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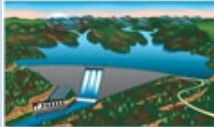
Some Dam – Hydro News™ And Other Stuff



Quote of Note: *"You should not confuse your career with your life."* - Dave Barry

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"Good wine is a necessity of life." - -Thomas Jefferson
Ron's wine pick of the week: 2013 Boekenhoutskloof Syrah & Shiraz (Other than French)
"Porcupine Ridge"
"No nation was ever drunk when wine was cheap." - - Thomas Jefferson



Dams:

(Now what?)

2nd analysis paints less perilous image of Buckeye Lake dam

By KANTELE FRANKO, Associated Press, bnd.com

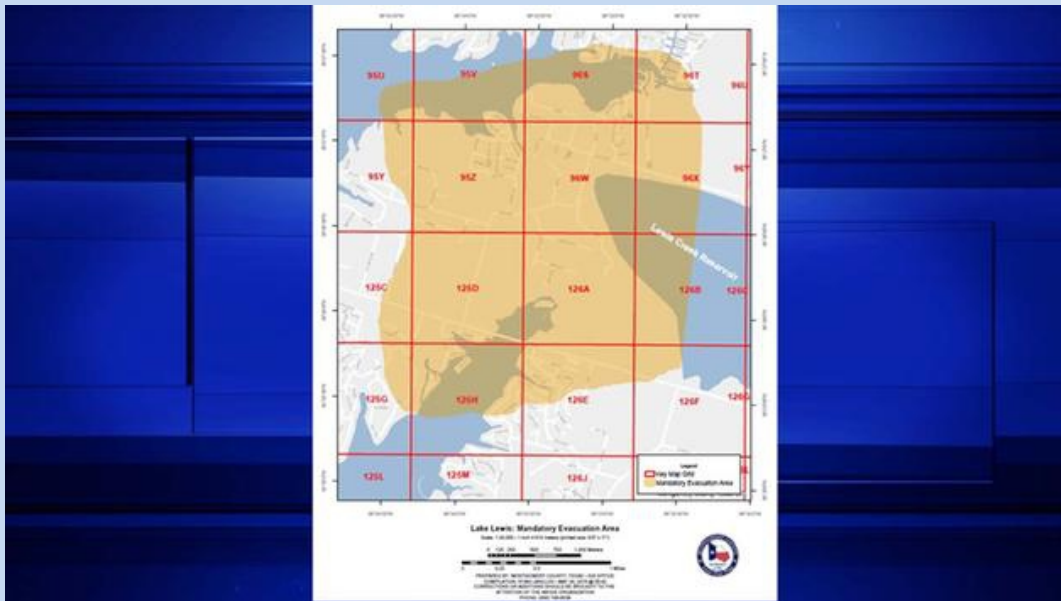
An engineering firm that analyzed a deteriorated dam at Buckeye Lake suggested Friday that changes could be made to raise the water level and keep boats and surrounding businesses afloat without decreasing safety, though state officials have some concerns about the proposals. A U.S. Army Corps of Engineers report released this spring warned the nearly 180-year-old earthen dam is at risk of failing, and the state decided to keep the water level low as a precaution. The state plans to build a new dam, with construction possibly starting next summer. Meanwhile, many locals are upset because the low water and related problems hinder boating, fishing and other water activities, thus hurting tourism and the local economy. The local chamber of commerce sought an analysis by Pittsburgh-based Rizzo Associates, which previously evaluated the dam's stability in 1997. The recent evaluation acknowledges concerns, such as large trees whose roots might create pathways for erosion, but found there's no imminent threat, consultant Paul Rizzo told local business owners Friday. He suggested the lake could safely be raised to

slightly below its usual summer level if changes were made to improve the flow of excess water. Specifically, he suggested lowering a spillway wall, a process that could take months, and clearing vegetation and other obstacles from a creek. "The takeaway here is to do something quickly to get the lake level back up to ensure commerce on this lake and still keep residents and the community safe," said Tim Ryan, the chamber president.

The Ohio Department of Natural Resources, which heard Rizzo's presentation earlier this week but hasn't received a final report, said it is concerned about downstream impact and the possibility that spillway changes would increase pressure on the dam, something Rizzo argues wouldn't happen. "We share the desire to get Buckeye Lake back to an active recreational pool level as soon as possible, however we cannot knowingly raise the water level without a proper plan that meets Ohio's dam safety standards," ODNR said in a statement. Owners say some of their businesses, such as marinas, already have suffered. Others are bracing for a down summer and trying to avoid extra expenses or capital improvements. "It's survival mode," said Buckeye Lake Winery owner Tracy Higginbotham, who's employing 22 fewer people than last year. He said he plans to sell his boat, too — a bit of a trend he's noticed among people living near the lake. The Army Corps of Engineers report traced the dam's unusual problems back to when parts of the embankment were sold for private use more than a century ago. About 370 homes have been built into it, along with docks, patios and other modifications that weakened the structure.

(If you go, go up hill.)

Mandatory evacuation orders canceled for Montgomery Co. households around dam



By John Fenoglio, May 24, 2015, abc13.com

CONROE, TX (KTRK) -- Authorities have lifted a mandatory evacuation order for residents living near the Lewis Creek Reservoir in Montgomery County. On Friday the Montgomery County Office of Emergency Management (OEM) issued a voluntary evacuation notice. As thunderstorms rolled over the Lake Conroe area this morning, a mandatory evacuation was issued but the order has since been canceled. "I've lived here for 31 one years and it's really scary," said Linda McCown. She is one of the approximately 900 residents who live below the reservoir. McCown decided it was time to go when she received a 'Code Red Alert' on her cell phone, the emergency alert system used by OEM to notify residents of imminent danger. "I'd been watching the weather,

hoping it would pass. But the rain came down hard. That's when my phone went off. I knew it was time to go." But McCown briefly returned to her home Sunday afternoon. "You think you know what to do. But I'm telling you in a disaster it's different. I mean I grabbed a Pepsi for God's sake and just left. You don't think, you just go. Then I remembered my family photos. If the dam breaches and my house is washed away, I can't replace those," she explained.

