# Florida Specifier

Practical Information For Environmental Professionals

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Excavating contaminated soils and installing physical obstructions to plume movement are two common approaches at Superfund sites. The program, operating under a new set of guidelines recommended by an EPA task force, recently added seven sites to its Superfund National Priorities List including one in Gadsden County. See story on Page 9.

# Many counties falling short of reaching aggressive state recycling rates

By ROY LAUGHLIN

Florida has an aggressive 75 percent recycling rate goal for counties with more than 100,000 residents by 2020 and a 2016 interim goal of 60 percent.

Last year, the state recycled about 54 percent of its waste, missing the 2016 interim goal by a mere six percent.

However going forward, Florida's recycling rate appears likely to fall short of the 2020 goal of 75 percent.

The Florida Department of Environmental Protection tracks recycling by county. The numbers show a wide disparity among the counties' recycling success.

Three counties, Monroe, Hillsborough and Pinellas, have already exceeded the 75 percent goal. In 2016, the three recycled more than 78 percent of their waste.

All but three of the counties that reached the interim goal did so by including recycling credits for waste-to-energy plants. Only Charlotte, Sarasota and Sumter counties reached the 60 percent interim milestone without a waste-to-energy contribution.

DEP categorizes counties as either "large" or "small" for the purpose of tracking recycling rates. Ten large counties reached or exceeded the 60 percent interim target date.

Palm Beach, Orange, Lee and Charlotte counties all recycle more than 70 percent, and are closing in on the 75 percent goal.

Hendry County, a small county, recycles about 65 percent of its wastes, with 35 percent, more than half of its recycling, attributable to waste-to-energy recycling.

For the remaining 54 counties, reaching the 2020 recycling goal appears out of reach. Among the large counties, Flagler, Highlands, and Santa Rosa recycle at well below 20 percent.

Ten small counties, including Okeechobee, Levy, Hardee, Dixie, Union, Calhoun, Jefferson, Glades, Liberty and Lafayette, recycled less than 10 percent of their wastes in 2016.

The 2008 Florida Legislature's House Bill 7135 "requires local governments to recycle a significant portion of at least four of the following materials that may be a product of packaging: newspapers, aluminum cans, steel cans, glass, plastic bottles, cardboard, office paper and yard trash," said DEP Spokesperson Sarah Shellabarger.

"Recycling must be economically feasible for counties in order to maintain or increase their recycling rates," she said, commenting on the low recycling rates in most small counties.

"Some counties are only able to offer drop-off stations for recycling as opposed to curbside recycling services, which alone helps to boost recycling

*RECYCLING*
**Continued on Page 13**

# Marks takes the reigns at South Florida Water Management District

By PRAKASH GANDHI

Environmental activists praised the appointment of Ernie Marks as the new director of Florida's largest water management district.

Marks

The revolving door at the corner office of the South Florida Water Management District continued to spin this summer when Marks was appointed executive director, replacing Pete Antonacci.

Antonacci, former general counsel for Gov. Rick Scott, was tapped to head up the business recruitment agency Enterprise Florida.

Marks becomes ED at a time when the district has its hands full on Everglades restoration, Lake Okeechobee reservoir construction and its usual efforts regarding flood protection and water quality improvement.

He had been serving as district director of Everglades policy and coordination, and is the third director in three years.

"Ernie faces enormous challenges with flood control, and water supply and water quality," said Eric Draper, executive director of Audubon of Florida, who worked with Marks on Everglades issues. "Unfortunately, the resources are not there to adequately address these issues."

Marks' appointment was also praised by Eric Eikenberg, CEO of the

*MARKS*
**Continued on Page 16**

# Pruitt outlines specific goals, strategies to revitalize Superfund program

**Staff report**

In late July, U.S. Environmental Protection Agency Administrator Scott Pruitt endorsed recommendations made by a Superfund Task Force.

The report contained 42 "specific and detailed recommendations to streamline and improve the Superfund program." One of the primary goals, according to the agency press release, is to quickly identify Superfund sites where "the risk of human exposure is not fully controlled."

The 42 items were grouped into five categories: expediting cleanup and remediation, reinvigorating responsible party cleanup and reuse, encouraging private investment, promoting redevelopment and community revitalization, and engaging partners and stakeholders.

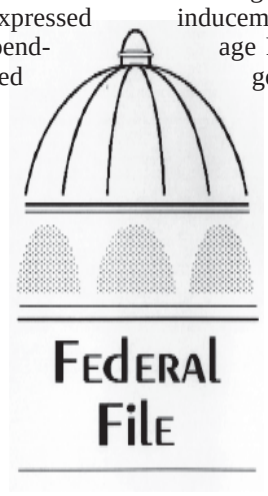
Readers familiar with the program, its priorities, policies and recent practices will recognize that these words have characterized the program for many years.

The details of the recommendations provided some insight into the agency leadership's perception of the EPA, and Pruitt's insistence that the Superfund's environmental cleanup activities should be a core agency mission.

The first detail item was establishing an "Administrator's Top Ten" list that will receive Pruitt's weekly attention.

Other items in the list generally focused on identifying sites that have been on the National Priority List for five years or more without significant advancement toward cleanup.

Several of the proposals expressed in the memo may be new, depending on how they are implemented in the future.




One proposal was conducting optimization reviews including identifying 15 sites at which to immediately perform such a review.

Another, utilizing alternative approaches to financing site cleanups including environmental liability transfer approaches, may endorse legal strategies yet to be codified in legislation.

A third, publicizing site-specific information, including reuse fact sheets to inform the community and developers about properties with reuse potential, was similar to what many local governments already do in their brownfield programs.

Another tactic the report endorsed was entering into site-specific agreements that define the responsibilities and liabilities of third-party investors.

Another category, efforts to secure potentially responsible parties' commitments, proposed an actual change from current EPA and state practice. Its summary said that the agency will implement increased inducements and deterrence to encourage PRPs to quickly complete negotiations and cleanup commitments.

Those could include reducing oversight costs for PRPs that perform timely, high-quality work. Indirect cost-charging reduction would be the expected result. The agency also proposed an increased adherence to project deadlines.

The recommendations had time frames from the first to the fourth quarter, 2018. The agency noted and apparently endorsed the need for additional rulemaking to implement some of the recommendations.

The report's specific recommendations were largely in line with prior statements made by Pruitt and included in the EPA's 2018 proposed budget.

That the report borrowed extensively from existing EPA and state practices is not surprising considering that Pruitt established the review committee on May 22 and signed off on its recommendations on July 25.

**Nutrient Sensor Action Challenge.** The EPA's Nutrient Sensor Action Challenge is offering cash incentives to propose deployment and use of low cost nutrient sensors. "Nutrient" refers to nitrogen and phosphorus compounds that promote algal blooms and eutrophication in surface waters.

The challenge is divided into two stages. In the first stage, entrants will submit proposals for deploying and using nutrient sensors, and explain how they will meet challenge goals.

Up to 10 applications will receive a share of $50,000 in what the agency calls "prizes" and will be eligible to participate in the second stage. There, participants will deploy sensors to collect data.

Participants in the second stage will compete for a share of the challenge's $100,000 funding.

This year's challenge follows the EPA's 2014 Nutrient Sensor Challenge. The goal of that effort was to develop remotely operated nitrogen and phosphorus nutrient sensors that would operate continuously and unattended for months.

The new challenge fosters planning for deployment, with deployment scheduled for early 2018.

The announcement suggests that the challenge is aimed at interested professional industry or university participants, not at volunteer or amateur organizations.

The EPA is the challenge's lead agency, with other federal supporters including the U.S. Geological Survey, the U.S. Department of Agriculture, the National Institute of Standards and Technology, and the National Oceanic and Atmospheric Administration's Integrated Ocean Observing System.

In addition, a federal collaboration, the Alliance for Coastal Technologies that includes research institutions, resource managers and private sector companies, is also participating.

The agencies sponsoring this challenge hope that it will reinforce the effective use of low-cost continuous sensors that collect nutrient concentration data and foster partnerships to install the sensors and manage the data they produce.

They would like to see the data used by state and local governments in decision-making.

The closing date for submission of Phase I is Sept. 20.

**Water infrastructure financing.** The EPA's Water Finance Clearinghouse is up and running on the web. It is a searchable database of financing opportunities for drinking water, wastewater and stormwater infrastructure.

Primarily intended for use by representatives of local governments and their utilities, the database, according to the EPA, lists more than "$10 billion in water funding sources and over 550 resources to support local water infrastructure projects."

The database lists state revolving funds, federal agencies, regional entities such as the Appalachian Regional Commission, designated area development funds, private donors and others.

The amount of available money is likely well below $10 billion at any given time because the total value of state revolving funds is not available for lending. But the interest accrued from existing loans, a few percent of the capital of value of the fund, may be available. Many of the funding sources are regional- or state-based.

Nevertheless, the site provides contact information and may yield a few funding sources for projects on a state-by-state basis.

The EPA noted that the information in the database follows a crowdsourcing model. The accurate connection between

***FEDFILE***

**Continued on Page 12**

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# New solar farm in eastern Orange County coming online

**Staff report**

Workers in Orlando are completing construction on a large solar farm on top of a coal combustion byproduct landfill in eastern Orange County.

The site is one of the most diverse fuel locations in the state. The new farm provides enough energy to power nearly 2,200 homes on average throughout the year.

Orlando Utilities Commission entered into a power purchase agreement to build the farm. The agreement allowed a separate company to pay for infrastructure and repairs to the panels. The energy will be purchased at a competitive rate and resold to OUC customers.

Officials said that by diversifying energy sources, OUC can keep prices from going up.

OUC plans to add another 30 megawatts of solar energy next year. The company is now discussing site plans.

**St. Lucie compost ordinance.** St. Lucie County commissioners unanimously approved allowing commercial composting facilities as a conditional use in Agricultural 5 zoning districts west of Interstate 95.

Officials specified that such facilities be enclosed with a roof. Materials are not allowed outside of the building.

The facilities cannot cause objectionable odors to pass their property lines. Nor can they cause any additional dust, insect, vermin or noise problems for their neighbors.

The ordinance follows a failed 2015 effort by Compost USA to build a 189-acre composting facility that would have processed up to 300 million pounds of sludge a year, mixing sewage sludge from municipal wastewater treatment plants with chopped yard waste and wood chips to make mulch, fertilizer and potting soil.

**Tallahassee solar.** The city of Tallahassee is preparing to triple its solar generating capacity within the next two years.

The city has been using the CH Corn Hydroelectric Generating Station to generate up to 11 megawatts of electricity an hour for the past 33 years.

Today, the plant accounts for only one percent of the city's power.

City officials have notified the state that they will not renew the lease on the state-owned facility and will withdraw their license with the Federal Energy Regulatory Commission to operate the hydroelectric generating plant.

