

Oklahoma

Water
News

MONTHLY NEWSLETTER OF THE OKLAHOMA WATER RESOURCES BOARD

Maintenance of Henryetta Dam Example for Earth Dam Owners

Lake Henryetta dam in east-central Oklahoma was slowly decaying. The embankment of the 60-year-old structure was eroding and signs of seepage were evident. Cracks in the road crossing the top of the dam revealed obvious signs of stress. And landslides became commonplace on the back side of the dam, posing a serious threat to Henryetta's water treatment plant, as well as the property of other downstream residents. Dam inspection reports warned city officials that processes were at work which could weaken the internal portion of the aging dam and lead to sudden failure of the structure.

Tons of fill material were trucked in to combat the dam's subsidence, yet city officials discovered they could not effectively halt the problem. After several more years of short-term solutions, Henryetta had finally had enough.

To rectify the problem, the city contacted the OWRB's Engineering Division and, after discussions with staff, they filed an application to begin modifications on Lake Henryetta dam and spillway. Following approval by the nine-member Water Board last January, workers began removing vegetation and its harmful roots from the dam face and spillway. They

added material to raise and widen the structure, then sodded and flattened the downstream slope to prevent soil erosion and correct stability problems.

"Henryetta took care of its own problem without any pressure from the Water Board. The city has been very cooperative," said Harold Springer, Engineering Division chief.

Constructed in 1928, Henryetta Lake is situated on Wolf Creek, 4.5 miles southeast of the city. Because residential structures exist downstream, the reservoir has been classified as "high-hazard" by the Board.

The OWRB is responsible for the safety of non-federal dams in Oklahoma. In addition, anyone wishing to construct, enlarge, alter or repair such

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BEFORE: Lake Henryetta dam undergoing repairs in early 1986. Note dump trucks on top of dam attempting to fill in landslide area.

AFTER: Looking up the slope of Lake Henryetta dam as it appears now with trees and brush removed. Proper maintenance will keep vegetation off structure.



Henryetta, continued from page 1

a dam must submit an application to the Board. According to Springer, such requirements ensure that construction is accomplished in a safe and responsible manner.

“Henryetta did things by the book; they set a good example for others.”

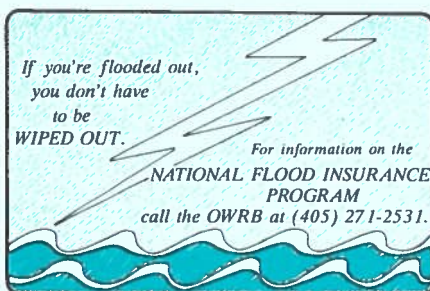
“In the past, we’ve had several cases where cities either didn’t file an application or submitted it too late. And, as a result, work done was inadequate. This was not the case with Henryetta—they filed a timely and complete application for repair of the structure.”

Normally, applications include maps, plans, drawings and specifications of the proposed work. Often, an engineer’s report is required by the Board. In addition, plans must be prepared by a registered professional engineer with training or experience in dam construction.

Like Henryetta dam, many municipal impoundments in Oklahoma were earthfill dams constructed in the 1930’s and 40’s, and thus, are in desperate need of repair, Springer said.

“In seeking to increase water supply of their reservoirs, cities have often added material to raise the top of dams without increasing stability of the structure’s base. To complicate matters, many have built roads on top of already unstable dams,” he noted.

“There are many out there who don’t understand that their aged dams may have a serious problem,” Springer added. “We want Oklahoma dam owners and operators to know that we are here to help them achieve safer and more sound structures.”



Board Approves Sequoyah Fuels Permit

Hoping to resolve a six-year controversy, the Oklahoma Water Resources Board has approved a state waste discharge permit for the Sequoyah Fuels Corporation nuclear facility in eastern Oklahoma.

At its September 14 meeting, the Board voted unanimously to allow the discharge of stormwater and other wastes—not including nuclear waste—from the facility which processes uranium for use in nuclear reactors. Legal interpretations of state authority in the matter and testimony from a 1987 Board hearing in Tulsa resulted in a permit which sets discharge limits on fluoride, nitrate, ammonia nitrogen, pH and flow. The permit also requires Sequoyah Fuels, a subsidiary of Kerr-McGee Corporation, to measure acute toxicity at one discharge point through biomonitoring, or the use of live organisms to test for the presence of harmful constituents. In the most far-reaching aspect of the case, the Board agreed with staff that the OWRB’s regulation of uranium discharges and disposal of radioactive wastes from Sequoyah Fuels was preempted by regulation of the federal Nuclear Regulatory Commission.

