



Judge: Builders' suit over navigability filed prematurely

Wash protection stays for now

Tony Davis Arizona Daily Star | Posted: Monday, August 23, 2010 12:00 am

It's not exactly the Mississippi or the Colorado River, but about 54 miles of effluent-fed stretches of the Santa Cruz River remain legally navigable, due to a new federal court ruling.

The ruling means that new developments and road projects near many washes in the Tucson area will continue to require federal permits if they could significantly affect the watercourses.

The ruling maintains regulations giving the Santa Cruz's tributaries the highest level of protection possible under the federal Clean Water Act.

But the U.S. District Court ruling doesn't necessarily end the two-year legal struggle over navigability - even if the home builders groups that sued in this case don't appeal.

That's because the federal judge didn't decide on the merits of whether 54 miles of the Santa Cruz are navigable, as defined by federal laws, rules and court precedents.

Rather, Judge Ricardo Urbina ruled it was too early for the Southern Arizona Home Builders Association and other groups to challenge the navigability declaration. They must wait until the Army Corps of Engineers or the Environmental Protection Agency takes enforcement action, he said.

That could include a cease-and-desist order against a builder or a discharger of wastes into a watercourse, according to the ruling. Or the corps could make a permitting decision that the developer disliked, leading the developer to challenge whether the feds have the right to regulate the project, said Urbina, of the U.S. District Court in Washington, D.C.

Allowing builders to contest the navigability decision now "would impede the agencies' ability to enforce the Clean Water Act," the judge ruled Wednesday.

SAHBA's president said the association is disappointed but isn't sure about its next step. The other groups suing were the National Association of Home Builders and the Home Builders Association of Central Arizona.

In their suit, they argued that the EPA had not followed proper procedures in declaring the river navigable because it didn't notify landowners and other interested parties in advance. They also argued that the navigability declaration wasn't legally sound.

"We will continue to explore all options available to us," said Jessica Whyde, SAHBA's president. "Once we've had a chance to review it further, our avenue will be a little clearer."

Carolyn Campbell, leader of a Tucson desert preservation group, applauded the ruling and said she hoped it will mean the EPA will keep giving the river and its tributaries maximum protection.

But while this ruling is important, Pima County needs more clarification on how much authority the federal government has locally and nationally to protect all rivers under the Clean Water Act, said Richard Elias, a member of the Pima County Board of Supervisors, which supported the navigability decision.

He has backed the federal Clean Water Restoration Act, which would take away the requirement that a river be declared navigable for its tributaries to get federal attention. That bill has been criticized by business groups as an example of federal regulatory overreaching.

Under federal rules stemming from a 2006 Supreme Court ruling, only projects on tributaries with significant connections to navigable water bodies are supposed to face permitting requirements. The permitting means longer waiting times and higher development costs. It also means more steps taken to preserve trees, shrubs, cacti and other vegetation along washes.

A 2002 national study found that the typical federal permit for riverfront development costs \$271,596 and takes 788 days to obtain. The Army Corps of Engineers, however, says that a typical permit costs about \$24,000 and takes 187 days.

Environmentalist Campbell said the home builders' continued efforts to keep the Santa Cruz from being declared navigable shows how much they don't want to deal with permitting rules or to protect washes, which draw the most desert wildlife.

"The question is: Do they want to spend a few extra dollars to protect a wash, case by case? Or do they want to spend a lot more in court?" said Campbell, director of the Coalition for Sonoran Desert Protection.

SAHBA President Whyde declined to respond in detail to Campbell's comment, but she said that the time and money spent getting federal permits is a core issue for her members. The other is the technical question of whether the Santa Cruz River should be considered navigable, she said.

"It's a complicated issue. That's all I'm going to say," Whyde said about Campbell's comment.

BY THE NUMBERS

Since July 2008, the Army Corps of Engineers has decided that about 50 planned subdivisions, commercial projects and road projects along washes or streams in the Tucson area would need federal permits under the Clean Water Act to build because the watercourses are federally regulated.

About one-third of those projects have received permits, another third are in the process of getting permits. The remainder have not started the process of getting permits.

Source: Marjorie Blaine, senior project manager, Tucson Field Office, Army Corps of Engineers

Santa Cruz River stretches declared navigable:

- About 22 miles, from Tubac to Continental.
- About 32 miles, from the Roger Road Wastewater Treatment Plant in Tucson to the Pinal County line.