Production costs drove the decision. The cost to produce hydroelectric power at the dam is about $85 per kilowatt, compared to $50 today for solar.

Three energy companies have expressed an interest in picking up the license and lease of the plant once the city walks away from it.

The dam was built in 1927 and the plant had been operated by Florida Power before the city assumed the lease in 1984.

The state is conducting a competitive bid for companies interested in leasing the generating facilities.

More than 90 percent of the city's electrical power is produced with natural gas. That level will drop as the city works to attain its solar goals.

Tallahassee operates a 20-megawatt solar facility at the airport that can power 3,400 homes. Plus, the city is building a 40-megawatt solar plant at the airport as well. Together, their percentage share of electrical production for the city could reach double digits.

Florida ranks fifth among states in the number of hours it receives sun annually but only 19th in solar energy generated.

**New port in Port St. Joe.** Gulf County officials approved an interlocal agreement with the Port St. Joe Port Authority to create an operational port and bring high-paying jobs to the county.

The agreement is for two years and the key provision is the desire by the boards to work jointly on applications for potential port funding.

The county, having entered into a licensing agreement with the St. Joe Co., will allocate $75,000 to match the city's investment for a temporary road linking the former Arizona Chemical site with the paper mill site bulkhead.

The road is the first project undertaken under the agreement between the county and St. Joe that is aimed at providing a public-private partnership to facilitate a host of projects aimed at port development and growth.

## Florida Notes

**Compost plant update**. Owners of BS Ranch and Farm asked Polk County officials to move the date of a meeting that was expected to address ways to prevent odors coming from their compost facility.

Bill and Brandy Stanton need for more time to work on a suitable resolution.

In the Stanton's initial plan, engineers from Gainesville-based George F. Young detailed ways to prevent or limit odors coming from the site that recycles human waste, out-of-date food and mulch into soil sold to growers.

Preventive measures to reduce odors include using lime suppression, installing an air monitoring system and restricting early morning handling of materials that could produce odors.

Earlier this year, residents complained about odors coming from the site. A consultant hired by the county found flaws with the action plan submitted by the Stantons.

**Python-tracking drones.** Volaero Drones, a Miami-based drone startup company, teamed up Bill Booth Outdoors and Bruni Infrared on a first-of-its-kind project.

Using drones and thermal technology, they started a python tracking project.

It is estimated that over 100,000 Burmese pythons are living in the Everglades and ravaging the wildlife there.

**People news.** Pete Antonacci, former executive director of the South Florida Water Management District, was tapped to take over the business recruitment agency Enterprise Florida.

Antonacci spent two years at the helm of the water management district.

# SFWMD: EAA achieves significant nutrient reduction in runoff

**Staff report**

The South Florida Water Management District announced that the Everglades Agricultural Area reduced phosphorus release to waters flowing to the Everglades in Water Year 2017 by 70 percent.

The 470,000-acre area retained 152 metric tons of phosphorus that were not released to water in canals leading to the Everglades.

This is the 21st year that the EAA has surpassed mandated phosphorus retention mandates based on model calculations.

Since WY 1996, the average long-term phosphorus retention has been 55 percent, equal to 3,208 metric tons of phosphorus that the model calculates as "retained" rather than "released" from the EAA.

Reductions occur through best management practices that limit phosphorus applications and enhance phosphorus retention in fields.

The amount of phosphorus entering the Everglades can be expressed as mass loading, on which the 70 percent reduction mentioned above is based. It can also be characterized by nutrient concentration.

In its report, the district noted that only 13 measuring stations located among three water conservation areas south of the EAA had average annual phosphorus concentrations more than 10 parts per billion. This contrasts with the data from 1979-1983 when nearly three times as many stations distributed throughout the three WCAs had average annual phosphorus concentrations exceeding 24 ppb.

In an adjacent 170,000-acre area, the C-139 basin west of the EAA, a BMP implementation to reduce phosphorus released to the Everglades has been in place since 2002.

In WY 2016, the most recent year for which data is available, the phosphorus mass released was 26 metric tons. That exceeds the state mandate for phosphorus release.

The SFWMD announced that it continues with its efforts to reduce phosphorus release from the C-139 basin, which the district said has historically had elevated nutrient levels in its runoff.

No doubt the unusually dry winter helped reduce EAA phosphorus releases. But the large number of stations reporting phosphorus levels below nine parts per billion may also indicate that EAA phosphorus release on a non-corrected, non-modeled basis is, in fact, occurring.

**Doctors Lake bloom.** Between mid-June and the third week of July, local news sources reported an expanding iridescent green algal bloom on Doctors Lake in Clay County.

At the time, the *Microcystis*-green algae did not appear to be releasing algal toxins but as it continued to expand, 13 water samples were taken at 11 stations. The results indicated that microcystin, an algal toxin, was present in the water.

Microcystin concentrations found nearshore were about five or six times higher than samples taken in the middle of the lake.

St. Johns Riverkeeper collected water samples on July 12. At least one of those samples showed microcystin levels of 14.1 micrograms per liter.

The EPA has a 4 microgram per liter draft standard for microcystin, issued in December, 2016. Several of the samples exceeded it, and one was nearly three times as high, over 10 parts per billion.

The EPA notes on its website a low probability of serious responses to microcystin at concentrations of 10 parts per billion or below. Florida has no microcystin standards that require a health advisory.

Microcystin is a hepatotoxin that children and some types of pets may be sensitive to.

The Florida Department of Health advised people to avoid contact with the water in algal bloom areas, but by the end of July, has not issued a formal warning.

The bloom may have peaked, at least temporarily, by the end of July.

**Seminole County's Nutrient Reduction Facility.** Seminole County's new Nutrient Reduction Facility on Lake Jesup began treating urban stormwater runoff in July.

The $7.7 million facility uses alum treatment to trap particulates and phosphorus in a floc so it can be filtered from the water.

The treated water is then released into Soldiers Creek, eventually flowing into Lake Jesup.

The facility is capable of treating up to 32.3 million gallons per day and removing about 20 pounds of nitrogen and phosphorus daily from the water it treats.

The plant was constructed under a partnership with Seminole County, the Florida Department of Transportation and the St. Johns River Water Management District.

**Black Creek Project approved.** The governing board of the St. Johns River Water Management District approved a contract in July with Jacksonville-based engineering firm CDM Smith to begin design work on the Black Creek Project in Clay County.

The project involves constructing a pipeline to carry up to 10 million gallons of water a day from Black Creek near the St. Johns River.

From its collection point at Penny Farms, the pipeline will follow the right-of-way along State Road 16 and 21 in Clay County.

It will release water to a spreader field at Camp Blanding adjacent to Lake Magnolia in Keystone Heights.

From Lake Magnolia, the water would flow down Alligator Creek, increasing water levels in the Etonia Chain of Lakes including Lake Geneva and Lake Brooklyn among others, that are aquifer recharge areas.

The project is expected to cost $44 million. In 2017, the Florida Legislature appropriated $13.3 million to fund the design phase that SJRWMD just approved.

Legislators earmarked $5 million a year from the land acquisition trust fund as a recurring payment for the completion of the project.

**Gulf Breeze stormwater.** In July, the Gulf Breeze City Council authorized negotiation on a scope of work and fee for design services to begin its Eastern District Stormwater Project.

Jehle-Halstead Inc. of Milton, FL, and Cashiers, NC, is the contractor, pending successful negotiation. The firm was selected over six others that expressed an interest.

The project includes installing new pipes on Shirley and McClure drives to connect to existing stormwater pipes. The project also includes new discharge pipeline construction along plantation Hill Drive to Bay Cliff Road.

Stormwater will be discharged into wetlands that Gulf Breeze owns.

The scope of work for the recently approved negotiation includes surveying, design, permitting, contract administration and limited construction observation.

Gulf Breeze's East Basin experienced damaging floods in April, 2014, when an exceptional rain event inundated the town's Plantation Hill neighborhood.

The stormwater project is expected to significantly reduce the possibility of a similar flooding episode.

***WATCH***

**Continued on Page 5**

**Sewer expansion into Lake Hamilton.** The Dundee Town Commission approved a joint agreement to run sewer lines from Dundee along the west side of U.S. Highway 27 to the town of Lake Hamilton, a mutually beneficial public works project.

For Dundee, its wastewater customer base will expand, providing additional economies of scale in the operation of its treatment plant. For Lake Hamilton, the wastewater treatment capacity will provide additional incentives for real estate development.

Dundee operates a 620,000-gallon-per-day wastewater treatment system but uses only about 150,000 gallons per day, a quarter of the plant's treatment capacity.

Lake Hamilton's connection will take advantage of that unused capacity and allow the city to avoid the cost of building its own wastewater collection and treatment facilities.

Lake Hamilton has spent $256,000 to extend sewer lines down Highway 27. The total cost of the project is estimated to be $1.45 million, 80 percent of which will be paid for by the U.S. Department of Agriculture through a grant to Lake Hamilton.

The towns will each pay $160,000 for startup construction. The project could be finished by the fall of this year.

Lake Hamilton has several dozen existing businesses that are expected to connect to the sewer lines when construction is complete. The city will allow them two years to connect to the line.

In addition, the new sewer will provide future service to 48 acres zoned for commercial use in Dundee.

Dundee now charges an impact fee of about $4,800 to business customers located outside the town limits. Under the new cooperative plan, the two towns will split those impact fees, charging about $2,400 each.

Dundee officials agreed to waive the fees for the first two years of the cooperative agreement. The city of Lake Hamilton will collect $2,400 to connect.

The advantage to the city of Dundee in waiving impact fees is that it will collect $3 per thousand gallons of additional sewage treated.

If all the businesses connected, the city estimates an additional 50,000 gallons per day of wastewater will be processed with an increase in revenue of $4,500 per month in new wastewater treatment revenue.

By lowering the fees initially, Dundee officials hope to significantly increase early connections by Lake Hamilton businesses to the extended sewer lines.

**New EAA reservoir.** The South Florida Water Management District will be the state's lead agency for construction of the stormwater reservoir in the Everglades Agricultural Area approved last spring by the Florida Legislature.

The district asked the U.S. Army Corps of Engineers whether it would like to cooperate in the reservoir's construction, and if so, how.

The corps originally intended to reply by the end of June, but on June 24 formally requested an extension in a letter written by Col. Jason Kirk, commanding officer of the corps' Jacksonville headquarters.

Florida legislation authorizing collaboration with the corps for the reservoir's construction stipulated an Aug. 1 deadline for their consent.

In his letter, Col. Kirk asked for the 30-day extension for additional coordination with his regional and national division commanders so that options the corps might offer for collaboration would be "legally sufficient, policy compliant and implementable."

The corps' involvement is high stakes for Florida. The collaboration involves preparing a report for the corps that would garner an additional $800 million in federal support, half the estimated cost of the reservoir project.