The reservoir dam is unstable. Persistent rainfall has exacerbated the dam's deterioration. The damp soil surrounding the dam is now extremely loose, causing it to slide. There are eight sections on the dam that are at risk of failing. In an effort to mitigate a potential disaster, Entergy Texas, the utility company that maintains the dam, has called in emergency crews to repair areas of concern. Entergy has also reduced the water level in the reservoir to prevent stress on the dam. While some residents have decided not to evacuate, despite repeated warnings, most aren't taking any chances. By Sunday afternoon, a steady stream of cars, trucks, and RVs could be seen making their way out of the evacuation zone. "There's a lot of money wrapped up in this," said Reed Rosales, as he helped neighbors load-up their livestock. "Just these cattle alone are worth maybe \$14,000.00. The horses are worth even more. This is just the right thing to do around here, helping each other out." OEM has pointed out that if a total dam failure occurs, there may not be enough time for people to escape a surge of water that could flood the area.

"Mandatory means mandatory," said OEM spokeswoman Miranda Hahs. She noted that authorities won't be forcing people out of their homes, but that it is in everyone's best interest to heed the evacuation warning. Mandatory evacuation orders had been in place through Monday morning. By late Sunday, OEM lifted the mandatory evacuation. A Red Cross Center is available to evacuees, located at The Lone Star Community Center: 2500 Lone Star Parkway, Montgomery, TX 77356. Pets are welcome at the Red Cross Center. However pet owners must supply their own leashes, crates, food, and water. No services will be provided for pets. Residents can sign up for Red Code Emergency Alerts by visiting www.mctxoem.org and clicking on the red icon.

(Here's your weekly dam removal article.)

Dams being removed, natural flow restored along 133-mile-long Des Plaines River

Associated Press, MAY 24, 2015 — startribune.com

VERNON HILLS, Ill. — Dams that have hindered the flow of the 133-mile-long Des Plaines River for more than a century are being removed to restore its natural flow, improve aquatic habitat and make the waterway safer for people who use it. Scientists say the dams, many built in the 1920s and 30s, have outlived their usefulness and are causing environmental problems along the river, which meanders from Wisconsin through northeastern Illinois, the Chicago Tribune reported Sunday (<http://trib.in/1FIX6W9>). Six dams have been removed since 2011, and more are coming down, including two near Vernon Hills that will be removed this summer. The barriers hurt water quality and limit fish migration, and cause safety hazards for paddlers and anglers. Removing them helps restore habitat for fish, insects and plants, experts said. "All communities benefit even if they don't ever see the river ... everyone needs clean water. Everyone needs the benefits that rivers provide," said Jessie Thomas-Blate, associate director of river restoration at American Rivers.

The Des Plaines River once flowed freely through northeastern Illinois' prairies and forests. Then farmers began using the dams for irrigation or to cross the river before bridges were built. The dams also were built to mask the smell of raw sewage that was being dumped in the river, and some were built to eliminate mud flats and marshland. The Des Plaines River dam removals mirror a nationwide trend, with 72 dams removed across the country last year. Most of the 1,185 dams removed from rivers and streams throughout the United States have been demolished in the last 20 years, according to the American Rivers database. In northeastern Illinois, dams also are being removed on the Chicago and Fox rivers. Once a dam is removed, it doesn't take long for the river to reclaim its natural path and, within months, plants that love mud return to formerly

submerged land along the river banks, said Rick Gosch, acting director of water resources for Illinois Department of Natural Resources.

(No resources to do the job right!)

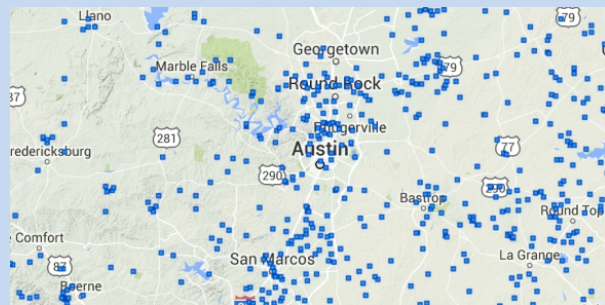
Bastrop State Park dam failure highlights safety

By David Barer, May 26, 2015, kxan.com

AUSTIN (KXAN) — More than 35 million gallons of water barreled down a Central Texas creek Monday evening, after flooding caused a century-old dam to burst in Bastrop State Park. “(The dam) just got overtopped. We had such a tremendous downpour on wet ground,” Bastrop County Judge Paul Pape told KXAN. “The spillway couldn’t handle the volume of water going in the lake... Once the dam became overtopped, it just became too much.” Pape said he is not aware of any other dams in Bastrop that are in danger of failing. But while nobody was injured, the dam break highlights the variety of dangers posed by powerful floodwaters in a state where floods are common, and thousands of aging dams are exempt from regular state agency inspection.



