

Oklahoma

Water
News

MONTHLY NEWSLETTER OF THE OKLAHOMA WATER RESOURCES BOARD

OWRB, Bureau Will Cooperate
in Recharge of Blaine Aquifer

Paul Horton (left), Hollis, of the Southwest Water and Soil Conservation District, shakes hands with Duane Smith of the OWRB, marking their agreement on a cooperative project to recharge the Blaine Groundwater Aquifer in Harmon County. Looking on is Steve Shattuck, also of Hollis.

Making more irrigation water available to farmers near Hollis by channeling and storing runoff in the Blaine Aquifer will be the thrust of a cooperative project of the Oklahoma Water Resources Board and the Bureau of Reclamation of the U.S. Department of the Interior. Duane Smith, OWRB Groundwater Division chief announced that the Board approved the cooperative agreement on the cost-shared project at the Board's September meeting.

Rapid growth of irrigated agriculture in Harmon County and other areas of southwestern Oklahoma has intensified the demand for irrigation water, especially during dry spells, said Smith.

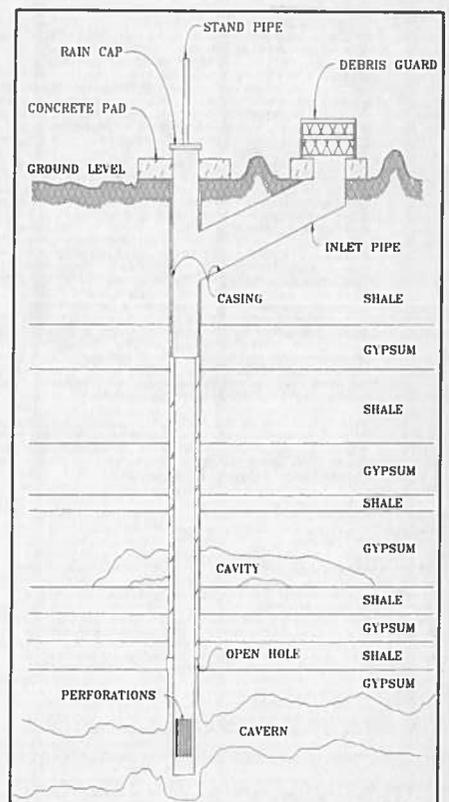
Annual rainfall varies considerably, from six inches to more than 30, with an average of 23.5 inches. Normally, one to 1.5 inches of the precipitation infiltrates as natural recharge to the aquifer.

"When rainfall is below normal,

water levels decline in the aquifer. Some of the stock and irrigation wells flow salt water and others go dry, blighting the economy," Smith pointed out.

According to Board Geologist Bob Fabian, the cavernous nature of the Blaine Aquifer makes it well suited for recharge. As water moves through the fractured dolomite beds and perco-

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Rain and runoff from the surface is channeled to caverns for storage until it is needed for irrigation.

Conoco Cleanup Progresses in Ponca City

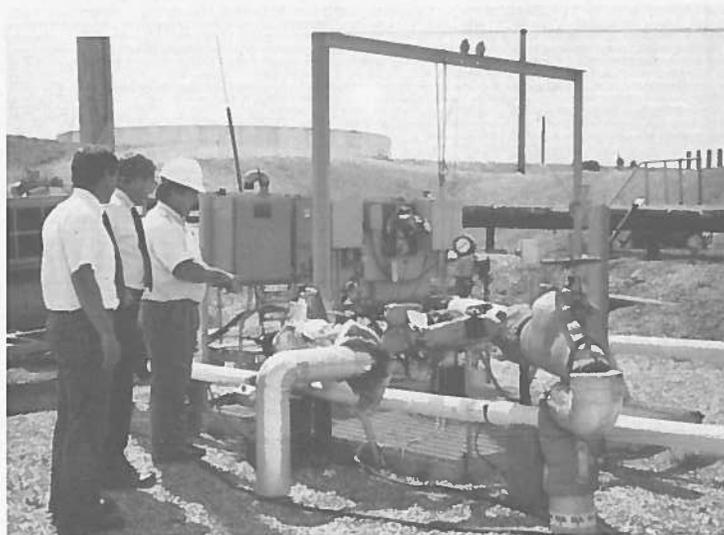
Early results show that a system designed to remove and treat contaminated groundwater beneath Ponca City homes is performing well, according to James R. Barnett, OWRB Executive Director.

Officials met September 5 at the Ponca City refinery site to inspect the groundwater clean-up facilities. The inspection team included Barnett; Dennis Parker, Conoco refinery manager; Carl Balcer, Ponca City mayor; and Dave Dillon, OWRB Water Quality Division chief.