The report, a "post authorization report," will modify the recently approved Central Everglades Planning Project. One of its components is a shallow reservoir for the EAA. But Florida's plan, approved by the Legislature, calls for a deep-water reservoir.

The collaborative report will formally endorse the change that the Florida Legislature proposed to fund. That report must be sent to Congress by Oct. 1, 2018.

Two complications may factor into the corps' request for delay. The first is SFWMD's Executive Director Peter Antonacci's August departure to become Enterprise Florida's president and CEO.

The second is that the reservoir the state approved must hold at least 78.2 million gallons of water, but one that would hold 120 million gallons is preferred.

The state owns 14,460 acres south of the Everglades, but it may need more land to achieve the desired volume, which is likely to come from a 3,500-acre parcel immediately west of the proposed site.

The state owns 3,000 of those acres and 500 acres are in private hands.

For these reasons, giving the corps an extra month is hardly significant. No one expects them to opt out but until they respond with a letter, details of the partnership for building the new reservoir remain hazy.

**Tiger Point Wastewater Treatment Facility expansion.** In June, the Gulf Breeze City Council approved expansion of its Tiger Point Wastewater Treatment Facility, including conversion of its sprayfield to a rapid infiltration basin.

The approval included authorizing staff to negotiate a preliminary design report with Baskerville-Donovan Inc.

The first phase's scope of work includes characterizing the current condition of facilities; determining the expansion project's capacity, alternatives for reusing or replacing existing equipment; and specifics of the final design.

The RIB engineering work will include verifying the suitability of the site, which includes the currently used effluent sprayfields slated for conversion to RIBs.

The city will also consider conversion of the back nine holes of the former Tiger Point Golf Course for basin construction.

Gulf Breeze will conduct a separate negotiation for final design, permitting, contract administration and inspection responsibilities after receiving the preliminary report for the wastewater treatment plant expansion.

**Lake Okeechobee algal blooms ... again?** Heavy rains in South Florida followed a spring drought, a set of circumstances that typically fosters toxic algal blooms.

A blue-green algal bloom in Lake Okeechobee near Port Mayaca was tested in mid-July. But no algal toxins were detected in the samples.

Experts are not surprised to see an algal bloom in the middle of Lake Okeechobee because by the end of the drought in May, the lake was down to 11 feet.

In addition, water was back-flowing from the EAA and the St. Lucie Canal into the lake. Both conditions are known to produce water with high nutrient levels, and those may have triggered the July bloom.

As of Aug. 2, Lake Okeechobee's surface elevation was back to 12.98 feet, a relatively low level for mid-summer. It has almost two more feet to fill before drainage might become necessary.

If rainfall remains typical, a corps spokesman noted in mid-July that no releases would be necessary before hurricane season.

That would help prevent algal blooms caused by Lake Okeechobee releases in the southern Indian River Lagoon system and on the Gulf Coast around Fort Myers.

# Arcadis report shines light on innovation, sustainability at water utilities

By BLANCHE HARDY, PG

International design consultancy Arcadis recently released "Empowering Water Utility Innovation," a report about water innovation and sustainability for water utilities.

The company surveyed 423 utility professionals across 82 urban water utilities in advance of the report's presentation at the American Water Works Association's Annual Conference & Exposition this summer in Philadelphia.

Arcadis found that more than half of water utility leaders globally have not embraced innovation, putting their operations at risk of missing out on "sustainability dividends."

Only 40 percent of the utilities surveyed engage innovation as a business practice even though more than 90 percent of respondents said it is critical to the future of their utility.

"Water utilities are under tremendous pressure and face many challenges such as aging infrastructure, shifting workforce demographics, unreliable sources of supply, emerging regulations and rising consumer expectations," said Jason Carter, delivery & innovation lead for Arcadis North America.

Carter said their findings show that "forward-thinking utilities of all sizes are creating innovative programs to address these challenges.

"In turn, this innovation produces new tools, practices and processes that reduce expenditures; improve organizational resiliency; create new revenue streams; strengthens community relations/brand; and improve employee morale, staff engagement and product quality."

Ultimately utilities are customer-dependent. Arcadis understands the need for return on investment for both the sustainability of the utility and the benefit of the individual customer.

"The report shows how innovation generates measurable ROI while resulting in social, environmental and economic benefits," said Carter. "These benefits strength-en a utility's brand, bottom line and satisfaction ratings to ultimately improve quality of life for its customers.

"Most importantly, innovation generates sustainability dividends, such as greater revenue capture, waste reduction, water supply diversification, asset longevity and network continuity, which can improve the financial metrics and resiliency for the utility, customer and region."

Arcadis found that innovations such as stormwater harvesting, advanced metering and real-time system monitoring are pathways to generating sustainability, equating to greater revenue capture, improved demand management, waste reduction and increased asset longevity.

The study also brings to light the degree to which digital applications are changing the industry, suggesting that technology disruptors such as, "the Internet of Things, Big Data, Predictive Analytics, Cloud Computing and Mobile Technology," will fundamentally change the way utilities are run.

Arcadis encourages utilities to adapt to the digital landscape noting that innovative utilities will be the driving force and key beneficiaries of the digital transformation.

Many of the utilities surveyed are behind in implementing innovation.

"The role that utilities play as part of innovation is evolving," said Carter. "For the past decade, the water industry has tried to drive innovation through the development of technologies, however, we believe that utilities hold the key to enabling an era of holistic water sector innovation in a move from being the consumer of innovations to the creator of them."

"Culture is the biggest hurdle to innovation," he said. "Risk aversion is often accepted as the primary culprit in stifling utility innovation. However, the research suggests that the challenge may lie deeper than it first appears.

"The top five internal challenges to innovation revolve around themes of culture, structure and resources: cultural inertia, resources, tenured employees, facilitating process and organizational silos."

The Arcadis report is available on-line through a link on their U.S. web site.



## FIT works to improve hazardous materials management

By PRAKASH GANDHI

Officials with the Florida Institute of Technology in Melbourne said they have taken steps to correct environmental issues after being slapped with another fine by regulators.

In June, FIT was hit with a $64,100 civil penalty for multiple hazardous materials and waste violations.

The fine is just the latest for the university. In 2012, FIT was issued $4,575 in fines and $500 for the cost of the investigation after the school renovated five buildings on its main campus without a thorough inspection for asbestos.

And in 2008, the Florida Department of Environmental Protection issued a $178,902 penalty for violations that included open containers of chemicals such as mercury in chemistry labs, and failure to properly label wastes or document personnel training in hazardous waste handling.

The school was allowed to offset $143,121 of that fine with pollution prevention projects on campus, such as emission improvements to vehicle fleets.

In the latest case, inspectors from the U.S. Environmental Protection Agency and state of Florida found containers of old chemicals with peeling labels, residues forming on lids or waste foaming out, and chemicals that required a determination as to whether they should be classified as hazardous.

They also found leaking or deformed containers of formaldehyde, bleach waste, biological stain waste, alcohol/water waste and other chemicals at various science labs.

University officials said that after last year's EPA inspection, they have worked diligently with the agency to quickly resolve issues that were identified.

"Florida Tech has been working steadily to improve in these matters over time, taking steps and making investments during the last decade to foster that improvement," said FIT Spokesperson Ann Munroe.

Government regulators said that between 2014 and 2016, the school failed to conduct weekly inspections of containers used to store hazardous wastes.

*FIT*

Continued on Page 16

# Caloosahatchee Estuary shows nutrient reduction progress, but is it enough?

By ROY LAUGHLIN

In its fourth year, the Caloosahatchee Estuary basin management action plan reduced nitrogen inputs from the river's watershed by 181,680 pounds per year, according to a new Florida Department of Environmental Protection annual report.

The watershed's total nitrogen loading before implementing the action plan was 1,690,084 pounds per year. After four years of nitrogen loading reduction efforts under the BMAP, it stands at 1,508,404 pounds, a reduction of 181,680 pounds per year.

The targeted BMAP loading is 1,301,366 pounds, requiring a total reduction of 388,718 pounds annually. By its fourth year, the BMAP efforts reached 47 percent of the target reduction.

The 2009 legislation that implements numeric nutrient reductions through BMAPs for 27 designated impaired waters stipulates a 20-year time line to meet the goals.

Methods of meeting the nitrogen reduction goals in the Caloosahatchee River Estuary include reducing NPDES permitted nitrogen in stormwater discharges and wastewater plant nitrogen discharges, street sweeping and land purchases for water management projects.

In addition to DEP, state agencies involved in the effort include the Florida Department of Agriculture and Consumer Services and the Florida Department of Transportation.

Another perspective on the efforts to reduce nitrogen inputs comes from considering specific projects to reduce them. The Caloosahatchee Estuary watershed covers parts of Charlotte and Lee counties, and includes the cities of Cape Coral, and Fort Myers, and the community of Lehigh Acres.

DEP's recent annual BMAP progress report lists 70 projects in place aimed at achieving the total maximum daily load goals. Sixty-seven of those projects have been completed.

Lee County is responsible for the most by far, 25, of which 23 are completed. The cities of Cape Coral and Fort Myers have completed 16 and 11 projects, respectively.

FDOT projects have reached 126 percent of their loading reduction allocations, while the Lucaya Community Development District has reach zero percent. Between those extremes, Charlotte County has reached six percent and Lehigh acres has reached 61 percent.

The number of projects reported for FDAC's belies the extent of the department's involvement in reducing nitrogen loading to the estuary. The annual report lists only one project.

In 2015, the department adopted a revised vegetable and agronomic crop manual. It includes specific nutrient and irrigation management best management practices.

In 2016, it adopted one BMP for dairies and another one for poultry operations. Farmers are required to follow the BMPs to reduce nutrient loading.

Although DACS may consider BMP development as only one activity, it affects multiple agricultural activities widely occurring on 69,205 acres of the Caloosahatchee Estuary watershed in Lee and Charlotte counties.

Annual reports do not tally project and activity costs.

Dee Ann Miller, a spokesperson with DEP, said the department has received costs for some projects from the local governments responsible for them, but more information will be available in the next report.

"As part of the effort for the five-year review, project costs have been requested from all stakeholders along with any grant agreement numbers for projects that receive funding through DEP," she said.

Will these efforts be sufficient to meet 2012 BMAP water quality goals? By the end of its fifth year, 2017, the Caloosahatchee River Estuary BMAP faces a milestone. The legislature requires a five-year report outlining progress towards meeting specified goals, in this case nitrogen loading reduction. If it appears the goal will not be met, DEP must explain why it cannot be met.

That report may make it to the Legislature before the 2018 session begins, but more likely, it will be 2019 before the Legislature has had time to consider the action plan's five-year report and make changes.

If the progress is insufficient or the goal unreachable, millions of dollars in state grants and other assistance for the projects is in jeopardy.

