



Continuing a recent effort to monitor the quality of Oklahoma groundwater, staff of the Oklahoma Water Resources Board's Groundwater Division are now combing the state collecting water samples which will give them insight into the condition of Oklahoma's 21 major groundwater aquifers.

The statewide program, which got underway in early July, is in its fourth

Staff Sampling Water Quality in State's Major Aquifers

year and ultimately will involve the sampling of approximately 250 water wells before its conclusion in mid-August, according to Duane Smith, Groundwater Division chief.

"The information gathered in this study will help us determine the trends in quality of each major groundwater basin in Oklahoma," Smith said. "In addition, we should also be able to obtain quite a lot of background information on these aquifers."

The OWRB has adopted rigorous selection criteria that wells must meet in order to be included in the sampling

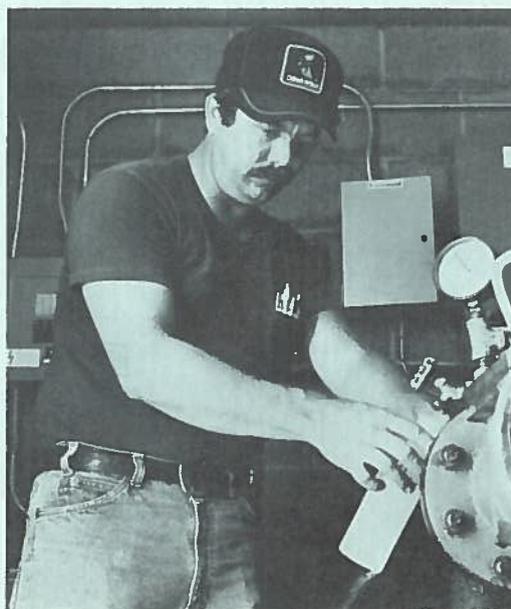
program. These requirements, such as the necessity of well logs for all sampled wells, allow staff to know more about the geology and construction of wells in the program. The logs also assist Board personnel in checking compliance with minimum well standards while in the field.

"To get a more accurate understanding of the condition of Oklahoma groundwater, we are currently looking back through our files to find any well log information we may have missed in the three previous study years. We will be able to fill in any missing data and correlate it with information received from the U.S. Geological Survey (USGS), the Oklahoma State Department of Health (OSDH) and others who have been involved in water sampling studies in Oklahoma," Smith pointed out.

Sampling is done in the summer when irrigation is at its peak. Heavy irrigation flushes out stagnant water, allowing samplers to obtain a more accurate representation of the well water's condition.

The OSDH will analyze the water samples, emphasizing tests for metals and a wide range of chemical pollutants. Results will be incorporated into

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The OWRB is sampling approximately 250 wells across the state in the aquifer monitoring program. Gary Glover, of the Board's Groundwater Division, carefully draws a sample from a municipal well at Noble.

Sampling, continued from page 1

Oklahoma's Water Quality Standards which, for the first time in 1985, included specific parameters for groundwater.

Groundwater accounts for 61% of Oklahoma's total water use; 80% of irrigation needs

Smith said that Oklahoma's sampling program is just one facet of a recent nationwide push to protect groundwater reserves—the source of drinking water for about half of the U.S. population.

Past negligence of the country's groundwater sources have led to heightened awareness by the American public toward the importance of groundwater protection. Over the last 10 to 12 years, groundwater contamination has been detected at numerous sites across the country—especially in the east where such areas as Love Canal, New York and Woburn, Massachusetts have attracted widespread media coverage because of the extent of their pollution. But as new incidences of serious groundwater problems have appeared farther west (such as in Times Beach, Missouri and Oklahoma's own Criner, Cyril and Tar Creek), concern over the contamination has followed.

According to Smith, one of the biggest concerns lies with the enormous expense and difficulty involved in cleaning up slow-moving groundwater often confined at depths exceeding several hundred feet.

"An added problem is that pollution in aquifers is easily transferable to surface water sources since groundwater often discharges into rivers and streams," Smith said.

Common sources of groundwater contamination include the unchecked use of pesticides and fertilizers, abandoned or uncontrolled hazardous waste storage sites, landfills, sewage holding areas, faulty septic tanks and sewer lines, leaking underground storage tanks, oil field reserve pits and a myriad of other causes.

Federal and state groundwater monitoring programs have been initiated nationwide to deal with the growing contamination problem, he added.

Smith said recent financial constraints have limited this year's study to Oklahoma's major aquifers.

"Soon, we hope to expand the program to include the smaller groundwater basins in the state," he concluded.



