

OKLAHOMA WATER NEWS

Bimonthly Newsletter of the Oklahoma Water Resources Board

Board Approves \$50 Million Bond Issue for Loan Program

At the monthly meeting of the Oklahoma Water Resources Board on July 14, the Board approved a resolution authorizing the issuance of \$50 million in revenue bonds to provide new loan funds to the OWRB Financial Assistance Program. The Board also approved the issuance of \$5 million in notes to provide a 10 percent cash reserve for the bonds. In the Board's earlier bond programs, the cash reserve had been provided from a \$25 million one-time appropriation by the Oklahoma Legislature in 1982.

According to Patty Eaton, OWRB executive director, legislators included the \$5 million needed for the reserve in the Capital Improvement bond issue which Oklahoma voters will be asked to approve in November.

"If the state bond issue gains approval, the \$5 million in notes will be paid off and replaced by \$5 million cash," Eaton said. "However, if it does not gain voter approval, the other source of cash reserve would be \$5 million from the \$7.5 million reserve of the Board's 1985 bond issue which becomes available in 1995, as a result of paying off the 1985 bonds," she explained.

The bond package proposed by the Board was awarded a AA rating by Standard & Poor's bond-rating firm, announced Walid Maher, chief of the Board's Financial Assistance Division. Maher pointed out that the OWRB "blind pool" bond issue is the first in the nation to get a AA stand-alone bond rating. "Blind pool"

means that investors purchase the bonds without knowing the identity of communities participating in the loan program. Standard & Poor's AA stand-alone rating relieves the Board of the need to insure the issue at a cost of \$800,000 to \$1 million. Instead, the rating agency accepts the Board and the communities borrowing from the Financial Assistance Program (FAP) to stand behind the bond issue.

Board chairman Robert S. Kerr, Jr., attributed the high rating by S&P's to the integrity of the OWRB's approval, monitoring and loan-servicing process which has remained constant.

"Although it took months of negotiation, our program emerged as unique in the nation, and we're proud of it," Kerr said.

Maher expects funds from the bond sale to be available for loans by September 1.

Be Water Wise In Your Garden

Although most of the summer has enjoyed adequate moisture, rainfall patterns in Oklahoma are whimsical at best. Gardeners need all the help they can get in stretching short rations of water when dry spells strike. Most vegetables require about an inch of water a week for healthy growth, but the challenge of dry spells can be met with a strategy of water conservation.

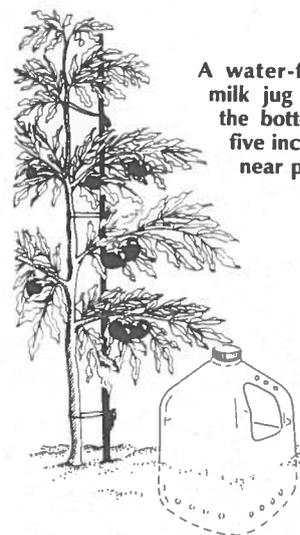
If the garden has no shade or wind-

break, consider other means of sheltering it. Shades constructed by stretching and tacking burlap over frames of 1 x 1-inch boards are effective in slowing moisture loss. They have the further advantage of being portable so they can be moved about the garden and stored at season's end.

Plants have particular periods of moisture sensitivity during their development: broccoli and cabbage, during head formation and enlargement; corn, tasselling through silking and ear-filling; onions, during bulb formation; potatoes, after initial tuber formation; and tomatoes from blossom-setting through fruit enlargement.

Carpeting planted areas with deep mulch will create an ideal environment—rich in nutrients and protected against heat, moisture loss and invasion by weeds. Pull weeds promptly

Continued on page 2



A water-filled plastic milk jug pierced near the bottom and inset five inches in the soil near plants releases water slowly.

Garden, continued from page 1

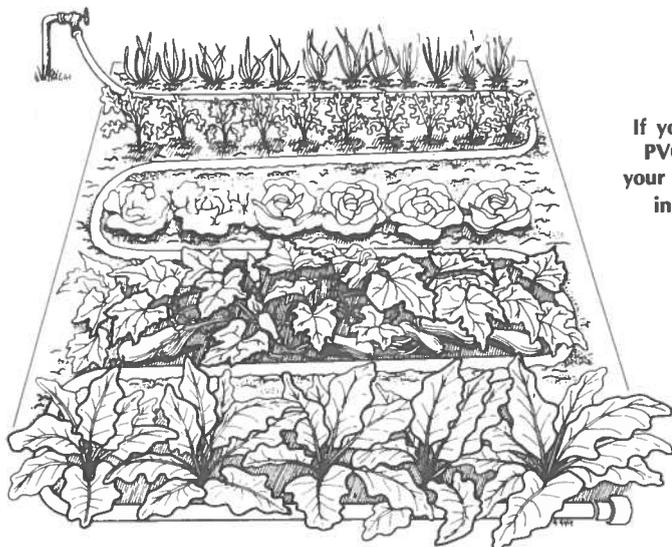
to prevent their stealing water from productive plants. Hardly enough can be said in favor of generous mulching as a water conservation measure. Half-inch layers of fine-textured mulch are as effective as a foot of coarse straw.