The Bastrop dam was last inspected in 2005, according to data from the National Dam Inventory. The Texas Commission on Environmental Quality conducts the bulk of all dam inspections in Texas, but more than 3,200 Texas dams are exempt from TCEQ inspection, said Warren Samuelson, dam safety program manager at the agency. TCEQ breaks down dams into three categories: low, significant and high hazard potential. Of the dams the TCEQ does inspect, Samuelson said the agency focuses on high-hazard dams, which could impact seven or more people that may be in homes, or businesses, or on roads downstream, among other criteria. “(A low-hazard dam) may be under our jurisdiction, but we don’t typically inspect them because they are low hazard,” Samuelson said. “We only have the resources to look at high- and significant-hazard dams.” The Bastrop State Park Lake dam had low-hazard potential, meaning it did not have people or roads that would be affected if it failed, Samuelson said. The TCEQ has about 4,000 dams under its jurisdiction, Samuelson said. After the TCEQ inspects its dams, the findings are reported to the owner of the dam, who must then make necessary fixes. The TCEQ also holds workshops to help teach people how to maintain dams. Dams are scattered throughout Central Texas, according to this map from the National Inventory of Dams. Each blue dot represents a dam of varying size.



About 97 percent of Texas’ 7,310 dams are earthen. Most dams are privately owned and have low-hazard potential, according to the National Dam Inventory, which is maintained by the U.S. Army Corps of Engineers. The inventory shows many dams in the state haven’t been inspected for more than a decade and some haven’t been inspected at all. Samuelson said those dams that do not list an inspection date likely haven’t been inspected because they are low hazard, or they do not fall under TCEQ jurisdiction anymore. As of Monday morning, Samuelson said he doesn’t have concerns about any other Central Texas dams, and his office had not heard of any other issues associated with dams. Nearly all areas of Bastrop State Park are currently closed, agency

spokesman Steve Lightfoot said. "We are in the process of inspecting the park and there will definitely be some cleanup involved," Lightfoot said. Pape said the lake is an important part of the aesthetics of the dam and officials will be looking to rebuild it.

(How are they so sure? Too close for comfort!)

Midlothian dam under review as more rain expected

WFAA, May 27, 2015, wfaa.com

MIDLOTHIAN, TX -- Engineers and builders at Padera Lake in Midlothian say it was a close call, but an earthen dam won't breach after all. Midlothian Police Chief Carl Smith said the TCEQ is inspecting to see if the dam is structurally secure, and will give engineers a resolution for keeping the dam from breaking during future rains. "I'm done with the rain for a while," Chief Smith said during a Wednesday morning press conference. The National Weather Service expected the levee to break Wednesday morning. U.S.



Highway 287 was being prepared to close near Kimble Road in case the road became flooded. Up to 15 feet of water was possible. Stephanie Parker with the Ellis County Emergency Management Agency told News 8 that more than two dozen people living near the dam were notified of the potential break, and livestock was moved to higher ground.

(Bet the spillway is too small.)

Texas dam under review as more rain expected

WFAA, May 27, 2015, wtsp.com

(WFAA) MIDLOTHIAN, Texas --

Engineers and builders at Padera Lake in Midlothian say it was a close call, but an earthen dam won't breach after all. They are still waiting on official word from the Texas Commission on Environmental Quality. The National Weather Service expected the levee to break Wednesday morning. U.S. Highway 287 was being prepared to close near Kimble Road in case the road became flooded. Up to 15 feet of water was possible. Stephanie Parker with the Ellis County Emergency Management Agency told News 8 that people living near the dam were notified of the potential break, and livestock was moved to higher ground. Officials had been trying to slow down the process for several days, as rain added more water to the small lake. They were draining it from the bottom of the dam Monday morning, as soil was seen eroding and water was spilling over the top. To make matters worse, the National Weather Service just issued a Flash Flood Warning for Ellis County, which includes Padera Lake.

(Some Dam history.)

Hoover Dam: A Symbol of Simple Strength

By: Pete Sigmund - CEG EDITORIAL CONSULTANT, 5/26/2015, constructionequipmentguide.com

In 1931, while the United States was flat on its back in the Great Depression, the country rose from the mat, flexed its muscles and began building the mighty Hoover Dam, not only taming the angry, flood-prone, Colorado River but also demonstrating the distressed nation's determination to survive economic fear. A curved solid concrete structure conveying simple strength as it blocks

the cleft between the walls of Black Canyon, the dam extends 1,244 ft. (379.2 m) between the canyon walls and is 726.4 ft. (221.3 m) high, with a concrete base 660 ft. (201 m) thick and a two-lane highway on top. Hoover contains 3,250,000 cu. yds. (2.6 million cu m) of concrete, which has been compared to the amount of concrete in a 16-ft.-wide (4.9 m) highway between Pensacola, Fla., and Seattle, Wash. The awesome, graceful wall of concrete was built by men who swung over canyon walls, stacked large concrete forms atop each other hundreds of feet above the ground and slogged through wet concrete to maintain consistent quality.

Ninety-six construction workers died at the work site, and numerous others in hospitals after accidents during the project. (The contractors didn't count hospital deaths in the tally.)

Hoover Dam entered the national psyche, such a symbol of hope in a time of national distress that it was featured on the cover of Life Magazine in the 1930s.

Daunting Challenge

The Federal Government and some of the early settlers were looking at potential dam sites on the Colorado to meet water needs as early as the 1880s. The importance of stemming the Colorado's fury became more obvious as the Imperial Valley of California and the nearby Yuma, Ariz., area developed into major agricultural centers in the first decades of the 20th Century.



In 1931, the new planned dam was unofficially called Hoover Dam to honor President Herbert Hoover, whose term was to end in 1933.

