

# OKLAHOMA WATER NEWS

*Bimonthly Newsletter of the Oklahoma Water Resources Board*



*from  
the desk  
of Gary  
Sherrer*

## Emergency Grants Reconstruct Storm-Damaged Pittsburg Dam

Some of my folks at the Water Resources Board had the honor on August 22 to attend the press conference at the Capitol at which Governor Keating signed an Executive Order establishing the Oklahoma Drought Management Team (DMT.) The team, comprising state and federal agencies, will have as lead agency the Department of Civil Emergency Management and its head, Tom Feuerborn. DMT includes a Management Group, in which the OWRB participates, and an Advisory Group.

The OWRB has released regular drought reports throughout the summer, so we appreciate the importance of the DMT mission to address current and future drought problems in a manner to preserve lives and protect the health, property, environment and safety of Oklahomans. At the press conference, Governor Keating charged the team with addressing short- and long-term drought-related emergencies.

All of us in Oklahoma know that drought is never far away. We need to be prepared to deal with the myriad of economic and agricultural problems it causes. Although we are now in a rainy spell, we cannot forget that just three months ago, drought was inflicting enormous damage and financial stress to thousands of our farmers and businesses.

One of the worthy and long-term goals of the DMT is to produce a state drought plan that addresses water, agriculture, water conservation and other issues of drought. This is a timely effort by Governor Keating, and we welcome this important initiative. □

The earthfill dam that impounds the water supply for the Town of Pittsburg in southeast Oklahoma, had withstood hundreds of storms in its 90-year history. However, the intense rainstorm of April 21 was different. Violent winds whipped waves that gnawed at the crest of the dam. Tornadoes careened through the county, inflicting an estimated \$8 million in damages on nearby McAlester. Six inches of rain raised the lake level a foot over the spillway.

After the storm, three holes near the top of the embankment were spurting horizontal streams of water as big as fire hoses, reported Pittsburg city clerk/treasurer Irene Johnston. A call to the Water Board brought geologist Kent

Wilkins of the McAlester Field Office and engineer Cecil Bearden from Oklahoma City to inspect damage to the dam. Bearden advised the town to immediately lower the water level at least four feet -- to a point below the leaks in the dam -- until emergency work to stabilize the structure could get underway.

The Water Resources Board is the state agency with responsibility in dam safety. The Board requires regular inspections of nonfederal dams six feet or more in height and/or impounding 50 acre-feet or more of water, a category which encompasses some 4,500 dams in Oklahoma, including the Pittsburg dam.

The dam, built before statehood by

*Continued on page 2*



Pittsburg City Clerk Irene Johnston holds a replica of the \$83,470 grant check presented to the Town of Pittsburg by the Water Resources Board for the repair of Pittsburg dam. Representative Mike Mass, left, Pittsburg Mayor John Labor, Senator Gene Stipe and Mike Melton, OWRB assistant to the director, attended the grant presentation ceremony July 30.

**Pittsburg dam, continued from page 1**

the Edwards Coal Company mining in the area, impounds Pittsburg Lake, which covers 31 acres. The dam is an earthfill structure 256 feet long, 24 feet high and 6 to 8 feet wide, sloping down to a 60 to 70-foot base. Bearden pointed out that at the time it was built, there were no required specifications for construction. He said the 15-foot wide spillway was the primary flow control, since a pipe installed for that purpose had been earlier damaged and removed.

Bearden noted the dam was classified "high hazard," a designation given to dams with homes downstream that would be lost in the event of dam failure. Below Pittsburg Lake, eight to 10 homes and families were endangered. While temporary emergency repairs were being made, Bearden recommended that Pittsburg, a town of 249 people, apply to the Oklahoma Department of Civil Emergency Management for state disaster relief funds made available under Governor Frank Keating's disaster proclamation for the region. With the assistance of Senator Gene Stipe and Representative Mike Mass, Pittsburg also requested and received an emergency grant from the Oklahoma Water Resources Board for \$83,470 and the town contributed \$15,000 in matching funds.