The \$2.5 million system was designed by Conoco to alleviate groundwater problems experienced by nearby residents who claim refinery operations are responsible for subsurface pollution. Conoco began the groundwater investigation and remediation program in 1987 after resi-

dents reported seepage of oily wastes into basements and Hoover Creek, east of the refinery. In September 1989, the OWRB approved a plan to lower the water table through removal, treatment and discharge of the hydrocarbon contaminated water into the Arkansas River.

Barnett said the city and Conoco have worked in harmony on the prolonged task. After reviewing Conoco's semi-annual progress report, Barnett said, "We are very encouraged by the treatment system's ability to produce a clean discharge. Laboratory results indicated that, in most cases, levels of contamination are too low to measure. The treated groundwater shows levels well below those allowed by permits issued by the Water Board and the EPA." The system is operated by the City of Ponca City.



Dr. Charles Downs, Conoco consultant geologist (right), explains Conoco's \$2.5 million system of groundwater recovery and treatment to Dave Dillon (left) and James R. Barnett.

Blaine, continued from page 1

lates through the ground, it forms solution channels and conduits to the gypsum beds below. These channels fill with water, forming the aquifer, Fabian explained.

A successful demonstration project in the area has proven the feasibility of recharging the Blaine Gypsum Aquifer, he said.

Fabian will oversee the five-year project in which the Bureau, the

Water Resources Board and Southwest Water and Soil Conservation District will invest \$2.1 million. He pointed out that the legislation which enabled the project was co-authored and sponsored by U.S. Senator Don Nickles.

Fabian said the recharge strategy will include collecting precipitation runoff and diverting it for recharge through recharge wells. The project calls for the construction of five re-

charge wells adjacent to the channels of intermittent streams and a recharge dam. Water backed up by the dam will be released through an outlet structure to one of the recharge wells, completed in fractures and solution channels in the aquifer.

The terms of the Board-Bureau agreement also require establishment of a monitoring program to assess water quality in the aquifer. Fabian said the OWRB will collect samples three times each year during the growing season, when rainfall is greatest and traces of the agricultural chemicals applied to the crops are most likely to be present in groundwater and surface runoff. Monitoring will continue through the fourth year of the program, he said.



Samples Mailed to Labs

Tony Bright, who oversees the OWRB laboratory certification program, reported that 205 labs were mailed water samples for analysis on September 26. Twice each year, the Water Quality Division mails mixed samples of minerals, nutrients, metals and toxics for analysis by laboratories



Tony Bright, of the Water Quality Division's Permitting Section, prepares mixture for mailing to labs.

who request participation in the program.

Bright said the program tests the labs' ability to accurately analyze in-

dustrial wastewaters. Labs are required to analyze the blended elements in their correct concentrations.

Water Conference Dec. 5

The Eleventh Annual Oklahoma Water Conference will be held December 5 at the Marriott Hotel in Oklahoma City. Already confirmed on the agenda are E. Donald Elliott, General Counsel, U.S. Environmental Protection Agency; Maj. Gen. Patrick J. Kelly, Director of Civil Works, U.S. Army Corps of Engineers; and Dennis B. Underwood, Commissioner, Bureau of Reclamation. Also invited are Gov. Henry Bellmon, Gubernatorial Candidates Bill Price and David Walters, and members of Oklahoma's Congressional delegation.

Sen. Bob Cullison, President Pro Tem of the Oklahoma Senate, and Rep. Glen Johnson, Speaker-Designate of the House, are invited to discuss legislative prospects for Oklahoma water programs.

Registration for the day-long program will be \$25. For more information, call OWRB Conference Coordinators Mary Whitlow and Brian Vance at (405) 271-2523.

MesoNet Coming

Governor Bellmon announced last month that a statewide environmental monitoring and information network, called MesoNet, will be established through a cooperative effort between Oklahoma's two major colleges. According to Ken Crawford, director of the Oklahoma Climatological Survey, the \$2 million network will foster energy education and conservation by providing almost instant data, via satellite, from 107 agricultural, hydrological and meteorological sensors located in all 77 Oklahoma counties.

The network, expected to be in operation within two years, will be developed jointly between the Division of Agriculture and College of Arts and Sciences at Oklahoma State University and the College of Geosciences at the University of Oklahoma. MesoNet information will be linked to the Department of Public Safety's Law

Enforcement Telecommunications System, which is housed in approximately 240 law enforcement agencies in Oklahoma, telecommunicated to a central processing site and then shared with statewide users.

Network information will provide data that will save energy, benefit farmers, spin off new industries and bring a new approach to science in the classroom, Crawford said.

Environmental data gathered approximately every 15 minutes will help researchers develop daily models which can advise state farmers on how to more efficiently irrigate crops and apply pesticides and fertilizers. The system will also be of use in weather forecasting, aviation and transportation, and fire prevention and control. MesoNet information will allow utilities to determine an economical balance between user demands and energy generation.

MesoNet has also received support for its potential educational benefits.

The network will be funded through oil overcharge refund monies.