"The river flooded every spring and basically wiped out the farms," said Robert Walsh, external affairs officer in Boulder City, Nev., of the U.S.

Bureau of Reclamation [formerly the U.S. Reclamation Service], which oversees the dam. "Another problem was that, if the river didn't flow well in September, there wasn't enough water to irrigate the farms. Flooding and water supply were the main reasons the dam was built." Another purpose, of course, was power. Generators in the dam's powerplant could produce electricity for Los Angeles, Las Vegas and numerous other cities. Damming the river was a daunting challenge. After a flood poured down the Gila River into the Colorado and then swept into Yuma Valley in 1916, Arthur Powell Davis proposed a dam of unprecedented height in Boulder Canyon on the Arizona-Nevada border. (Davis was not only director of the Reclamation Service but also a nephew of Maj. John Wesley Powell, who completed the first recorded trip through the Grand Canyon in 1869.) Davis had been pushing the dam idea as early as 1902. His, and other, efforts gradually bore fruit in recommendations to Congress for a "high dam," culminating in the Boulder Canyon Project Act being signed by President Calvin Coolidge in 1928. As workers from all over the country headed for the construction area, the Bureau of Reclamation awarded the dam contract to a joint corporation of western contractors called Six Companies Inc. The contractors were Bechtel & Kaiser, San Francisco; MacDonald & Kahn, San Francisco; Morrison-Knudson Co., Boise, Idaho; Utah Construction Co., Salt Lake City; J. F. Shea, Portland, Ore.; and Pacific Bridge Co., Portland. The winning bid was \$48,890,995. It included salaries, dynamite, and equipment such as trucks, but not construction materials such as the 5.5 million barrels of cement, and 55,000 tons of steel plants and castings that were used. It would be the highest dam, the costliest water project and the largest power plant up until that time.

Dauntless Workers

Job-seekers began showing up near the Black Canyon site, which was approximately 30 mi. downstream from the original Boulder Canyon proposed location, even before the contract was

awarded. "There are stories that some men applied five or six times under different names when hiring began after the award," Walsh said. "The pay for laborers was \$1.60 per day, which was considered very good money for the 1930s, when no jobs were available."

The average age of a laborer was 35, meaning that the workforce included some veterans of World War I.

All risked their lives.

"High-scalers" climbed down the canyon walls on ropes to remove loose rocks before work could begin. Including former sailors, circus acrobats, Native Americans and others, they drilled holes into the rock with 44-lb. (20 kg) jackhammer drills, loaded the holes with dynamite and were pulled out of the way. After the explosion, they crowbarred loose any broken rock that remained. "The scalers had to pick their way through a maze of live air hoses, electrical lines, and bundles of drill steel that festooned the cliffs," according to the Hoover Dam Web site (www.hooverdam/). "The danger from falling rocks and dropped tools was extreme. Being struck by falling objects was the most common cause of death during the dam's construction." The men began making improvised hardhats for themselves by coating cloth hats with coal tar. These 'hard-boiled hats' were extremely effective."

(Later, the Six Companies issued commercial hard hats to every worker, reducing fatalities.) The scalers were a daring lot. "When the foremen weren't looking, they would swing out from the cliffs and perform stunts for the workers below," the Web site states. "Puddlers" slogged around in large boots, working the heavy concrete into holes. "It was very difficult, physically demanding work," Walsh said. "When the concrete was placed, they had to actually get into the concrete and walk around in it using pneumatic vibrators to make sure the concrete got into tight spots and corners, without air pockets." "Muckers" removed debris from excavations after dynamite blasts. The work went ahead 24 hours a day — the day shift, swing shift, and graveyard shift. Arc lights, purchased from a bankrupt San Francisco ballpark, lit Black Canyon for the night work. The maximum number of men working at Hoover Dam at any one time was 5,200. The average number during the four years between 1931 and 1935, when the dam was completed, was 3,500.

Company Town

The Six Companies began construction of Boulder City, a company town to house its workers, in 1931. It was known as the best "construction camp" in the world. Approximately 7 mi. from the dam, the town accommodated about 5,000 men in 1,050 wooden structures set on the windswept desert. Married men lived in separate cabins, others in large "refrigerated" dormitories with individual 7 ft. by 10 ft. rooms. A caterer served food, including ice cream, in a mess hall. Beer was sold—but no hard liquor. Most workers traveled to the dam and back on the company's large double-decker buses. "A portion of the salaries of single workers went to the company to pay for living expenses and transportation," Walsh said. The laborers were noted for always wearing clean shirts while in the town. Only one major crime, a holdup, was recorded during the four-year construction project. According to the Web site, the men who built the dam have "... been in most of the states of the Union and can find his way in a dozen different kinds of unskilled and semi-skilled labor — a hoist in a Pennsylvania coal mine, a saw in Oregon, a shovel on a dozen road jobs." The workers adopted a black dog, born under one of the barracks, as their mascot. For many months, the dog acted as a fellow laborer, riding a bus to and from the dam, racing happily back and forth across the swinging catwalks 700 ft. above the river, and barking when he wanted to get to a particular work site on the "skips," a type of open-air elevator. (The operators always stopped for him.) Every morning, the commissary packed him a lunch, which he carried in his mouth. When the mascot was run over by a truck at the dam, "tough, hard-rock men wept openly ... it was the quietest afternoon Boulder City ever experienced," the Web site said. The men carved out their mascot's grave in the canyon wall. Today, a plaque on the canyon wall next to Hoover Dam's visitors center is dedicated to the dog that became part of the dam's story.