Industries which plan to discharge effluent into state waters must obtain a permit from the OWRB stating the

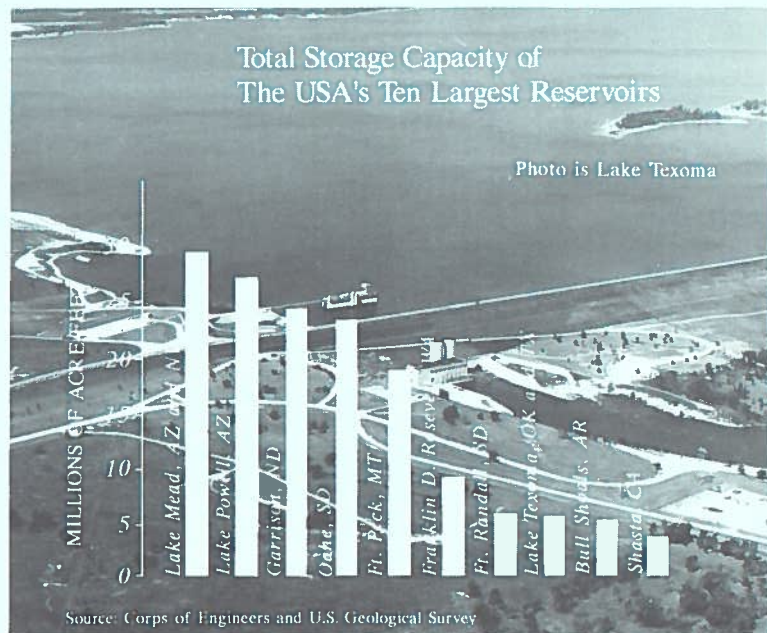
amount and nature of the waste. The Sequoyah Fuels facility discharges into ephemeral streams (those which have flow only during rainfall events) which run into the Illinois River south of Gore, Oklahoma.

Sequoyah Fuels was issued its first industrial waste discharge permit in 1977; in 1982, the facility applied for renewal of that permit. Several state and national environmental groups questioned stringency of the subsequent draft permit and a legal battle ensued after Sequoyah Fuels objected to several limitations in the draft document. A Supreme Court ruling in July 1987 allowed the Board to proceed with its administrative hearing on the permit.

Dave Dillon, Water Quality Division chief and the first of three OWRB staff members to make brief presentations at the Board meeting, said the permit must be consistent with water quality standards and federal effluent guidelines. He stressed that the primary question faced by both Board members and staff is “will the permit effectively prevent pollution to waters of the state?”

Duane Smith, OWRB Groundwater Division chief, had presided over the six-day long Tulsa hearing in 1987 and reviewed evidence and testimony

Lake Texoma Ranks 8 in Nation’s Biggest 10



submitted by both Sequoyah Fuels and the protestants. Smith described to Board members the huge volume of evidence gathered at the hearing. One of the primary findings reached, he said, was that ephemeral streams into which the facility discharges are indeed waters of the state, and as such, they must be protected.

Legal Counsel Dean Couch also briefed the Board on the legal issues of preemption raised earlier during the draft permit hearing and deliberation.

"Preemption is the most far-reaching issue the hearing examiner had to consider and it is probably the most difficult to determine," he pointed out.

Couch said that the hearing examiner took into account several cases recognized by the U.S. Supreme Court in which the high court concluded that states could not regulate disposal of radioactive waste. "The conclusion found here is that the OWRB cannot step in and take the NRC's place," he told the Board.

In keeping with Board rules and regulations, Sequoyah Fuels must adhere to a schedule which specifies times and conditions to achieve permit compliance. Due to concerns expressed at the hearing, the Board ordered that its findings and a copy of the permit be forwarded to the NRC, along with a recommendation letter urging the federal agency to monitor the Sequoyah Fuels facility and ensure that its discharges do not degrade Oklahoma waters.



Kansas Sets Innovative Plan

Kansas water officials are setting a 4-phase plan in place that they hope will double the yield of the state's reservoirs at a fraction of the cost of building new ones.

According to Joseph Harkins, director of the Kansas Water Office, the first phase involves the Kansas Water Assurance District No. 1, composed of 10 cities and private companies in the east that retail water and rely on supplies from the Kansas River. The

state government, which acts as water wholesaler, buys storage in federal reservoirs for water it sells to retailers.

The policy of the Corps of Engineers who build the dams is to charge storage fees based on current market value of federal dams instead of on lower original construction costs. But if Kansas recruits all four regions of the state into water assurance districts by 1996, the Corps will reduce the fees by basing them on original costs. Harkins says Kansas will get the equivalent of four new reservoirs that would each cost \$3- to \$4 million to build.

Water Atlas Update Underway

The OWRB has begun gathering lake information to update and revise "Oklahoma's Water Atlas."

According to Mike McGaugh, who is in charge of the revision process, the Board needs the help of cities and organizations who have information on Oklahoma lakes that are available to the public for recreational use.

"We've already sent out around 150 questionnaires soliciting information on state lakes and we've had responses from about half of those. We really appreciate the help," McGaugh said.

