

OKLAHOMA WATER NEWS

Bimonthly Newsletter of the Oklahoma Water Resources Board

Progress Good at Blaine Site; Four of Five Wells Completed

*24 monitoring wells in place; recharge dam,
one more recharge well coming this summer*

A karst (cavernous) aquifer recharge project near Hollis in southwestern Oklahoma can be described as "first" in a number of categories. The effort aimed at recharge of the Blaine Gypsum groundwater basin is a first for the Oklahoma Water Resources Board, the first in Oklahoma and the first in the nation. It is the cavernous nature of the aquifer that makes the project unique for the OWRB, Bureau of Reclamation and the Southwest Water and Soil Conservation District (SWSCD), cooperators on the five-year, \$2 million effort.

Cotton and grain farmers value the Blaine Formation for its irrigation waters, and cattlemen rely on it for stock wells. Caverns carved in the gypsum and limestone deposits by percolating waters yield generous amounts of water to the crops that drive the economy of Oklahoma's southwest corner. However, prolonged dry spells often diminish the Blaine's water supply and threaten the vitality of the agricultural region.

Nearly 25 years ago, it was apparent to the SWSCD that the answer to the Blaine's shrinking water supplies

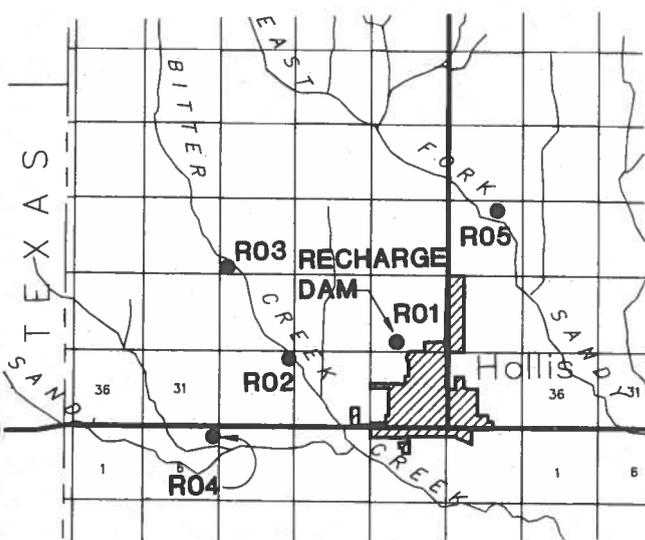
lay in recharge of the aquifer. Farmers of the SWSCD installed 43 wells for the purpose of channeling rainfall and runoff into the cavernous structure of the Blaine.

However, the effectiveness of their efforts had never been measured until OWRB hydrogeologists and engineers designed the means to collect more of the runoff and measure the amount that reached the aquifer. The strategy was devised by OWRB hydrogeologists Bob Fabian and Noel Osborn, project director and assistant project director, respectively. It includes construction of five additional recharge wells, a recharge dam and two dozen monitoring wells. All of the new structures lie in a three-mile radius west and north of Hollis.

All 24 monitoring wells are completed and equipped with continuous water level recorders, Osborn pointed

Continued on page 2

Map of Blaine project area shows location of recharge wells (R01-05) and dam. Four of the five recharge wells are completed. The fifth well and recharge dam are scheduled for construction this summer.



Joe Drummond of the McAlester field office and Gary Glover of the OWRB's Oklahoma City office attach wooden, spool-shaped "pig" to the top of the well casing. Then a collar with a spigot is welded to outer casing and water is pumped under pressure into the hole. The water forces the plug down to push the cement out and up to fill the space between the hole and the casing. Project director Bob Fabian watches at left.



Blaine Recharge, continued from page 1

out. However, water flow monitoring will not begin until collection of six months of water quality data is finished—a requirement of the Environmental Protection Agency.