Even newspapers provide effective mulch

Inorganic mulches such as black plastic sheeting or aluminum foil are effective, but organic materials such as straw, pine needles, peat moss, leaves, bark and newspapers (except for color sheets) have the advantage of adding nutrients to the soil. Spreading mulch after a good rain retains moisture even more effectively.

In dry spells and drought, there are other ways of conserving precious moisture. In such times, do not stake or radically prune tomatoes, but rather allow them to sprawl along the ground to shade roots and soil. Also, let squash, cucumbers and other vines spread instead of training to a trellis.

For small gardens, the jug system of watering is ideal. Make small holes near the bottom of a gallon plastic milk or juice jug, (and a few near the top to vent the jug and allow the water to trickle slowly) then inset it five inches in the soil. Set jugs about two feet apart and fill once a week to keep the ground moist.



If you don't want to invest in PVC pipe and fittings, devise your own drip system by placing a flexible sprinkler hose face down and snaking it along garden rows. Turn water on gently to soak garden slowly.

Use a rain gauge in the garden to give you an accurate measure of rain, then supplement the rainfall with watering to give plants an inch of moisture a week. When it's necessary to water, loosen the soil so it can absorb the most water. Apply water slowly and evenly so it can penetrate deeply.

Deep, less frequent watering allows greatest absorption and is more efficient than frequent shallow waterings that feed evaporation. Water in the morning when the air is still, the humidity is highest and the temperature is lowest. Watering when it's hot gives up too much water to evaporation, while evening watering encourages fungus disease.

Constant moisture encourages continuous growth, maximum crop

Watering by drip irrigation is 40 to 60 percent more efficient than sprinkling or flooding, and has the further advantage of eliminating runoff and diminishing weed problems. Parts for a drip irrigation system constructed of PVC pipe for a modest backyard garden cost little more than a long-lasting, high quality garden hose. Water in a drip system moves through the soil by gravity and moistens the underlying soil to a depth of two-and-a-half to three feet.

—from "Drought Gardening" by Sue Hakala. Copyright 1981.



Violation Letters Mailed

The Water Pollution Control Division recently mailed letters to industries and commercial facilities which are not in compliance with their permits. According to Division Chief Dave Dimick, the letters will address both effluent and reporting violations associated with regular waste disposal permits and authorizations to discharge under general and statewide disposal permits.

The mailing is a result of recent OWRB staff efforts to develop a comprehensive tracking system and a new computer data base known as the Permit Information and Compliance System (PICS). The data base is used to compile self-monitoring report data and other information provided by the permittee to determine compliance with the permit. Then PICS generates a list of violations which the Division uses to prioritize enforcement measures.

Dimick says the new system will help the permittees remain in compliance and protect the waters of the state from pollution.

Corps Welcomes Col. Williams

Col. Otis Williams has been named to succeed Col. F. Lee Smith, Jr., as District Engineer of the Tulsa District Corps of Engineers. Change of command ceremonies were held July 14.

Col. Williams came to the Tulsa District from the Pentagon, where he was a Joint Requirements Planner with the Joint Staff. Previous assignments include duty in Thailand, Fort Benning, Georgia; Germany and Fort Belvoir, Virginia.

He has also served as an Assistant Professor of Military Science at Jackson State University, Mississippi; Research and Development Coordinator, Waterways Experiment Station, Vicksburg, Miss.; Engineer Staff Officer in the Office of the Assistant Chief of Engineers, Pentagon; and Chief of the Evaluation and Standardization Division at the U.S. Army Engineer School at Fort Belvoir.

