DEPARTMENT OF THE ARMY
NASHVILLE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1070
NASHVILLE TN 37202-1070

REPLY TO
ATTENTION OF

MAY 0 2 2013

Project Planning Branch

To All Interested Parties:

The U.S. Army Corps of Engineers, Nashville District (Corps) is initiating scoping under the National Environmental Policy Act (NEPA) to evaluate the impacts of proposed reallocation of additional storage for water supply in J. Percy Priest Dam and Reservoir (JPP), Tennessee (Figure 1). This study is being conducted under the authority of the Rivers and Harbors Act of 1958, Title III; Water Supply Act of 1958, as amended.

Three of the current Municipal and Industrial (M&I) water supply users at JPP have requested that the Corps further reallocate storage from this reservoir to provide additional water supply to meet immediate and future needs. These users were, City of Murfreesboro, Consolidated Utility District, and the Town of Smyrna, all located in Rutherford County, Tennessee. A previous water supply reallocation study was approved in 2003 for reallocation of 17,433 acre-feet from the conservation pool for M&I use. Most of this reallocated storage is currently under contract. Accordingly, a new water supply reallocation study is being conducted. Impacts to originally authorized project purposes (hydropower, recreation, and flood control) and to additional authorized purposes (water quality and fish and wildlife) will be evaluated. In drought years impacts to recreation could include low water levels, while impacts to hydropower could include decreased generation. A new report on hydropower benefits and revenues foregone due to proposed new water supply withdrawals at JPP will be produced. If impacts are determined to seriously affect authorized purposes or involve major structural or operational changes, then Congressional approval of additional reallocation of storage will be required.

Along with the "No Action" alternative (original reallocation of 17,433 acre-feet), reallocation from the conservation pool is being considered to meet the M&I users' 2020 demand, 2025 demand, and 2030 demand (up to approximately 12,000 acre-feet). The winter conservation hydropower pool consists of 34,000 acre-feet and summer conservation recreation pool consists of 124,000 acre feet. Reallocation from the flood control pool and reallocation from the inactive pool are also being considered.

In accordance with the NEPA, and associated implementing regulations, an Environmental Assessment (EA) will be prepared to evaluate viable alternatives for this proposal as an integral part of this planning study. We are soliciting public and agency comments concerning environmental issues that should be addressed in the course of the NEPA process. We encourage comments not only about the immediate project area, but also of plans and proposals for any other development that may impact or influence the project or surrounding watershed. This EA will provide the basis for a decision whether to proceed with an Environmental Impact Statement or a Finding of No Significant Impact.

This letter also serves to initiate public involvement requirements of Section 106 of the National Historic Preservation Act of 1966, as amended. Section 106, implemented by regulations at 36 Code of Federal Regulations 800, requires the Corps to consider the effects of its undertakings on historic properties. Appropriate architectural and archaeological investigations will be conducted if deemed necessary within areas affected by the proposed activity. Results will be coordinated with the Tennessee State Historic Preservation Officer, Tribal Nations, and other consulting parties.

Please provide any comments concerning issues to be addressed in the EA prior to June 7th, 2013. Responses should be mailed to the address listed above or emailed to the addressor listed below. If you have any questions, please contact Mary Tipton, Biologist, at (615)736-7845 or email at mary.e.tipton@usace.army.mil. Your participation is greatly appreciated.

Sincerely,

Russ L. Rote, P.E., PMP, CFM
Chief, Project Planning Branch

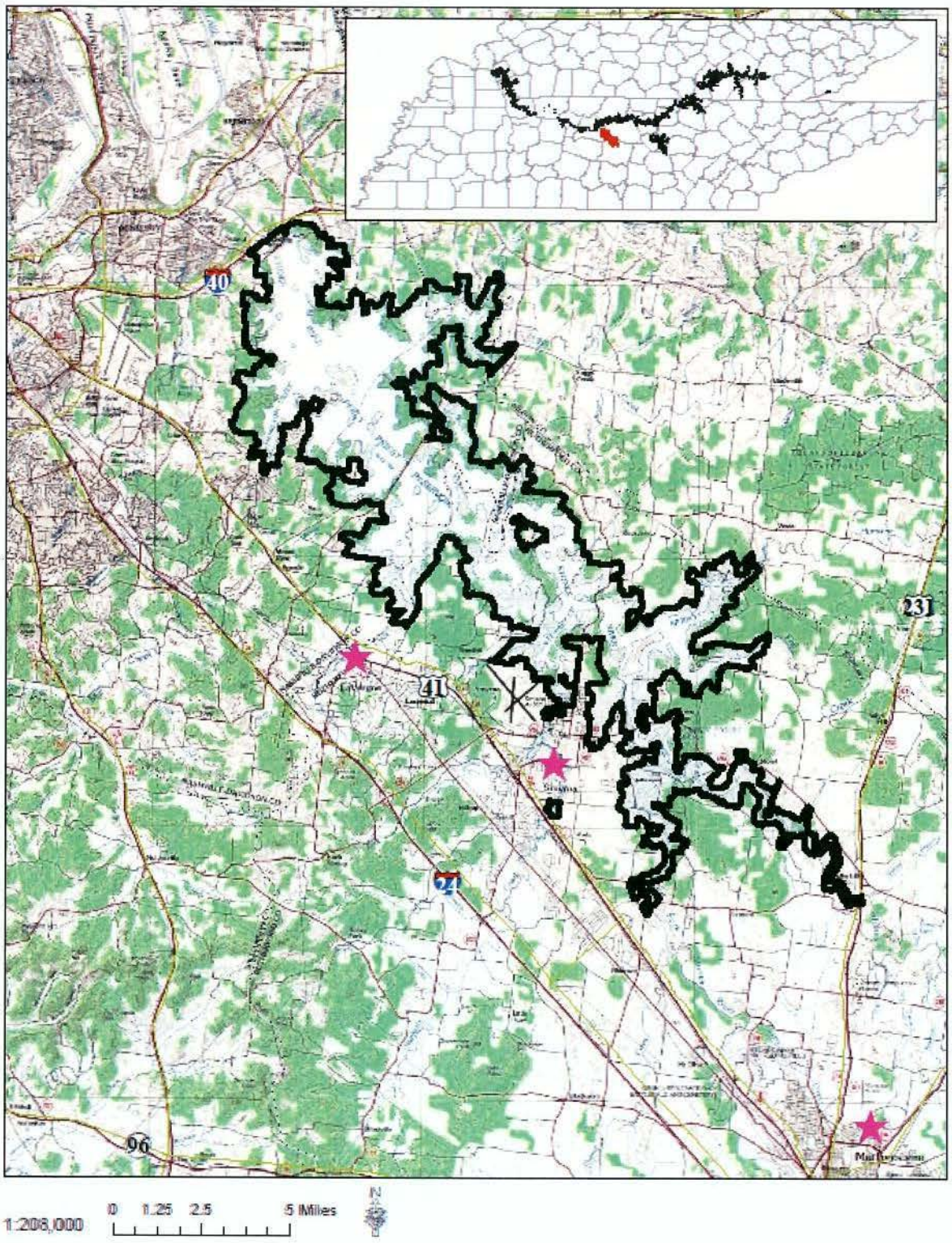

Figure 1 – Location Map

US Army Corps of Engineers
BUILDING STRONG®

J. Percy Priest Lake Water Supply Study

FACT SHEET (As of January 2015)

http://www.lrn.usace.army.mil/Media/Fact-Sheets/Fact-Sheet-Article-View/Article/562233/j-percy-priest-lake-water-supply-study/

US ARMY CORPS OF ENGINEERS BUILDING STRONG®

AUTHORIZATION: Flood Control Act of 1938 (PL 75-761) and the River and Harbor Act of 1946 (PL 79-524).