Source: U.S. Army Corps of Engineers and the Environmental Protection Agency

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/sacramento/stories/2010/08/23/daily10.html

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Monday, August 23, 2010

Report: Wastewater plant upgrade would cost 390 jobs

Sacramento Business Journal - by Melanie Turner Staff writer

Investing in an upgrade to the Sacramento Regional Wastewater Treatment Plant in order to substantially reduce ammonia discharge into the Sacramento River would, on average, reduce Sacramento area incomes by \$94 million a year and reduce employment by 390 jobs a year, according to a report released Monday by the Business Forecasting Center at the University of the Pacific.

The **Sacramento Regional County Sanitation District**, which has faced considerable pressure over the past couple of years to remove the ammonia, commissioned the study.

Whether or not there would be any environmental benefit in removing the ammonia has been a topic of controversy.

"What we have tried to say is if we had to do it and if there was an environmental benefit, what would this mean to the Sacramento economy?" district engineer Stan Dean said.

The ammonia reduction project would cost an estimated \$770 million — and could be necessary as a result of increased regulations on nutrient discharge into the river.

The district is currently seeking to renew its discharge permit. The California Regional Water Quality Control Board is set to issue a draft discharge permit for the district in the next couple of weeks. The board could adopt a final permit as early as late 2010, Dean said.

The wastewater treatment plant serves most of Sacramento County and West Sacramento in Yolo County.

The report estimates the project would result in at least 60 operations-related jobs and an annual average of 1,029 jobs related to construction during the five years it would take to develop such facilities. But the gains would be more than offset by the negative impacts of a 50 percent to 75 percent increase in wastewater bills and fees on Sacramento households and businesses, according to the report.

The report estimates the cost to operate and maintain such a facility would be \$30 million a year. In addition, the project would require the Sacramento Regional County Sanitation District to generate an additional \$90 million a year through increased rates and fees, the report states.

The range of potential rate and fee increases, according to the report, are as follows:

- The typical Sacramento residential wastewater treatment bill would go up by \$10 to \$15 a month from the current level of \$19.75 a month.
- Government, commercial and industrial users would face wastewater treatment bill increases of between 50 percent and 75 percent.
- New development wastewater treatment impact fees would rise from \$7,450 to between \$11,000 and \$18,000 per single family dwelling. In-fill fees would rise to between \$4,200 and \$6,500 from \$2,800 per single family dwelling.

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EXPLORER

NEWS

CAP reliability reservoir on 'back burner'

Print Page

4 utilities now look to recharge of allotments

By Alan M. Petrillo, Special to The ExplorerPublished:
September-01-2010

A \$60 million-plus reliability reservoir proposed for ground in Marana is largely "off the table," with four Northwest water districts now working to recharge and later consume their Central Arizona Project allotments, officials report.

The four districts — Metropolitan Water District, the towns of Marana and Oro Valley, and the Flowing Wells Irrigation District — are part of the Central Arizona Water Conservation District. They are considering ways to insure the reliability of water through use of CAP allotments.

Mitch Basefsky, CAP communications representative for Pima and Pinal counties, said the choices facing the districts are either a reliability reservoir or a recharge program.

"The reliability reservoir idea is still in the works, with it being discussed by the Bureau of Reclamation and the Northwest side providers," Basefsky said. "They're continuing their talks, but at some point must make a decision while the line item is still in the federal budget."

Warren Tenney, assistant general manager for Metropolitan Water District and a member of the CAP board, said his staff has been directed to look at recharge as the main process for the district. Metro Water is in the process of finalizing acquisition from CAP of the Avra Valley Recharge Project.

"We began talks three years ago about where water was being stored and the Avra Valley site wasn't being used much for recharge," Tenney said. "We had concerns about where we could recharge if groundwater savings facilities didn't continue in the future."

Tenney said the cost of purchasing the site at \$1.7 million would be funded using effluent credits that would be transferred to the Central Arizona Ground Water Replenishment District. He expects the transfer to be complete by the end of the year.

Metro Water's CAP allocation is 13,460 acre-feet per year. An acre-foot is 325,851 gallons.

Recharge of CAP water is a distinct shift from earlier consideration of a reliability reservoir near I-10 and Tangerine Road that would serve the four Northwest water providers.

"At one time, we planned for a larger reservoir where the water could then be treated and delivered, but that idea got put on the back burner," Tenney noted. "In the last two years the Bureau of Reclamation crunched the numbers and looked at the design of the reliability reservoir, projecting the cost at around \$75 million. That raised a concern for us because originally we had talked around \$30 million."