Cloud Seeding Study Initiated

The OWRB began July 15 collecting data on the efficiency of ground-based cloud seeding in Comanche County in southwestern Oklahoma. The information gained will be applied in an ongoing cooperative weather modification program with Texas.

The three-month study, sponsored by the Bureau of Reclamation, will collect more cloud seeding data than ever before in the regional effort, according to Mike Mathis, coordinator of Oklahoma's program.

Data collection will be expanded through a large network of rain gauges operated by volunteers in Comanche County. The Lawton Branch Office of the OWRB is coordinating the local study with help from Ft. Sill in Lawton. The army facility will release numerous rawinsonde soundings, or weather balloons, to collect atmospheric data. Digital radar data and numerous other methods will also be used by weather modification experts to assess the effectiveness of ground-based cloud seeding.

"The data collected in this study will help us to measure the rainfall differences between seeded and non-seeded areas," Mathis said.

Mathis added that the primary purpose of the program is to demonstrate and evaluate cloud seeding technology in the field. The information, he added, will ultimately determine weather modification's value as a water management strategy in Oklahoma, Texas and the entire southern plains region.

Barnett Heads Cabinet

Saying that it will give Oklahoma "the opportunity to stress better management and cost savings throughout state government," Gov. Nigh has

assigned nearly 300 state agencies, boards and commissions to 15 cabinets. Appointed by Nigh as lead agency secretary to the Department of Natural Resources was Jim Barnett, Executive Director of the Oklahoma Water Resources Board.

Through recommendations from the cabinet secretaries and a special reorganization counsel of lay citizens, the State Legislature will assess the effectiveness of the reorganization process this fall.

House OKs Parker Funds

The U.S. House of Representatives July 23 passed and forwarded to the Senate legislation appropriating almost \$72 million for construction starts on 32 Corps of Engineers water development projects. Included is \$48.96 million for Parker Reservoir, a flood control project between Hughes and Coal Counties in east central Oklahoma.

Under the bill, the Corps would receive nearly \$1.2 billion for construction of new projects, continuation of work on dozens of navigation, flood protection and erosion control projects and maintenance on some of the older facilities.

Hot, Dry Winds Hurt Crops

Hot, southerly winds sapped surface moisture and slowed growth of summer crops across Oklahoma at month's end. Irrigated row crops, especially peanuts and cotton, made rapid development, while dryland crops began to show signs of stress brought on by lack of rainfall.

Despite the dry conditions, alfalfa hay was reported in good condition, but heat began to take its toll on pastures and ranges. Cattle marketings also increased slightly. Temperatures remained above normal statewide, setting new records in some areas. Cumulative precipitation since March 1 is also slightly above normal everywhere but the Panhandle, central and east central regions.

In response to extremely hot, dry weather, Gov. Nigh re-formed the Heat Emergency Task Force to help cities, towns and rural water districts cope with drought conditions.

Take Pride in America

Gov. George Nigh urged all Oklahomans to "Take Pride in America," as part of a nationwide campaign to increase citizen pride in the public lands and resources of Oklahoma and the nation. "We want to encourage a greater sense of citizen ownership and responsibility for the public lands which provide many of our important recreational opportunities," Nigh said.

State and national awards will be presented to individuals or groups who demonstrate involvement in caring for federal, state, local or Indian lands; or illustrate initiative toward greater awareness and wise use of public lands; or foster recognition of citizen responsibility and/or encourage personal attitudes of stewardship and active involvement for the public lands and resources.

Oklahoma's effort will be coordinated by the Governor's Office and the Oklahoma Conservation Commission.

The program will acknowledge outstanding efforts of individuals, youth groups, civic/citizen organizations, businesses, professional/trade organizations, schools and the media, as well as local, state and federal agencies. Projects for consideration must be on-going or completed during the past two years, 1985-1986.

Gov. Nigh asked all Oklahomans' cooperation on behalf of the U.S. Department of the Interior which is sponsoring the effort. Earlier, Secretary of the Interior Donald Hodel had asked 240 million Americans to help in the protection and restoration of more than 700 million acres of public lands in the nation. Hodel pointed out that too many resources have been littered, vandalized, looted, burned or misused. Many natural, historical and archeological resources are irreplaceable—if harmed, they are damaged or

lost forever.

Deadline for nominations is September 5. A review committee will read all applications, recommend outstanding nominees for state recognition, then forward names of those whose efforts have been exemplary to the Secretary of the Interior. Nomination forms and further information are available by writing Dan Sebert, Oklahoma Coordinator of the Take Pride in America awards program, Oklahoma Conservation Commission, 2800 North Lincoln, Oklahoma City, 73105, or by phoning (405) 521-2384.

