

# OKLAHOMA WATER NEWS

*Bimonthly Newsletter of the Oklahoma Water Resources Board*



**from  
the desk  
of the  
Director**

**Duane A. Smith**

The state weather modification program began cloud seeding operations on March 1 with oversight by the Oklahoma Weather Modification Advisory Board. Sen. Robert M. Kerr is president, and I am chairman.

For the fourth consecutive year, Weather Modification, Inc., will perform cloud seeding operations throughout the state. Operations have expanded to include seeding of systems moving into Oklahoma along our borders with Kansas and Texas. Three planes based at Oklahoma City's Wiley Post Airport and in Woodward, employ radar with aircraft tracking capabilities and a full complement of meteorological systems. Already our

planes have conducted dozens of operations throughout the state.

Results from neighboring states clearly show that judicious silver iodide seeding can improve rain efficiency of certain clouds and significantly reduce potential hail damage.

We are working with Oklahoma's Congressional delegation to secure funding that will enable us to establish a state weather modification research project in cooperation with the University of Oklahoma. The Oklahoma Weather Center, a network of uniquely qualified weather-related agencies housed at OU, provide an excellent partnership opportunity to verify the effects of cloud seeding.

In an effort to share with OWRB customers the most complete, cutting-edge weather technology available, we have enhanced our website, <http://www.state.ok.us/~owrb>, to incorporate Mesonet rainfall data from the Oklahoma Climatological Survey, storm predictions from the National Weather Service Storm Prediction Center and monitoring of severe weather events through the National Centers for Environmental Prediction.

Updated radar images from our cloud seeding bases in Oklahoma City and Woodward show ongoing seeding activities and projected movements of existing storm systems. I encourage you to use this information to your best advantage in being weather-wise.



## ***Lugert-Altus District, OWRB Study Irrigation Water Losses***

How would you stop a leak in a water glass that loses a third of the water from the time you fill it until you take a drink? A similar problem faces the Lugert-Altus Irrigation District in arid southwestern Oklahoma. The district is supplied water from Altus Reservoir via a 270-mile system of canals. The reservoir and irrigation network were projects of the Bureau of Reclamation, completed in 1948. The reservoir also serves the additional purposes of flood control and municipal water supply. It is Bureau funding that enables the investigations now underway.

Every year, the district supplies more than 85,000 acre-feet of irrigation water to 300 cotton farmers in the area. (An acre-foot of water is equivalent to an acre of land covered with water one foot deep.) The total cost of the water purchased from the district each year is approximately \$2.4 million. According to District Manager Donna Kirby, about one-third of the available water in the system never reaches its destination, but instead, is lost to percolation along the canal routes. Kirby points out the very nature of the earthen canals, plus the increased water demand from the 50-year-old system contribute to leakage problems. The increased demand over the years, much beyond the system's design

capacity, caused water to run deeper in the canals, necessitating bricking some of the channel walls.

Kirby points out that the district has experimented with concrete and clay lining and PVC pipe in efforts to slow the leakage. Kirby was impressed with OWRB successes with the Geographic Information System (GIS) and Global Positioning System (GPS) in solving similar problems in smaller rural water systems, so she asked the Board's assistance.

Currently, the district is testing state-of-the-art technology in sealing the channels, in cooperation with the Bureau of Reclamation and the Water Resources Board.

Bob Fabian of the OWRB Planning and Management Division, who oversees the effort, points out that all of the methods work to some degree, but all are costly. "The current project is designed to make most efficient use of money, while maximizing the use of the water," says Fabian. He declares the biggest challenge is finding out where the main canals and branches are losing water – not an easy task, given the 270-mile length of the system. "It is important to get an overview of the entire structure to discover where and how fast water is percolating through the canal bed," he said.

Fabian explained that the GIS can display geographic data, on the entire system, as well as data on individual water gates and canals leading to the fields. These data will be gathered and input through the computer into the GIS, a task that falls to OWRB and district employees who installed meters to measure volume and velocity. The precise location of meters and all other components of the system were pinpointed by the Global Positioning System. GPS relies on a ground receiver and 24 satellites fixed in space orbit over a known location. The system mathematically triangulates the exact position of each flow meter.