In late July, the Florida Department of Environmental Protection held a stakeholder meeting in Fort Myers to discuss the recent year's results and to set the stage for the five-year report to be prepared.

More than a little skepticism was apparent from some stakeholders following that meeting.

The largest sources of nitrogen in the estuary from the Caloosahatchee River are the agricultural lands in eastern Hendry and Lee counties.

That land is the source of 85 percent of the 11 million pounds of nitrogen that currently flows down the Caloosahatchee River to its estuary. Unfortunately, this area is not the target of the Caloosahatchee River Estuary or any other BMAP.

In eastern Lee and Hendry counties, the South Florida Water Management District is responsible for water quality and quantity management. Their primary focus currently is construction of the C-43 Reservoir in eastern Hendry County.

It will be a large above-ground reservoir to store water during the wet season and release it during the dry season in an attempt to lower salinity levels in the Caloosahatchee River Estuary.

The intent of the reservoir is to provide a substitute freshwater source for Lake Okeechobee, which is high in nutrients including both nitrogen and phosphorus.

SFWMD began construction of the planned reservoir's water control structures in 2016. Funding for other components has not been approved and no completion date is yet available.

Critics of the reservoir plan, including independent scientists and the Calusa Waterkeeper, claim that a large, above-ground reservoir such as the C-43 will be a source of both "seed" algae and nutrients in the water intended for discharge to

*CALOOSAHATCHEE*
**Continued on Page 16**

## Caloosahatchee lawsuit dismissed

By ROY LAUGHLIN

Earlier this summer, the Federal Court of Appeals for the Eleventh Circuit, Atlanta, rejected a lawsuit filed by EarthJustice on behalf of the Florida Wildlife Federation and two other environmental advocacy groups.

The filing, an appeal from the U.S. District Court for the Northern District of Florida, alleged that the U.S. Army Corps of Engineers violated the Clean Water Act as a result of water released from Lake Okeechobee to the Caloosahatchee River and the Gulf of Mexico.

The suit alleged that water releases from Lake Okeechobee to the Caloosa-

*SUIT*
**Continued on Page 15**

# Boynton Beach plant upgrade improves water quality, adds some flair

By BLANCHE HARDY, PG

The city of Boynton Beach has completed a $30-million upgrade to its east water treatment plant. The project provides improved water quality to residents and, at the same time, provides some artistic flair for the community.

Boynton Beach's skyline now hosts a 168-foot water tower at Woolbright Road and Seacrest Boulevard equipped with variable LED color lighting.

"The water tower lighting has been upgraded to LED and the colors can be changed across the full spectrum," said Michael Low, utilities technical services manager with the city. "This allows us to light the tower depending on the season or special events. We are hoping to allow public participation in selecting the color of the day."

The city hopes one day to be able to show 50 or 60 colored patterns.

The East Water Treatment Plant Ion Exchange and Upgrades Progressive Design Build Project was approved by the city commission in March, 2015, allowing consultants to proceed with Phase 2 of the progressive design-build project.

The work was executed by CDM Smith of Boca Raton along with the Carollo Design Build Group of Lake Worth.

Crews have been working on the magnetic ion exchange plant for the past two years. The plant came online earlier this year, said Low.

Potable water is being pretreated at the plant. According to information provided by the city, the upgraded plant is the world's largest and most modern of its kind.

The plant removes color and organic matter from source water using magnetic charges rather than chemicals. The process reduces the plant's disinfection byproducts and results in a superior quality end product.

"The city utilized a holistic approach in evaluating (its) demands and existing infrastructure to develop a project that combined state-of-the-art technology connecting the available water supply to where the demand is," said Suzanne Mechler, PE, BCEE , principal of CDM Smith.

"This upgrade was done utilizing the progressive design-build method that resulted in a successful, collaborative and cost-effective project," she said.

The city's goal was to increase the supply of source water from the west instead of drawing down eastern wells that are more prone to saltwater intrusion.

Water travels from the city's west well to the east plant for treatment through a recently-completed raw water main.

"With the completion of the project, the expanded and upgraded plant will provide high quality water to meet our customer's needs over the next 20 to 30 years," Low said.

The plant has the capacity to provide water to the approximately 140,000 customers expected to populate the utility's water supply area by 2035. Currently, the city serves about 113,000 residents in its supply area.

The project will provide "long-term supply to support redevelopment within the city," said Mechler.

"This is the most recent MIEX system to come online and the first to incorporate the use of PROFIBUS as the communications protocol," said Low. "It also uses electric actuators and is integrated into the centralized plant control system."

The plant's state-of-the-art pretreatment system will process 24 million gallons of potable water per day resulting in odor removal and reduction in chemical costs.

The utility department took out bonds to pay for the project.

Related improvements include filter valve replacements, modifications to the disinfection system, replacement of the existing high service pumps, a new three-million-gallon finished water storage tank with a new re-pump station, and modification of the site paving, stormwater and security systems.



# FAU lab to characterize electrochemical water purification system efficacy

By ROY LAUGHLIN

In July, Florida Atlantic University signed a five-year collaborative agreement with California-based technology company OriginClear for collaborative research and development studies.

Dan Meeroff, PhD, associate chair and professor in FAU's Department of Civil, Environmental and Geomatics Engineering, will head up the research and development effort.

Of particular interest is this year's evaluation of two electrochemical devices sold by OriginClear that reduce chemical oxygen demand.

OriginClear markets two electrochemical technologies for use in water and wastewater facilities that reduce organic compounds, including microorganisms in feed water.

Their Electro Water Separation device breaks down water by electrolysis to produce oxygen and hydrogen gas as microbubbles.

The microbubbles "gather up oils and suspended solids for an easy removal via mechanical raking of the surface of the water," according to the company.

Their Advanced Oxidation device "is specifically designed to focus on the generation of reactive oxygen species such as ozone, hydrogen peroxide and hydroxyls," according to the company.

They said its systems have low power demands and react with a broad spectrum of organic compounds and ammonia.

Electrolytic oxidation has potential applications in wastewater streams from aquaculture operations for microalgae and fish production to reducing chemical oxygen demand in landfill leachates that are extremely high in COD and often overwhelm wastewater treatment plant capabilities.

Meeroff said that, initially, grad students in his lab will focus on characterizing the operation and performance of electrolytic water treatment for Florida water.

Florida source water is typically high in humic materials and other organics, and often has chloride levels of in excess of 300 parts per million.

Electrochemical treatment of water with chloride at this level oxidizes chloride ions to elemental diatomic chlorine gas.

Elemental chlorine reacts with organic materials to produce halomethanes and other chlorinated organic compounds.

"We want to be sure no halomethanes are produced when chloride is present," said Meeroff.

He noted that excess foaming and unwanted changes in pH observed in a preliminary laboratory bench-top demonstration at FAU are results that need to be controlled in a full-scale operation. He and his students will address these issues.

Treating landfill leachate is another area of interest for the investigators. Landfill leachates often have extremely high COD and ammonia concentrations, and are typically stored in retention ponds on a landfill site.

During periods of high rainfall, to prevent pond overflow, leachate may be sent to local wastewater treatment plants. The episodically high ammonia and COD de-


*PURIFICATION*
**Continued on Page 9**

# Former wood treatment facility in Gadsden County hits Superfund NPL

By PRAKASH GANDHI

The site of a former wood treatment plant in Gadsden County has been placed on the list of the nation's most toxic waste sites.

Federal environmental officials placed the former Post & Lumber Preserving Co. site east of Quincy on the Superfund list, adding it to the National Priorities List of the most polluted sites in the country.

The company treated wood posts, stakes and beams at the facility along State Road 12 for decades. In 1990, the property was abandoned, leaving soil contaminated with hazardous levels of arsenic, pentachlorophenol and other highly toxic chemicals.

The U.S. Environmental Protection Agency said the chemicals are now flowing into the Little River. And four years ago, the Florida Department of Environmental Protection found that arsenic, PCPs and zinc chloride had reached the surficial aquifer.

News of the designation was welcomed by top officials in Gadsden County who said the eventual cleanup and redevelopment of the site will be an environmental and economic boon to the community.

"Any jobs that are clean are good," said Assistant County Administrator Brad Johnson. "Anything that brings this community together and helps increase recreation and tourism opportunities is good."

Federal officials said previous efforts to impound the toxic materials on site have failed. The chemicals used to preserve wood escaped from a capped surface impoundment and migrated to a stream that runs through the property and eventually flows into the Little River.

Tests revealed groundwater contaminated with PCP, arsenic and dioxin above maximum allowable levels.

Johnson said he was very excited when he learned that EPA was placing the site on their NPL list.

"It means the site can be cleaned up at last and then redeveloped into something that will benefit the public," he said. "This designation shows a serious commitment on their part to clean up this site. That's something I am ecstatic about."

The Quincy site is among seven that EPA recently added to the Superfund National Priorities List.

The law directs EPA to update the NPL annually. Only sites added to the NPL are eligible to receive federal funding for long-term permanent cleanup.

The sites are added to the NPL when mismanagement of contamination threatens human health and the environment.

Usually, EPA gets involved because states, tribes or citizens ask for the agency's help. Sometimes, the agency investigates a site and finds the contamination.

"We have to make sure that the area is in the best shape possible for the people that live in the community," said Johnson. "It's very important that the citizens have their say and that they are fully engaged in the (cleanup) process."

EPA Administrator Scott Pruitt said he wants to restore the Superfund program to its "rightful place at the center of the agency's core mission."

Research has demonstrated that Superfund cleanups reduce birth defects close to contaminated sites by as much as 25 percent.

EPA reviewed 458 former Superfund sites now supporting use or reuse activities. The agency found at the end of fiscal year 2016 that these sites had about 4,700 businesses with 131,000 employees and annual sales of more than $34 billion.

A Superfund task force recently made recommendations intended to breathe new life into the program.

The task force urged officials to speed up cleanup and remediation; reinvigorate cleanup and reuse efforts by potentially responsible parties; encourage private investment to allow cleanup and reuse; promote redevelopment and community revitalization; and engage with partners and stakeholders.



# Grants available for protecting Tampa Bay area drinking water sources

Staff report

Regional drinking water utility Tampa Bay Water is identifying groups who share the goal of protecting the waters of the region by providing mini-grants between $2,000 and $10,000 to community groups, nonprofits and universities.

TBW is seeking these partnerships to prevent pollution, clean local waterways and protect drinking water sources.

Mini-grant projects are ideal opportunities for students to fulfill volunteer hour requirements, and service clubs and organizations to get involved in supporting public health and safety.

The projects are also great for educators looking to combine STEM—science, technology, engineering and math—concepts and lessons with hands-on experience to supplement classroom learning.

To qualify, applicants should submit an event or project plan related to source water protection in Tampa Bay Water's service area including Hillsborough, Pasco and Pinellas counties.

Applications are available at tampabaywater.org/grant.