TYPE OF PROJECT: The J. Percy Priest water supply reallocation study is a full-Federally funded study to determine the water supply needs of users and the water supply storage available in the reservoir.

LOCATION: J. Percy Priest Dam and Reservoir is located about ten miles east of downtown Nashville and impounds a lake 42 miles long. J. Percy Priest Lake covers portions of Davidson, Rutherford, and Wilson Counties and consists of 14,200 surface acres of water at summer pool elevation. The water is surrounded by 18,854 acres of public lands; 10,000 acres are devoted to wildlife management. J. Percy Priest Lake has one of the highest recreation visitation rates in the Corps of Engineers. J. Percy Priest is one of the multi-purpose projects designed for flood risk management, navigation, and hydropower.

CONGRESSIONAL INTEREST: Alexander (TN), Corker (TN), Black (TN-6), Cooper (TN-5)

BACKGROUND: Multiple municipal and industrial water users have requested that the Corps of Engineers reallocate storage in the J. Percy Priest Reservoir to provide additional water supply storage. The Water Supply Reallocation Study and is authorized by the Water Supply Act of 1958, as amended. Currently, the study is scheduled to be ready for public review in fall 2015.

J. Percy Priest Lake

- The lake extends 42.0 river miles from the dam at pool elevation 490.0.
  - At normal pool elevation, which is 490 feet above mean sea level, the lake has 14,200 surface acres of water
  - At maximum pool level, which is 504.5 feet above mean sea level, the lake increases to 22,700 surface acres of water.

· The project encompasses a total of 18,854 acres of fee simple land at normal pool level.

· J. Percy Priest Lake is ranked in the top ten of the 25 most visited Corps lakes nationwide.

· In fiscal year 2011, 6.0 million visitors recreated on J. Percy Priest Lake with a recreational economic impact of $106 million.

· There are five marinas, a state park, a water park, and two group camps on J. Percy Priest Lake.

· There are 17 Corps operated recreation areas (including three campgrounds), 10 non-Corps operated recreation areas, and 22 launching access points.

· The Tennessee Wildlife Resources Agency manages over 10,000 acres of land for consumptive and non-consumptive use of wildlife. Two wildlife management areas on the lake offer outstanding public hunting opportunities.

· For additional Information about recreation facilities and opportunities on the lake, contact the J. Percy Priest Lake Resource Managers Office at 615-889-1975.

J. Percy Priest Hydroelectric Power Plant and Dam

· The dam is 2,716 feet long and 130 feet high and consists of concrete-gravity power plant and spillway section along with a rolled earth embankment.

· The 235 foot spillway section consists of four tainter gates with a capable discharge capacity of 187,320 cubic feet per second.

· Each tainter gate is 45 feet wide by 41 feet tall and weigh 152,565 pounds.

· One power generating unit is housed in the power house section of the dam. The unit is capable of producing 28,000 kilowatts.

· The estimated average annual energy output is 70,000,000 kilowatt-hours. This production is enough to power an estimated 2,880 homes annually.

BUDGET ($): Estimated project costs are shown below.

Federal Funds Data	
Allocation for FY 2015	$100,000
Total project cost	$682,000

For more information regarding the j. Percy Priest water supply reallocation study, contact Loren Vidnovic, Project Manager, phone: (615) 736-7858, email: Loren.D.Vidnovic@usace.army.mil

dnj Daily News Journal
PART OF THE USA TODAY NETWORK

Rutherford growth needs water

Leaders know access to water at an affordable price is necessary for the county to continue growing.

Scott Broden , sbroden@dnj.com

MURFREESBORO — All living things need water to grow, even communities.

Utility, government and business leaders in Rutherford County know access to water at an affordable price is necessary to serve an expected 200,000 more people by 2035 from a U.S. Census estimated count of 288,906 in 2014.

"It's a finite resource," said Bill Dunnill, manager of the Consolidated Utility District that provides treated drinking water for much of Rutherford County. "There's a limit. If you are going to continue to grow, people will find more efficient ways to utilize that resource."

At a time when Western states such as California face tight water restrictions because of drought conditions, local officials said they hope they can plan for growth without limits or expensive fees from the U.S. Army Corps of Engineers.

(Photo: HELEN COMER/DNJ)

The Corps has oversight for J. Percy Priest Lake and the water filling the reservoir from Stones River. Corps representatives have been working on an ongoing study to determine future water access for CUD, Murfreesboro and Smyrna.

"The bottom line is we need to see their new methodology and what it's going to cost us," said Dunnill, who learned Thursday from a Corps email that the reallocation study will be delayed

from being released until May 2016. "Another year and another delay. That's just the way life is. It will be in the millions of dollars. We just need to know what that figure is.

"We are prepared to deal with it. We just need to know what we're dealing with. This has been going on for eight years."

"J. Percy Priest Lake was not originally authorized for water supply."

BEN ROHRBACH, CHIEF HYDROLOGIST, U.S. ARMY CORP OF ENGINEERS

Dunnill said he oversees the sixth largest water utility in Tennessee. Larger operations are in Memphis, Nashville, Knoxville, Chattanooga and Clarksville.

CUD officials hope to have sufficient water to provide for a county expected to reach 489,827 people by 2035, according to projections of the Tennessee Data Center, which is part of the University of Tennessee's Center for Business & Economic Research at the Knoxville campus.

Paul Latture, Rutherford County Chamber of Commerce president, said the water supply also will affect jobs coming here.

"A challenge on our ability to get water certainly could inhibit our ability to grow with businesses or expected population growth," Latture said.

In 2003, CUD reached an agreement with the Corps for $2.6 million for lake-storage access that equates with having up to 16 million gallons per day access at the K. Thomas Hutchinson Water Treatment Plant on the East Fork of the Stones River near J. Percy Priest Lake.

The fee goes toward the Corps fund used to maintain and operate the dam that generates hydroelectric energy on the lake near Interstate 40.

"Tap fees would end up paying for that additional capacity," said Dunnill, whose utility charges $2,800 per house to pay for the infrastructure capacity. "We want to go to 32 million gallons per day. We have to know what it's going to cost. We have to expand our plant and need a contract in place to accommodate that expansion. We need a contract with the Corps."

CUD seeks to double the access of water to serve the growing population that will add to the 48,363 active accounts and 2,443 inactive accounts on vacant lots waiting on construction, Dunnill said.

His utility at this time treats about 10 million gallons of water per day, and that number is about 13 million gallons per day in the summer.

"We anticipate the ability to draw more water from Percy Priest Lake," Dunnill said.