How They Did It

Preliminary designs for a giant dam on the Colorado were being prepared by the Bureau of Reclamation several years before it was authorized in 1928. "The big questions were where to

locate it, and how large it would be,” Walsh said. “Shortly after the authorization, plans really moved forward.” The site selected was 35 mi. southeast of Las Vegas. The dam would be on the boundary of Arizona and Nevada, half in each state, with the river as the dividing line. It would be the highest dam in the world up until that time. Behind it, the blocked waters would form the Lake Mead reservoir, one of the largest man-made bodies of water in the world — 115 mi. long and 589 ft. deep. This would cause a maximum pressure of 45,000 lbs. per sq. ft. at the dam’s base. The dam itself was a gargantuan project, preceded by huge preliminary work to divert the river. One of the massive first steps was diverting the river’s water by drilling and blasting 4,000-ft.-long (1,219 m), 56-in.-diameter (142.2 cm) diversion tunnels, two on each side of the river, several hundred feet upstream from the dam site. These tunnels, lined with 3 ft. of concrete, went through the canyon walls around the site and emptied into the riverbed.

To turn the river into the tunnels, workers built two temporary cofferdams below the tunnels. They first constructed temporary trestles above the water. Trucks then dumped rocks and/or earth into the river to slowly erect the dams and stop up the river. An upper cofferdam, 600 ft. downriver from the inlet portals of the tunnels, was 98 ft. (30 m) high, reaching approximately 30 ft. (9 m) above the top of the tunnels. It was 450 ft. (137.2 m) long, 750 ft. (229 m) thick at its base, and contained 516,000 cu. yds. (394,510 cu m) of earth and 157,000 cu. yds. (120,035 cu m) of rock. Six-inch-thick concrete over 3 ft. of rock protected the upstream side and thick rockfill protected the downstream side. Before they could build this first dam, workers had to remove 250,000 cu. yds. (191,139 cu m) of river silt to provide a firm foundation. A lower cofferdam, built of compressed earthfill, was 66 ft. (20 m) tall, 350 ft. (107 m) long, and 550 ft. (168 m) thick at its base. It contained approximately 230,000 cu. yds. (175,848 cu m) of earth and 63,000 cu. yds. (48,167 cu m) of rock. A thick rock fill covered the downstream side of this dam. To lessen the force of water hitting the lower dam during floods, a rock barrier was built 350 ft. downstream from it. This barrier was 54 ft. (16.4 m) high, 375 ft. (114 m) long, and 200 ft. (61 m) thick at the base. It contained approximately 98,000 cu. ft. (2,775 cu m) of rock. After the tunnels and dams were completed, the Colorado was diverted around the construction site on Nov. 14, 1932, well before the spring floods of 1933, which the tunnels handled without problems.

The Dam’s Epic Construction

The dam itself rose slowly, like a concrete giant, from the riverbed. The first concrete for the dam itself was placed on June 6, 1933, and the final concrete on May 29, 1935. Aggregate came from a 100-acre alluvial site 6 mi. upstream on the Arizona side of the Colorado, where floodwaters had deposited smooth rounded stones for millions of years. Excavated by dragline, the aggregate was loaded into rail cars and carried to a screening and washing plant on the Nevada side. Here, four screening towers separated it into fine, intermediate and course gravels, which then went by rail to a river-level mixing plant approximately 4,000 ft. above the dam site. At the plant, sand, water and Portland cement were mixed with the aggregate to make concrete for the dam or diversion tunnels. Loaded into buckets and transported to the job site by truck or electric train, the concrete was placed in the dam using 4 and 8-cu.-yd. (3 to 6.1 cu m) bottom-dump buckets, which were lifted from the cars and lowered into place by nine overhead cable ways. (The Mack trucks on the Hoover Dam project were the largest in the world at that time. Powered by 250-hp (186.3 kW) engines, they could carry 16 cu. yds. (12.2 cu m) of earth, twice the capacity of other trucks.)

A very dry fix was used to produce the required high-strength concrete. Crane operators who moved the buckets into place had to work fast so that the concrete wouldn’t begin to set. As each bucket was dumped, seven puddlers used shovels and rubber-booted feet to distribute the concrete throughout the form, and pneumatic vibrators to ensure there were no voids. Rather than being a single block of concrete, Hoover Dam rose piece-by-piece as a series of individual trapezoidal columns, which were interlocking blocks, each five ft. high, built on top of each other. This approach allowed the tremendous heat produced by the curing concrete to dissipate. “It [the dam] was actually a jumble of concrete boxes rising upward in fits and starts, a horizontal five-foot-thick layer poured first on one column, then on another,” said author Joseph E. Stevens in his book Hoover Dam, An American Adventure (University of Oklahoma Press, 1988).