They must be submitted by Nov. 15, 2017, 5 p.m. to Marq Caughell at mcaughell@tampabaywater.org.

All mini-grant applications will be reviewed and screened against the program's selection criteria.

Organizations receiving mini-grants will be notified in December, 2017, and funds will be granted in 2018.

Tampa Bay Water member governments include the cities of New Port Richey, St. Petersburg and Tampa, and the counties of Hillsborough, Pasco and Pinellas.

## *PURIFICATION*

From Page 8

mand due to leachate disposal often adversely affects a wastewater treatment plant's processes.

Electrolytic oxidation may be a cost-effective way to reduce COD in retention ponds, or at the wastewater treatment plant before sending effluents into the main wastewater process treatment train.

Meeroff said that he's excited about the opportunity to work on this technology.

He noted that, in this country, there has been lower demand for the treatment that electrolytic devices provide, or could provide, through operation modification.

But that could change if the technology is shown to be both effective and cost-competitive, and can offer unique treatment capabilities.

Possible modifications for Florida effluents include adjusting the chemical characteristics of the treatment water, pH for example, or the use of electrodes that produce a broader or more limited spectrum of electrolytically generated reactive chemical species. That, for example, could produce more hydroxyl radical and less ozone.

Meeroff received a one-year grant from Florida's Hinkley Center for Solid and Hazardous Waste Management to fund the work.

The grant, funded by an excise tax on automobile tires, will provide financial support for a graduate student to complete the study.

# DEP updating laboratory QA plan requirements for certification

By ROY LAUGHLIN

In Florida, the Department of Health has the authority for environmental laboratory quality assurance plans, overseeing site inspections and ensuring proficiency testing.

The Florida Department of Environmental Protection is the lead agency for environmental regulation. Its responsibilities include ensuring discharge permit holders' compliance; environmental conservation, enhancement and restoration programs; and public health and welfare where environmental exposure to toxic chemicals is a risk.

But DEP also shares some authority with DOH to set lab standards for obtaining and reporting data to its programs.

Along with DOH, DEP is now updating its laboratory quality assurance plan requirements for certification, setting standards for some of its own programs, and promulgating exceptions for procedures and quality assurance plans that are—in a relatively small set of circumstances—different from DOH's rules.

This article, focused on DEP, is a sequel to the story published last month on DOH's laboratory rule revisions.

Earlier this year, DEP proposed new rulemaking for several sections of Chapter 62-160, Florida Administrative Code. In late July, the department issued a notice of change/withdrawal with a focus on five 62-160 subsections: 220, 300, 330, 340 and 800.

According to the revision, "the changes were made as the result of comments made by the Florida Joint Administrative Procedures Committee and to correct some renumbered rule references."

With respect to labs, DEP continues to endorse laboratory certification under DOH guidelines and The NELAC Institute laboratory quality assurance plans, including proposed updates to TNI 2016 standards.

In addition, DEP also stipulates that, when EPA requires it for activities conducted for or funded by that agency, the laboratory doing the analyses shall have a quality assurance plan approved by the agency or by DEP if EPA delegates that authority.

Generally, TNI standards satisfy EPA requirements.

The DEP-proposed rule, in a few cases, designates certified methods and their quality assurance requirements to be used in place of EPA certified methods. The proposed rule delineates those methods not covered by EPA certified methods, and designates DEP Standard Operating Procedures as substitutes.

One of DEP's substitutions, 62-160.222, describes approval of alternative and modified field procedures that are not part of DEP SOP 001/01.

The proposed revision stipulates that the department must specifically approve the use of any alternative or modified field procedures.

Contractors using them must retain administrative documentation and permits while the work is occurring and for five years following the end of the contract.

The revisions could also include the following new language: "modified or alternative field procedures approved by the department, but not specified in a contract, purchase requisition, order, or permit, shall remain approved indefinitely, unless revoked, except as provided in subsection of 62-160.220(9), FAC."

The revised rule also proposes a short list of test procedures that do not require laboratory certification by the DOH ELCP. Those include salinity, turbidity and any test with a specified holding time of 15 minutes or less when performed.

More importantly, some of the analytical methods that did not require certification but did require DEP SOP in the past are no longer accepted. Those include transparency, oxidation/reduction potential, explosive gases, sulfite and sediment oxygen demand.

DEP certification is not required for laboratory tests conducted for research projects as described in rule 62-160.600, FAC. This is a significant new addition to the exception list.

Somewhat related to the research exception is a new exception for "methods used by statutorily created volunteer monitoring organizations, when the department has reviewed and concluded that the organization's standard operating procedures provide sufficient quality assurance requirements for department purposes."

The only organization in this category is Florida Lakewatch, an organization that has been collecting water samples from Florida's lakes and analyzing them since the 1980s. *(See story below.)*

Another area of DEP exception exists for some tests such as the specific oxygen uptake rate when that test is performed by a certified operator or as authorized under 62-640, FAC.

Certification is also not required for taxonomic analysis or for conclusions that result from a calculation from the results of other tests for which the laboratory holds certification by the DOH ELCP.

DEP's revised rule defines what constitutes a revised method, which the department may approve. The revised rule also requires the method to "satisfy the data quality objectives established by the department."

DEP requires notification when a facility uses "a modified method for analysis of compliance samples associated with a permitted facility."

For those methods not pre-approved by DEP, the department requires submission of validation documentation.

Rule revisions stipulate that validation information must demonstrate that the alternative method produces equivalent or superior analytical performance in meeting the data quality objectives established by the department.

The proposed revised rule also includes several declarations of certified rule applicability, and the use and design of a collaborative study conducted by multiple independent laboratories to evaluate a proposed alternative method.



## Labs challenge an exception in DEP rule

By ROY LAUGHLIN

Several commercial environmental laboratory managers and owners are concerned about the recent exception DEP granted to Florida Lakewatch for its sample preservation by freezing and subsequent chlorophyll *a* extraction method.

A 2013 memo from Drew Bartlett, then director of DEP's Division of Environmental Assessment and Restoration, acknowledged the method's review and approval.

His approval was granted exclusively to Lakewatch, stipulating that another laboratory would require separate review and approval to use Lakewatch's methods.

In the memo, Bartlett approved the use of data from Lakewatch for numeric nutrient criteria for what were then proposed water quality standards under 62-302, Impaired Assessment of Surface Waters; development of total maximum daily loads; and development of basin management action plans.

Lab officials at three commercial environmental labs petitioned the Florida Division of Administrative Hearings to invalidate 62-160.300 (5c), the rule giving permanent exception to the University of

*EXCEPTION*
Continued on Page 14

# Calendar

## September

SEPT. 8 – Seminar: Demonstrating and Achieving Progress in Reducing Pollutant Loads, Orlando, FL. Presented by the Florida Stormwater Association. Call 1-888-221-3124 or visit www.florida-stormwater.org.

SEPT. 8-9 – Exam: Backflow Prevention Recertification Exam, Ft. Myers, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 9-10 – Exam: Backflow Prevention Recertification Exam, Bradenton, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 11 – Course: Asbestos Refresher: Project Design, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 11-12 – Exam: Backflow Prevention Recertification Exam, Orlando, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 11-13 – Course: Backflow Prevention Assembly Repair & Maintenance Training & Certification, Altamonte Springs, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 11-13 – Conference: National Air Quality Conference, Austin, TX. Presented by the U.S. Environmental Protection Agency and others. Call (781) 674-7260 or e-mail erin.pittorino@erg.com.

SEPT. 11-15 – Course: Backflow Prevention Assembly Tester Training and Certification, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 12 – Course: Asbestos Refresher: Inspector, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 12 – Course: Asbestos Refresher: Management Planner, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 12-15 – Course: Water Class B Certification Review, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 13 – Course: Asbestos Refresher: Contractor/Supervisor, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 13-15 – Course: Backflow Prevention Assembly Repair & Maintenance Training & Certification, Orlando, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 13-15 – Conference: FAEP 2017 Conference at the Capitol, Tallahassee, FL. Presented by the Florida Association of Environmental Professionals. Call (813) 240-4298 or visit www.faep-fl.org

SEPT. 14 – Expo: 10th Annual Southwest Florida Water & Wastewater Exposition, Punta Gorda, FL. Call (407) 574-3318 or visit www.fwea.org.

SEPT. 15-23 – Course: Backflow Prevention Assembly Tester Training and Certification, Venice, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 16 – Meeting: Quarterly Membership Meeting of the Florida Ground Water Association, Panama City Beach, FL. Call (850) 205-5641 or visit www.fgwa.org.

SEPT. 18-26 – Course: Backflow Prevention Assembly Tester Training and Certification (Spanish Only), Medley, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 18-20 – Course: Backflow Prevention Assembly Repair & Maintenance Training & Certification, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 19 – Course: Refresher Training Course for Experienced Solid Waste Operator - 8 Hour, Plant City, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 19 – Course: Refresher Training Course for Experienced Solid Waste Spotter - 8 Hour, Plant City, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 19 – Course: Refresher Training Course for Experienced Solid Waste Spotter - 4 Hour, Plant City, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 19 – Course: Refresher Training Course for Experienced Solid Waste Spotter - 4 Hour, Plant City, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 19 – Course: Initial Training Course for Spotters at Landfills, C&D Sites and Transfer Stations - 8 Hour, Plant City, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 19 – Course: Refresher Training Course for Experienced Solid Waste Spotter - 4 Hour, Plant City, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 19 – Course: Refresher Training Course for Experienced Solid Waste Operator - 4 Hour, Plant City, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 19-20 – Course: Refresher Training Course for Experienced Solid Waste Operator - 16 Hour, Plant City, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 19-20 – Course: Initial Training Course for Transfer Station Operators and Materials Recovery Facilities – 16 Hour, Plant City, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 19-21 – Course: Initial Training for Operators of Landfills and Waste Processing Facilities, Plant City, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 19-21 – Course: Initial Training for Landfill Operators and C&D Sites – 24 Hour, Plant City, F. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 19-22 – Course: Activated Sludge Process Control & Troubleshooting, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 20 – Course: Refresher Training Course for Experienced Solid Waste Operator – 8 Hour, Plant City, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 20 – Course: Refresher Training Course for Experienced Solid Waste Operator - 4 Hour, Plant City, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 20-21 – Conference: Managing Florida's Aquifers: Annual Conference, Orlando, FL. Presented by the American Ground Water Trust. Call (603) 228-5444 or visit agwt.com.

SEPT. 21 – Course: Refresher Training Course for Experienced Solid Waste Operator - 4 Hour, Plant City, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 21-22 – Seminar: AWWA Effective Utility Management, Orlando, FL. Presented by the Florida Section of the American Water Works Association. Call (407) 957-8448 or visit www.fsawwa.org.