Water oversight

Providing to the utility access water based on the lake and river being "the least costly and most likely alternative" is one of the many responsibilities of the Corps, said Ben Rohrbach, chief of hydrology and hydraulics for Corps operations in the Nashville area.

"J. Percity Priest Lake was not originally authorized for water supply," Rohrbach said.

Named after a former member of Congress from Tennessee, J. Percy Priest Lake reservoir was authorized by the Flood Control Act of 1938, Rohrbach said.

(Photo: HELEN COMER/DNJ)

"The Flood Control Act of 1944 authorized recreation," added Rohrbach, noting how it makes sense to provide boating, fishing and other recreational water uses to a nearby city such as Nashville even though most Corps reservoirs do not have similar requirements.

The River and Harbor Act of 1946 came next to authorize the hydroelectric operation of the lake's dam, Rohrbach said.

It wasn't until the Water Supply Act of 1958 that the Corps was authorized to pursue studies to determine if agreements could be reached with utilities based on the lake and river providing the least costly and most likely alternative to use the resource.

"We did not conduct those particular studies until the late 1990s, which culminated in the agreement in 2003," Rohrbach said. "Only after the water-storage agreement was signed and executed by the parties did it become an authorized purpose for the project."

In addition to flood control, recreation and hydroelectric operations, the Corps also must factor in the environment. The Corps also has to consider navigation for shipping and boating on the Cumberland River, which the Stones River flows into on the other side of the dam, in pursuing an updated study for water supply in Rutherford County, Rohrbach said.

"We are evaluating whether we can make additional storage in the reservoir available to meet the need that has been requested by the utility district," Rohrbach said.

Part of the study will be based on water limitations for any future droughts, Rohrbach said.

"The drought of 2007 is going to be the benchmark that we'll use to evaluate any additional storage needs of the utilities," Rohrbach said. "We want to ensure that we are using a severe enough condition to evaluate the storage needs. We ask (utilities) to project what their future needs would be, and we are using that information to determine how much additional storage would be required and what possible impacts there would be."

Agreements with the Corps do not provide guarantees for the amount of water storage that will be available, such as enough to provide 16 million gallons per day for CUD in the 2003 contract, Rohrbach said.

"We don't control the inflow into the reservoir," Rohrbach said. "That's nature's realm. We can't make it rain. We don't guarantee the quantity or the quality from that storage."

Although there will be a cost to the utilities for the access to additional water storage in an updated agreement, the rate should only increase because of inflation since 2003, The Corps will base this on using the same formulas from the previous contracts to determine the maintenance and operation costs of the dam associated with storage capacity in the lake at this time, Rohbach said.

"It's going to be in that same ball park," said Rohbach, noting that stakeholders will get the chance to share any concerns before agreements are reached. "There will be a public comment period on the study, which will allow other agencies and members of the public to comment."

CUD expansion

While waiting on results from the Corps study, CUD is pursuing plans for $20 million to $25 million in expansion projects of its K. Thomas Hutchinson Water Treatment Plant on Central Valley Road. The utility has completed part of this, including a $2.2 million water basin expansion, said Chris Forte, the manager of the plant.

Another $6.2 million is planned for a project for on-site bleach generation and two larger pumps that move the treated water from the plant, as well as another raw-water pump in the tank, he said.

"We like to have backups for the backups, so when you turn your facet on, the water is there," said Forte, who has been with the plant for 28 years and has served as the manager since 2001.

(Photo: HELEN COMER/DNJ)

CUD also spent $6.4 million on a building that's in its second year of operation to remove sludge that comes with the water pumped to the plant from the nearby East Fork of the Stones River, Forte added.

"Nothing goes back to the river," said Forte, noting that CUD stores the sludge on its plant property and may eventually have to haul it to a landfill.

The sludge building operation is more efficient than having to hire contractors to clean out the bottom of two lagoons at the plant. It cost $130,000 to haul off 500 truck loads of sludge.

"It took months," Forte recalled.

Other than the sludge, CUD officials such as Dunnill hope to learn about increased water access from the U.S. Army Corps of Engineers soon.

"We are dealing with the unknown," Dunnill said. "How do you plan for the unknown? We just need an answer. If we were unable to get more water, the political leaders would have to look at what sort of growth should use up whatever capacity is here. That is a political decision. We don't anticipate that happening, but we do need an answer."

Contact Scott Broden at 615-278-5158. Follow him on Twitter @ScottBroden.

Population growth

The following shows years and projected growth by a University of Tennessee study from 2011 to 2064 for Rutherford County, which reached a U.S. Census estimated population of 288,906 in 2014:

2011: 271,076

2014: 296,944

2015: 305,703

2020: 350,488

2025: 396,392

2030: 442,691

2035: 489,827

2040: 537,710

2045: 586,852

2050: 637,438

2055: 689,473

2060: 743,124

2064: 787,164

Source: *Tennessee Data Center, which is part of the University of Tennessee's Center for Business & Economic Research at the Knoxville campus.*

http://www.dnj.com/story/news/2015/10/16/rutherford-growth-needs-water/73162234/

Water bills could go up, pending study results

By SAM STOCKARD
Tuesday, August 16, 2016 5:28 pm

STOCK IMAGE

Rutherford County's water suppliers are anticipating a long-awaited U.S. Army Corps of Engineers study to det much it will cost to continue tapping into Percy Priest Lake, figures that could affect ratepayers' bills.

Set to come out in September, the federal study stems from a 2008 legal settlement with the town of Smyrna an needs requested by Murfreesboro Water and Sewer Department, Smyrna Utility District and Consolidated Utili through 2020 and 2030, according to **Loren McDonald**, project manager for the Corps of Engineers.

Users are paying their original contract costs, lump sums $2.35 million to $3 million and about $20,000 annuall that they're requesting additional storage, they would be required to pay additional" amounts, McDonald said.

Under the Water Supply Act of 1958, the Corps can reallocate water supply from the Cumberland River system doesn't have a significant impact on the river and lake, according to McDonald. Flood control, hydropower and not water supply - were the original reasons for Percy Priest's 1968 opening, based on the Flood Control Act of explained. An initial study started in 2000 and projected water storage needs through 2009.

"We have to go through this process to make sure we do not require additional congressional approval," McDo

Once the study is released, the Corps of Engineers would work with the utilities to make sure their water storag documented before opening it for public comment in early 2017, she said. The target for completion is early fal

Legal entanglement

Rutherford's utility officials have been negotiating with the Corps for several years, and reaching the point of a reallocation study didn't come without some heartburn.

Smyrna paid $2.35 million to the Corps of Engineers in 2008 after a two-year legal battle in which it disputed t government's initial $3 million charge ballooned to $3.5 million after the town refused to pay the first amount.

Nashville law firm Bass, Berry & Sims, which represented Smyrna in its settlement with the federal governmer years ago the Corps of Engineers never requested any payment from Smyrna until 2003 when it demanded the $ lump sum, derived from the cost of the reservoir's construction and inflated to current dollars, using the Water $ 1958 as its basis.

Smyrna contended the Corps was "outside the scope of its statutory authority," and after years of negotiations, $ suit in federal court after the Corps threatened to "terminate" its water supply if it didn't pay the fee.