Grand Lake Volunteer Training Big Success

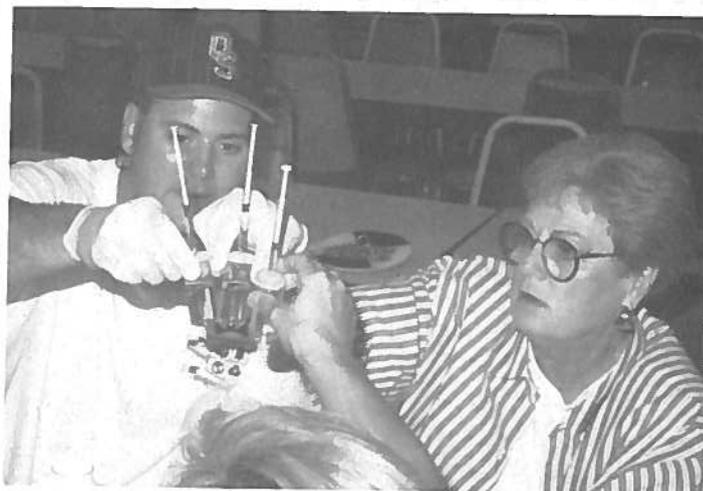
In the last issue, "Oklahoma Water News" described a citizens' water quality monitoring program underway at Grand Lake o' the Cherokees. In this issue, we show you Water Board trainers and volunteers at work in the successful program.

Since April, Water Board staff working in the Clean Lakes Program have recruited and trained more than two dozen Grand Lake residents who volunteered in the Board's citizen monitoring program. Volunteers will collect water samples and environmental data at 15 sites from the Twin Bridges to the dam. Bill Cauthron, who oversees the program, says, "In five years, our goal is to have citizen monitoring programs in place at 150 of Oklahoma's 650 significant publicly owned lakes."

The Environmental Protection Agency underwrites the cost of testing kits and other equipment used in the program, Cauthron said.



Joe Bowers, left, and Virgil Smith look at the data sheets they will fill out as part of each sampling expedition. Volunteers learn to perform tests for dissolved oxygen and pH, to determine color of the water and to use the secchi disk and thermometer.



TOP: Volunteer Leonard Cale checks sample of lake water for dissolved oxygen while trainer Keith Owen looks on. Talking to Owen is Terri Cole, also a volunteer. Participants are asked to collect water samples and data at least once a month from April through September.

RIGHT: Will Hickman of the OWRB shows Cecille Bales, executive director of the Grand Lake Association, how to test water sample for dissolved oxygen.

Keith Owen, principal trainer in the monitoring program, describes requirements to volunteers who attended the first orientation at Grove.



FINANCIAL ASSISTANCE PROGRAM UPDATE

Approved at May, June and July Board Meetings

Grants

Hughes Co. RWD # 6	\$50,000
Rogers Co. RWD #3	\$75,000
Town of Red Bird	\$28,000
Yale Water & Sewage Trust	\$40,000
Wayne PWA	\$30,000
Rogers Co. RSD #1	\$75,000
Deer Creek MA	\$15,000
City of Spencer	\$25,000
Town of Marshall	\$55,000
LeFlore Co. RWD #12	\$24,540

Loans

(3.592%; 27-year maximum term)

Goltry PWA	\$115,000
Wayne PWA	\$335,000
Inola PWA	\$140,000
Okemah UA	\$1,865,000
LeFlore Co. RWD #12	\$80,000

Totals as of 7/14/92

	FAP Loans	FAP Grants	SRF Loans
Approved	102	270	8
Amount	\$94,700,000	\$16,267,330	\$44,712,500
Funded	90	241	6
Amount	\$89,040,000	\$14,441,513	\$40,806,500

THE FLOOD CURRENT

Channel Upkeep Important

JULY-AUGUST 1992

Channel maintenance is always important, but no more so than during the summer when culverts, bridges and channels become clogged with trees, brush and garbage. Floodways become even more dangerous when this material subsequently reduces their flood carrying capacity. As a result, floodwaters leave their banks and cause extensive damage to houses, businesses, roads and farmland. Similar circumstances have prompted Choctaw residents and officials to pool their efforts in an attempt to seek relief from repeated flooding problems.

The majority of Choctaw's business district lies just north of Choctaw Creek in eastern Oklahoma County. As development has increased upstream in Nicoma Park, Spencer and Midwest City, so has the amount of stormwater runoff flowing into Choctaw Creek. And, because the creek has overgrown with trees and brush, waters frequently overflow the congested channel and flood area businesses.

To alleviate the growing problem, Choctaw City Manager Robert Floyd

recently spearheaded an effort to clean out the creek. Using funds from several businesses, the city and the Board of Oklahoma County Commissioners, Floyd was able to amass \$22,000 to clear two miles of Choctaw Creek.

"This spring, for the first time, Choctaw experienced no flooding as a direct result of this project," said Ken Morris, state NFIP coordinator. "Next year, the city plans to clean out the adjacent two miles of the creek to its confluence with the Canadian river."