Fabian, Osborn and other OWRB staff have overseen construction of four of the five recharge wells. The fifth well will be installed near the recharge dam, which Fabian expects to be completed this summer. Harold Springer, OWRB chief engineer, will design the dam and oversee its construction.

Fabian explained that the recharge wells are constructed with a 16-inch steel outer casing and a 12-inch inner casing. Cement is forced between the outer casing and the earthen hole and as reinforcement between the casings. Fabian said the lower reach of the hole is not cemented so recharge water can flow freely to the formation. Depths of the recharge wells vary from 155 to 270 feet.

Project Directors Fabian and Osborn and Chief Engineer Springer expect to supervise activities throughout the summer.



Jeanette Bennett and Bob Fabian of the OWRB install water level recorder in one of 24 monitoring wells constructed to observe success of the recharge project.

OWRB Enlists Citizen Aid in Lake Studies

Bill Cauthron, of the OWRB Clean Lakes Section, plans to test the proverb that says, "Many hands make light work." He and other members of his section traveled to Grove on April 15 to recruit citizens to help the OWRB conduct water quality sampling on Grand Lake as part of the Board's 1992 Lake Water Quality Assessment. With the assistance of Cecille Bales, Grand Lake Association president, Cauthron hopes to enlist enough volunteers from the association to sample 16 stations around the lake. The first meeting, at the offices of the Grand Lake Association, was an orientation at which the OWRB staff explained the citizens monitoring program, "Oklahoma Water Watch," and demonstrated the sampling equipment. "We've tentatively scheduled training on two weekends," said Cauthron. He said the first Saturday training session will show the volunteers how to perform the Winkler dissolved oxygen test; how to use pH, color and turbidity kits; and how to use a secchi disk and thermometer. Cauthron said some sites may also require the collection of chlorophyll-a samples.

Once the Grand Lake volunteers are familiar with the equipment, the classroom will move to the field for hands-on practice in performing the various water quality tests. Cauthron said Keith Owen will oversee the sessions and hopes to involve several OWRB Water Quality Programs staff including Paul Koenig, Derek Smithee and Phil Moershel.

At the final session, conducted at the actual monitoring sites, OWRB staff will observe the volunteers' sampling techniques. Once they are trained, Cauthron asks them to run specific tests at assigned sites at least once a month during the summer.

Cauthron said the data collected by volunteers will be invaluable in compiling the biennial Lake Water Quality Assessments required of states participating in the Environmental Protection Agency's Clean Lakes Program as well as OWRB Phase I Clean Lakes Projects. The OWRB has eight such EPA cost-shared projects in progress: Grand Lake, Hefner and Northeast (Zoo) Lake in Oklahoma City, Lake Ellsworth in Lawton, city lakes in Perry and Newkirk, Meadow Lake in Enid, and Lake Tenkiller in Cherokee and Sequoyah Counties. Through the Clean Lakes Program, federal funds are available for the restoration and protection of the recreational benefits of publicly owned recreational lakes.

The citizen monitoring strategy for Grand Lake Association volunteers was a first in Oklahoma. Cauthron developed the training strategy by adapting techniques used successfully in other states. He said he hopes to solicit help from other lake associations at other Oklahoma lakes where the Water Resources Board routinely gathers water samples.

"Citizen involvement in these programs is a god-send in tight-budget times like these. We are so grateful for their interest and work," he said.



Gerald E. Borelli

Board Honors Gerald Borelli

Gerald E. Borelli, Kingfisher cattleman and oil producer, will finish his 20-year term as a member of the Oklahoma Water Resources Board on May 14. Fellow Board members, management and staff honored Borelli at a reception following the regular Board meeting at OWRB offices, 600 North Harvey, Oklahoma City. At his appointment by the governor in 1972, Borelli was the youngest member ever appointed to the Board. During those 20 years, his fellow members elected him chairman for 15 consecutive one-year terms.