After fine-tuning the numbers, the Bureau of Reclamation came up with a figure of between \$60 million and \$70 million, Tenney said. In addition, the town of Marana expressed concerns about the reservoir's design because of 30-foot-high berms that would face the canal, so that instead of seeing water, people would be faced with a huge, earthen wall, and there would not be recreational opportunities.

Dorothy O'Brien, director of Marana's water utility, said after the original concept of the reservoir was taken off the table, recharge looks like the way to proceed.

"While our CAP allocation is not nearly as large as that of Metropolitan Water District or Oro Valley, we have been recharging all of our CAP into the Lower Santa Cruz Recharge Project site," O'Brien said. The recharge site is on the west side of I-10 and west of the river, near the Marana Regional Airport.

O'Brien noted Marana also has worked over the past six months with the state Department of Water Resources to get all Marana groundwater wells converted to recovery wells.

"We have 23 wells and are getting them all permitted as recovery wells," she said, "and expect to have the permits finalized in the next three months, certainly well before the end of the year."

Marana will continue to recharge its CAP allocation of 1,528 acre-feet per year at the Lower Santa Cruz Recharge Project site, O'Brien said.

Philip Saletta, director of the Oro Valley water utility, said the town wants to retain all options in terms of delivery of CAP water.

"We're looking at cost comparisons to determine which is most viable and economically feasible," Saletta said.

While Oro Valley considered the idea of a reservoir fed by the CAP canal and then distributing treated water to the town, he noted Oro Valley is now considering recharging CAP water at existing recharge locations, then constructing recovery wells and planning for distribution.

"For Oro Valley, the Lower Santa Cruz Recharge Project is the best location," Saletta said. "We already have the permits to store water there, but don't have permits for the recovery wells yet."

Saletta said Oro Valley would have to drill several wells in the vicinity of the location, get them permitted as recovery wells, then build a pipeline from the site to distribute water in Oro Valley. The town's CAP allocation is 10,305 acre-feet annually.

"Originally we looked at delivery of that water in 2014 or 2015, but the slowdown in growth has affected that timeline," he said. Now we're looking at around 2016 for delivery."

David Crockett, superintendent of the Flowing Wells Irrigation District, said his district will follow the lead of the other three.

"The reservoir is off the table at this point, pretty much due to funding," Crockett said. "Some of the other providers have chosen to go with recharge-recovery, and because we're not large enough to go it alone, we'll have to go along with the group."

The Flowing Wells CAP allocation is 2,873 acre-feet a year.

"We'll do the recharge at the Lower Santa Cruz Recharge Project and recover from six of our eight wells, which are all permitted as recovery wells," Crockett said. "We've been working together for 10 years on this and are trying to make good, informed decisions for our customers."

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Phoenix keeps watch on water quality, supply

by Lynh Bui - Aug. 23, 2010 03:41 PM
The Arizona Republic

Making sure residents have clean water on demand is one of the biggest responsibilities of the Phoenix Water Services Department, but water officials are also working on long-term strategic issues to make sure that service will always be there.

Phoenix is watching three issues related to the city's water supply. The city has partnered with other organizations to learn more about climate change's effect on water supplies, salt in water and pharmaceuticals

in the wastewater system.

To keep abreast of these complicated issues, the city has paid \$239,767 this year to continue its membership with the Water Research Foundation. The city's membership in the foundation will give Phoenix access to millions of dollars worth of research and reports used to help keep the city's water system safe and up to federal regulatory standards.

Environmental regulations from the federal government are constantly changing, said Ray Quay, assistant director of the city's Water Department. Understanding water issues and staying up to date with research helps the city comply with changes and manage the city's long-term changes with the water system, he said.

"This research is becoming increasingly

complicated and expensive," Quay said. "Phoenix by itself would not be able to do all the research required to provide the knowledge to manage our system."

Next year alone, the Water Research Foundation is expected to fund about \$4.5 million worth of research in the three strategic areas related to water supplies in Phoenix.

Climate change

Understanding this emerging issue is important because it will affect the city's long-term water supply and demand, Quay said.

Utilities generally estimate water demand based on rain levels and temperatures, but climate change could affect those variables.

"How we as utilities can participate in mitigation of climate change and how we're going to adapt to climate change is really new, and we don't have a good handle on what it means," Quay said.

Salinity

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Water in Arizona has a fairly high salt content because much of it comes from the Colorado and Verde rivers. Although the salt levels are high, they are within the standard for what is considered potable water, Quay said. That may change in the next few decades. Water-bottling companies, large resorts

with reverse-osmosis systems, water softeners and other variables are contributing salt to the water stream.

"The salt level is getting to a point where it may reach a level where it may be unusable," Quay said.