A U.S. District Court decided the Corps was not allowed to seek reimbursement for construction costs of Percy years after the reservoir was completed. In addition to Smyrna's agreement to pay the $2.35 million water storag Corps would conduct another study to see if more water is available for future needs.

But even that is eight years in the making.

Smyrna Town Attorney **Jeff Peach** said he hopes better communication will develop between the Corps of Eng Rutherford's water utilities.

"Once we get the report, we can address any concerns," said Peach, noting town officials believe the amount of water supply use is different than the Corps initially determined.

Battling red tape

Murfreesboro Water and Sewer Director **Darren Gore** said "transparency" has been lacking on the part of the C Engineers.

The utility paid $3 million for water storage in 2003 and makes a $25,000 annual payment to the Corps of Engi said.

Murfreesboro uses about 14 million gallons daily but can take about 10 million gallons daily from the East Forl at Walter Hill Dam and about 4 million gallons daily from Percy Priest. The city's water treatment plant is at ca ability to handle 18 million gallons daily, so Murfreesboro is requesting only about 5 million gallons daily mor storage.

People sometimes ask him if the city is running dry, Gore said, but he believes the city utility has access to pler and notes the situation with the Corps of Engineers is more of an administrative and contractual matter.

"When you're talking money in the seven digits you pay close attention to the figures," Gore said, noting he is r ratepayers to make sure the Corps' process for setting the fees is fair.

Gore questions the Corps of Engineers' method for coming up with storage costs and says he's not convinced th will be done correctly. The study will be based on a number of factors ranging from dam safety classification to level of sediment, which could affect the amount of water in the lake, especially as it pertains to recreation safe amount the utilities return to the lake. Gore is concerned Murfreesboro won't receive 100 percent credit for sen back into the river from its wastewater treatment plant.

Smyrna pays a yearly fee of $20,000 to the Corps of Engineers, and Consolidated Utility District, which provid services to customers inside and outside Murfreesboro city limits, pays $18,000 to $20,000 annually. It made a payment to the Corps in 2003.

CUD averages pulling about 10 million to 12 million gallons daily from Percy Priest and has peaked at 14 milli asked the Corps of Engineers for permission to increase its capacity to 32 million gallons daily in order to expa treatment plant and develop for future needs, according to Director **Bill Dunnill**.

Utility officials met recently with the Corps of Engineers and had one of the most productive meetings to date,

"The process has been substantially slower than we would have liked," Dunnill said. "We had a meeting earlier feel like we made a progress and we're looking forward to working with the Corps of Engineers."

Sam Stockard can be reached at sstockard44@gmail.com.

Supreme Court official calls for limited hearing on Mississippi's water-rights lawsuit

John Bursi, a University of Memphis graduate student in the Department of Earth Sciences, conducts research in the "recharge" area of the Memphis Sand aquifer in Fayette County. (Yalonda M. James/The Commercial Appeal)

Posted: Sept. 13, 2016

By Tom Charlier of The Commercial Appeal
Posted: Sept. 13, 2016

http://archive.commercialappeal.com/news/courts/supreme-court-official-calls-for-limited-hearing-on-mississippis-water-rights-lawsuit-3becdc41-a407--393276641.html

A special master appointed by the U.S. Supreme Court says Mississippi's $615 million water-rights lawsuit against Memphis and the state of Tennessee could be largely decided through a limited hearing on the issue of whether an aquifer connected to the Memphis Sand is an interstate resource.

In a recent court filing, Eugene E. Siler Jr. [senior judge on the United States Court of Appeals for the Sixth Circuit appointed special master for this case by the Court] called for such a hearing, although a date has not been set.

Siler's memorandum of decision represents the latest action in a legal battle now more than decade old. Mississippi is suing Memphis and Tennessee, alleging that municipal wells operated by Memphis Light, Gas and Water Division have siphoned water from beneath Mississippi across the state line into Tennessee in a process amounting to theft.

The filing underscores Siler's pivotal role in the case. Because the Supreme Court does not hold conventional trials, it often appoints special masters such as him to prepare a record for the court to review, issue findings of fact and make recommendations. The court weighs the recommendations before making its rulings.

Siler's memo came in response to motions by Memphis and Tennessee requesting to have Mississippi's suit dismissed. The defendants claim that the Sparta Sand aquifer, a large underground reservoir of which the Memphis Sand aquifer is a part, is an interstate resource and, as such, must be "equitably apportioned" among the different states before any state can lay claim to part of it.

Although Siler denied the dismissal motion, his language was not supportive of Mississippi's suit. The state's complaint, he wrote, "appears to fail to plausibly allege that the Sparta Sand aquifer or the water in it is not an interstate resource." As a result, he said, "dismissal likely would be warranted" because of the requirement under federal law that the aquifer be apportioned.

Still, Siler said he would not recommend immediate dismissal because the Supreme Court, in setting duties for special masters, has "counseled them to err on the side of over-inclusiveness." The issue to be explored at the hearing — whether or not the aquifer is an interstate resource — is "potentially dispositive," he wrote, meaning it could essentially decide the case.

David Bearman, an attorney representing Memphis, said he was heartened by the memorandum. The filing indicates Siler "appears to agree with the basis of our position," he said.

Bearman said the hearing should provide the city and Tennessee ample opportunity to prove the aquifer is an interstate "I'm confident that we can put on good proof to support our position," he said.

But attorneys for Mississippi contend water in the portion of the Sparta within the state's borders is a "finite, confined intrastate natural resource" that would not be available to Memphis were it not for the intensive pumping from MLGW wells located within three miles of the Mississippi state line.

The suit claims that through the pumping, an estimated 252 billion gallons of water have been "forcibly" taken from Mississippi since 1985. It seeks restitution for that water, which, including interest is worth some $615 million, and a halt to the withdrawals that Mississippi claims have

redirected the flow of groundwater. Memphis could get water from alternative sources, such as the Mississippi River, the suit says.

The water battle dates to 2005, when Mississippi Attorney General Jim Hood filed suit against Memphis and MLGW in federal court in Oxford, Mississippi, seeking up to $1.3 billion in damages. Three years later, U.S. District Judge Glen H. Davidson ruled that his court lacked jurisdiction. Tennessee hadn't been named as defendant even though it was a "necessary and indispensable" party, he said, and in a dispute between states, the final arbiter must be the Supreme Court.

Davidson's ruling was upheld on appeal, and in January 2010, the Supreme Court denied Mississippi's motion to overturn the appellate ruling. The court eventually allowed Mississippi to file a new complaint after Tennessee was added as a defendant.

Don Barrett, the Lexington, Mississippi, attorney who is heading the plaintiff's case, said he's pleased with Siler's decision because the hearing will give the state the chance to prove the aquifer water is not an interstate resource.

"That's what we wanted — it's perfect for us," Barrett said.

About Tom Charlier

Tom Charlier is a reporter for The Commercial Appeal. He covers issues ranging from medicine to the environment to transportation.

Mississippi's Claim That Tennessee Is Stealing Groundwater Is A Supreme Court First

October 3, 2016/in Groundwater, United States, Water Management, Water News /by Brett Walton
http://www.circleofblue.org/2016/groundwater/states-lag-management-interstate-groundwater/

A dispute over an aquifer that crosses political boundaries could expand water rights law.