As chairman and member of the Board, Borelli championed water development, protection of Oklahoma's

groundwater basins, and the development of a state water plan. His terms as chairman saw energetic strides in development and adoption of the Oklahoma Comprehensive Water Plan; establishment of the OWRB Financial Assistance Program (FAP) for the funding of water and sewer projects; completion of the Six-State High Plains Ogallala Aquifer Area Study; and inception of the annual Governor's Water Conference, now in its thirteenth year.

Borelli is a director of Peoples National Bank in Kingfisher, chairman of the Kingfisher County Excise Board, director of Pioneer Telephone Company and treasurer of the Kingfisher County Cattlemen's Association.



Spiser and OWRB Personnel
Officer Stella Strauss

Spiser Honored for Service

Dannie Spiser and other senior state employees were honored at the Capitol by Gov. Walters May 4, the first day of Public Service Recognition Week. Spiser has been employed by the State of Oklahoma since August 1952. He worked in groundwater programs of the Planning and Resources Board, a precedent agency of the OWRB, and is credited with much of the work that set in place the 1200-well network that monitors groundwater levels in all 77 counties of Oklahoma. Spiser has measured water levels in the Water Board-USGS cooperative program every year of this 40-year career.

Graham Earns Master's Degree

At University of Central Oklahoma commencement exercise May 8, Margaret E. Graham of the Water Board's

Oklahoma City office wore this mortarboard she holds. Graham was awarded a Master of Arts degree in political science, specializing in urban affairs/governmental management. Graham is a charter member of



Margaret Graham

Pi Sigma Alpha, national political science honor society, which established a chapter at UCO this year.

Graham, who began her career at the OWRB in 1973, had attended evening classes at UCO since 1986. She works in the Permitting Section of the OWRB Water Pollution Control Division.

Water Management Division, announced the "Hydrologic Investigation of the Main Stem of the Arkansas River" is completed and available for sale to the public.

The book, completed in cooperation with the Tulsa District, Corps of Engineers, contains a map of the Arkansas River in Oklahoma and data on climate, streamflow, water use and water availability in the basin.

The study determined that the amount of unappropriated water in Stream Systems 2-2, 2-4 and 2-12 (which make up the entire Arkansas River Basin in Oklahoma) is 2,761,179 acre-feet per year. According to Wood, 1,358,025 acre-feet is available in the upper portion of the basin; 985,438 acre-feet in the middle portion of the basin; and 417,716 acre-feet in the lower portion. Wood points out that the study takes into account land uses and farming practices and past and current water uses, and identifies water available for future development.

The report is available for \$5 and may be ordered by calling OWRB Librarian Susan Lutz, (405) 231-2553.

Is It Recycled



or Recyclable?

The "chasing arrows" symbol identifies products and packaging made from recycled paper as well as paper products that are recyclable. However, there is a difference. The symbol consisting of arrows printed in a dark circle tells you you're using recycled paper. The "chasing arrows" alone identify paper that is recyclable, such as newspapers, boxes and shopping bags.

One ton of recycled paper saves 17 trees, enough energy to power an average home for six months, 7,000 gallons of water, and money paid for waste disposal. It also keeps 60 pounds of effluents out of the air and eliminates three cubic yards of landfill space.

Arkansas River Report Ready

J. A. Wood, chief of the OWRB

Governor Okays Special Tag

On April 22, Gov. David Walters signed into law a measure allowing Oklahomans to purchase a special license plate encouraging environmental awareness.

Senate Bill 933, co-authored by Sen. Penny Williams and Rep. Carolyn Thompson, authorizes an environmental awareness plate and provides that proceeds from sale of the special tag be used to fund environmental education.

According to Secretary of Environment Patty Eaton, who is also executive director of the OWRB, once the tag is in production, Oklahomans can purchase the special plate for \$25 over normal vehicle licensing costs. "We are excited that the program could raise a significant amount of money for environmental education in Oklahoma," Eaton said. The money will be used to print an environmental resource guide, provide scholarships for teachers, make grants available to classrooms and nonprofit organizations for environmental edu-

These Flood Tips Could Save Your Life

cation and fund a public information campaign.