If the salt content does get too high and has to be removed, water providers will also have to find ways to dispose of the extra salt, Quay said.

Pharmaceuticals

The medicines people consume eventually wind up in the wastewater system. The impact of those byproducts is still unclear, and there is very little information on the subject. Quay said further research will allow the city to determine how to deal with the impact of pharmaceuticals in the water.

Climate change and salinity are issues that affect the entire region, not just Phoenix, said Steve Olson, executive director of the Arizona Municipal Water Users Association.

The association is a collaboration of the Valley's 10 biggest cities, including Phoenix, to manage water resources in the region.

"We basically are all working together on the water planning activities to confront some of the big issues that we're facing now," Olson

said.

He added that managing demand will also be important to ensuring that the water supply in Phoenix remains sustainable.

"How we size our system is based on our projections of demand," Olson said, "and if it's going to be a hotter, drier climate, we have to relook at our reservoirs. We'll have to look at how we store the water that is available to us."

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Arizona set to become center for algae-based, biofuel industry

by William Hermann - Aug. 27, 2010 12:00 AM
The Arizona Republic

Arizonans have cleaned algae from cattle tanks, swimming pools and fish tanks for decades.

Now, Arizona researchers are developing algae as a promising 21st-century alternative fuel to power cars, trucks and planes and propel the state's economy into the future.

With its ideal climate and abundance of available land, Arizona is poised to become a major center of a multibillion-dollar, algae-based, biofuel industry.

Scientists at Arizona State University's Polytechnic campus say major innovations in research in recent years have put them on the brink of boosting production capabilities from thousands of gallons to millions - the difference between powering a few vehicles and fueling millions of cars and fleets of airliners.

ASU researchers say they are three to five years from large-scale production, a breakthrough that could eventually reduce U.S. dependence on foreign oil.

As a further sign of Arizona's prominence as an algae fuel-research hub, about 800 of the world's leading energy scientists and industry representatives will gather in the Valley for an "algae summit" next month.

ASU's effort and similar work at the

University of Arizona are among a growing number of projects around the country that are developing algae as a cost-efficient, renewable, environmentally-responsible energy source.

Scientists have long known that algae, one of the most primitive forms of plant life, create lipids or oils in their cells that can be extracted and converted into fuel. ASU scientists have discovered particularly "oil rich" algae strains and have designed increasingly efficient "bioreactors" - large Plexiglas containers filled with water and nutrients that, when exposed to the sun, accelerate algae growth.

They are also at the forefront of developing new methods to extract the oil and turn it into biodiesel and aviation fuel.

Unlike hydrogen power or electric vehicles, algae fuel won't require new engines to burn it or new infrastructure to deliver it. It will be remarkably similar to the diesel fuel that trucks and cars use and the JP-8 jet fuel that aircraft burn.

Another bonus is that algae is considered carbon-neutral. It produces oxygen and

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absorbs carbon dioxide as it grows and then releases the same amount of CO₂ when it burns. Carbon dioxide in the atmosphere is considered one of the key causes of global warming.

On the cusp

In the past year, about \$1 billion of public and private funding has been invested in algae research for fuel production, according to the Minneapolis-based Algal Biomass Organization, which is hosting the September summit.

ASU's Laboratory for Algae Research and Biotechnology, based at the Polytechnic campus in Mesa, has received millions in grants, including \$3 million from Science Foundation Arizona and a local company, Heliae Development, to develop jet fuel from algae. The laboratory also recently was awarded a \$6 million U.S. Department of Energy grant.

ASU and the laboratory have also partnered with a local company to develop equipment for large-scale production of algae fuel as they seek to establish it as a credible alternative. Algae fuel has already proved it is not just science fiction - a Boeing helicopter recently made a test flight in Europe using an algae-based fuel.

"We're right at the cusp of commercializing and making fuel from algae," said Mary Rosenthal, executive director of the Algal Biomass Organization. "There are companies making thousands of gallons of fuel now, but in several years - maybe by 2015 - we should be at millions of gallons."

ASU Senior Vice President Rick Shangraw said that although solar energy and hydrogen power hold great promise, algae

will "deliver soon" because, in the past few years, "most of the hard science problems regarding algae have been solved."

"Now," he said, "it's largely an engineering problem."

Shangraw said algae fuel meets practical demands around the globe.

"The reason we keep trying to get fuel out of algae and ethanol from corn is that we've put trillions of dollars into a liquid-fuel infrastructure around the world," Shangraw said. "We know how to transport the stuff, and we have hundreds of millions of vehicles and boilers that burn it. For us to move to a hydrogen-based economy, or to go electric, would mean huge costs redoing the infrastructure."