Utah Plans New Salt Lake

The Utah State Legislature appropriated \$62 million for the construction of a pumping system to relieve flooding on the Great Salt Lake, already estimated to have cost \$180 million in damage. The plan would lower the lake 14-16 inches the first year, eight inches a year thereafter by pumping Great Salt Lake water west to the desert to create a shallow lake with a surface area of 500 square miles.

The pumping system will move 2700 cubic feet of water a second—a flow rate comparable to that of a small river. Pumps will lift the water from the northwestern shore of the Great Salt Lake 17 feet to a mountain ridge. Then the water will flow naturally through a wide rock canal blasted to a depth of 40 to 50 feet. The bed of the Southern Pacific Railroad will be raised, four new trestles installed and two dikes constructed to protect Interstate 80 from wind tides on the new lake. Another dike will prevent the flow of brine back into the Great Salt Lake but allow regulated flows in the summer when the larger lake's levels are lowered by evaporation.

Broken Bow Gets EPA Award

The City of Broken Bow received an Environmental Protection Agency award for excellence in operating its wastewater treatment plant. The award was announced by EPA Region 6 Administrator Dick Whittington late in July.

The Broken Bow facility was one of seven singled out for recognition in the

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Motorists passing on I-35 east of Edmond have recently witnessed the progress on two huge structures. As construction progressed, tall stemlike towers "blossomed" to cup shapes, then to enormous spheres. One rises high above the other and contains in its unfinished hull a crane used in the assembly of both 500,000 gallon water storage tanks near Lake Arcadia.

According to HTB engineer, Mark Hughes, who oversees the construction, one tower will serve the residents and communities on the east side of I-35, and the other will serve those west of the highway. There are also underground storage facilities beneath the towers which will provide additional water supply.

The towers will begin filling this fall when closure occurs and impoundment begins on the Corps of Engineers project.

**TAKE
PRIDE IN
AMERICA**

region that includes Oklahoma, Arkansas, Louisiana, New Mexico and Texas. The awards committee included representatives from the Water Pollution Control Federation, Sierra Club, League of Women Voters, American Consulting Engineers Council,

state agencies and EPA Region 6. Ratings were based on detailed evaluations of the plants' performances during 1985.

Whittington said regional winners will be eligible for national awards to be presented in October.



**ACTIVE CONSERVATION STORAGE IN SELECTED OKLAHOMA LAKES AND RESERVOIRS
 AS OF JULY 23, 1986**

PLANNING REGION LAKE/RESERVOIR	CONSERVATION STORAGE (AF)	PERCENT OF CAPACITY	PLANNING REGION LAKE/RESERVOIR	CONSERVATION STORAGE (AF)	PERCENT OF CAPACITY
SOUTHEAST			NORTHEAST		
Atoka	112,019	90.2	Eucha	79,000	99.3
Broken Bow	900,894	98.1	Grand	1,419,250	95.0
Pine Creek	77,700	100.0	Oologah	544,240	100.0
Hugo	149,990	95.2	Hulah	30,594	100.0
CENTRAL			Fort Gibson	365,200	100.0
Thunderbird	105,925	100.0	Heyburn	6,267	95.0
Hefner	69,800	92.5	Birch	18,929	98.6
Overholser	14,176	89.1	Hudson	200,300	100.0
Draper	86,140	86.1	Spavinaw	30,000	100.0
SOUTH CENTRAL			Copan	43,400	100.0
Arbuckle	62,571	100.0	Skiatook	_____	_____ ¹
Texoma	2,545,600	97.0	NORTH CENTRAL		
Waurika	198,004	97.5	Kaw	422,681	98.6
SOUTHWEST			Keystone	616,000	100.0
Altus	55,820	42.0	NORTHWEST		
Fort Cobb	78,423	100.0	Canton	95,437	98.8
Foss	135,380	55.5 ²	Optima	3,000	_____ ¹
Tom Steed	73,071	82.0	Fort Supply	13,900	100.0
EAST CENTRAL			Great Salt Plains	31,319	99.7
Eufaula	2,317,245	99.5	STATE TOTALS		
Tenkiller	625,273	99.6		11,849,130.00	93.8³
Wister	25,490	94.0			
Sardis	299,092	98.9			

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.

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MARY E. WHITLOW, Editor

BRIAN VANCE, Writer

BARRY FOGERTY, Photographer

MARIE WELTZHEIMER, Design

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 Oklahoma Water Resources Board
 1000 N.E. Tenth, P.O. Box 53585
 Oklahoma City, Okla. 73152

Gerald E. Borelli, Chairman

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