SEPT. 22 – Conference: Florida's Deep-Well Injection Programs: Hydrogeological and Environmental Issues, Orlando, FL. Presented by the American Ground Water Trust. Call (603) 228-5444 or visit agwt.com.

SEPT. 23-26 – Conference: 2017 AIPG Annual National Conference, Nashville, TN. Presented by the American Institute of Professional Geologists. Call (303) 412-6206 or visit http://aipg.org/annual meeting.

SEPT. 26 – Course: DEP SOPs for Water Sampling & Meter Testing, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 26-27 – Course: SCADA & Electrical Training: What Utility Staff Need to Know, Davie, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570.

SEPT. 27 – Course: Intro to DEP SOPs for Groundwater, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 29 – Meeting: Technical Meeting of the American Water Resources Association, Florida Chapter, West Palm Beach, FL. Visit www.awraflorida.org or e-mail awra@awraflorida.org.

SEPT. 29-30 – Exam: Backflow Prevention Recertification Exam, Venice, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

## October

OCT. 16-18 – Symposium: 7th Annual International Symposium & Exhibition on the Redevelopment of Manufactured Gas Plant Sites, New Orleans, LA. Presented by the International Society of Technical and Environmental Professionals. Contact Gene Jones at (850) 558-0617 or gene@instep.ws, or visit www.mgpsymposium.com.

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The *Florida Specifier* welcomes columns, articles and letters to the editor on any subject or issue pertinent to the environmental, regulatory and technical areas the newspaper covers. We reserve the right to edit all submissions for newspaper style and publish submissions on a space-available basis only. The opinions expressed on this page are those of the authors.

# FIU scientists develop breakthrough method for preparing samples for analysis

By BLANCHE HARDY, PG

Scientists at Florida International University have developed a new method for preparing samples for analysis that makes toxicological, biological and environmental sampling and testing cheaper, faster and more sensitive.

The method, fabric phase sorptive extraction, offers an environment-friendly replacement for existing techniques used to prepare samples.

FPSE was invented by Abuzar Kabir, PhD, a visiting research assistant professor and materials chemistry expert in FIU's College of Arts, Sciences & Education, and Kenneth G. Furton, PhD, the university's executive vice president and provost.

Using current methods, materials destined for analysis must be separated from the sample by a complicated process involving toxic solvents and expensive devices. Some sample extractions can take 24 hours or more before the actual chemical testing can begin.

"You are given a sample for analysis that cannot be directly introduced into the analytical instrument," said Kabir.

As a result, the sample must be prepared in order to analyze it, he said.

"Originally, there were two different possible methods: liquid-liquid extraction and solid phase extraction—both of which are still popular choices for analytical sample preparation.

"However, these methods leave something to be desired, as both are very laborious and time-consuming while involving error-prone post-extraction steps."

Subsequent developments improved, but didn't resolve, some if the extraction issues. For example, solid-phase microextraction has a broad spectrum of applications negating the need to differentiate between LLE and SPME, but a tiny amount of related sorbent loading often results in poor extraction sensitivity.

"Thus, SPME had many offshoots attempting to improve the method," Kabir explained. "It was ultimately discovered that the various microextraction systems all had similar shortcomings: 1) the physical format of the extraction system that determines how much of the extraction sorbent can be used for collecting the analytes from the sample matrix, and 2) the coating technology used to immobilize the sorbent on the substrate surface."

Although these shortcomings were addressed by a coating technique known as sol-gel column technology, further improvement was desired.

Kabir and Furton sought a sample preparation technology with the ability to preconcentrate target analytes directly from the unmodified samples without clean up; sufficient resistance to allow the matrix pH to be adjusted; the ability to use any organic solvent that would elute the extracted analytes so the final solution can be injected simultaneously into gas chromatographs or high performance liquid chromatographs, and/or capillary electrophoresis; easier sample collection; a

***METHOD***
**Continued on Page 15**



***FEDFILE***
**From Page 2**

taxpayer-supported funding programs, the vast majority of sources on the list, and anonymous or altruistic gifting facilitated on internet crowdsourcing sites is not sufficiently obvious to make that description understandable.

Nevertheless, lists and information about the programs, according to the EPA, comes from states, federal agencies and other water sector stakeholders. Those sources may suggest edits or provide funding options at any time.

The EPA said the website will help local communities provide new infrastructure projects and, just as importantly, rehabilitate inadequate and aging water systems from water mains to major components of drinking water and wastewater systems.

The agency conducted webinars during July and August on using the clearinghouse, and the website under which the clearinghouse operates, https://www.epa.gov/waterfinancecenter, provides other assistance for users.

**Drilling on federal lands.** In July, U.S. Department of Interior Secretary Ryan Zinke ordered agency staff to resolve the backlog of more than 20,000 pending oil and natural gas permit applications for federal lands under its jurisdiction.

In announcing the order, Zinke said that he viewed existing federal leasing policies as "punitive in some ways" and, for that reason, most of the oil and gas development since 2008, particularly for fracked wells, has been on nonfederal land.

Some of the 2,802 unresolved permits date back over a decade.

He ordered the department's Bureau of Land Management to act during the 30-day decision interval required by existing law.

In defending the action, Zinke noted that oil and gas production on federal lands is an important driver of rural jobs. In addition, it supplies significant revenue to the department.

Long delays—often a year or more—diminish the economic benefits of resource exploitation on federal lands. It is also inconsistent with President Trump's goal of American energy dominance, according to the secretary.

In a related action, Zinke ordered the bureau to conduct quarterly lease sales and to address permitting issues. He also suggested that the Department of Interior offer more support, presumably by hiring additional staffers, to help handle the additional workload of increased leasing activity.

The plan also includes revising the Obama administration's five-year plan for offshore oil and gas drilling leases. The revision includes expanded leasing for fossil fuel extraction on all coasts.

For the first time in decades, Florida's Atlantic and Gulf Coast waters will be offered for petroleum drilling.

Critics of the proposal noted that oil and gas companies already hold leases on millions of acres of land—both on the continental shelf and on dry land—that they have not drilled.

While the immediate prospects of drilling on those lands are limited because of low oil and gas prices that makes new drilling unprofitable, selling leases now at distressed prices conveys public resources at low prices while maintaining higher prices to the public for gasoline, heating oil and natural gas.

**Clean Vessel Act funding.** In early July, Zinke announced that the state of Florida will receive $1,816,764 in federal Clean Vessel Act funding. Nationwide, the Department of Interior is dispersing a total of $32 million.

Florida also received $110,962 in marine heritage grants from the department for a total of $1,927,726.

Annually, DOI provides money from tax set-asides for four maritime programs.

The Florida Department of Environmental Protection administers local grants from the Clean Vessel Act.

Installing pump-out stations and mooring fields are two activities widely funded throughout the state with CVA funding. Those awards are usually announced in January of each year.

**Coal lobbyist nominated for EPA job.** Andrew Wheeler was nominated by President Trump to become the EPA's deputy administrator, the agency's number two position.

Prior to his nomination, Wheeler was a principal at Faegre Baker Daniels consulting. In that position, he has lobbied for Murray Energy since 2009.

Wheeler was also a top aide for Sen. Mark M. Inhofe, R-OK, when the senator chaired the Senate Environment and Public Works Committee.

Throughout his tenure as a lobbyist and Senate staffer, Wheeler has been an outspoken critic of Obama administration limits on greenhouse gas emissions.

He also staunchly criticized the United Nation's Intergovernmental Panel on Climate Change and other science-based organizations, advocating for reductions in greenhouse gas emissions.

In related news, *E&E News* reported that the Trump administration will also nominate three vocal conservatives to other key EPA administrative positions.

Those include Bill Wehrum as associate administrator for the Office of Air and Radiation; David Ross as assistant administrator for Office of Water; and Matt Leopold as general counsel.

# After landfill permit denial, Angelo's Aggregate looks at potential for industrial development

By BLANCHE HARDY, PG

After a prolonged battle, Angelo's Aggregate Materials failed to obtain an environmental permit to establish a landfill on their east Pasco County property.

Angelo's sued the county and its zoning administrator in the process for the county's denial of their request for a conditional use permit to construct a landfill next to their existing operations on site.

Now, the county is qualifying the property as a potential 1,000-acre "mega-site" to be developed into a facility that will provide the county with an industrial recruitment center.

Pasco County is considering Angelo's property as part of the Pasco Economic Development Council's three-year effort to certify up to 2,500 acres in the county for future industrial development.

The PEDC initiative is known as the Ready Site Program. Ready Site is intended to help the county build an inventory of available land that can be quickly be developed for industrial or business park use.

PEDC identified 67 sites of 50 to 1,000 acres as potential locations for industrial development.

Ready Site receives funding from the county's Penny for Pasco local government infrastructure surtax.

The surtax was approved by voters in 2004 and reapproved in 2014 for an additional ten years beginning in 2015.

Twenty percent of the Penny for Pasco funds is dedicated to economic development and job creation.

During a July, 2017, presentation highlighting PEDC's Ready Site Program progress before the Pasco County Board of County Commission, Bill Cronin, PEDC president and CEO, said the first site is a 1,000-acre mega-site.

"This is really exciting news," he said. "The site (Angelo's Aggregate property) has rail and dual power.

"There are no mega-sites of that size in Florida right now. So this puts us clearly on the map.''

Cronin noted that Penny for Pasco funded a significant portion of the Ready Sites Program.

The Angelo's Aggregate property is well suited for industrial development. The property is bordered on the north and south by Enterprise and Messick roads, is east of County Road 35A and west of the Green Swamp in a remote portion of eastern Pasco.

It has access to a CSX rail line, U.S. 98 and U.S. 301.

In addition to geographic and infrastructure accessibility, the site is located within commuting distance of the labor pools in Tampa and Lakeland.

The site is also is served by two electric utilities, Withlacoochee River Electric and TECO.

"Big users of power will appreciate the advantage of having two suppliers to choose from," Cronin said.

Two additional sites have been moved to candidate status by the county.

Angelo's Aggregate Materials acquired the Pasco property several years ago to develop the site as a 90-acre landfill. The company hoped to expand the proposed waste management facility to 1,000 acres over time.

But the expansion plan faced an extended political and legal battle with environmental advocates and community residents concerned about possible impacts to potable groundwater supplies.

Supporters of the proposed landfill countered that the new facility would cost less and be more environmentally sound than upgrading the Pasco County Waste Resource Recovery Facility operated by Covanta.

The Waste Resource Recovery Facility waste-to-energy plant processes 1,050 tons of garbage a day, generating 31.2 megawatts of renewable energy.

Though Angelo's Aggregate is under consideration for industrial development, Cronin said that it would be a while before development could begin.

# Another arsenic hotspot in Lee County raises questions of source

By ROY LAUGHLIN

Last spring, the DR Horton Co. intended to purchase the former Cape Coral Golf Club property for a new housing development.