Fieldwork on the project involved investigators from the OWRB Planning and Management Division, Information Services Section, Lawton field office and the district. Fabian credits Saji Varghese, OWRB engineer, for the design of a computer software program that measures and models changes between any two points. Variables that can affect the amount of water between points include the rate of seepage, as well as evaporation, temperature, humidity and wind.

Once the GIS/GPS work is complete on locations and conditions of variability, a computer model will enable operators to precisely calculate losses. For the first time, they will have a scientific basis for determining the most effective release of water.

Kirby says the district may apply for loans from the OWRB Financial Assistance Program to continue addressing the percolation problem.

Final results of the study are due in December.



## *Daugherty Outstanding Employee*

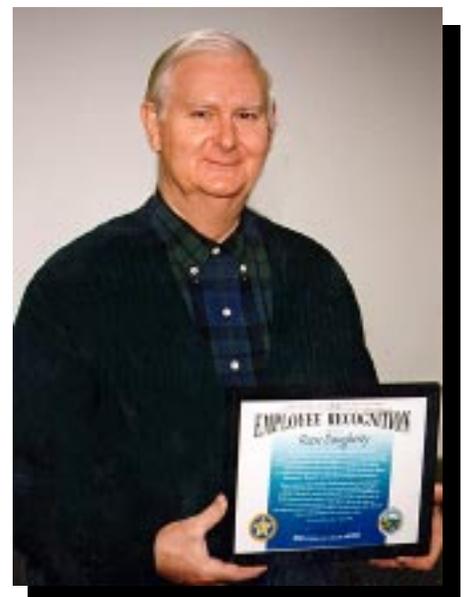
*Mainstream*

It is not a normal event when 90 of your peers stand up, clap and cheer when you are named Employee of the Quarter. Yet, this is exactly what happened to Reese Daugherty at a recent OWRB staff meeting. In presenting the award, OWRB Executive Director Duane Smith commended Daugherty as a 15-year veteran of the Financial Assistance Division. He is a Professional Engineer, holds a BS in civil engineering and supervises the division's engineering/technical section.

Daugherty, who is a native of Marion, Indiana, spent most of his childhood in Oklahoma City.

Smith said Daugherty is gifted in answering the most technical questions with correct, easy to understand explanations. His knowledge and unassuming ways have gained compliments from cities, engineering firms and state and federal agencies with whom he works. His co-workers recognize him as a friendly and helpful person.

Before joining the OWRB, he worked 21 years for civil engineering firms, the U.S. Army Corps of Engineers and as the city engineer for Bethany.



## OWRB Honors Two Winners

*Mainstream*

Robin Randolph, Carl Albert Executive Fellow employed in the OWRB Water Quality Programs Division, served as judge in the Central Oklahoma Regional Science Fair held at the University of Central Oklahoma in Edmond March 7. The OWRB annually awards certificates for the best project focusing on Water Quality issues.

This year's honorees were Leah Gregg, a senior at Westmoore High School, and Justine Horsch, a seventh grader at Brinks Middle School. Gregg's project demonstrated the use of peanut shells as an additive to swine wastes to eliminate odor problems. Horsch's project showed the impact of petroleum products, fertilizers and pesticides on brine shrimp.

"The depth of knowledge that Oklahoma Science Fair participants have concerning water quality is amazing to me," said Randolph.



**Left:** Division I winner Leah Gregg and Robin Randolph of the OWRB discuss Gregg's project on swine farm odor. **Below:** Justine Horsch, Division II winner, with her display on water pollution.



## Dr. Main Hutcheson Retires

*Mainstream*

Friends at the Water Board and other state agencies attended a reception February 29 at OWRB offices honoring Dr. Main Hutcheson on his retirement from the Water Quality Programs Division. However, his "retirement" will be short-lived. He plans to rejoin the OWRB on a half-time basis to continue working in Water Quality Standards Implementation.

Hutcheson joined the Board in 1979 after working on contract for one and one-half years.

He is a native of the northeastern U.S. and holds a BS in physics from the University of New Hampshire. Hutcheson earned a Masters and PhD in meteorology from the University of Oklahoma.