The Sparta-Memphis Sand Aquifer lies beneath Mississippi and Tennessee, land east of the Mississippi River that is shown in this Landsat image. Mississippi's lawsuit against Tennessee is the first lawsuit over a shared aquifer to be heard by the U.S. Supreme Court.

By Brett Walton, Circle of Blue

Sometime in the next few months, lawyers for the state of Mississippi will stand before a U.S. Supreme Court-appointed legal expert, clear their throats, and argue that Tennessee, a neighbor, is stealing water.

However it is decided, the courtroom tussle breaks new legal ground and more. It is the first time the Supreme Court has considered a lawsuit that involves the use and distribution of groundwater reserves that lie beneath multiple state boundaries. Dozens of major aquifers cross state borders. None, though, is subjected to the well-established legal instruments for allocating water that rivers are.

The discord between two southern states also illustrates how in an era of droughts, storms, and other hydrological disturbances risks to stable water supplies have steadily risen as prominent

health and economic priorities in the United States. Law experts say that the case foreshadows a new field of play for water rights in the United States.

Mississippi claims that the city of Memphis is pumping so intensively from the Sparta-Memphis Sand Aquifer, which extends across state lines, that a depression in the water table has formed beneath the city's wells and is altering the direction water moves underground. Water from Mississippi is flowing into that bowl, the lawyers will say, and Mississippi wants $US 615 million in compensation for the loss.

Tennessee, of course, disputes Mississippi's interpretation of the aquifer's hydrology and the laws that should apply to its use. The state has a crowd of supporters in its corner, including the federal government, which maintains that the case should be thrown out because, among other arguments, the states have no agreement that defines their share of the water.

These circumstances expose a mismatch between the way water behaves and the policies that govern it. Mississippi and Tennessee share an aquifer — water-use decisions on one side of the political border affect water availability on the other — but they do not share a system of management and oversight.

This is typical. None of the seven water policy experts that Circle of Blue contacted for this article could identify an interstate groundwater basin that is managed according to an enforceable legal agreement between states. Less formal mechanisms — discussions among managers, data sharing arrangement, and collaborative groups — exist, but they vary in their breadth and depth. The most active are in the Palouse and Spokane basins on the Idaho-Washington border.

The cross-border consequences of disjointed management go far beyond water supply for cities or farms. Pump too much from the wrong type of soil and the land can sink and water storage capacity is diminished, as is happening in southeastern Virginia near the North Carolina border. Pump too much from the coast and saltwater begins to spoil the fresh water, which is the case on the Georgia-South Carolina border. In areas where groundwater feeds springs, ecosystems can dry up. That is a fear in the Snake Valley, shared by Nevada and Utah.

New demands on groundwater require a change in regulatory approach, argues Noah Hall, an associate professor at Wayne State University Law School who studies water law.

"Groundwater is not stationary, it moves and flows, often across state lines," Hall told Circle of Blue. "We can't treat it like the property of any single state. Instead, we need to manage groundwater sustainably across political lines, as we've begun to do with surface waters."

Management Systems Play Catchup

Surface waters, or rivers and lakes, have long been the source of legal dispute and grand bargains. The states in the Colorado River Basin were the first to sign an interstate compact,

when they divided the river's waters in 1922. More than two dozen such river compacts are now in effect. A few of these, notably in the Republican River Basin of Colorado, Kansas, and Nebraska, address groundwater that flows into rivers. The U.S. Supreme Court has heard several groundwater-surface water cases in recent years, including the Republican River and the Rio Grande, in New Mexico and Texas.

Memphis pumps roughly 140 million gallons of groundwater a day to serve a metro area of one million people. Photo courtesy of Flickr/Creative Commons user seandavis

Unlike rivers, groundwater management is still provincial. U.S. water law recognizes state authority over groundwater. As a result, states have evolved unique regulatory systems that generally do not match their neighbor's. Scott Kudlas, director of the Office of Water Supply at the Virginia Department of Environmental Quality, told Circle of Blue that different regulatory approaches inhibit coordination with North Carolina. Virginia uses computer models to project the consequences of new well permits, whereas North Carolina relies on well measurements and has no permitting requirements, save for wells within a 15-county "critical" area that is under mandatory water-use reductions.

"In some ways that has limited the level of interstate management," Kudlas said.

In other cases, states may not know enough about cross-border flows to begin regulating. Wyoming, in its most recent water development plan, published in 2007, notes that "groundwater enters and leaves the state in the subsurface, but no estimates of rates or locations have been compiled."

A further complication is that groundwater oversight within a state is often split among authorities — departments of agriculture, environment, health, and water resources all might have an oversight role. "Groundwater regulation is a tough beast to get your arms around," Don Yates of the Groundwater Protection Council, an organization of state regulatory agencies, told Circle of Blue. "There are multiple agencies in each state. There's no groundwater czar."

North Carolina and Virginia are good examples of the difficulty in aligning groundwater management systems. They share the Potomac Aquifer, which slopes eastward from the Piedmont to the Atlantic coast. A U.S. Geological Survey study published in August showed "substantial" water level declines of nearly 200 feet in the aquifer in southeastern Virginia over the last century. Those declines extend into northeastern North Carolina and are largely attributed to industrial groundwater use at a paper mill — shuttered in 2010 and now reopened — near Franklin, Virginia.

"It's one continuous aquifer," John Masterson, a U.S. Geological Survey hydrologist who worked on the study, told Circle of Blue. "There's no reason state boundaries have an effect on how the system responds."

The dynamic at play in the Mississippi-Tennessee case — a "cone of depression" that is drawing groundwater from one state to another — is also present in the Potomac Aquifer. North Carolina officials know this.

"It's well-known that it's occurring," Nat Wilson, head of the groundwater management branch at the North Carolina Department of Environmental Quality, told Circle of Blue. Fortunately for North Carolina the drawdown within its borders is occurring in a sparsely populated part of the state. "Had there been larger users there we would have had more problems," Wilson surmised.

Wilson said that he has informal talks with his Virginia counterparts, who share aquifer data with his office. If the states wanted to lift interstate groundwater into official business, Wilson mentioned the Roanoke River Bi-state Commission. The commission handles matters related to the Roanoke River, which crosses state lines, but its mandate could expand to address groundwater, Wilson thought. It's the "perfect forum," he said.

But even an existing forum might not be enough in some cases. States need an incentive to come to the table and negotiate before small issues become big problems. In northeastern North Carolina, demographic and economic trends have not collided with enough force to prompt a water-sharing agreement with Virginia. This is where the implications of *Mississippi v. Tennessee* could be far-reaching, according to Hall, the law professor who is closely watching the case. It could set a precedent that changes the rules of the game for interstate groundwater in the United States

Implications of Mississippi v. Tennessee

There are several outcomes for the lawsuit. If the Supreme Court sides with Mississippi's claim that the water in the aquifer is the sole property of Mississippi, it would upend established U.S. water law. "It gets crazy," Hall said. Such a ruling would usher in a "pay for pumping" model in which states would charge their neighbors for water use. In Hall's opinion, this is the less likely outcome. Others agree. The solicitor general, who argues on behalf of the federal

government, filed a brief strongly opposing Mississippi's ownership claims, and lower courts have supported Tennessee.