Morris commends Choctaw and other communities with sound floodplain management programs. "Regular channel maintenance is extremely important, especially in frequently flooded areas. Choctaw officials have recognized this problem and made a concerted effort to pool limited funds to correct the situation. We encourage all communities to practice regular channel maintenance—it pays for itself by reducing flood damages," he pointed out.

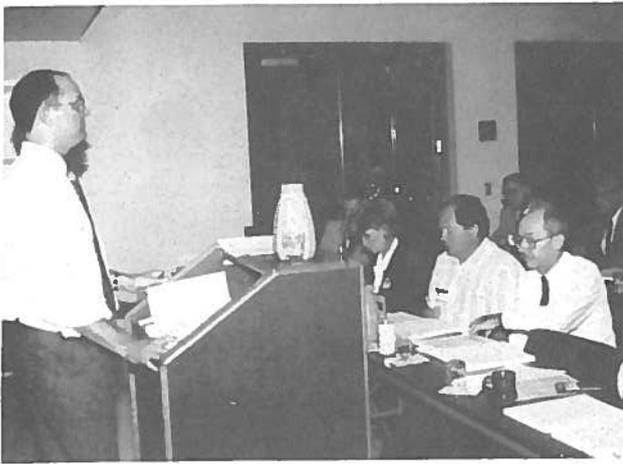
For more information on channel maintenance and floodplain management, contact Morris at (405) 231-2533.



To alleviate flooding problems, area businesses, Choctaw officials and the county pooled \$22,000 to clear a two-mile section of Choctaw Creek.

Facts You Should Know About the NATIONAL FLOOD INSURANCE PROGRAM

- ❖ There are currently 347 Oklahoma communities (including cities, towns, counties and one Indian tribe) participating in the NFIP.
- ❖ Of the 592 incorporated cities and towns in Oklahoma (representing 2,411,116 million people), 309 communities (2,277,544 million people, or 94.1 percent of the incorporated populous) participate in the NFIP and have access to the purchase of flood insurance.
- ❖ Thirty-eight of 77 Oklahoma counties participate in the NFIP. These counties represent 503,370 people, or 54.1 percent of the unincorporated township population.
- ❖ Overall, 88.4 percent of the state's population have access to federal flood insurance as a result of community participation in the NFIP. Only 364,666 of Oklahoma's 3,145,585 citizens live in areas not participating in the program.
- ❖ Unfortunately, only 11,232 possess a flood policy. These insured citizens pay more than \$3 million annually for flood insurance.



Workshops to update and inform community officials about the NFIP's Community Rating System (CRS)—such as the one shown at left held last October at the Metro-Tech Springlake campus in Oklahoma City—have proven to be an invaluable tool in communicating the benefits of the program to Oklahoma communities. The CRS program offers substantial savings to those exceeding minimum NFIP standards. Already this year, 10 cities and towns have signed up for the program, compared to five in 1991. A special CRS workshop for the top 50 communities participating in the NFIP will be held Wednesday, October 14 at Springlake Metro-Tech.

River Flooding, Erosion Normal

Although we consider rivers steady and constant, in truth, they are moving and changing all the time. With some regularity, restless rivers remind us that the floodplain really belongs to them and that flooding is a natural component of their life cycle.

The floodplain is actually part of the river channel. As a river moves along its channel (and more of the valley at flood stage), the river sweeps up particles of sand and clay and carries them along as sediment. In a moving stream, the motion of the water holds the particles in suspension. Larger particles remain suspended longer in a swift mountain stream than in a smooth flowing river at a lower altitude.

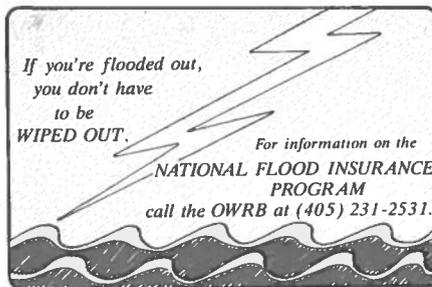
The vast Mississippi is the most sediment-laden river in the U.S., carrying an annual sediment load of 300 million metric tons. The load carried by rivers varies greatly from river to river and season to season. Watersheds of fine soil and sparse ground cover contribute enormous amounts of sediment with every rainstorm. Such an area may lose as much as 64,000 tons from each square mile in one year.

The amount of sediment carried by the world's major rivers is immense. China's Yellow River carries an annual sediment load of 1,600 million metric tons; the Ganges of India, 1,455 million metric tons; the Amazon of South America, 363 million metric tons; the Irrawaddy River in Burma, 299 million metric tons; and the Kosi of India, 172 million metric tons.