Flood Explanation Debated

Last spring, Oklahoma experienced its most severe flooding in decades as torrential rains swelled state reservoirs. And rainfall totals through the first five months of 1990 were near twice the state average, according to officials of the Oklahoma Climatological Survey.

Could a soaring greenhouse effect brought on by increased carbon dioxide emissions be the cause of these severe floods and other weather phenomena experienced recently throughout the world? According to the "U.S. Water News," that possibility has become a lively topic of discussion among many of the nation's top scientists.

James Hansen, of NASA's Goddard Institute, is convinced of the global warming theory. He says flooding is one part of a pattern of unusual weather events, including six of the hottest years on record during the 1980s; a rise of one degree in global temperature during the last century; global temperatures in March that

were three degrees higher than normal and caused cherry blossoms in both Washington, D.C. and Japan to bloom 11 days early; four straight years of drought in much of the western U.S.; and intense wind storms in Great Britain during the last two years, storms which normally occur once each century.

Watch FAP Here

Upcoming issues of "Oklahoma Water News" will include updates on the State Financial Assistance Program, the first of which appears below.

The Financial Assistance Program provides grants and loans to qualifying cities, towns, rural water and waste management districts for water and sewer improvements. Grant funds, up to \$100,000 based upon a priority point system, are derived from interest earned on the \$25 million Statewide Water Development Revolving Fund appropriated by the Legislature in 1982. The fund serves as additional security and collateral for revenue bonds issued by the OWRB. Loan monies are then generated through bond sales.

For more information, call the OWRB's Planning and Development Division at (405)842-7896.

FINANCIAL ASSISTANCE PROGRAM UPDATE

Approved at September Board Meeting

Grants

Okmulgee County RWD #7—\$50,000
Purcell PWA—\$40,000
Delaware PWA—\$74,785

Loans

(current rate—6.592%)
Wister PWA—\$165,000
Canadian County Rural Water, Sewer & Solid Waste Management District #4—\$105,000*

*increase to earlier Board loan

Totals as of 9/12/90

Loans	Grants
Approved—69	Approved—201
Amount—\$74,410,000	Amount—\$12,892,458
Funded—52	Funded—182
Amount—\$44,855,000	Amount—\$11,580,975

**STORAGE IN SELECTED OKLAHOMA LAKES & RESERVOIRS
AS OF SEPTEMBER 26, 1990**

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	3.0
Broken Bow	918,070	868,411	94.6	0.0	Tenkiller	654,100	642,310	98.2	0.0
Hugo ¹	187,603	187,603	100.0	2.0	Wister ¹	58,601	58,601	100.0	0.9
McCree Creek	113,930	113,930	100.0	2.0	NORTHEAST				
Pine Creek ¹	73,346	73,346	100.0	4.0	Birch	19,200	17,029	88.7	0.0
Sardis	274,330	274,330	100.0	5.0	Copan	43,400	38,434	88.6	0.0
CENTRAL					Eucha	80,000	73,000	91.3	N/A
Arcadia	27,520	27,520	100.0	6.0	Fort Gibson	365,200	365,200	100.0	0.9
Hefner	75,400	65,441	86.8	N/A	Grand	1,672,000	1,527,540	91.4	0.0
Overholser	15,900	12,729	80.1	N/A	Heyburn	7,105	6,146	86.5	0.0
Stanley Draper	100,000	71,978	72.0	N/A	Hudson	200,300	200,300	100.0	2.0
Thunderbird	119,600	117,693	98.4	0.0	Hulah	31,160	25,339	81.3	0.0
SOUTH CENTRAL					Oologah	553,400	543,131	98.1	0.0
Arbuckle	72,400	72,400	100.0	10.0	Skiatook	322,700	292,434	90.6	0.0
Texoma	2,643,300	2,614,755	98.9	0.0	Spavinaw	30,590	30,250	98.9	N/A
Waurika	203,100	198,108	97.5	0.0	NORTH CENTRAL				
SOUTHWEST					Kaw ¹	428,600	428,397	99.9	0.0
Altus	132,830	76,184	57.4	0.0	Keystone	557,600	543,468	97.5	0.0
Ellsworth	72,490	59,470	82.0	N/A	NORTHWEST				
Fort Cobb	80,010	77,447	96.8	0.0	Canton	111,310	95,635	85.9	0.0
Foss ²	256,220	176,116	68.7	0.0	Fort Supply	13,900	12,959	93.2	0.0
Lawtonka	56,574	51,405	90.9	N/A	Great Salt Plains	31,420	28,409	90.4	0.0
Tom Steed	88,970	79,956	89.9	0.0	STATE TOTALS				
						13,130,879	12,586,104	95.9	1.2

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, Central Oklahoma Master Conservancy District, City of Tulsa Water Superintendent's Office, City of Lawton, City of Altus, Altus Irrigation District, Foss Reservoir Master Conservancy District and Fort Cobb Master Conservancy District.

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