Oklahoma Water News

MONTHLY NEWSLETTER OF THE OKLAHOMA WATER RESOURCES BOARD

PUBLIC HEARING NOTICE

TENTATIVE MAXIMUM ANNUAL YIELD

WASHITA RIVER ALLUVIUM GROUNDWATER BASIN

Pursuant to 82 O.S. Supp. 1989, §§1020.6 and 1085.2, public hearings on the tentative maximum annual yield of fresh groundwater from three reaches of the Washita River Alluvium Groundwater Basin shall be held and conducted by the Oklahoma Water Resources Board at the dates, locations and times listed below.

At each public hearing, the Board shall present evidence of geological findings and determinations upon which the tentative maximum annual yield on the basin has been based. Any interested party may appear and present evidence or comments in response to, support of, or in opposition to the Board's tentative findings. Appearances at the hearings may be in person and/or by legal counsel. Evidence may be presented orally and/or in writing.

Prior to each hearing, copies of materials relating to the maximum annual yield determination shall be available for examination and inspection at a location listed below and the OWRB's main office, 1000 N.E. 10th Street, 12th Floor, Oklahoma City. If there are any questions concerning this matter, please contact the OWRB's Groundwater Division by letter at the address listed above or by telephone at (405) 271-2576.

REACH 1—Roger Mills and Custer Counties
September 17, 1:00 p.m.
Roger Mills Agriculture Pavilion; Cheyenne
Copies of materials available for examination at Cheyenne Public Library.

REACH 3—portions of Caddo and Grady Counties
September 19, 1:00 p.m.
Chickasha Public Library, 527 Iowa; Chickasha
Copies of materials available for examination at Chickasha Public Library.

REACH 4—McClain, Garvin, Murray, Carter, Johnston and a portion of Grady Counties
September 20, 1:00 p.m.
Nora Sparks Warren Public Library, 210 N. Willow; Pauls Valley
Copies of materials available for examination at Nora Sparks Warren Public Library.

585 Playas — When it Rains

The most elusive of all water resources is the playa lake, a round, saucer-shaped depression that relies on the whims of nature for replenishment. But if the lakes are elusive, perhaps information on them is even more so. One researcher declared that finding information on playas is "like trying to read a newspaper from the confetti swept off the floor after a carnival."

Adding still more mystery to the playas is their ephemeral (or transient) nature, holding water only during and after rainy seasons unless they are nourished by irrigation runoff. Playas are the phantoms of the High Plains, appearing and disappearing with rainy spells in Cimarron, Texas and Beaver Counties. After a thunderstorm, nearly 600 water-filled playa basins spangle the Ogallala region of Oklahoma, but only a handful survive for significant periods. Because the region receives only 15 to 22 inches of annual precipitation, and rain falls erratically as localized thunderstorms, playas are not dependable sources of water.

In the mid-1800s, western explorers and scouts discovered playas to be useful camping spots. Others, including Stephen H. Long, famed explorer and railroad engineer, found

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Playas, continued from page 1
them to be impediments to horse and wagon travel. If a cartographer crossed the region during a wet season, the resulting map would indicate abundant water. But those following the map's reference points during a dry season would encounter little water, if any. Journalist John Russell Bartlett traveled through the Oklahoma Panhandle for two days without finding water, passing several dry playas with such names as Mustang Ponds and Wild China Ponds.

Panhandle's unique saucer lakes gather rainfall and runoff

Playas form much like puddles during a rain, collecting runoff in areas where no external drainage exists, and there are typically no defined waterways entering or leaving them. The drainage area of a single playa lake varies from a few square miles to as much as 50 square miles.

The shallow depressions vary in diameter from a few hundred feet to several miles, but their water-surface area is seldom wider than one mile. Depths vary from a few feet to 40 feet, and this feature combined with large surfaces and arid climate make the basins prey to evaporation and seepage. At least 50 percent of playa water is lost to evaporation, and 10 to 15 percent (perhaps as little as a half-inch annually) percolates downward as recharge to the Ogallala Aquifer.

Oklahoma's exceptional playa is Wildhorse Lake, a vast playa modified by its Texas County owners to store irrigation water throughout the year. Originally covering 120 acres, the natural lake was deepened by a 30-acre hole that reduces the water surface to 34 acres and collects water from a 22,000-acre watershed.

Geologists conclude that playa depressions were formed by wind erosion during dry periods. Windblown material is 30 to 40 feet deep, and below that lies a layer of mixed fine sand and clay called caliche that acts as a seal against leakage. Thousands of years of scouring by sands borne on the persistent prairie winds and some alternate periods of leaching eroded the calcareous cement of the underlying caliche to carve out the hollows. Formation of playas probably occurred during two periods—5,000 and 17,000 years ago.

In general terms, playas are classified according to their persistence. Those considered perennial contain water more than nine months of the year; intermittent ones, three to nine months; and ephemeral playas last less than three months. Rainfall received in March, April and May is critical to the playas' life expectancy.