Biennial Reports Due

The Federal Emergency Management Agency (FEMA) and OWRB are asking Oklahoma communities participating in the NFIP to complete required biennial reports describing progress made in implementation of local floodplain management measures.

"Biennial progress reports provide us with accurate, up-to-date statistics on community populations and the number of houses and other structures in special flood hazard areas,"



says the OWRB's Ken Morris. "While much of this information was supplied by community officials when they first entered the program, these reports enable state and federal agencies to remain responsive to NFIP participants."

Previously, progress reports were required on an annual basis; they are now conducted on a two-year reporting cycle, Morris added. To date, FEMA has received approximately two-thirds of the 347 report forms sent to Oklahoma communities par-

ticipating in the federal program.

Morris encourages communities who have not yet completed their reports to do so as soon as possible and send them to the OWRB.

NEXRAD Manages Floods

Next Generation Radar (NEXRAD), a revolutionary new system which allows weather forecasters to better predict the movement and intensity of severe storms, may also reduce flooding problems.

NEXRAD's improved rainfall forecasting capabilities provide more accurate information on the contribution of runoff to major rivers and federal reservoirs, according to Don Burgess of the NEXRAD Operational Support Facility in Norman.

"By knowing how much rain falls in Ponca City, we'll know how it will contribute to the Arkansas River and what they should do to prevent flooding," Burgess said. As a result, a major benefit of the radar will be improved management of reservoirs during flood season by the U.S. Army Corps of Engineers.

More accurate and prompt precipitation data will give lake managers additional time to plan the timing and amount of floodwater releases from dams, thus preventing a repeat of past flooding problems experienced in Oklahoma and elsewhere. Burgess also pointed out that the radar's technological advancement will allow reservoir operators to impound additional supplies of drinking water for use during drier periods.

Information courtesy the "Tulsa World."

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**STORAGE IN SELECTED OKLAHOMA LAKES & RESERVOIRS
AS OF JULY 13, 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	121,731	98.1	N/A	Eufaula	2,314,600	2,314,600	100.0	9.7
Broken Bow	918,070	908,030	98.9	0.0	Tenkiller	654,100	654,100	100.0	7.0
Hugo ¹	187,603	187,603	100.0	0.9	Wister ¹	58,601	58,601	100.0	0.1
McCree Creek	113,930	113,930	100.0	0.4	NORTHEAST				
Pine Creek ¹	73,346	73,346	100.0	1.6	Birch	19,200	19,040	99.2	0.0
Sardis	274,330	274,330	100.0	2.0	Copan	43,400	43,400	100.0	6.2
CENTRAL					Eucha	79,600	79,600	100.0	N/A
Arcadia	27,520	27,360	99.4	0.0	Fort Gibson	365,200	365,200	100.0	4.3
Hefner	75,400	72,795	96.6	N/A	Grand	1,672,000	1,672,000	100.0	45.0
Overholser	15,900	15,169	95.4	N/A	Heyburn	7,105	7,105	100.0	0.3
Stanley Draper	100,000	90,775	90.8	N/A	Hudson	200,300	200,300	100.0	15.9
Thunderbird	119,600	118,820	99.4	0.0	Hulah	31,160	31,160	100.0	0.6
SOUTH CENTRAL					Oologah	553,400	553,400	100.0	19.0
Arbuckle	72,400	72,354	99.9	0.0	Skiatook	322,700	319,648	99.1	0.0
Texoma	2,643,300	2,643,300	100.0	1.2	Spavinaw	30,590	30,075	98.3	N/A
Waurika	203,100	202,695	99.8	0.0	NORTH CENTRAL				
SOUTHWEST					Kaw	428,600	428,600	100.0	13.9
Altus	132,830	131,041	98.7	0.0	Keystone	557,600	557,600	100.0	13.2
Ellsworth	72,490	61,537	84.9	N/A	NORTHWEST				
Fort Cobb	80,010	79,567	99.5	0.0	Canton	111,310	78,786	70.8	0.0
Foss ²	178,410	172,866	96.9	0.0	Fort Supply	13,900	13,900	100.0	0.4
Lawtonka	58,327	58,327	100.0	N/A	Great Salt Plains	31,420	31,420	100.0	2.2
Tom Steed	88,970	85,835	96.5	0.0	STATE TOTALS 13,054,422 12,969,946 99.4 4.6				

¹ Seasonal pool 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.

Mary E. Whitlow, Editor Barry Fogerty, Photographer Brad Nesom, Layout Artist Brian Vance, Writer

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