The company hired consultants from Tetra Tech Inc. to conduct a limited environmental site assessment of the property. The audit revealed unexpectedly high levels of arsenic in the soil and groundwater in several locations at the former golf course.

Soil analysis for the presence of arsenic was conducted in eight areas, with 10 sample locations in each. Based on composite samples, only one of the areas had arsenic concentrations less than the 2.1 milligrams/kilogram soil cleanup target level.

Arsenic concentrations in composite soil samples from the seven other areas ranged from a low of 3.12 milligrams/kilogram to a high of 9.14 milligrams/kilogram. The samples were taken at depths up to two feet.

Composite samples for soils between two and four feet deep consistently exhibited lower arsenic concentrations than corresponding composite samples taken from shallower depths at the same sampling locations. Sometimes the differences were dramatic.

For area G, the composite arsenic concentration in the upper two-foot soil layer was 9.14 milligrams/kilogram, while it was 1.59 milligrams/kilogram at depths of two to four feet.

Individual sampling locations within the areas with arsenic above the SCTL showed high variability, but at least five of the 10 sampling locations had arsenic concentrations above 2.1 milligrams/kilograms.

Consultants later placed 10 monitoring wells at depths of 24-27 feet below ground surface to collect groundwater for arsenic analysis.

One well was placed at the property perimeter in each of the areas delineated for soil sampling, one was placed at a mainte-

***ARSENIC***
**Continued on Page 16**

***RECYCLING***
**From Page 1**

rates," she said.

Even though the Legislature's mandate applies only to larger counties for the 75 percent recycling rate goal, DEP directed counties that have not met or maintained the 60 percent interim goal to submit plans to expand or implement their recycling programs.

According to Shellabarger, the plans may include a summary of the services offered by the counties, county efforts to encourage the recycling of yard trash, or strategies for expanding the county's existing program to improve recycling rates.

In addition, the 13 counties that have exceeded the 60 percent recycling rate will share their practices and strategies with those that have not.

Meanwhile, DEP is now conducting rulemaking to update Chapter 62-716, Florida Administrative Code, to bring it in line with recent legislation that ends specific recycling and education grants to local governments.

Although the new rule will end recycling and education grants, DEP will continue to provide small counties with consolidated and waste tire grants.

The Legislature also directed the department to adopt new reporting requirements and guidelines.

Those include requirements for the annual report on solid waste activities from local governments, including new methods of calculating recycling rates, a format for annual recycling reports from public sector entities, a format for voluntary annual recycling reports from private businesses to counties, and the creation of a voluntary certification program for materials recovery facilities.

The new rule will require electronic submission of annual solid waste and recycling report forms from counties and public-sector entities.

Because the Legislature ended some categories of grants, some sections of the old Chapter 62-716 have been repealed. Those include sections 400, 410, 420, 430 and 440, dealing with awarding and complying with terms of educational grants.

Also repealed is section 700, which provided litter control and prevention grants.

Finally, two sections involving small county landfill closure grants and small county landfill closure reimbursement grant requirements that were formerly sections, 800 and 850, have been repealed.

The department is currently conducting public meetings; the most recent of was in Tallahassee in early August.

# New tool for phosphorus removal from surface water tested in Everglades

By ROY LAUGHLIN

Almost a decade ago, researchers at the U.S. Geological Survey began looking for a use for acid drainage from coal mines.

Acid mine drainage, or AMD, has large amounts of iron pyrite that oxidizes to form sulfuric acid and a strikingly beautiful red colored sludge.

Across U.S. coal mining regions, AMD was pumped into lined and unlined storage ponds, and then largely forgotten.

Philip Sibrell, PhD, a research engineer in the USGS Leetown Science Center in Kearneysville, WV, was lead investigator on a 2009 project exploring uses for AMD to remove phosphate from water.

The high iron and aluminum content of some AMD suggested to the researchers that the material, a waste product looking for a viable reuse option, might bind phosphorus from water, and be much less expensive than synthetic compounds such as alum or other iron-based phosphorus binding materials.

"It consists mainly of the same metal hydroxides used in traditional wastewater treatment for the removal of phosphorus," they noted in the introduction to their research paper.

Early on in the team's research, they discovered that when dried overnight at 105 degrees C, the mud forms particulate media that can be screened to separate different size particles.

The smallest ones (less than 200 microns) pass through 100-mesh screen.

It was a serendipitous discovery that AMD granules produced by drying maintain their shape and volume when they were re-wetted. Natural drying under ambient temperatures does not produce the same AMD particles.

Producing AMD particles that maintain their volume upon rewetting was the first step for use of the material in a fixed bed filter.

The researchers dubbed their processed material Ferroxysorb.

In 2009, Sibrell and his team published a paper describing the characteristics of AMD from six different sources, each source a sludge pond at a different coal mine, and characterized the sludges' chemical composition, especially with respect to iron and aluminum content.

AMD sludges from the six sources varied substantially with some high in iron, others high in aluminum. A couple contained more than one percent zinc, but other metals were less than one percent of the AMD dry mass.

The AMD tested was low in toxic trace metals, such as mercury, arsenic or selenium. Some of the sources had high levels of silicates or clay, presumed to result from clay or sand in AMD that was stored in unlined pits.

All processed AMD retained phosphorus in experimental sorption column tests. AMD from two sources exhibited notable sorption rates.

The two highest phosphorus sorbers had values of 23,900 and 22,600 milligrams phosphorus per kilogram of AMD. The four others had sorption values less than half of that.

Sorption kinetics were rapid. In initial experiments, 60-90 percent of the phosphorus was removed by AMD filters in less than five minutes, depending on feed concentration and time in service.

The lower-sorbing AMDs were those with significant amounts of clay or silicates, which likely interfered with phosphorus uptake.

Ocher that was predominantly either iron or aluminum, or was contaminated with silicate or clay, did not bind phosphate extensively or quickly.

The most effective AMD consisted of a nearly equal amounts of iron and aluminum compounds.

The researchers found that their phosphorus uptake data fit a Freundlich adsorption isotherm, indicating that the predominant phosphorus interaction was adsorption on the surface of the iron-aluminum particles.

But there was another unusual characteristic of the phosphorus-binding behavior. In experimental AMD columns, phosphate retention decreased rather quickly in continuous use, but if used for 12 hours and then allowed to "rest" for 12 hours when water flow began again, phosphate retention was back to the high levels.

Binding isotherms indicated that the AMD with the highest phosphorus capacity should hold about seven milligrams phosphorus per kilogram of AMD. The observed maximums were about three times that.

The researchers explained the paradoxical behavior by suggesting that the initial uptake was through binding. The phosphate binding decrease after 12 hours indicated that the AMD was approaching its binding capacity.

The resting period allowed phosphate to diffuse into the inner volume of the iron-aluminum particle, regenerating the surface absorption capacity.

Hundreds of pounds of processed AMD with a 12-hour-in-use and a 12-hour-resting schedule continued to operate 160 days. Calcium hydroxide treatment regenerates the binding capacity.

The phosphate removed was predominantly calcium hydroxyapatite, a calcium phosphate material that is a potential fertilizer feedstock.

The researchers transitioned Ferroxysorb's unusual behavior into a pilot scale filtration system for a fish hatchery in Pennsylvania almost a decade ago.

They built a pair of water tanks containing 600 pounds of granular mine drainage ocher. The tanks provided for the no-flow resting periods needed to maintain

***AMD***
**Continued on Page 15**



***EXCEPTION***
**From Page 10**

Florida Lakewatch program.

The three laboratories are Florida-Spectrum Environmental Services Inc., Flowers Chemical Laboratories Inc. and Benchmark EnviroAnalytical Inc.

The complaint claimed that the rule "specifically violates the statutory requirements in section 403.0625(2), FS, (2016), by eliminating the requirement that laboratories generating environmental data to be submitted to DEP must meet the "holding time" standards required by the Department of Health's Environmental Laboratory Certification Program."

They also took issue with DEP's response to the Joint Administrative Procedures Committee's similar query on the adequacy of the methods.

The department said that it was unnecessary to use the certification by DOH ELCP because the volunteer organization's standard operating procedures "provide sufficient laboratory quality assurance requirements for the department's purposes."

In an interview, Jeff Flowers, PhD, president of Flowers Chemical Laboratories Inc., asserted that freezing samples prior to filtration for chlorophyll *a* analysis is known and established to be an inadequate preservation method for consistent chlorophyll *a* determinations, a membrane-bound component of cells.

Those technical issues are presented in detail in the filing to the Florida Division of Administrative Hearings.

The laboratories also consulted with the Joint Administrative Procedures Committee of the Florida Legislature. Suzanne Printy, Esq., chief attorney with JAPC, contradicted DEP's proposed rule regarding the more general issue of laboratory quality assurance plan exceptions not subject to DOH ELCP.

She wrote in an Aug. 1 letter to Stacey Cowley, DEP senior assistant general counsel, that "the department's quality assurance rules 'may be in addition to any laboratory certification provisions under ss. 403.0625 and 403.863.' The fact that s. 403.0623(1) states that these rules are 'in addition to' and not 'in lieu of' or regardless of s. 403.0625(2), as the legislature could have written, indicates that the provisions of 403.0625(2) are not to be disregarded.

"For that reason, the provisions of proposed rule 62-160.300 which exempt laboratories from certification as required by s. 403.0625(2), appear to continue to contravene the law implemented in violation of s. 120.52(8)(c), FS."

The laboratories filed the case on Aug. 3. In their petition, the plaintiffs asked that the challenge be held in a 60-day abeyance period to allow negotiations with DEP to resolve the issue.

On Aug 11, DEP filed a motion for dismissal in response.

Then on Aug. 17, DEP agreed by letter "that there is no substantial reason to oppose the continuance of the final hearing," requested by the laboratories who petitioned for additional time to negotiate a mutually agreeable resolution to the dispute.

This allows the administrative law judge on the case to allow the continuance if he sees fit.

## METHOD

From Page 12

preconcentration factor high enough to avoid solvent evaporation and sample reconstitution; and the ability to reach extraction equilibrium fast enough so that field sampling and sample preparation don't become inconvenient.

"This is where fabric phase sorptive extraction comes in," Kabir said. "I am an ardent advocate of Green Analytical Chemistry. I've integrated green sample preparation techniques, efficient analytical separation methods, and chemometric design of experiment to obtain high quality analytical data in a cost-effective manner."

"FPSE has successfully utilized permeability, flexibility and the rich surface chemistry of natural/synthetic fabric substrates such as cellulose, polyester, fiber glass—in a very green way," he continued. "In FPSE, a high efficiency sorbent is chemically bonded to the fabric surface.

"The high surface area of the fabric as well as the sponge-like porous architecture of the sorbent coating on the fabric surface synergistically help collect the target analyte when the FPSE media is exposed to a sample such as environmental water for pollution monitoring or urine for monitoring the presence of illicit drugs.