His work included modeling the dispersion of effluent below point source discharges for the Board's industrial waste discharge permitting program. His work has been widely published and eventually became the foundation of the Oklahoma Water Quality Standards.

An avid sportsman, Hutcheson plans to continue spending weekends and other spare time with his fly rod and his dog, "Chubsie," fishing his favorite streams in southeastern Oklahoma and other fishing spots in Mexico and Alaska.



**Dr. Main Hutcheson receives a Governor's Commendation for 22 years service to the State of Oklahoma. The award was presented by Derek Smithee, right, chief of the Water Quality Programs Division.**

## Water Treatment Ranks High

*Mainstream*

The National Academy of Engineering (NAE) joins the Center for Disease Control (CDC) in honoring water treatment as one of the most significant advancements of the past 100 years.

The NAE ranked water treatment and disinfection as number four behind electrification, the automobile and the airplane in having the greatest impact on the quality of life in the 20th century. Dysentery was the third leading cause of death in America at the beginning of the century, with typhoid claiming 150 out of every 100,000 Americans every year. Chlorine disinfection and water treatment largely eliminated these problems from the population by mid-century.

The CDC listed improved water treatment as one of the 10 great public health achievements of the century.

## New License Plate Coming

*Mainstream*



*Shown holding the the special oversized automobile license plate they designed to memorialize the bombing are, left to right, Randy Ledger, Phil Forslund and James Leewright. Leewright is a longtime graphics designer with the OWRB.*

Shown with the new “Victims and Survivors” tag that commemorates the April 19, 1995 Oklahoma City bombing are its designers Phil Forslund, Oklahoma Health Care Authority; Randy Ledger, General Services Administration; and James Leewright, Oklahoma Water Resources Board. The special tag will soon be available for purchase exclusively by immediate family members of bombing victims and survivors of the bombing.

The design incorporates the fence which surrounded the site, a teddy bear and colorful flowers. The designers say it is a visible reminder of the tragedy and provides a means for victims’ family members and survivors to say thank you to all who gave so generously of their time and resources in the aftermath of the bombing.

## Board Announces Hearings

*Mainstream*

Duane Smith, OWRB executive director, announces hearings on maximum annual yield/equal proportionate share in four groundwater basins. All hearings are scheduled for 10:30 a.m.

**Post Oak Minor Groundwater Basin**, (portions of Comanche County) in which tentative order sets the equal proportionate share at 2.0 acre-feet per acre. Hearing will

be held at the Lawton Public Library, Meeting Room 1, 110 SW 4th, on April 4.

**Hennessey-Garber Minor Groundwater Basin** (portions of Comanche, Cotton, Tillman Counties) in which tentative order sets the equal proportionate share at 1.6 acre-feet per acre. Hearings will be held at the Lawton Public Library, Meeting Room 1, 110 SW 4th Street, on

April 4; Cotton County Electric Coop, 226 N. Broadway, Walters, on April 6; First Southwest Bank and Conference Center, 201 S. Main, Frederick, on April 18.

**Beaver Creek Alluvium and Terrace Groundwater Basin** (portions of Comanche and Cotton Counties) in which the tentative order sets the equal proportionate share at 1.0 acre-foot per acre. Hearings will be held at the Lawton Public Library, Meeting Room 1, 110 SW 4th, on April 4; Cotton County Electric Coop, 226 N. Broadway, Walters, on April 6.

**Cache Creek Alluvium and Terrace Groundwater Basin** (portions of Comanche, Cotton and Tillman Counties) in which the tentative order sets the equal proportionate share at 1.0 acre-foot per acre. Hearings will be held at the Lawton Public Library, Meeting Room 1, 110 SW 4th, on April 4; Cotton Electric Coop, 226 N. Broadway, Walters, on April 6; First Southwest Bank Conference Center, 201 S. Main, Frederick, on April 18.

## *Agencies Adopt Single Form*

*Mainstream*

Standard guides, checklists and application forms are now available in a manual for use by all Oklahoma applicants for state and federal water and wastewater loans and grants. The new documents are the result of months of effort by members of the Funding Agency Coordinating Team (FACT.)