According to the Hoover Dam's Web site, "Bureau of Reclamation engineers calculated that, if the dam were built in a single continuous pour, the concrete would have gotten so hot that it would have taken 125 years for the concrete to cool to ambient temperatures." Stevens wrote that "the only answer was to pour in individual blocks no more than five feet thick, and to honeycomb these blocks with 1-in. diameter pipe through which cool river water and then ice-cold refrigerated water could be pumped." As the dam rose, a new completely automated concrete mixing plant was built on the rim of the canyon. It could produce 24 cu. yds. (18.3 cu m) of concrete every three and a half minutes. When completed in 1935, Hoover Dam had used more than 5 million barrels of Portland cement and 4.5 million cu. yds. (3.4 million cu m) of aggregate. The first man-made structure to exceed the masonry mass of the Great Pyramid of Giza, it became an American construction icon almost immediately. One can ride (or walk) over the dam on the two-lane U.S. Highway 93, which was built on top as part of the dam project. Arched spillways 27 ft. below the top, one on each side, would send any water getting that high into steep tunnels which connect to the diversion tunnels. They've only been used twice — in 1941, to test the system, and in 1983, to divert overflow from a flood. Each spillway has four, 5-million-lb. gates, which can be automatically raised or lowered according to the height of the water. President Franklin D. Roosevelt dedicated this massive structure as "Boulder Dam" on Sept. 30, 1935. That (or Boulder Canyon Dam) had been its original name in early plans for a site further upriver. In 1931, the new planned dam was unofficially called Hoover Dam to honor President Herbert Hoover, whose term was to end in 1933. Changed back to Boulder Dam under Roosevelt's administration, it was officially named Hoover Dam once again by action of Congress in 1947. Total cost for the entire Hoover Dam project has been estimated at \$385 million, with the dam itself costing \$120 million.

Many Rewards

Hoover Dam now releases a normal stream of water for irrigation throughout the year, avoiding the devastating floods of the early 20th Century. The dam also allows mud and silt to be removed as precipitate, simplifying irrigation. Water from Lake Mead can irrigate more than 1 million acres of farmland in California, Arizona and Nevada, increasing crop production by 120 percent. Shortly after the dam was completed, the All American Canal also was completed as part of the project along the north side of the U.S.-Mexico border, from the Colorado River at Yuma, Ariz., to the Imperial Valley, assuring a constant source of water for irrigation. Hoover Dam's flood protection allowed the creation of Lake Havasu further downstream. This reservoir supplies water to the cities of Southern California and Arizona. The Colorado River Aqueduct, stretching across 240 mi. of desert and mountain to the Pacific Coast, was built by the Los Angeles Metropolitan Water District with Hoover Dam power. It began delivering water to Los Angeles in 1941. At the foot of the dam, a powerhouse contains 17 large generators, each producing enough electricity to service 100,000 people. The generating capacity of the Hoover Powerplant reached 1,334,800 kilowatts in 1961. From 1938 until 1948, the Hoover Dam power plant was the largest hydroelectric producer in the world. Nine turbines were producing more than 700,000 kW by the end of 1939, producing electricity for Los Angeles, Pasadena, Calif., Las Vegas and other cities, and supplying power to aircraft, steel and aluminum plants on the West Coast during World War II. Before 9/11, approximately 1.2-million visitors per year paid to tour the dam and its interior. Many visited the dam without paying (simply enjoying the view). The number of paid visitors is climbing back to an expected one million this year. Frank T. Crowe, America's foremost dam builder who was the widely respected general superintendent for the Six Companies in constructing Hoover Dam in record time, summed it up: "There's something peculiarly satisfying about building a great dam," he said in 1943. "You know what you build will stand for centuries." (Further information is available on www.hooverdam.com and in Hoover Dam, An American Adventure, by Joseph E. Stevens (University of Oklahoma Press, 1988).
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(Flood control at work.)

Army Corps of Engineers monitors Addicks and Barker dams and reservoirs

U.S. Army Corps of Engineers, Galveston District

Story by Isidro Reyna

The U.S. Army Corps of Engineers, Galveston District, is closely monitoring the Addicks and Barker dams and reservoirs in West Houston as part of stage one of an extended watch that calls for an increased surveillance of the flood risk management structures.

HOUSTON – The U.S. Army Corps of Engineers, Galveston District, is closely monitoring the Addicks and Barker dams and reservoirs in West Houston as part of stage one of an extended watch that calls for an increased surveillance of the flood risk management structures.

“The Addicks and Barker dams and reservoirs are performing as intended, which is to reduce the flood levels along Buffalo Bayou and protect the City of Houston,” said Col. Richard P. Pannell, USACE Galveston District commander.

“Public safety is our number one priority as we work with our partners –the City of Houston, Fort Bend County, Harris County, and the Texas Department of Public Safety – to monitor the dams and reservoirs.



Addicks & Barker Dams and Reservoirs

The Corps remains in contact with the Texas Department of Transportation and Harris County Flood Control District to provide status updates as the impoundment of rainwater in the Addicks Reservoir could result in flood water impacting State Highway 6 between Clay Road and Interstate 10, which is located inside of the reservoir. The USACE Galveston District staff will continue to closely monitor conditions and provide updates as the situation changes. Constructed in the 1940s, both reservoirs are normally kept dry to preserve their overall capacity to impound storm water and reduce flood levels in Buffalo Bayou. When a rain event occurs, the gates are closed on the Addicks and Barker dams to reduce flooding below the reservoirs. When the downstream runoff has receded to non-damaging stages, reservoir operations resume, the gates are opened, and water is released. The USACE Galveston District was established in 1880 as the first engineer district in Texas to oversee river and harbor improvements. Its main missions include navigation, ecosystem restoration, emergency management, flood risk management and regulatory oversight. To learn more about the Addicks and Barker Dam Safety Program, visit www.addicksandbarker.info. For more news and information, visit www.swg.usace.army.mil. Find us on Facebook www.facebook.com/GalvestonDistrict or follow us on Twitter, www.twitter.com/USACEgalveston.

(You wonder if the anti-dam folks read this stuff!)

Unfunded dams could have saved millions in flood damage

Oklahoma dams typically save \$88 million in flood damage annually

By Brittany Harlow, krmg.com, 5/27/15

TULSA, Okla. — More than 300 unfunded dams are planned for Oklahoma, but haven't been built yet. "We've identified areas where dams could be used to prevent damages and save lives," Oklahoma Conservation Commission representative Robert Hathorne said. "On average, it's about \$2 million a year to maintain the 2107 dams that we have and in exchange we are receiving millions and millions of dollars in damage that's not occurring."

