier, studies by the Task Force and consultants identified 66 abandoned water wells — 40 in Oklahoma and 26 in Kansas — as major contributors to the pollution. Part of the cleanup strategy included clearing, cementing and sealing the old wells, an effort scheduled for completion by October.

Ron Jarman of the OWRB, who co-chairs the Governor's Tar Creek Task Force, said the plugging is a major step in solving the pollution problem. A companion strategy proposed by the Task Force to prevent further accumulation of acid mine water was the design and construction of dams and dikes to divert surface flows from points allowing access to the vast mine caverns.

According to Jarman, engineers from Black and Veatch, the firm hired to design and construct the diversion structures, have made preliminary surveys of the area and planning is underway. Costs of the cleanup are provided by a match of state money and federal Superfund money.

Board Program Makes Four Grants

In ceremonies at the Capitol January 29, Gov. Nigh presented checks to four Oklahoma communities to make emergency sewer and water improvements. Funding for the grant program administered by the OWRB is provided by interest earnings on the \$25 million Statewide Water Development Revolving Fund.

An award of \$88,900 was made to Mayes County Rural Water District #7 for construction of a water distribution system. A check for \$87,561 was presented to Marble City to supplement EPA and DECA funding for the construction of a

ACTIVE CONSERVATION STORAGE IN SELECTED OKLAHOMA LAKES AND RESERVOIRS AS OF JANUARY 21, 1985

PLANNING REGION LAKE/RESERVOIR	CONSERVATION STORAGE (AF)	PERCENT OF CAPACITY
SOUTHEAST		
Atoka	121,700	98.1
Broken Bow	918,100	100.0
Pine Creek	77,700	100.0
Hugo	157,600	100.0
CENTRAL		
Thunderbird	105,925	100.0
Hefner	75,100	99.6
Overholser	16,900	100.0
Draper	81,200	81.2
SOUTH CENTRAL		
Arbuckle	62,571	100.0
Texoma	2,613,480	99.1
Waurika	203,100	100.0
SOUTHWEST		
Altus	10,644	8.0
Fort Cobb	77,937	99.0
Foss	141,092	58.0 ²
Tom Steed	62,660	70.0
EAST CENTRAL		
Eufaula	2,329,700	100.0
Tenkiller	627,500	100.0
Wister	27,100	100.0
Sardis	302,500	100.0
NORTHEAST		
Eucha	79,567	100.0
Grand	1,465,120	98.2
Oologah	544,240	100.0
Hulah	30,594	100.0
Fort Gibson	365,200	100.0
Heyburn	6,600	100.0
Birch	19,189	99.9
Hudson	200,300	100.0
Spavinaw	30,000	100.0
Copan	43,400	100.0
Skiatook	---	---
NORTH CENTRAL		
Kaw	428,521	99.9
Keystone	616,000	100.0
NORTHWEST		
Canton	48,101	49.0
Optima	3,000	---
Fort Supply	13,900	100.0
Great Salt Plains	31,400	100.0
STATE TOTALS	11,937,641³	94.5³

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.

sewage collection and treatment system. The town of Prue received the second and final payment of \$22,550 on an earlier award of \$56,585 to replace three well buildings and water lines damaged during an April 1984 tornado. Funding for the project was shared by the Federal Emergency Manage-

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Mainstream, continued from page 3

ment Agency and state emergency appropriations. In the same award ceremony, the town of Hulbert received \$100,000 for construction of a new raw water intake structure and renovation of the town's water treatment plant.

Governor Names Balko Rancher Ervin Mitchell to Board Position



Ervin Mitchell

Ervin Mitchell, longtime Beaver County Rancher and conservationist, was appointed to the Oklahoma Water Resources Board by Gov. George Nigh last month. The

announcement was made by James R. Barnett, executive director.

Mitchell replaces L.L. "Red" Males of Cheyenne who retired from the Board December 11 after 27 years of service. He is well versed in issues of soil conservation and represents Congressional District 6, comprised of the three Panhandle counties and 19 additional counties extending from the state line in the west into central Oklahoma.

Mitchell and his wife, Emma, own a farm near Balko where they have raised three sons, David, Douglas and Dale. He has been a cooperater with the Beaver County Conservation District since 1947 and has served as district director of the Beaver County Conservation District Board for the past 11 years. During the 1982-83 term, he served as president of the Oklahoma Association of Conservation Districts.

Mitchell has taken an active role in civic and church affairs, having served 15 years on the Balko School Board, a year as president of Oklahoma State School Boards Association, 17 years as Sunday school superintendent and nine years as secretary of the local dairy association.

In recognition of Mitchell's leadership in civic affairs in western Oklahoma, Gov. Nigh appointed him chairman of Agriculture, Business and Economic Development on the 1984 Governor's Reform Commission.

Mitchell was welcomed to the first monthly meeting of his 7-year term on the Oklahoma Water Resources Board on January 8 in Oklahoma City. Members of the 9-member Board are appointed by the governor to represent Oklahoma's six Congressional districts (according to 1957 mapping), plus three members who serve at-large. Oklahoma Statutes require that the Board have in its service at least one member representing these water-use categories: recreational, industrial, irrigation, municipal, rural residential, agricultural and soil conservation.

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