Ethanol, however, "has turned out to be inefficient; growing corn and producing energy from it doesn't pencil out because you have to expend too much energy to get energy," Shangraw said, particularly in cultivating and harvesting corn.

Shangraw said that, unlike with ethanol, growing and harvesting algae results in an

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energy gain "because you get more energy out at the end of the process than you put in." In addition, the byproducts from algae can be turned into fertilizer or feedstock for animals.

Shangraw said Arizona is uniquely situated to cash in on the development of algal-based fuels. "We have lots of sunshine, plenty of land," he said. "We have lots of agricultural sites from which we can get what otherwise would be wastewater but because of its high nutrient and saline content is perfect for growing algae."

The payoff

Milton Sommerfeld, 69, has been working for more than 30 years at ASU to make the promise of biofuel pay off. Now, in Polytechnic campus labs and greenhouses, his longtime dream is happening.

Qiang Hu, Sommerfeld's fellow scientist and colleague in algae production, is a specialist in designing the algal bioreactors in which the plants grow. At ASU's Laboratory for Algae Research, a large greenhouse complex contains vertical Plexiglas panels within long banks of Hu's newly designed and fabricated bioreactors. These bubble with green, algae-laden liquid, rich in lipids.

When Sommerfeld started his research, the strains of algae being studied had low quantities of fat, or lipids, and the methods for extracting the oil were primitive.

He played a major part in solving the No. 1 problem: finding strains of algae with a high yield of oil. Aided by a U.S. Department of Energy grant, "our job was to find and isolate and characterize algae in the Southwest," Sommerfeld said. "Graduate and undergraduate students sampled about 250

sites. They went to ponds, streams, lakes, particularly looking for water that was brackish or saline, and they found some very oil-rich algae like we hadn't tested before."

In fact, the algae they found changed everything.

"The DOE's target was 40 percent lipid," Sommerfeld said. "We met that goal and have kept finding even better algae. Now, we have organisms that will grow algae with a biomass that's 55 percent oil . . . (so) now, we have algae that can produce an abundance of oil."

Sommerfeld said that the sort of saline water algae thrives in can be found in aquifers in Arizona, New Mexico and Texas, and that "because it's brackish, or saline, we can't drink it. Now, we can use this otherwise unusable water."

Once it became clear that significant oil could be taken from algae, it became more of a mechanical problem to solve, Sommerfeld said. "We needed to create efficient places for the algae to grow - bioreactors - and from which we could extract the biomass which we would turn into oil."

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The standard extraction method is to dry the algae biomass and use a solvent to chemically extract the oil. "You dissolve the oil out of the cell, heat the liquid mixture and the solvent boils off. You collect the solvent as it boils off to use again, but when it boils off, the oil is left," Sommerfeld said.

He said one reason large bioreactors are needed is because it takes a significant mass of dried algae to make a significant amount of oil. One pound of dried algae that is 50 percent lipid will yield a half-pound of oil. It would take about 16 pounds of dried biomass to make 1 gallon of oil.

ASU and other research centers have experimented with artificial ponds to grow algae, but Sommerfeld said the answer likely lies in using large, vertical panels or tubes that require less space.

Hu said creating larger and better bioreactors is just a matter of time, money and design. "We will make better and better bioreactors, and we'll keep cutting the cost of producing fuel," he said.

A green future

As researchers converge on the Valley next month to talk about the future of biofuel, there is a growing consensus among scientists and government officials that the time for establishing alternatives to fossil fuels has come and that biofuels are the most likely alternative.

ASU researcher Bruce Rittman, whose work in creating genetically modified bacteria rich in lipids parallels the work of Sommerfeld, said, "There is a growing realization in this country and around the world of the importance of sustainability.

"We have to shift away from fossil fuels, especially petroleum. There are skeptics who say biofuels are too expensive, but when you factor in things like climate change and the eventual cost of that, we don't look expensive at all."

Shangraw said that as research-and-development advances reduce the price of algae fuel from its current cost of about \$20 a gallon to more like \$3 or \$4 a gallon, we need to look carefully at the "true costs" of fossil fuels vs. biofuels. The military and human cost of keeping oil flowing from the Middle East, for example.

"Or what about the cost of the BP oil spill in the Gulf?" Shangraw said. "Economists call these other costs 'externalities.' The factors should figure into the price of something.

"If we had all those factors, the cost of oil would be a lot higher, and the cost of some other fuels, like fuel from algae, would look a lot more reasonable."

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