The manual contains sections entitled Guidance Information, Procedure for EID Review, Guidelines for Engineering Reports for Water Projects, Guidelines for Engineering Reports for Wastewater Projects, Checklist for Engineering Reports for Water Projects, Checklist for Engineering Reports for Wastewater Projects, Environmental Information Document Checklist for Water & Wastewater Projects, Guide for Preparation of EID and Appendices. Appendices provide Guidelines for Request for Proposal for Engineering Services and Agreements for Engineering and Environmental Services.

Members of the FACT Engineering Committee who assisted in development of the forms are Rick Schlegel, PE, Rural Development; Scott Myers, Department of Commerce; Robert Young, OKC Area Indian Health Services; Tim Ward, PE, Department of Environmental Quality; Reese Daugherty, PE, OWRB.

Members of the FACT Environmental Committee who assisted in the project are Kevin LeGrand, Rural Development; Jennifer Halstead and John Day, OWRB; Beverly Crisp, Department of Commerce, Marcie Martin, Department of Environmental Quality; and Greg Haase, OKC Area Indian Health Services.

According to Daugherty, the new forms and guides are available for downloading from the OWRB website: <http://www.state.ok.us/~owrb> or by calling 405-530-8800.

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# THE FLOOD CURRENT

MARCH - APRIL, 2000

## *OFMA Hosts Reception to Promote Mitigation Funding*

On February 9, members of the Oklahoma Floodplain Managers Association and the Oklahoma Emergency Managers Association hosted a reception at the State Capitol to visit with legislators concerning the importance of floodplain management and hazard mitigation. Members of the two organizations hoped to raise awareness and eliminate misconceptions regarding the amount of federal dollars available for mitigation after a flood. It was part of an effort to educate the state's leadership in the need for funding to carry out the program created by HB 1841 of the 1999 legislative session. House Bill 1841 created a comprehensive flood hazard mitigation program that prescribed buyout and removal of repetitively flooded structures.

At the Capitol Reception, OFMA Chair Ron Flanagan, OEMA Chair Jon Tilley, Nancy Kennedy, Anna Lee, Linda Reed, State Mitigation Officer Fred Liebe and I worked hard to promote state funding for the program.

Albert Ashwood, director of the Oklahoma Department of Civil

Emergency Management; Duane Smith, OWRB executive director; and Mike Melton, OWRB assistant to the director, along with Buddy Young, director; Ross Richardson, mitigation chief and Lonnie Ward of FEMA Region VI in Denton, Texas, attended to lend their support.

Joe Remondini and Carolyn Schultz of the Tulsa District Corps of Engineers set up the Corps' impressive flood model at the Capitol and also assisted with the reception. The model demonstrated the speed in which waters can rise and the sweeping devastation floodwaters can inflict. It amazed visitors and hammered home the mitigation message.

***Right: Ken Morris, Oklahoma NFIP coordinator; Rhonda Kouba, OWRB; Hank Elling, OWRB; and Ron Flanagan, OFMA chairman.***



***Left: Carolyn Schultz, left, and Joe Remondini of the Tulsa District Corps of Engineers demonstrate flood model set up at the Capitol February 9 to show devastation floodwaters can inflict on homes constructed in the floodplain.***

### **March is Flood Insurance Month**

Governor Frank Keating has proclaimed March Flood Insurance Month. Avoid the personal hardship and economic distress caused by flood disasters by purchasing low cost flood insurance to protect your home and possessions. For information, call the Oklahoma Water Resources Board 405-530-8800.

## ***FEMA Offers Home Study Option to Busy Administrators***

One-day training classes are available for floodplain managers during May. However, this short course is very concentrated, and may be confusing to those without previous exposure to the program.

Among other training opportunities is the 5-day class that the OWRB, FEMA and the ODCEM offer annually in January. It is entitled "Managing Floodplain Development through the National Flood Insurance Program." Many town administrators find it difficult to be away from their offices a week, so they opt for the one-day workshop.