Soon the Oklahoma Department of Pollution Control will announce rules for a 3-month statewide contest to choose a design for the license plate.

For more contest information, call the Department of Pollution Control at (405) 271-4468.

Water Plan Update Approved

On April 21, Gov. David Walters signed into law House Bill 2036 authorizing the Oklahoma Water Resources Board to review and update the Oklahoma Comprehensive Water Plan every 10 years. The Comprehensive Water Plan was adopted by the Legislature in 1981 as the flexible guide to long-range management, planning and development of the state's water resources.

House Bill 2036 was an initiative included in Gov. Walters' Environmental Legislative Program and the first exclusively environmental measure to gain the Governor's signature. According to OWRB Executive Director Patty Eaton, who is also Secretary of Environment, the new law will allow Oklahoma to have an up-to-date, dynamic plan for the wise use and development of its water resources.

Gov. David Walters signs House Bill 2036 authorizing the OWRB to update the state water plan. Attending the April 21 ceremony were Robert S. Kerr, Jr., chairman of the Water Resources Board; Rep. Sid Hudson, House author; Patty Eaton, OWRB executive director; and Sen. Cal Hobson, Senate author.



Do not walk through flowing water.

Drowning is the number one cause of flood deaths. Currents can be deceptive; six inches of moving water can knock you off your feet.

Do not drive through a flooded area.

More people drown in their cars than anywhere else.

Clean everything that got wet.

Floodwaters often pick up sewage and chemicals from roads, farms, factories and storage buildings. Spoiled food, flooded cosmetics and medicine are health hazards.



OWRB Executive Director Patty Eaton summarized initiatives included in the Governor's Environmental Legislative Package for conferees at the Rural Water Association Annual Meeting held in Oklahoma City on April 13-15. Other Water Resources Board participants in the ORWA agenda were Scott Myers, Planning Division; Walid Maher, Financial Assistance; and Noel Osborn, Water Management.

Stay away from power lines and electrical wires.

The number two flood killer (after drowning) is electrocution. Electrical current can travel through water.

Turn off your electricity when you return home.

Some appliances, such as televisions, retain electrical charges after they have been unplugged.

Look before you step.

After a flood, the ground and floors may be covered with debris, such as broken bottles and nails.

Be alert for gas leaks.

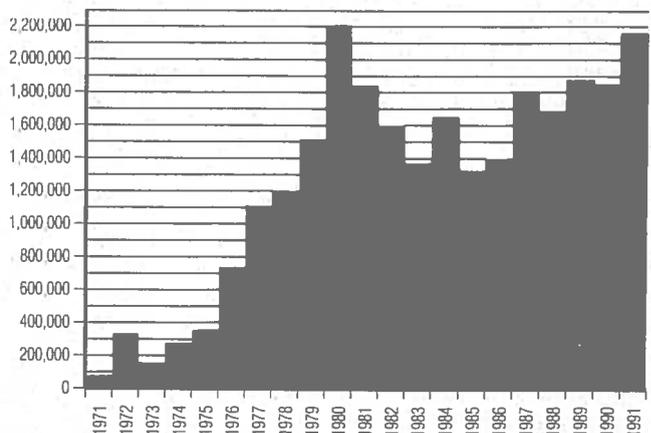
Use a flashlight to inspect for damage. Don't smoke or use candles, lanterns or open flames unless you know the gas has been turned off and the area has been ventilated.

Be prepared for a rough time.

Flood recovery is stressful and exhausting.