When emergency grouting began, engineers discovered internal erosion much more pervasive than they had suspected. Water running through the dam had carved an enormous void. The hole, assumed at the onset to be approximately 4 inches by 6 inches, was a cavity so large that it required 750 gallons of bentonite grout to fill it. According to Bearden, a dam inspector with the OWRB for 20 years, "It was one of the worst I've ever seen."

The actual repair of the dam was an excellent example of Oklahomans working together to get a job done," said OWRB Executive Director Gary Sherrer. During early emergency repairs, the Department of Wildlife Conservation volunteered its bulldozer. Then, to help the town save money, Pittsburg County volunteered workers to help in clearing ground in preparation for repairs.

The engineering firm employed to oversee repairs stabilized the structure with further emergency grouting, widened the six foot wide crest to 40 feet, flattened the downstream slope and widened the spillway. Controlled explosions leveled off a hill to make

it part of the widened spillway. Rock blasted from the channel was used to reinforce the dam. The spillway at the Pittsburg dam previously had been capable of carrying only about 21 percent of the probable maximum flood (PMF), although 50 percent is

**Workmen put the final touches on the refurbished Pittsburg dam, dangerously damaged by winds and heavy rains of April 21. The 90-year-old dam on Chun Creek impounds the town's water supply.**



the criterion recommended by dam safety experts. The Probable Maximum Flood (PMF) is a figure estimated by engineers and hydrologists, based on the probable maximum rainfall that could occur in the watershed in 24 hours. Today, with the widened

spillway, the structure can pass 50 percent of the PMF.

Sherrer said it was remarkable that the major reconstruction of the dam was accomplished in just three months. "Without the work and cooperation of Senator Stipe and Representative

Mass, Mayor John Labor and the town council, the citizens of the town and Pittsburg County, financial and technical assistance of the OWRB and ODCEM, the task could not have been done so well and so fast," he said. □

## Board to Study High Plains Pollution, Depletion

A comprehensive water use and water quality study of the High Plains (Ogallala) Aquifer under Texas, Cimarron and Beaver counties will begin this fall, announced Gary Sherrer, OWRB executive director. The first year of the 3-year study will be supported with \$100,000 appropriated by the Oklahoma Legislature and \$100,000 in U.S. Geological Survey funds.

The study responds to concerns expressed by Panhandle residents regarding impacts of the growing swine industry on water supplies and water quality of the High Plains Aquifer.

Mike Mathis, OWRB Planning and Management division chief, says the project will gather information on water availability in the High Plains Aquifer, the primary source of water in the Oklahoma Panhandle. Mathis points out that the study will determine the maximum annual yield of the High Plains Aquifer underlying Cimarron and Beaver counties and update the maximum annual yield study of the aquifer underlying Texas County. A groundwater flow model will be used to project the impact of high water usage by the swine industry and the effects on water quality.

In monitoring water quality, approximately 30 monitoring wells will be sampled, says Robert Fabian, OWRB hydrogeologist, who oversees data collection. The wells will represent four categories of land use: agricultural/row crop, animal husbandry, undeveloped and urban use. Samples from these monitoring wells will be used to establish baseline water quality data.

Another phase of the study will focus on migration of pollutants in the aquifer by tracking the presence of tritium, a harmless, airborne by-product of nuclear tests 50 years ago which made its way to earth in rain. The presence of tritium in the waters of the High Plains Aquifer will help researchers estimate the time and routes of migration of contaminants.

The water quality monitoring network will be a cooperative effort of the OWRB, USGS, Oklahoma Conservation Commission and Panhandle State University. Board staff will teach OCC staff at county offices how to collect water samples, which will be analyzed at the Panhandle State University lab. The USGS will convert water quality information to data bases and reports.