The USDA Natural Resources Conservation Service Water Resource Office said had the 331 planned dams been in place, they would have prevented \$6.1 million in flood damage over the Memorial Day weekend alone. Current flood control dams prevented \$96.3 million in flood damage to land, homes and businesses over the last couple months. The USDA estimates an additional \$21.4 million could have been saved April 18 through May 25 if the unfunded dams had been built.



LETTERS TO THE EDITOR MAY 28, 2015

Build our dams

fresnobee.com

Unlike the headline on your article in Sunday's Fresno Bee, almond farmers are not the villains in our drought — politicians and extreme environmentalists are. I suggest you write an article urging Gov. Jerry Brown to build the dams he promised the people, and for which the people voted funds in our last election. Temperance Flat Dam will be built behind the existing Friant Dam and the other dam built on top of the existing Shasta Dam. Both proposals will have little or no impact on the environment because they will be built to support existing structures. The last two May storms could have served a larger purpose if we had more dams to store the runoff, rather than see the precious water simply go down the drain. Our country has been systematically depriving itself of its resources for the past 60 years. The day of reckoning has come.

CHUCK DEFINA, MADERA, CA



Hydro:

(More hydro on the way.)

Construction underway for hydroplant that will power 18,000 homes

May 25, 2015, kcci.com

The lake is already a great place to go fishing and boating, and it will be just a few years until it will be used to power 18,000 homes using the energy of stored water from the existing dam. Construction on the \$380 million project began in August 2014.

"When they're working, you hear a lot of noise down here," Ted Loynachan said. Loynachan worked on the dam when it was first built more than 50 years ago.



Copy obtained from the National Performance of Dams Program: <http://npdp.stanford.edu>

"I was right in the intake of this site here when [John F.] Kennedy was shot," he said. It's a project Pella Mayor James Mueller has been watching from the beginning. "I think they're very excited about this," he said. The dam will soon generate more than 36 megawatts of energy to power 18,000 homes. Mueller said the clean, hydroelectric energy certainly beats the old coal-fired power plant. "I'm really looking forward to the first time that they really hook up and flip the switch and we start generating some power out of the plant," Mueller said. Proponents said it will stabilize energy resources for the next 40 years or more, generating hundreds of jobs along the way. The completion date for this project is set for spring of 2018.

(Thank goodness it's not all bad news in Texas. Now, get out the big shovels.)

Construction kicks off for hydroelectric plant near Houston

May 27, 2015 | By Jordan Blum, fuelfix.com

The East Texas Electric Cooperative, the Trinity River Authority and other participants broke ground Wednesday on the new hydroelectric power plant at Lake Livingston. (ETEC) Houston is oil and gas country, but hydroelectric power is coming to the region through Lake Livingston. The East Texas Electric Cooperative, or ETEC, broke ground Wednesday on the new 24-megawatt hydroelectric plant will power about 12,000 eastern Texas homes and generate about \$1 million annually for the city of Houston for the right to use city facilities at the lake. The power plant at the existing Lake Livingston dam is scheduled for completion in 2018. The plant is rarity for Texas as a state with limited water resources and with hydroelectric plants already built decades ago along many of the states existing dams and reservoirs. Less than 1 percent of Texas's power comes from hydroelectricity, according to the Electric Reliability Council of Texas.

Because of those valuable water resources, the ETEC is emphasizing that the plant is a "run-of-the-water" model that does not impact the exist water levels or flow, nor does it take away from the water designated for Houston drinking water or for industrial use. The plant generates power from water already running through the Trinity River and into the lake. Texas has more 10 hydroelectric plants currently in use, several of which are in the Austin region and Texas Hill Country as part of the Lower Colorado River Authority. Still, only about 7 percent of the LCRA's overall power comes from hydroelectricity and wind power combined. ETEC will not reveal the project costs of the new plant, but the cooperative is saying that it will produce electricity from the plant at about 6 cents per kilowatt hour. Also, hydroelectricity plants operates at capacity up to 65 percent of the time, compared to about 15 percent of the time for wind turbines. Essentially, hydroelectricity plants cost more up front but operate more efficiently long term, according to ETEC. The plant is being built in cooperation with the Trinity River Authority, which owns and operates the dam and reservoir. The city of Houston funded the existing facilities in the 1960s and owns 70 percent of Lake Livingston's water storage.



Water:

(This has to be the dumbest act yet!)

Drought-stricken California loses 50m gallons of water as vandals target dam

Police say vandals caused 'irreversible damage' to inflatable dam in Fremont

'This is a very significant loss of water under any circumstances'

23 May 2015, theguardian.com

An inflatable dam in drought-stricken California was damaged on Thursday, causing the loss of nearly 50,000,000 gallons (190m litres) of water. Police said vandals caused “irreversible damage” to the inflatable dam in Fremont, a city in the San Francisco Bay Area. The vandalism caused water meant for local residents to instead flow into San Francisco bay. The Alameda County water district said the lost water could have supplied 500 homes for an entire year.



“This is a very significant loss of water under any circumstances, and more so in the drought conditions we are experiencing,” said ACWD’s general manager, Robert Shaver. “It is an utterly senseless, destructive, and wasteful thing to do.” Police said that the vandals entered a restricted area on Thursday and intentionally damaged the dam. By Saturday, no one had been arrested in connection with the incident. The water agency said it would cost \$3m to replace the dam, but said it did not expect that the damage would have a long-term impact on the water supply for Fremont, Newark and Union City. Once officials were alerted to the damage, water workers were able to divert water from other sources to stop any further loss. California’s state water board announced on Friday that it had accepted a deal from farmers to cut back their water use as the state endures its fourth year of drought. The deal came as the board warned it would employ mandatory cuts if the two parties could not reach an agreement.