Oklahoma playas overlie the prolific Ogallala Aquifer, a Tertiary geologic formation consisting of sand, siltstone, clay, lenses of gravel, thin limestone and caliche. Surface soils of the Panhandle vary from shallow, sandy soils with outcrops of shale and sandstone to deep clay loams over heavy clay loams to areas of thick sandy loams.

Probably the most extensive study of Oklahoma's playa lakes was the Llano Estacado Playa Lake Water Resources Study performed by the Bureau of Reclamation and published in 1982. The study covered 85,000 square miles of the High Plains underlain by the Ogallala Aquifer. Although most of the study area lay in Texas and New Mexico, researchers also considered Oklahoma's Panhandle and other areas.

The study in the three Panhandle counties during the wet period identified 585 playa lakes with a total of 9,572 acres of water-surface. However, by the dry season, the number of lakes and their area had shrunk dramatically. According to the Llano Estacado Study, not a single playa in Cimarron County held any water during the arid period.

The value of water in such a dry region is nearly inestimable and certainly that water held in playa lake storage is the landowner's cheapest water supply. There is no doubt that humans and livestock benefit enormously from the Panhandle's resources, but wildlife are also beneficiaries. Lying on the Central Flyway, playas, wet or dry, offer ideal ecological settings by providing diversity to a habitat that is almost entirely cropland or pasture.

Most Oklahoma playas, such as Wildhorse Lake north of Guymon, overlie the immense Ogallala Aquifer in the west and Panhandle.

Runoff Pollutes!

As much as 90 percent of the pollution in our streams, rivers and aquifers is contributed through nonspecific runoff, or nonpoint sources, which washes a portion of everything in its path to local water supplies. Increasing population adds such large amounts of toxic pollutants to runoff that natural processes cannot effectively absorb them.

Requiring point source polluters to clean up their act does not go far enough toward protecting our water. The invisible actions of a collective population do far more damage. For example, the widespread use of oil and coal for energy and transporta-

tion in our high-energy use society, disrupted soil on farms and construction sites, unclean air, and mismanaged pesticides, fertilizers and other chemicals create a potentially poisonous mixture in our water supply with every rain.

No agency can comprehensively regulate all the activities that comprise this nonpoint epidemic. Each individual must make a personal commitment to regulate his or her own contribution to the degradation of our water supplies. Our increasingly crowded environment can no longer absorb casually discarded pollutants, even if such individual actions seem insignificant.

You can help! Be conscious of what the rainfall is washing into your drinking water. Read pesticide and fertilizer labels and use only what you need. Recycle paper, aluminum or glass in your garbage. Take used motor oil to a recycling facility, or see if your local service station will do so. Be frugal when watering your lawn. Substitute environmentally friendly substances for hazardous or toxic household cleaners and chemicals, and use waterbased paints rather than oils.

Now is the time to begin developing environmentally sound habits and work to insure that Oklahomans have safe drinking water for generations to come.

—Texas Water Commission

mainstream

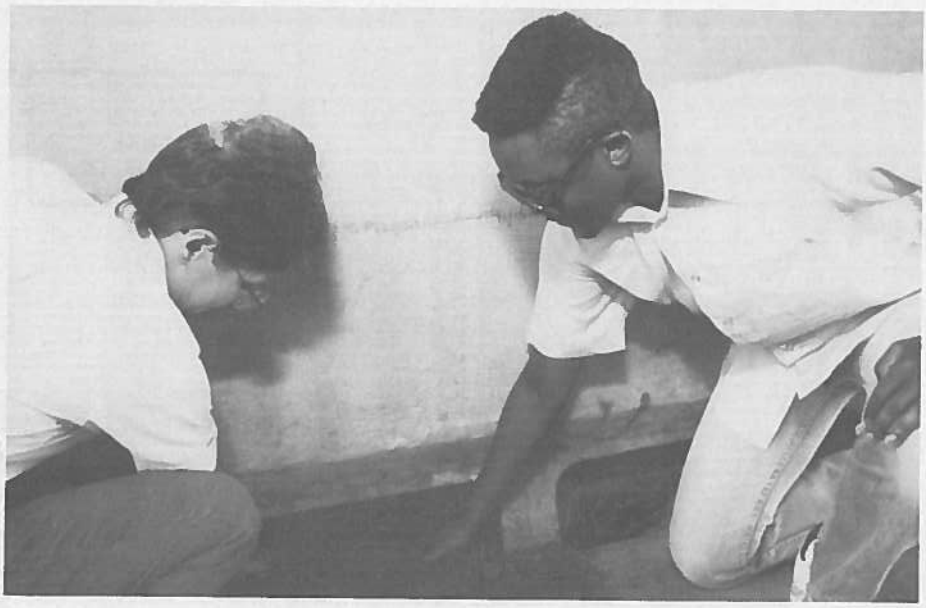
Meeting on Toxics Discharge

Oklahoma's policy regarding the discharge of toxic substances into state waters will be discussed September 11 at 7:00 p.m. in Oklahoma City at the Department of Wildlife Conservation Auditorium, 1801 North Lincoln Blvd.