Data will be integrated into the Geo-

graphic Information System (GIS), a system for collecting, digitizing, storing and managing information. Utilizing the GIS system, scientists will be able to retrieve all digitized data about any well location with relation to any other well in the system. □



## Court Reinstates Agency

The Texas Supreme Court has reversed the judgement of the district court, reinstating the Edwards Aquifer Authority as a state agency charged with managing the waters of the critical groundwater basin. Years of wrangling over water rights protecting the basin from depletion ended in 1993 when the Texas Legislature created the Edwards Aquifer Authority.

U.S. District Judge Lucius Bunton had ruled that the aquifer was threatened with over pumping and that protected aquatic species in San Marcos and Comal Springs were endangered. The springs are the largest natural outlet of the aquifer.

The new Authority was short-lived because a Medina County judge declared it unconstitutional in October of that same year. The recent Texas Supreme Court ruling reverses that district court ruling and legally reinstates the Edwards Aquifer Authority and its charge to protect the aquifer.

The aquifer, which stretches just south of Austin to 100 miles west of San Antonio, is the only source of drinking water for San Antonio and several other cities. It also supplies irrigation water to six counties and feeds the San Marcos and Guadalupe Rivers.

Water level in the aquifer has been steadily declining over several years, but the recent drought has caused daily declines.

Bill West, manager of the Guadalupe-Blanco River Authority, praised the decision and urged adoption of the Texas Water Conservation Association's motto, "Till taught by pain, men really know not what good water's worth."

## Lake Found under Antarctica

Russian scientists have discovered a lake miles under Antarctica's ice that may contain microbes millions of years old, kept alive under a special glacial seal. An article in the August issue of "U.S. Water News" reported that seismic and echo soundings indicate

the surface of the lake lies 2.3 to 2.6 miles beneath the ice. The lake was named Lake Vostok by the researchers, who estimate its size to be 30 miles by 140 miles and its depth to be 1,600 feet. Researchers probing the ice are not sure why there is water beneath the ice, but speculate that the weight of the glacier is forcing the lake down into a depression, liquefying it by pressure. Another theory is that warmth from radioactive decay in the Earth keeps the lake from freezing and may be keeping the microbes alive.

French scientists who analyzed the Russians' ice samples believed them to be 420,000 years old, leading researchers to estimate the lake has been sealed under the icecap for between 500,000 and a million years. Researchers are warned that drilling into the lake, which exists under extreme pressure, would cause gushes powerful enough to destroy drilling rigs near the site. For the time being, the microbes will remain undisturbed -- until researchers can figure out how to excavate them safely, and without polluting Lake Vostok.

## Cloud Seeders Halt Operations

Heavy rains in the northwest and Panhandle counties have prompted state officials to call for a temporary suspension of cloud seeding activities in the region. The precipitation came close on the heels of the state's first cloud seeding on August 20.

The weather modification project has been in a "standdown" mode since August 23 after the area received significant rainfall.

According to John Girdzus, chief meteorologist for Weather Modification, Inc. of Fargo, N.D., who oversees the project, that is the standard procedure in cases where target areas receive heavy rains. Girdzus directed his crew to immediately cease all rainfall enhancement operations until conditions warrant.

The OWRB received numerous calls from Woodward area citizens who suspected that cloud seeding led to, or contributed to, the heavy rains. OWRB Executive Director Gary Sherrer said he has enormous confidence in Weather Modification, Inc., but he assured residents that at no time will the program be conducted haphazardly or in a manner that might endanger lives or property.

Girdzus said the project command center was established in Woodward due to the region's previously severe

drought conditions, but now, operations will focus on the southwest, northeast areas, still in need of rain.

As of August 31, the state's project was 100 percent operational, with two fully functional radar base units and three modified twin engine aircraft to seed clouds wherever opportunities arise in Oklahoma.

The mobile facility in Woodward, which will work in tandem with a similar unit at the primary control center in Norman, will employ a radar with aircraft tracking capabilities and a full complement of meteorological data systems. The radars are also capable of archiving information that will be used in evaluating the project.

Girdzus noted that cloud seeding programs are most effective during periods of normal rainfall and as a tool to lessen future drought problems.