Port Nears Shipping Record

During 1991, the Tulsa Port of Catoosa finished very close to its 1980 shipping record. According to Jon R. Stuart, chairman of the Board for the Tulsa-Rogers County Port Authority, 1991 shipments totaled 2,175,448 tons in 1,245 barges. It missed the record set in 1980 by only 44 tons. Stuart pointed out that it was only the second time in the port's history that the two million ton mark has been exceeded.



Second in a Series . . .

Meet the Water Resources Board

In this issue, we introduce two more members of the Oklahoma Water Resources Board. The nine citizens who serve on this Board are appointed to seven-year terms by the governor. They represent all sectors of the state and all categories of water use.

There's no one on the Oklahoma Water Resources Board who better understands the plight of the farmer than Clinton resident **R. G. Johnson**, a farmer and rancher in western Oklahoma all his life. Johnson, a 13-year veteran on the Board, has special insight into the problems of Oklahomans who depend on the land for their livelihood. From that background grew his advocacy for water and the environment.

"As a youth near Burns Flat, in Washita County, I was saddened that people threw trash, old tires and debris into the creek that ran through our place," Johnson said. "I understood even then that our water resources should be respected and protected," he said.

Johnson said good supplies of clean water are critical to all sectors of the economy. Clean water is important to business, industry, farmers, cattlemen and every city and town in



R. G. Johnson

Oklahoma. "We need to press for tough legislation to enforce all provisions of the federal Clean Water Act," emphasized Johnson.

He singles out creation of the state revolving fund and the Board's Financial Assistance Program (FAP) as the most significant accomplishment of the Board during his tenure. "The program has helped nearly every community in Oklahoma," he pointed out. "Hundreds of communities and rural water districts have better water and wastewater facilities as a result of OWRB loans and grants," Johnson said.

"Last year, 21 OWRB loans totaling \$20.2 million assisted in water and wastewater projects. Forty emergency grants approved in 1991 provided nearly \$2 million for infrastructure improvements," he continued. "I hope the Oklahoma Legislature will appreciate the value of the FAP and continue its appropriations to the Statewide Water Development Revolving Fund."

R. G. Johnson serves as secretary of the Oklahoma Water Resources Board and is the state's delegate to the National Water Resources Association.

Mike Henson, appointed to the Board in 1989, is a former mayor of Stillwater and represents municipal water interests. As an ombudsman for cities and towns, Henson says she is sensitive to their problems stemming from federal regulations without federal money for compliance.

"I think cities and towns want to comply, but they're overwhelmed by regulations that they just can't afford



Mike Henson

to implement in their communities," she says. "Undoubtedly, the Board's Financial Assistance Program is the greatest service any agency could provide to cities, towns and rural water districts."

Henson said it's important to her that the OWRB strives for the image of being helpful and responsive to the needs of the public we serve.

"I believe we're succeeding, because almost daily, I hear compliments on the OWRB's talented, dedicated and professional staff," she emphasized.

Henson is concerned about Superfund sites, leaking underground storage tanks, industrial discharges and other troublesome environmental problems, but she thinks a significant problem lies much closer to home. She fears great damage to water and the environment from the insecticides used to rid our homes, lawns and gardens of insect pests.

"Will these chemicals contaminate our groundwater in the future? Our environment is the world. We cannot be irresponsible in choosing the legacy we leave future generations," Henson said.

Henson and her husband, Ray, are property managers in Stillwater. She is active on local boards and commissions, civic groups and church activities. She credits her five grandchildren with being her greatest source of joy.