(What a tragedy! Enough already, it’s CA that needs the water!)

Catastrophic flooding hits Texas and Oklahoma

By Drew Harwell, May 25, 2015, washingtonpost.com

Days of flash flooding, tornadoes and historic rainfall across central Texas and Oklahoma swept away hundreds of homes and left at least five people dead and a dozen missing, emergency officials said Monday.

Rescuers in helicopters and pontoon boats rushed to save stranded residents across the southern Plains states over the Memorial Day weekend, as severe storms led fast-rising waters to overflow rivers and



roads during flooding that the National Weather Service called “catastrophic.” More than 1,000 people were evacuated and at least five were killed during hours of vicious winds and drenching storms, including a 14-year-old Texan whose body was found Monday in a deluged storm drain, officials said.

Frantic phone call as family is swept away: ‘We are floating in a house’ A longtime Oklahoma firefighter was swept away and killed Saturday night in Claremore, a small town outside of Tulsa, while helping save trapped families gathered for a girl’s fifth birthday party, TV affiliate FOX 23 reported.

Texas governor: Storm damage is 'massive' (0:55) Texas Gov. Greg Abbott (R) declared a state of emergency in 24 counties on May 25, after parts of the state were pounded by flash flooding, tornadoes and heavy rainfall over Memorial Day weekend. (Reuters) A high school senior in Devine, Tex., died amid violently surging floodwaters while driving home from her prom Saturday night, police said. An unidentified man's body was recovered in San Marcos, Tex., along a flooded bank of the Blanco River. A 33-year-old Tulsa woman was also killed in a traffic accident Saturday evening after the car she was driving was rammed by a hydroplaning truck, police said. In Mexico, a tornado that tore through the border city of Ciudad Acuña on Monday decimated a seven-block swath and killed at least 13 people, including three infants, authorities said. Hundreds of homes were damaged or destroyed, and more than 200 people were rushed to hospitals.

Twelve people, including three children younger than 10, were said to be missing Monday after two families took shelter at a house that was destroyed in the small town of Wimberley, Tex., where officials said more than 350 homes have been washed away. The town, on the bank of the Blanco River between Austin and San Antonio, was one of the hardest hit in the weekend floods. The river swelled more than 30 feet there within three hours Sunday, scattering wet wreckage and overrunning nearby Interstate 35. [Dwight Howard, Rockets fans stranded in arena by flooding] Torrential rainfall hurt search efforts, washing away police cars and flooding a fire station in San Marcos. The Oklahoma City Fire Department said it had rescued more than 70 people amid pummeling storms. Areas of Texas saw massive storm damage from flooding over Memorial Day weekend. (Sarah Parnass/The Washington Post) Texas Gov. Greg Abbott (R) on Monday added 24 counties — including Hays — to the 13 that were declared states of disaster this month, allowing them to tap extra resources to aid with the crisis. Officials instituted a curfew Monday for the second night in a row, warning residents to stay away from rubble-strewn areas. Tornadoes and heavy winds Sunday battered buildings in Texas and along the Mexico border, including at a ravaged Houston apartment complex at which two people were hurt. Emergency officials in Texas estimated the area had suffered millions of dollars in damage. **Dallas faced severe floods from the Trinity River**, which joined the Red and Wichita rivers in rising far above its normal level. The city saw more than three inches of rain Sunday, making it the wettest May 24 in more than a century. **The rain has added to the wettest May on record for cities in several southern Plains states. Oklahoma City, which received four inches of rain last year, has recorded more than 27 inches this year.**

[Oklahoma firefighter dies during rescue attempt] The rain brought an end to Texas's extreme droughts, and officials said Monday they were bracing for another round of battering storms and several inches of rain. "It's not over," Hays County Judge Bert Cobb told a news conference Monday. "The rain is still here."



Other Stuff:

DOE Quadrennial Energy Review

http://www.energy.gov/sites/prod/files/2015/04/f22/QR-ALL%20FINAL_0.pdf

(Not for me! Too easy to roll down the hill.)

Ecocapsules are pint-sized solar and wind-powered micro homes

by Mariella Moon | May 23rd 2015, engadget.com



Ecocapsule is a small, egg-shaped abode that could be the perfect home for someone who wants to let it all go like Elsa and live off the grid. Its roof is decked with 600W solar cells and a built-in 750W wind turbine that store the energy they harness into a high-power battery. The structure's shape also allows its inhabitant to collect rainwater by placing containers around it. Since it measures just 14.6 feet long by 7.4 feet wide by 8.4 feet tall, anyone who isn't into tiny houses (and we do mean tiny houses) might feel more than a bit claustrophobic inside. Its designers, Nice Architects from Slovakia, made good use of every inch of interior space, though, fitting in a folding bed, a small kitchen, a dining area, a shower and flushable toilet, and even some storage space.

The company doesn't have a price for the Ecocapsule yet, but it's presenting one at the Pioneers festival in Vienna later this month and taking pre-orders by the end of 2015. By the looks of it, Nice Architects is willing to ship out the capsules overseas, so long as buyers are willing to pay the rather hefty shipping price (around \$2,400 from Slovakia to New York). Once it arrives, the new owner can take the 3,300-pound micro home anywhere he wants.



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