The court could also rule in favor of Tennessee, deciding that the aquifer is subject to "equitable apportionment." This means that the water must be shared. It is the model for interstate rivers but the Supreme Court has not yet applied it to groundwater. This ruling would nudge the states to action. Not wanting the court to divide the water, states would have an incentive to negotiate water-sharing compacts, just as they do for surface waters, Hall said.

In effect, it would be a new day for groundwater law. Nevada and Utah nearly became the first to sign an agreement for joint management of a shared aquifer system, the Snake Valley, but Utah's governor backed out in 2013 due to political pressure. The shape that other agreements would take is unknown, but Hall argues that interstate compacts for groundwater offer an opportunity for cooperation and more thoughtful management at a time when groundwater resources are under increasing stress.

"We have a chance to avoid the mistakes of the past, when states competed to use up a resource," Hall said. "With advances in hydrology and other sciences, we can craft modern interstate agreements that avoid conflict and protect groundwater for future generations."

Brett Walton

Brett writes about agriculture, energy, infrastructure, and the politics and economics of water in the United States. He also writes the Federal Water Tap, Circle of Blue's weekly digest of U.S. government water news. He is the winner of two Society of Environmental Journalists reporting awards, one of the top honors in American environmental journalism: first place for explanatory reporting for a series on septic system pollution in the United States (2016) and third place for beat reporting in a small market (2014). Brett lives in Seattle, where he hikes the mountains and bakes pies. Contact Brett Walton

Related

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TDEC Asks Residents in Southeastern Counties to Limit Water Usage to Ease Drought Conditions

Friday, October 28, 2016 | 11:11am

http://www.tn.gov/news/46465

The Tennessee Department of Environment and Conservation (TDEC) is asking the public to temporarily limit water usage for non-essential purposes as areas in Tennessee's southeastern counties face extreme drought conditions.

Residents who receive water from the following public utilities are advised to limit their use until drought conditions subside:

- Fall Creek Falls Utility District – Van Buren County
- Pikeville Water System – Bledsoe County
- Dunlap Water System – Sequatchie County
- Cagel-Fredonia Utility District – Sequatchie County
- TN American Sequatchie Valley Water System – Marion County
- Griffith Creek Utility District – Marion County
- Big Creek Utility District – Grundy County
- Tracy City Water System – Grundy County
- Monteagle Public Utility Board – Grundy County
- Sewanee Utility District – Franklin County

Many of these public water systems are experiencing difficulties in meeting customer demands, but they have been coordinating efforts to share resources to ensure continued drinking water services.

Non-essential water uses include:

- watering of lawns, gardens, trees, shrubs, etc.;
- watering of athletic fields;
- washing sidewalks, driveways, parking areas, patios, or any other hard surfaces except for sanitary or safety purposes;
- non-commercial and commercial washing of motor vehicles, trailers or boats;
- use of water for dust control or construction compaction; or
- firefighter training.

Tennessee's southeastern counties have been classified by the U.S. Drought Monitor as experiencing either severe, extreme or exceptional drought conditions. The National Weather service has indicated that precipitation in these areas is as much as 16 inches below normal. No significant precipitation is predicted for the remainder of 2016. The lack of rainfall has resulted in declining surface water and ground water levels across the region.

For additional guidance on how you can conserve water, visit http://wateruseitwisely.com/100-ways-to-conserve/ or https://www3.epa.gov/region1/eco/drinkwater/water_conservation_residents.html or contact your local utility provider.

- See more at: http://www.tn.gov/news/46465#sthash.kqHb4267.dpuf

Times Free Press

http://www.timesfreepress.com/news/local/story/2016/oct/29/water-shortage-could-leave-some-cumberland-pl/394954/

Water shortage could leave some Cumberland Plateau residents dry by December

October 29th, 2016 by Ben Benton in Local Regional News Read Time: 5 mins.

The Sequatchie River meanders past the location of the in-takes of the Dunlap Water System east of Dunlap. The Dunlap Water System takes it's water from the Sequatchie River near the Old York Highway Bridge east of Dunlap. October 21, 2016.

Photo by Robin Rudd /Times Free Press.

Photo by Robin Rudd /Times Free Press.

UTILITY CUSTOMERS ASKED TO CONSERVE

The Tennessee Department of Environment and Conservation is asking people in Southeast Tennessee to conserve water and not use it unnecessarily during the ongoing extreme drought. Residents who receive water from the following public utilities are included in the advisory:

Fall Creek Falls Utility District in Bledsoe and Van Buren counties

Pikeville Water System in Bledsoe County

Dunlap Water System in Sequatchie County

Cagle-Fredonia Utility District in Sequatchie County

Tennessee American Sequatchie Valley Water System in Marion County

Griffith Creek Utility District in Marion County

Big Creek Utility District in Grundy County

Tracy City Water System in Grundy County

Monteagle Public Utility Board in Grundy County

Sewanee Utility District in Franklin County

Source: Tennessee Department of Environment and Conservation

CONSERVERVATION TIPS

State officials issued a request Friday asking Cumberland Plateau public water customers to cut back on or stop:

- watering lawns, gardens, trees, shrubs
- watering athletic fields
- washing sidewalks, driveways, parking areas, patios or any other hard surfaces except for sanitary or safety purposes
- noncommercial and commercial washing of motor vehicles, trailers or boats
- use of water for dust control or construction compaction
- firefighter training

- Source: Tennessee Department of Environment and Conservation

FORECAST: DROUGHT

Tennessee's southeastern counties have been classified by the U.S. Drought Monitor as experiencing either severe, extreme or exceptional drought conditions. The National Weather Service says precipitation in these areas is as much as 16 inches below normal, and no significant rain is predicted for the rest of the year. The lack of rainfall has resulted in declining surface water and groundwater levels across the region.

Source: Tennessee Department of Environment and Conservation

HISTORIC TEMPS

Even if they start conserving now, customers of the Fall Creek Falls Utility District in Van Buren County, Tenn., could be without water by the first week of January unless torrents of rain fall or another solution is found, experts say.

That's 1,700 taps, including the one at Fall Creek Falls State Park, that will run dry.

The water emergency has been building on the Cumberland Plateau during the ongoing drought. The U.S. Drought Monitor map issued Thursday shows the bright red splotch of extreme drought now spreads as far north as Cumberland and Roane counties in Tennessee.

Fall Creek Falls Utility District gets its water from the Department of Correction-owned and operated Taft Water Treatment Plant, which taps tiny Bee Creek near the prison.

On Wednesday, officials with local governments, the state Department of Correction, Department of Environment and Conservation and the Tennessee Emergency Management Agency joined state lawmakers Sen. Paul Bailey, R-Sparta, Rep. Cameron

Sexton, R-Crossville, and Rep. Ron Travis, R-Dayton, in a meeting with Gov. Bill Haslam and Deputy Gov. Jim Henry to discuss a solution, according to a statement from Bailey's office.

Bailey, Sexton and Travis spoke in the statement about how well the discussion went and how Haslam was willing to commit state resources "on an emergency basis" to address the problem. TEMA's Drought Task Force plans to convene as well, the statement said.