FINANCIAL ASSISTANCE PROGRAM UPDATE *Approved at March and April Board Meetings*

Grants

Town of Faxon	\$67,880
Tupelo PWA	\$25,000
Osage Co. RWD #17	\$70,000
Heavener UA	\$50,000
Red Oak PWA	\$70,000
Town of Achille	\$27,250
Gracemont PWA	\$38,000

Loans

(3.592%; 27-year maximum term)

Osage County RWD #15	\$145,000
Red Oak PWA	\$220,000
Chouteau PWA	\$150,000
Glenpool USA	\$230,000
Nash PWA	\$345,000
Dewey PWA	\$1,400,000 ¹
Chandler MA	\$5,685,000
Okmulgee Co. RWD #7	\$195,000
Skiatook PWA	\$1,900,000
Marietta PWA	\$800,000 ¹
Noble UA	\$3,075,000 ¹
Beaver PWA	\$875,000 ¹

¹from State Revolving Fund (SRF) Program

Totals as of 4/16/92

	FAP Loans	FAP Grants	SRF Loans
Approved	98	260	8
Amount Funded	\$92,700,000	\$15,849,790	\$44,662,500
Amount	86	236	3
	\$81,730,000	\$14,104,864	\$26,959,500

**STORAGE IN SELECTED OKLAHOMA LAKES & RESERVOIRS
AS OF MAY 5, 1992**

PLANNING REGION LAKE/RESERVOIR	CONSERVATION STORAGE (acre-feet)	PRESENT STORAGE (acre-feet)	PERCENT OF STORAGE		PLANNING REGION LAKE/RESERVOIR	CONSERVATION STORAGE (acre-feet)	PRESENT STORAGE (acre-feet)	PERCENT OF STORAGE	
			conservation	flood				conservation	flood
SOUTHEAST					EAST CENTRAL				
Atoka	124,100	124,100	100.0	N/A	Eufaula	2,314,600	2,314,600	100.0	3.7
Broken Bow	918,070	917,503	99.9	0.0	Tenkiller	654,100	653,576	99.9	0.0
Hugo ¹	187,603	187,603	100.0	0.0	Wister ¹	58,601	58,601	100.0	0.7
McGee Creek	113,930	113,930	100.0	1.1	NORTHEAST				
Pine Creek ¹	73,346	73,346	100.0	2.2	Birch	19,200	18,949	98.7	0.0
Sardis	274,330	273,261	99.6	0.0	Copan	43,400	43,400	100.0	0.1
CENTRAL					Eucha	79,600	79,600	100.0	N/A
Arcadia	27,520	27,520	100.0	0.2	Fort Gibson	365,200	362,208	99.2	0.0
Hefner	75,400	71,543	94.9	N/A	Grand	1,672,000	1,577,920	94.4	0.0
Overholser	15,900	14,939	94.0	N/A	Heyburn	7,105	7,105	100.0	0.8
Stanley Draper	100,000	89,230	89.2	N/A	Hudson	200,300	200,300	100.0	0.5
Thunderbird	119,600	119,600	100.0	0.9	Hulah	31,160	31,160	100.0	0.5
SOUTH CENTRAL					Oologah	553,400	553,400	100.0	0.9
Arbuckle	72,400	72,400	100.0	0.3	Skiatook	322,700	322,599	99.9	0.0
Texoma	2,643,300	2,557,665	96.8	0.0	Spavinaw	30,590	30,590	100.0	N/A
Waurika	203,100	202,289	99.6	0.0	NORTH CENTRAL				
SOUTHWEST					Kaw	428,600	428,600	100.0	0.3
Altus	132,830	131,041	98.7	0.0	Keystone	557,600	555,515	99.6	0.0
Ellsworth	72,490	59,450	82.0	N/A	NORTHWEST				
Fort Cobb	80,010	79,809	99.8	0.0	Canton	111,310	70,603	63.4	0.0
Foss ²	256,220	172,018	67.1	0.0	Fort Supply	13,900	13,611	97.9	0.0
Lawtonka	58,327	58,320	99.9	N/A	Great Salt Plains	31,420	31,420	100.0	1.0
Tom Steed	88,970	82,699	93.0	0.0	STATE TOTALS	13,132,232	12,782,023	97.3	0.4

¹ Seasonal pool operation

² Conservation pool lowered to enhance project operation

N/A—not applicable; no flood storage allocation.

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

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OKLAHOMA WATER NEWS
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