The Oklahoma weather modification effort will be independently evaluated by the Oklahoma Climatological Survey at the University of Oklahoma.

The initial phase of the project will run through October 31. Following a winter recess, activities will resume March 20 through May 31, 1997.

## Water Conference November 20

Planning is underway for the Seventeenth Annual Governor's Water Conference to be held Wednesday, November 20, at the Marriott Hotel, 3233 Northwest Expressway in Oklahoma City.

Registration will begin at 8:00 a.m.; the program gets underway at 8:30 a.m. The Conference adjourns at the conclusion of the luncheon program about 3 p.m.

To put your name on the mailing list for an agenda and registration materials, call the Oklahoma Water Resources Board at (405) 530-8800.

### Correct Address, Please

We like hearing from our customers and we want to stay in touch, but mail addressed to the Oklahoma Water Resources Board at P.O. Box 150 may be delayed or returned to sender. We no longer maintain the post office box. Please write to us at:

**3800 N. Classen Boulevard  
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# THE FLOOD CURRENT

SEPTEMBER - OCTOBER 1996

## Flooding Can Happen Anytime, Anywhere

Report from Ken Morris, Oklahoma coordinator, NFIP

Is your community enrolled in the National Flood Insurance Program? If so, is it free of identified flood hazard areas? If the answer to both of these questions is yes, and you consider your community safe from flooding, perhaps you should reconsider, as have the citizens of Seiling, Oklahoma.

Seiling, a town of 1,031 people, is in Dewey County, near the North Canadian River, 36 miles southeast of Woodward. In late July, Seiling received 3.5 inches of rain in just three hours. Then, less than a week later, before the ground had time to dry, 2.5 inches of rain fell in two hours.

The resulting floods damaged 14 buildings, including seven homes. Unfortunately, none of these structures had flood insurance, and while those whose properties incurred the damage might disagree, the damage was not significant enough to prompt a Presidential Disaster Declaration. As a result, these folks have nowhere to turn for financial assistance in replacing sheet rock, insulation and other flood-damaged material.

So, the moral for NFIP communities with no significant flood hazard area is, "Continue to enforce your required Flood Damage Prevention Ordinance and inform residents, especially those at the greatest risk, of the availability of flood insurance."

Seiling officials say they have learned a valuable lesson and intend to prevent similar situations in the future. Hopefully, other communities will do the same, but before flooding occurs.

On a happier note, the annual meeting of the Association of State Floodplain Managers was an enormous success. Held this year in San Diego, California, June 10-14, more than 400 attendees enjoyed the scen-

ery and stimulating discussion related to the conference theme, "Coast to Coast, 20 Years of Progress."

Highlights of the conference included a paper presented by Frank Pagano and Diane Calhoun from the Federal Emergency Management Agency, Region VI. They described the substantial damage/improvement and development of cooperative agreements with the Building Officials Association of Texas and Texas Floodplain Managers Association. FEMA and Texas have developed a model program and their experience will be of great value to Oklahoma.

John Ivey, chairman of the ASFPM Professionalism Committee, updated conferees on progress being made toward establishment of a national certification program for floodplain managers and administrators.

Others representing OFMA were Pat Hoggard, Joe Remondini and Ron Flanagan, Tulsa; and Mike and Carolyn Schultz of Mannford. Congratulations to Pat for his election to the Board of ASFPM Region VI and Carolyn who won the women's golf tournament.

I am proud to announce that I was elected treasurer for the Association for 1997.

Make plans now to attend the 1997 conference in Little Rock in April.

Donetta Blanlot was one of 21 participants in the recent Emergency Management Institute. Blanlot, of the OWRB McAlester Field Office was invited to assist in teaching "How to Manage the Nation's Floodplains through the NFIP" at the EMI in Emmitsburg, Maryland, the first week in August. Jim LeGrotte, chief of the Mitigation Division, also assisted. The Emergency Management Institute is a fine course and we hope to bring it to Oklahoma in 1997. □



This photo in Oklahoma City during July 30 rain shows how water accumulates in poorly drained low-lying areas.