But the only solutions mentioned so far were long-lasting gully-washers, continued conservation by water customers and switching the state park's water supply from the Taft plant to the park's own reservoir, Fall Creek Falls Lake. Water from the lake would have to be treated by a mobile treatment station.

That switch could happen two to three weeks after a decision is made, officials said, but no time line was offered on other ideas for the rest of the utility's customers.

On Friday, TDEC issued a statement asking residents in Southeast Tennessee to start cutting back. The drought is affecting water utilities in almost every plateau and Sequatchie Valley county.

Among them is Big Creek Utility District in Tracy City, where utility manager Allen Joslyn said local mandatory water restrictions take effect Tuesday.

"We're down about six feet, and for us that's a pretty significant drop in water level. So it triggers our phase 2 restriction level for everybody to restrict water use to essential purposes," Joslyn said.

He said customers responded to a conservation notice issued in September by saving more than 1 million gallons of water in the past month.

Billie Beauregard, a 22-year Bledsoe County resident who lives south of Pikeville on College Station Mountain Road, says her supply ran out on Sept. 23.

She went without water for six days straight, then began getting water for only two hours a day as the city of Pikeville's water utility diverted pressure to fill a water storage tank, she said. The heating element in her dry water heater burned up, and the new water heater has barely any water to heat and no pressure to push it to her fixtures even if it did.

Beauregard, whose personal drought was in its 38th day on Friday, said officials told her there's not enough pressure to get the water to her house and no one could tell her what was being done to solve the problem.

That might be because a solution isn't obvious or easy on the Cumberland Plateau, where aquifers shift and once-dependable water sources vanish without explanation, especially in

drought. To make matters worse, rainfall on the Cumberland Plateau is now 14 to 16 inches below average, officials said.

Bailey said Henry, deputy to Gov. Bill Haslam, has tasked TDEC Deputy Commissioner Brock Hill with "coming up with short- and long-term solutions to the problems we face regionally."

"That doesn't mean that we can relax our efforts to conserve water usage," Bailey said. "To the contrary, we need to step up these efforts and do everything we can to preserve as much water as possible until adequate rainfall replenishes supplies."

He added that part of the problem is a lack of infrastructure.

Bailey said the water shortage could end up before the General Assembly when it convenes in January, about the time Fall Creek Falls Utility District is expected to go dry.

Contact staff writer Ben Benton at bbenton@timesfreepress.com or 423-757-6569.

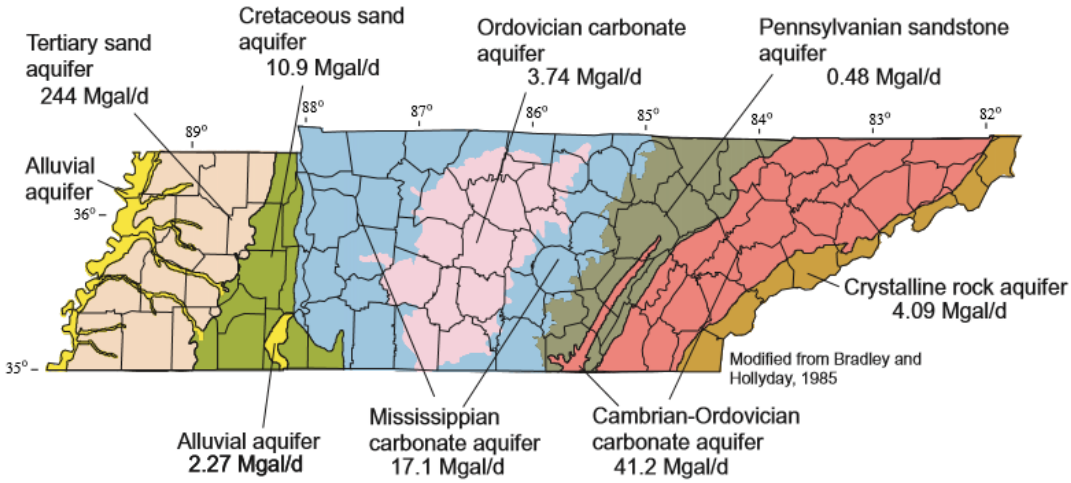

Figure 3. Principal aquifers in Tennessee and rate of water withdrawal, in million gallons per day, 2000.

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Ground-Water Use by Public Water-Supply Systems in Tennessee, 2000

U.S. Geological Survey Open-File Report 03-47 by Ank Webbers

This report also is available as a pdf (1.7 MB).

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Tennessee American Water Directs Sequatchie Valley Customers To Limit Non-Essential Water Usage

Monday, November 7, 2016

Tennessee American Water is directing water customers in its Sequatchie Valley District to limit water usage for non-essential purposes until further notice from the company. This includes Tennessee American Water customers in Whitwell, Powell's Crossroads and portions of Marion and Sequatchie counties.

The Tennessee Department of Environment and Conservation (TDEC) issued a notice on Oct. 27 asking residents of 10 water utilities in Southeast Tennessee - including Tennessee American Water's Sequatchie Valley District - to temporarily limit water usage for non-essential purposes. Extreme drought has caused decrease in the Sequatchie River flow level.

TVA permitted to tap Memphis Sand to cool power plant

Tom Charlier , tom.charlier@commercialappeal.com
Published 1:00 p.m. CT Nov. 30, 2016 | Updated 9:18 a.m. CT Dec. 1, 2016
http://www.commercialappeal.com/story/news/environment/2016/11/30/board-hears-appeal-tva-permits-memphis-power-plant/94567516/

November 30, 2016 - Scott Banbury (standing), a conservation program coordinator for the Tennessee Chapter of the Sierra Club, talks with Mayor Jim Strickland prior to a hearing at the Office of Construction Code Enforcement on Wednesday.
Yalonda M. James/The Commercial Appeal

The Tennessee Valley Authority won approval Wednesday to begin drilling more wells into the Memphis Sand aquifer as a Shelby County regulatory board rejected an appeal from environmentalists who warned of threats to the region's public drinking supplies.

After a daylong hearing, the Groundwater Quality Control Board voted 7-0 to deny the Sierra Club's appeal of the final two of five well permits authorizing TVA to tap the aquifer for cooling water for its Allen Combined Cycle Plant under construction in Southwest Memphis. The decision means the agency will be able to draw an average of 3.5 million gallons daily from the deep, high-quality aquifer that supplies Memphis and other communities with drinking water.

In taking the action, board members said the environmental group failed to show the Health Department strayed from the county's well regulations or acted inappropriately in granting the permits.

"The Health Department went down item by item ... in support of the action," member Tim Herndon said.

But the board was receptive to changes in the county's narrowly drafted well regulations, which contain detailed siting criteria but don't set pumping restrictions or differentiate between aquifers. Member Karen Blanks Ellis said that based on the evidence brought forth at the hearing the board should consider revisions to address broader concerns about the abundance and quality of the Memphis Sand and other aquifers.

"There are other factors that should be considered" in reviewing well applications, she said. "The Health Department didn't have the discretion."