"Once the analytes are collected into the FPSE media, the FPSE media is immersed into a small volume of organic solvent to transfer the analytes into it."

The same sample can be analyzed in gas chromatography, high performance liquid chromatography and capillary electrophoresis to obtain the full chemical profile of the sample—which is virtually impossible if only one analytical instrument is used," he said.

"Major advantages of FPSE include ... an extraordinarily high primary contact surface area, and the ability to directly preconcentrate the target analyte(s) from even extremely complicated sample matrices containing particulates, cells, debris, protein, etc."

The FIU scientists have shared the new method with researchers at more than 30 U.S. and foreign universities who have independently validated the innovation.

"So far, it's been proven that this new method enables extremely efficient sample collection, given that the substrate is literally a piece of cloth (coated with a special coating) that can essentially be carried to the field, dipped in whatever substance needs analyzing, and inserted into a small container for safe keeping until it can be taken to the lab for analysis," he said. "And that's it!"

FIU is now actively searching for commercial entities with whom to form a partnership for distribution.

## AMD

From Page 14

high phosphorus sorption.

Gravity flow moved the water from the top of the system through the ocher and out the bottom, minus the phosphorus resulting from fish excretion.

This pilot scale process was capable of removing phosphate from water at a treatment rate of 100,000 gallons per day– equivalent to the wastewater produced by a town of 1,000 residents.

This is an effective, mechanically simple and low-cost filter for water treatment. All components are off-the-shelf.

Favorable economics for Ferroxysorb's use will be influenced by the costs of cleaning up AMD pits, the production of an economically useful product favorably influencing transport and waste reduction costs.

Use of AMD will likely be favored by the costs of competing phosphorus materials, especially alum.

In 2007 and 2009, Sibrell received two patents for phosphate removal methods based on his work. Subsequently, the use of acid mine ocher has not been widely promoted.

But earlier this year, the USGS research team entered their Ferroxysorb technology into the George Barley Water Prize Contest, sponsored by the Everglades Foundation and Scotts Miracle-Gro Foundation.

Their intention is to show Ferroxysorb's unique capability to remove phosphorus from stormwater runoff in the Everglades.

In the first round, the Everglades Foundation received proposals from 180 teams. The USGS team was one of five teams invited to advance to round two. The second round will be conducted this fall.

In round two, the teams will demonstrate plausible effective phosphate removal from agricultural and stormwater runoff.

The plan for that demonstration was due Aug. 30. Sometime this fall, the prize winners will be announced.

AMD has numerous advantages as a phosphate-sorbing material.

Ferroxysorb, the dried AMD, is much more effective than untreated AMD sludges; is economically transported because it is dry; has high phosphorus absorption capability; is much less expensive than competing materials; and AMD sludges are plentiful.

Further, the spent sludge can be spread on land and continue to provide some level of phosphorus sorption capacity.

If hundreds of tons per year were used to remove phosphorus from agricultural irrigation and stormwater runoff, disposing of the used AMD would not create one detrimental waste product while solving another waste product problem.

This could be good news for removing and recovering usefully huge phosphate masses from agricultural runoff and, perhaps, even wastewater treatment plants.

## SUIT

From Page 7

hatchee and its navigation locks during low water stages allowed saltwater intrusion, and triggered toxic algal blooms.

Specifically, the suit alleged that the corps caused the damage by keeping its navigation locks closed and releasing only sufficient water from Lake Okeechobee to maintain navigation depths during drought.

The plaintiffs claim that these actions and their results violated the federal Clean Water Act because they violated a Florida law, the Florida Water Resources Act.

In its decision, the appeals court ignored the plaintiffs' allegations, instead focusing on several procedural grounds and upheld the district court's decision to dismiss the case.

The lower court had dismissed the case because the South Florida Water Management District, originally a defendant, claimed it had sovereign immunity during the lawsuit in district court, and the court released it from the suit.

Muddying up its involvement, the water management district later participated as an amicus curiae.

In contrast to the district court, the appeals court found that because the water management district and the state of Florida have "overlapping jurisdiction over Florida's water resources," excluding Florida and its SFWMD from the suit excluded an "indispensable party."

"Because of the way the conservationists have framed the Corps' alleged transgressions—as violations of the Clean Water Act only because they violate Florida water regulations and the Florida Water Resources Act—this case is fundamentally about Florida's protection of its own natural resources," the justices wrote in their decision.

The court did not rule on whether any of Florida's water quality laws had in fact been violated—the primary point of the lawsuit.

David Guest of EarthJustice in Tallahassee, attorney for the three environmental group plaintiffs, said the courts' ruling supports the argument that the SFWMD does not have to comply with water pollution laws.

He labeled it antithetical to holding government accountable for its conduct.

The Florida Wildlife Federation, the Environmental Confederation of Southwest Florida and the Conservancy of Southwest Florida were plaintiffs.

The case was originally filed about a decade ago. The recent findings of the appeals court apparently mark the end of the line for the issue.

## ARSENIC

From Page 13

nance area and one in a pumping area for an existing well.

Eight of the 10 wells withdrew water with arsenic in excess of 0.1 milligrams/liter, the groundwater cleanup target level for arsenic. Arsenic concentrations ranged from 0.0106 to 0.125 milligrams per liter.

The highest arsenic concentration in groundwater samples occurred in the maintenance area. Area B, which showed the lowest arsenic level in the upper soil levels, had groundwater arsenic levels just above the 0.01 GCTL. Two areas, area D and area G, were below the GCTL, but those areas had at least a few stations with elevated arsenic levels in the uppermost soil horizon.

Tetra Tech reported its findings to the Florida Department of Environmental Protection in April, 2017. In that report, consultants concluded that "(g)roundwater concentrations of arsenic in up-gradient monitoring wells indicate that the presence of arsenic in groundwater is not a result of historical operations at the CCGC, but a reflection of natural variations of arsenic concentrations in groundwater."

The report requested an official determination by DEP with regard to cleanup status. If the arsenic was determined to be of natural origin, cleanup would not be warranted.

On May 15, 2017, Lanita Walker, a professional engineer in the Office of District and Business Support at the DEP Division of Waste Management, replied to the findings in Tetra Tech's report.

"We are unable to provide such a determination based upon the information submitted to date," she wrote.

One reason was that "the data collected was not conducted in a manner that satisfies the requirements of site assessment per DEP Standard Operating Procedure (SOP) 3000 or Rule 62-780.600, Florida Administrative Code."

Regarding the results of groundwater sampling, she noted that "(t)he monitoring well network does not appear to be comprehensive enough to rule out CCGC as a source, nor does it provide any indication of where the source might be."

Regarding the assessment summary overall, she said that "(b)ased on our review of the Assessment Summary, sufficient evidence has not been provided to demonstrate contaminant concentrations were not the result of historical operations at the CCGC."

A local newspaper report noted that DR Horton was still interested in purchasing the former golf course property. The company requested a land use change that would allow almost 800 homes on the site.

However, the Cape Coral Planning and Zoning Board voted 5-2 to recommend that the city council reject DR Horton's permit application for the residential construction.

The city council tentatively agreed to discuss DR Horton's permit application in August, 2017, but did not include it on its Aug. 7 agenda, the last meeting before publication deadline.

## CALOOSAHATCHEE

From Page 7

the Caloosahatchee River.

That scenario is based on general knowledge of nutrient dynamics in reservoirs and observations of pilot scale reservoirs.

John Cassini, on behalf of Calusa Waterkeeper, has been quite critical of the BMAP's slow progress toward reducing nitrogen loads.

In a recent op-ed piece, he wrote that "DEP repeatedly says that its plan, started in 2012, has attained 50 percent of the targeted nitrogen load reduction. What DEP does not say is that only 10 percent of the total reduction occurred since 2012. DEP gave those local governments responsible for nitrogen reduction eleven years of credits for projects dating back to 2001."

In an interview with the *Specifier*, Cassini pointed out that since 2012 when DEP ended a contract with the U.S. Geological Survey to measure tributary flow rates, the department has no contemporary flow data on which to base its TMDL estimates.

He questioned how much confidence the calculated nitrogen reduction loadings reflect and whether nitrogen loads could in fact be higher now than they were 12 years ago.

Cassini said that Calusa Waterkeepers would prefer that DEP conduct a comprehensive water quality assessment, rather than rely on output from a water quality model.

"There's no compliance reality here," he concluded.

The Caloosahatchee River Estuary BMAP was one of the first to be implemented, following the 2009 legislation that required Florida to adopt numeric nutrient criteria for surface water quality.

The Legislature will get its five-year progress report next session. Its response to it will indicate whether science can wed with politics to produce viable offspring, that being BMAPs that usefully improve water quality in Florida.

## FIT

From Page 6

They said the hazardous waste was mishandled, not properly labeled while being consolidated, or was stored without a permit or improperly labeled.

Munroe said that, in response to the inspections, the school took multiple steps to improve its adherence to relevant rules and regulations.

"Moving forward, enhanced training featuring outside experts and increased internal oversight are fundamental components of ongoing process development," she said.

The labs involved in the latest violations included pharmaceutical chemistry, physics, organic metallic synthesis, physical organic chemistry and the Knight lab.

Spilled materials included toxic solids, halogenated waste, xylene, organic solvents, waste pump mechanical fluid and other chemical wastes.

Florida Tech is not the only Space Coast institution to get into trouble with environmental regulators. Last year, EPA fined Patrick Air Force Base $40,000 for similar hazardous waste violations.

## MARKS

From Page 1

Everglades Foundation.

"His strong leadership, regard for stakeholder input and science-based decision-making will no doubt be vital at this critical juncture in Everglades restoration," Eikenberg said in a statement about Marks' appointment.

Marks, who has spent more than a decade working on Everglades restoration, served as the South Florida regional director for the Florida Fish and Wildlife Conservation Commission for two years and before that oversaw ecosystem projects for the Florida Department of Environmental Protection for a decade.

"Having worked with the employees of this great organization for over a decade and seeing how hard they work to get things right for South Florida, it is an immense honor to be chosen as their leader," Marks said in a press release. "These next several years are critical to the restoration of South Florida and I look forward to working with our governing board to ensure a successful mission."

Draper noted that it's "good to have somebody with an environmental science background who really understands the water management challenges in South Florida."

He said that Marks has plenty of work ahead of him managing the 16-county region which stretches from Orlando to the Florida Keys.

Marks will need to maintain strong working relationships with the U.S. Environmental Protection Agency, the U.S Army Corps of Engineers and the U.S. Department of Interior, with whom the district maintains important on-going project partnerships.

In his short stint with the district, Marks' predecessor, Antonacci, tried to speed up Everglades restoration efforts.

But earlier this summer, he faced harsh criticism when he ordered district scientists to skip the National Academies of Sciences' annual review of Everglades restoration in West Palm Beach.



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