## Test Your Knowledge of NFIP

True or False:

1. A structure to be sited in the floodway of a stream can be permitted as long as the increase in the base flood elevation is less than one foot.

T F

2. A community is required to provide floodplain determinations to all who ask.

T F

3. A nonresidential structure, to be located in a coastal high hazard area (Y zone) can be either elevated on piles or floodproofed to the base flood elevation.

T F

4. Manufactured (mobile) homes in a special flood hazard area must be placed on a permanent foundation.

T F

5. A lending institution would require flood insurance of a structure built in a special flood hazard area and elevated to the base flood elevation on fill.

T F

(Answers on page 5)

# The Floodplain and Its Natural Values

*(Courtesy Minnesota*

*Department of Natural Resources)*

Floodplains are lowland areas adjacent to lakes, wetlands and rivers that are covered by water during a flood. Of course, the ability of the floodplain to carry and store floodwaters should be preserved and respected in order to protect human life and property from flood damage. However, undeveloped floodplains also provide many other natural and economic resource benefits. Floodplains often contain wetlands and other areas vital to a diverse and healthy ecosystem. By making wise land use decisions in the development and management of floodplains, beneficial functions are protected and negative impacts to the quality of the environment are reduced.

Parts of the floodplain that are also considered wetlands will, in addition to floodplain zonings, receive protection from federal, state and local wetland laws. These laws, such as the U.S. Army Corps of Engineers Section 404 Permit Program, regu-

late alterations to wetlands to preserve both the amount and integrity of the nation's remaining wetland resources.

The values and benefits of land located in floodplains include:

### **Habitat for Plants and Animals**

Floodplain vegetation provides important resting, feeding and nesting areas for many waterfowl species. Undisturbed floodplains have high natural biological diversity and productivity. River corridors are frequently used as flyways for migrating birds. Fragmentation of continuous natural areas reduces their appeal and function for a wide variety of wildlife species.

### **Water Quality**

Floodplain vegetation and soils serve as water filters, intercepting surface water runoff before it reaches the lake, stream or river. This process aids in the removal of excess nutrients, pollutants and sediments from the water and helps reduce the need for costly cleanups and sediment removal.

### **Green Space Corridors**

Landowners and community partnerships can be formed in some cases to preserve a "green space corridor" or a multiuse area where trails, flood hazard reduction, wetland protection, fish and wildlife habitat improvement, water quality protection, environmental education and other beneficial uses can coexist.

Additional benefits of undeveloped floodplains can be realized through:

- ❖ stormwater management,
- ❖ erosion control,
- ❖ cultural resources,
- ❖ natural products,
- ❖ scientific study,
- ❖ outdoor education,
- ❖ recreational opportunities, and
- ❖ aesthetic values.

Protection and knowledgeable enhancement of floodplains and appurtenant resources is not only wise from an economic and public safety standpoint, it will help ensure that communities maintain their individual ecosystems. □

### **Answers to NFIP Quiz, p. 4**

(1) F (2) F (3) F (4) T (5) T

## Water Board, ODOT to the Rescue

Ira Smith, manager of the OWRB Field Office in Woodward, had an opportunity to save two homes and a restaurant in Mooreland from potential flood damage. On August 26, more than four inches of rain fell at Mooreland, backing up several feet of water at a clogged culvert under SH 412 and threatening nearby structures. Smith, a resident of Mooreland, promptly called the Oklahoma Department of Transportation, who sent a crew to clear the ditch and culvert of deep sediment that choked the flow of water.

By doing so, the structures were saved from potential flood damage and the floodwater flowed away safely. Stormwater channels are "out of sight, out of mind" on clear days, but can quickly turn treacherous in heavy rainfalls.



In photo above, a Choctaw city utility worker stands knee-deep in water in median on Northeast 23rd Street near Choctaw Road, flooded by heavy rains of July 30. The clogged storm drain caused water to back up, inundating the street and median with dangerous floodwaters.