He urged any entity who owns or operates a public recreational lake to call the OWRB at (405) 271-2526 or write to his attention at P.O. Box 53585, Oklahoma City, 73152. McGaugh requests such groups to fill out and return a questionnaire which asks for lake uses, permits and fees required, lake restrictions, recreational facilities and other related information.

The Water Atlas is the Board's most popular publication. It has been widely acclaimed by federal authorities and has served as a model for other states.

USGS Offers Water Guide

With a little knowledge, rural homeowners can avoid some pitfalls that often accompany wells and septic tanks, according to a booklet newly available from the U.S. Geological Survey.

Entitled "Groundwater and the

Rural Homeowner," the 37-page booklet describes and illustrates the fundamentals of groundwater occurrence, common types of household wells and methods of preventing or solving ordinary well and septic system problems.

Hydrologist-author Roger Waller of the USGS points out that the book also deals with the familiar problems of shallow wells going dry, contamination from septic systems and concerns about well siting near former chemical dumps or on property subjected to prolonged use of agricultural chemicals. Tables at the back of the book list common problems with rural domestic water supplies, along with their probable cause and remedies, and sources of further information on the subject.

Single copies are free by writing the U.S. Geological Survey, Books and Open-File Reports Section, Box 25425, Denver, Colorado 80225.

Bulk copies cost \$1.75 each and are available from the U.S. Government Printing Office, Superintendent of Documents, Washington, D.C. 20402. Please request the book by title and number 02400103566-9.

Old-Time Farming New Again

The USDA recently awarded \$4 million in matching grants to 54 pilot projects that will field-test the benefits of organic farming—nowadays described as "low-input" or "sustainable" farming.

The techniques of times past reduce the use of chemical fertilizers, pesticides, herbicides and fungicides; encourage crop rotation and diversification. Crop rotation prevents insects and blights from establishing a foothold and increases the soil's ability to hold moisture.

Proponents compare low-input farming to baking a cake from scratch, and high-input farming to making it from a cake mix. They point out that low-input farming uses more people on the farm, which provides more jobs, and also diversifies the commodities produced. They declare the effort deserves support because it avoids the costs of cleaning up drink-

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ing and fishing waters, prevents contamination of groundwaters and possibly opens a market for sewage sludge as fertilizer.

Fans of old-fashioned farming say that "for society in general, the issue

of groundwater contamination is crucial, and there is also growing concern over pesticides in food."

The most successful organic farmers rotate crops of soybeans, corn, oats and hay. In the fall they plant rye and oats to prevent soil erosion and a

legume crop to put nitrogen into the soil for the next season. Such plantings minimize runoff of chemical nitrogen into the groundwater, which can become overrun with algae if excessive amounts of nitrogen are present.

**ACTIVE CONSERVATION STORAGE IN SELECTED OKLAHOMA LAKES AND RESERVOIRS
AS OF SEPTEMBER 23, 1988**

PLANNING REGION LAKE/RESERVOIR	CONSERVATION STORAGE (AF)	PERCENT OF CAPACITY	PLANNING REGION LAKE/RESERVOIR	CONSERVATION STORAGE (AF)	PERCENT OF CAPACITY
SOUTHEAST			Wister	62,560	98.9 ¹
Atoka	81,219	65.5	Sardis	288,852	95.5
Broken Bow	864,753	94.2	NORTHEAST		
Pine Creek	77,700	100.0	Eucha	63,500	79.8
Hugo	155,440	198.6	Grand	1,348,200	90.4
McGee Creek	100,586	92.6	Oologah	473,660	87.0
CENTRAL			Hulah	30,594	100.0
Thunderbird	93,135	87.9	Fort Gibson	365,200	100.0
Hefner	75,355	100.0	Heyburn	6,276	95.1
Overholser	15,935	100.0	Birch	19,200	100.0
Draper	83,050	83.1	Hudson	200,300	100.0
Arcadia	27,390	100.0	Spavinaw	29,000	96.7
SOUTH CENTRAL			Copan	43,400	100.0
Arbuckle	57,394	91.7	Skiatook	287,205	89.9
Texoma	2,365,006	89.7	NORTH CENTRAL		
Waurika	198,836	97.9	Kaw	428,600	100.0
SOUTHWEST			Keystone	616,000	100.0
Altus	81,052	61.0	NORTHWEST		
Fort Cobb	72,197	92.1	Canton	66,307	68.0
Foss	168,639	69.2 ²	Optima	3,000	— ¹
Tom Steed	84,071	94.5	Fort Supply	13,900	100.0
EAST CENTRAL			Great Salt Plains	26,598	84.7
Eufaula	2,136,866	91.7			
Tenkiller	590,169	94.1	STATE TOTALS	11,698,145	91.4³

1. In initial filling stage
2. Temporarily lowered for maintenance
3. Conservation storage for Lake Optima not included in state total
4. Seasonal pool operation

Data courtesy of U.S. Army Corps of Engineers, Bureau of Reclamation, Oklahoma City Water Resources Department, and City of Tulsa Water Superintendent's Office.

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