The board vote follows months of debate that began earlier this year when TVA dropped plans to use "gray water," or effluent, from a nearby city wastewater-treatment plant to cool the power plant and pump from 650-foot-deep wells into the aquifer instead. Initially, more than 100 people turned out for the hearing, but that number dwindled steadily through the day.

While praising the new power plant as a cleaner-burning alternative to the coal-burning Allen Fossil Plant slated for retirement in 2018, environmentalists warned during the hearing that pumping aquifer water to cool it was wasteful and could draw shallower, less-pure water into the Memphis Sand.

"We've had a plentiful water supply. However, there's no guarantee that plentiful water supply will continue ...," said Webb Brewer, an attorney representing the Sierra Club.

November 30, 2016 - Attorney Dominic D. Williams (left) and General Litigation and Claims attorney Edward C. Meade, both from Tennessee Valley Authority, confer with each other during a hearing at the Office of Construction Code Enforcement on Wednesday.
(Photo: Yalonda M. James/The Commercial Appeal)

"The new power plant will be a good thing from an ecological standpoint, but we do not need to waste water to operate that plant."

But during his opening statement, Assistant County Attorney Carter Gray said the TVA wells met the requirements set by local regulations. Consequently, Health Department officials "were required" to issue permits for them, he said.

Witnesses for TVA said the agency explored using several alternative sources of water, including the effluent, the Mississippi River, the shallow alluvial aquifer and Memphis Light, Gas and Water Division.

The effluent contained too much ammonia and phosphates, which would be costly and difficult to remove, they said, while shallow aquifer lacked the purity needed for water to be circulated through the plant at least 10 times. And although it could supply enough water most of the time, MLGW lacks the capacity to meet the plant's needs at peak periods.

Water will constantly circulate through a closed-loop cooling system at a rate of 300,000 gallons per minute. The well pumping is needed for "make-up water" to replace the 2,400 gallons per minute lost to evaporation and the process of flushing mineral deposits from equipment.

Dan Tibbs, general manager of major projects for TVA, said the plant will be among the most efficient in the world. For the sake of reliability, it needs not just ample but redundant sources of water, he said.

Health Department pollution-control manager Bob Rogers said TVA showed a "justifiable need" for the wells, as required by regulations. While the rules prohibit wells for "single-pass" cooling systems, TVA's will recycle the water.

"I believe we had no choice but to approve them (the permits)," he said.

TVA also produced as a witness a geologist, Donald Brice, who said recent studies show the plant isn't as close as previously thought to a gap in a protective clay covering the Memphis Sand. For that reason, he said, the TVA pumping isn't likely to pull shallow, less-pure water into the aquifer.

November 30, 2016 - Dan Tibbs (center), general manager of major projects for the Tennessee Valley Authority, holds up four fingers as he sits in the audience during a hearing at the Office of Construction Code Enforcement on Wednesday. The hearing is being held by the Shelby County Groundwater Quality Control Board on the Sierra Club's appeal of two well permits for the TVA power plant in Southwest Memphis.
(Photo: Yalonda M. James, The Commercial Appeal)

Watchdog needed to protect Memphis water

The Commercial Appeal
6:02 a.m. CT Jan. 24, 2017
http://www.commercialappeal.com/story/opinion/editorials/2017/01/24/watchdog-needed-protect-memphis-water/96961162/

The Memphis Sand aquifer provides some of the best drinking water in North America, but what is it? Jason Viera/The Commercial Appeal

In this July 2015 photo, water from the Memphis Sand aquifer sees daylight for the first time since being pumped from the deep below Memphis as it runs through a series of aerators to add oxygen back into the water and help remove carbon dioxide.

Local regulations provided no reason for the Shelby County Groundwater Quality Control Board to overturn the county's decision to allow the Tennessee Valley Authority to draw water from the Memphis Sand aquifer.

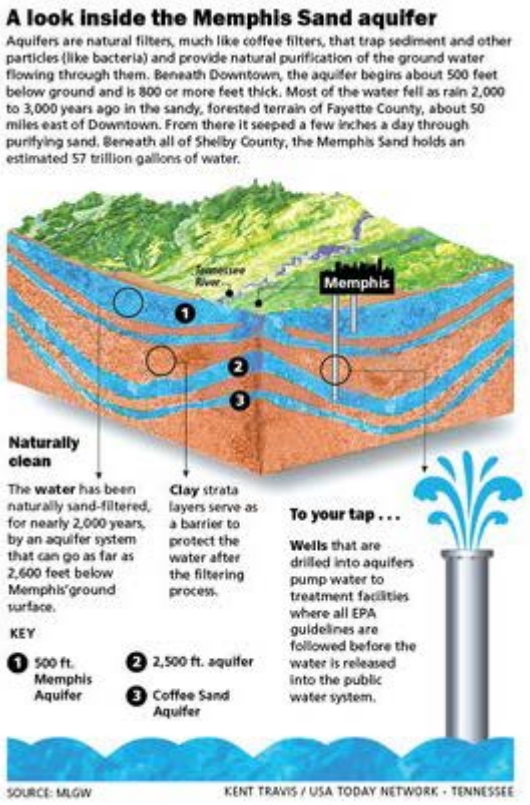
Memphians have plenty of reasons to be concerned about the matter, however, including indications that the new TVA wells, which would draw water to cool a new TVA power plant, could contaminate the Memphis Sand.

(Photo: MIKE BROWN/The Commercial Appeal)

This precious reservoir, which underlies parts of 20 counties across West Tennessee is vitally important to public health and the economic well-being of the region. It is one of Memphis' most important assets.

Similar concerns have been raised about the Cushing, Oklahoma-to-Memphis crude oil pipeline, whose route crosses a part of Presidents Island, lacking a protective clay layer to cover the 60 trillion-gallon aquifer.

Awareness of the importance of the Memphis Sand has been growing, but clearly this awareness needs to be converted into action — some way to bring more awareness to perceived threats to the precious resource, resolve disputes and give people more opportunities to voice their concerns about protecting the community's fresh water supply.



A look inside the Memphis Sand aquifer.
(Photo: Kent Travis)

The Mid-South is not Arizona or New Mexico, but current and future demands for water suggest that we should quit treating it as if we had an infinite supply — taking a page or two from the rigorous control exerted by our friends in the desert Southwest.

Two legislators from Shelby County believe they've found a way to meet this need.

Legislation being co-sponsored by state Senators Brian Kelsey, a Republican from Germantown, and Lee Harris, a Democrat from Memphis, would create a regional board or other entity to oversee the aquifer. Kelsey said the bill would be shepherded in the House by Rep. Ron Lollar, R-Bartlett.

The legislation is worth considering. We look forward to hearing more details about the plan. What's important is to begin the process of creating a means to accomplish this long overdue objective. A regional authority watching out for our water supply might be the best bet.

Cooperation between a suburban Republican and an urban Democrat on this issue, which affects a diverse range of constituents, is certainly reason for optimism.

But there is no reason to be overconfident about the future of the aquifer, which supplies public utilities and private industry in Shelby County with more than 180 million gallons of high-quality water daily.

The potential for contamination must be taken seriously. A discussion about how best to protect it must begin before the next threat to the Memphis Sand is on the horizon.