Once workers cleared and cleaned the top of the storm drain, water was safely carried away. Ken Morris, who oversees the Board's NFIP, says it is critical to keep stormwater channels and storm drains clear and free of debris.

# At the August 13 Board Meeting:

The August 13 meeting was held in Guymon at the Ambassador Inn, in keeping with the Board's effort to meet in all quadrants of the state during the year. Chairman Ross Kirtley thanked members of the Oklahoma Panhandle Agriculture and Irrigation (OPA) association and the Safe Oklahoma Resource Development (SORD) group for their hospitality. Mr. Kirtley introduced Board Member Ervin Mitchell of Balco, who introduced Senator Don Williams and Representative Jack Begley, Guymon Mayor Jess Nelson and City Manager Wayne Hill. Senator Williams and Representative Begley sponsored the bill authorizing and funding the High Plains groundwater study. Oklahoma's share of the study over three years would be \$300,000.

Duane Smith, assistant director, introduced Kathy Peter, District Chief, U.S. Geological Survey, who explained the importance of the cooperative study of the High Plains (Ogallala) Aquifer. She said the Oklahoma study is part of an 8-state study of the Ogallala, the world's largest aquifer and source of 30 percent of the nation's irrigation water. She said a digital flow model will assess the impact of large groundwater withdrawals on the High Plains Aquifer. Ms. Peter asked Mark Becker, project manager, to explain the water quality aspects of the study. Water quality networks will be designed to assess the quality of the groundwater in the aquifer and to collect baseline information to be used in assessing the source of any future contamination.

Financial Assistance Division Chief Joe Freeman asked and got approval for a grant and loan to Rural Water, Sewer, Gas and Solid Waste Management District #9, Delaware Co., and loans to RWD #4, Rogers Co.; Cushing Municipal Authority, Payne Co.; RWD #1, Muskogee Co., and SRF loan to Rush Springs Municipal Authority, Grady Co. The Board approved an extension of time for obligating funds for Haileyville PWA, Pittsburg Co.

On the Planning and Management agenda, the Board approved nine temporary permits and two regular permits for the use of groundwater; amended one temporary and three regular groundwater permits; approved seven regular permits for the use of stream water.

New Driller/Pump Contractor licenses were approved for Corey Walters, Cobey Walters, James Flournoy, Gary Baggs, John Detton and Jack White. Three licensed firms added operators/activities: Trust Environmental Services, Edward D. Keeley; Terracon Consultants, Inc., John Bartlett; Standard Testing & Engineering, Shawn Coughlin. □

## FINANCIAL ASSISTANCE PROGRAM UPDATE

Approved at August 1996 Board Meeting

### FAP Loans

3.772% 1995 Bonds; 28.5 year maximum term  
3.922% 1994; 28.5 year maximum term

Cushing MA .....	\$ 7,155,000.00
Delaware RWSCSWMD #9 .....	\$ 635,000.00
Muskogee RWD #1 .....	\$ 520,000.00
Rogers RWD #4 .....	\$ 1,465,000.00

### FAP Grants

Delaware RWSCSWMD #9 .....	\$ 100,000.00
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### SRF Loans

Haileyville PWA .....	\$ 419,000.00
Rush Springs MA .....	\$ 605,105.00

### TOTALS AS OF 8/13/96

	FAP Loans	FAP Grants	SRF Loans
<b>APPROVED</b>	170	388	44
<b>Amount</b>	\$ 220,520,000.00	\$ 21,829,897.00	\$ 173,782,939.00
<b>FUNDED</b>	162	358	39
<b>Amount</b>	\$ 203,570,000.00	\$ 19,655,177.41	\$ 167,914,834.23

Mary E. Whitlow, Editor

Barry Fogerty, Writer, Photographer

James Leewright, Typography and Layout

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♻️ RECYCLED PAPER

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- Ervin Mitchell
- Robert S. Kerr, Jr.
- Wendell Thomasson
- Richard McDonald
- Dick Seybold
- Lonnie L. Farmer
- Jack M. Givens

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