Now a more helpful format is available to busy floodplain administrators who find it more convenient to study on their own time. To accommodate them, FEMA has developed a Home Study Course which can be ordered by calling Jim LaPrade at 301-447-1076. Continuing education credits are available to all who pass the course.

According to Ken Morris, state NFIP coordinator, beginning in 2001, all who pursue the Certified Floodplain Managers (CFM) designation will be required to complete the course as a prerequisite for taking the CFM exam.

### ***What Sets Federal Disaster Declaration?***

When a disaster is sufficiently large to overwhelm state and local resources, a governor may request a presidential disaster declaration in order to receive federal disaster assistance under the Robert T. Stafford Disaster Relief and Assistance Act. In such instances, the Federal Emergency Management Agency (FEMA) provides a recommendation to the president whether federal disaster assistance is warranted. In September, 1999, FEMA issued a rule that establishes the factors it will consider when evaluating a governor's request.

Noting that this does not affect presidential discretion in declaring disasters and does not change published regulations and policies established under the Stafford Act, the agency stated how it will evaluate requests as they apply to its programs. Under the Public Assistance Program, FEMA will examine the estimated cost of the assistance, using such factors as the cost per capita impact within the state.

FEMA currently uses the figure of \$1 per capita as an indicator that the disaster is of sufficient magnitude to warrant federal assistance. This figure will be adjusted annually based on the Consumer Price Index. In addition, FEMA established a minimum threshold of \$1 million in public assistance damage per disaster, because the agency believes that even the least populated states can cover that level of damage.

FEMA will also evaluate the impacts of a disaster at the county, local government and tribal level, particularly if critical facilities are involved; the amount of insurance coverage in force; the degree of hazard mitigation undertaken prior to the disaster; recent disaster history; and the availability of other federal assistance.

#### **Under the Individual Assistance Program, FEMA will consider:**

- *Concentration of damage*
- *Degree of trauma*
- *Impacts on special populations, such as low-income, elderly, or unemployed*
- *Assistance received from voluntary agencies*
- *Amount of insurance coverage*
- *Average amount of individual assistance by state.*

## *Are You Using “Best Available” Flood Data?*

When areas have been designated as Special Flood Hazard Areas on the community’s Flood Hazard Boundary Map (FHBM) or Flood Insurance Rate Map (FIRM) and no Base Flood Elevations (BFE) or an identified floodway have been developed, communities are required to apply the provisions of 44 Code of Federal Regulations (CFR) 60.3 (b) (4). This requires that communities:

Obtain, review and reasonably utilize any base flood elevation and floodway data available from a federal, state or any other sources.

Data obtained is to be used by communities as criteria for requiring that new construction and substantial improvements have their lowest floors elevated to or above BFE (nonresidential structures can also be floodproofed to or above the BFE) and for prohibiting any encroachments in a floodway that could result in any increase in flood levels during occurrence of the flood discharge.

The data obtained should be used as long as it reasonably reflects flooding conditions expected during the base flood, are not known to be scientifically or technically incorrect, and represent the best data available. Data from a draft or preliminary Flood Insurance Study (FIS) constitute available data under 44 CFR 60.3 (b) (4).

Floodplain Management Bulletin 1-98 provides guidance on the use of FEMA draft or preliminary Flood Insurance Study data as “best available” data for regulating floodplain development. Copies of Floodplain Management Bulletin 1-98 can be ordered from FEMA Distribution Facility by calling 1-800-480-2520. Fax requests to 301-362-5335.

### **May is Flood Awareness Month**

Governor Frank Keating has proclaimed May Flood Awareness Month.

360 Oklahoma communities participate in the National Flood Insurance Program. 79 other communities have not yet joined the program, and as a result, have no flood damage prevention ordinances in place to protect the lives and livelihood of their citizens against devastating effects of flooding.



*Lonnie Ward, FEMA Region VI; Dorothy Martinez, NFIP, Houston; OFMA members Joe Remondini, Carolyn Schultz, Ken Morris; Albert Ashwood, Oklahoma Civil Emergency Management; and Ron Flanagan, OFMA chairman, watch Governor Frank Keating sign documents proclaiming March Flood Insurance Month and May Flood Awareness Month.*