The meeting will provide information and solicit public input on the OWRB's draft report "Narrative Toxics Criteria Implementation Using Whole Effluent Toxicity Testing" which is part of an effort by the Board to implement requirements of the Environmental Protection Agency regarding control of toxic pollutants in the country's rivers and lakes.

"New pollutants are being introduced into the environment faster than criteria can be developed. As a result, for many toxicants, there are no specific standards to regulate them," according to Dave Dillon, chief of the OWRB's Water Quality Division. Toxicity testing employs aquatic organisms to define the toxicity of wastewaters. Mortality rates determine the presence or absence of toxic substances.

Derrick Benn and Nancy Cain, of the OWRB's Water Quality Division, examine an Oklahoma City stormwater drain. Sediment, a major nonpoint source pollutant, chokes drains and pollutes state rivers and lakes.



Few Avoid EPA Promulgation

Oklahoma is one of only 10 U.S. states and territories that has avoided promulgation of water quality standards by the federal Environmental Protection Agency.

EPA officials take this action to establish water quality standards and bring all states into compliance with the federal Clean Water Act. The Act requires states to adopt criteria for all toxic pollutants for which levels of protection have been developed, including those pollutants which could interfere with the beneficial uses of state waters. According to Dave Dillon, chief of the OWRB's Water Quality Division, federal promulgation was unnecessary because 1988 Oklahoma Water Quality Standards correctly adopted numerical and narrative standards to protect aquatic life from toxic substances.

"Avoiding promulgation is important for Oklahoma because it keeps water quality control in the hands of the Water Board and other state environmental agencies," he pointed out. "The act of promulgation supercedes the rights of states in setting regulations for pollution control and, instead, places that authority with federal officials."

Of the 50 states and seven territories (including Puerto Rico, District of Columbia, Virgin Islands, Guam, American Samoa, Northern Mariana Islands and the Trust Territories of the Pacific Islands) which fall under the jurisdiction of EPA's 10 regions, 47 failed to be in complete compliance with federal pollution control mandates. Oklahoma is the only state in Region VI (which includes Texas, New Mexico, Arkansas and Louisiana) which conformed to the guidelines.

States are required to develop water quality standards which are at least as stringent as pollution control requirements mandated by EPA and the Clean Water Act.

Oklahoma's water quality standards, which are developed and promulgated by the OWRB, are reviewed and updated every three years.

STORAGE IN SELECTED OKLAHOMA LAKES & RESERVOIRS AS OF JULY 27, 1990

PLANNING REGION LAKE/RESERVOIR	CONSERVATION STORAGE (acre-feet)	PRESENT STORAGE (acre-feet)	PERCENT OF STORAGE conservation	flood
SOUTHEAST				
Atoka	124,100	124,100	100.0	N/A
Broken Bow	918,070	918,070	100.0	2.0
Hugo[1]	187,603	187,603	100.0	0.9
McGee Creek	113,930	113,930	100.0	3.0
Pine Creek[1]	73,346	73,346	100.0	2.0
Sardis	274,330	274,330	100.0	18.0
CENTRAL				
Arcadia	27,520	27,396	99.6	0.0
Hefner	75,400	69,065	91.6	N/A
Overholser	15,900	13,033	82.0	N/A
Stanley Draper	100,000	80,604	80.6	N/A
Thunderbird	119,600	98,781	82.6	0.0
SOUTH CENTRAL				
Arbuckle	72,400	72,400	100.0	1.0
Texoma	2,643,300	2,643,300	100.0	4.0
Waurika	203,100	198,524	97.8	0.0
SOUTHWEST				
Altus	132,830	96,435	72.6	0.0
Ellsworth	72,490	56,120	77.4	N/A
Fort Cobb	80,010	78,727	98.4	1.0
Foss[2]	256,220	174,578	68.1	0.0
Lawtonka	56,574	51,450	90.9	N/A
Tom Steed	88,970	82,460	92.7	0.0
EAST CENTRAL				
Eufaula	2,314,600	2,302,145	99.5	0.0
Tenkiller	654,100	654,100	100.0	0.4
Wister[1]	58,601	46,403	79.2	0.0
NORTHEAST				
Birch	19,200	18,358	95.6	0.0
Copan	43,400	41,144	94.8	0.0
Eucha	80,000	77,500	96.9	N/A
Fort Gibson	365,200	365,200	100.0	0.7
Grand	1,672,000	1,657,280	99.1	0.0
Heyburn	7,105	6,517	91.7	0.0
Hudson	200,300	200,300	100.0	2.0
Hulah	31,160	28,602	91.8	0.0
Oologah	553,400	544,037	98.3	0.0
Skiatook	322,700	309,790	96.0	0.0
Spavinaw	30,590	30,075	98.3	N/A
NORTH CENTRAL				
Kaw[1]	428,600	424,669	99.1	0.0
Keystone	557,600	557,600	100.0	1.0
NORTHWEST				
Canton	111,310	103,014	92.6	0.0
Fort Supply	13,900	13,484	97.0	0.0
Great Salt Plains	31,420	28,164	89.6	0.0
STATE TOTALS	**13,130,879**	**12,842,634**	**97.8**	**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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