

# Florida Specifier

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**Practical Information For Environmental Professionals**

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**March 2015**

Volume 37, Number 3

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Environmental challenges on several fronts continue for Florida Power & Light at their Turkey Point power plant.

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## Duval redevelopment 9

Work is continuing on redeveloping a former Duval County landfill that officials said will benefit both the environment and the economy.

## Titusville LNG 13

The city of Titusville approved siting for a new liquefied natural gas plant—the first such LNG facility in the state.

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### Got a story lead?

Got an idea for a story? Like to submit a column for consideration? Fire when ready. And don't forget to fill us in on your organization's new people and programs, projects and technologies—anything of interest to environmental professionals in Florida. Send to P.O. Box 2175, Goldenrod, FL 32733. Call us at (407) 671-7777; fax us at (407) 671-7757, or email [mreast@enviro-net.com](mailto:mreast@enviro-net.com).

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## Environmental issues expected to take center stage during this year's legislative session

By PRAKASH GANDHI

Florida's environment could see some major gains this spring as lawmakers tackle a host of important issues during the annual two-month gathering.

Legislative experts said there should be at least some progress on crucial legislation affecting Florida's springs, statewide water policy and Everglades' restoration.

The session, which kicks off on March 3, comes on the heels of Gov. Rick Scott's re-election in November. The lack of elections this year could mean that lawmakers will make strides in protecting Florida's environment, said Bill Preston, a veteran Tallahassee-based environmental attorney.

"When you don't have an election hanging over everybody's head, it seems like there's more of an appetite for decision-making," said Preston, who has followed the many political and legislative changes affecting Florida's environment for decades.

"I think that it's a good sign that we'll see some positive movement and some passage of legislation," he said.

Lawmakers are meeting on the heels of Scott's proposed budget that recommended nearly \$1.6 billion in funding for Florida's environment.

The governor's budget includes money for key environmental projects such as \$150 million for Everglades restoration, \$50 million for springs protection and improvements, more than \$150 million for the acquisition and management of conservation lands, and \$50 million for water supply development projects.

Scott's proposed budget creates a dedicated source of revenue for Everglades work that will provide nearly \$670 million over the next four years and more than \$5 billion over the next 20 years.

In addition, a dedicated source of funding will provide more than \$220 million over the next four years and \$1.7 billion over the next 20 years to ensure

the protection of Florida's springs.

The budget also proposed a 10-year, \$500 million program to ensure Florida's drinking water supply remains adequate.

The budget included \$100 million to support land acquisition through the Florida Forever program, \$20 million

to restore the Kissimmee River and \$30 million for additional management dollars to ensure that land already owned by the state is properly cared for.

The budget also included \$50 mil-

**SESSION**  
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Photo courtesy of George Hochmuth, professor of soil & water science, University of Florida

Dr. Jinghua Fan harvests Floratam St. Augustine grass blades to determine growth. The experiments characterized the nutritional contribution of nitrogen and phosphorus in reuse water after advanced treatment. Story on page 15.

## Florida springs groups unify for maximum impact in Tallahassee

By SUSAN TELFORD

Several springs advocacy groups recently joined forces as part of a broad coalition—the Florida Springs Council—to rally for increased protection of the state's springs.

"The idea is to bring these groups together to speak with a unified voice on springs' protection, to educate and to advocate on springs issues," said Dr. Robert Knight of the Howard T. Odum Florida Springs Institute and member of the council.

The groups representing springs throughout the state have come together in hopes of making effective changes to springs' protection and to make sure that funding actually goes to springs' protection.

The council includes the Ichetucknee Alliance, Our Santa Fe River Inc., Wakulla Springs Alliance, Kings Bay Springs Alliance, Friends of Warm Mineral Springs, Withlacoochee Aquatic

Restoration Inc. and four more groups from North Central Florida.

Their combined goal is to push for comprehensive springs protection during the upcoming legislative session in Tallahassee.

Dr. Robert Palmer, a board member of the Odum institute, said their approach will be to address issues more holistically.

The specific uses for funding associated with Amendment 1, passed overwhelmingly by voters last November, has yet to be determined.

The new group hopes that some of the money generated by the state's document stamp tax on real estate transactions will actually go toward land

conservation programs and projects to protect water resources, rather than paying salaries of water district employees or funding treatment plant renovations.

During the 2014 legislative session,

Sen. David Simmons, R-Altamonte Springs, introduced a springs bill that required a timeline for setting minimum flows and levels, and recovery plans for waterbodies that were below historic flows, as well as management action plans for cleaning up waterbodies and watersheds.

The bill unanimously passed the Environmental Preservation and Conservation Committee, but became so watered down with specific

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# Coalition files lawsuits to reduce emissions from livestock operations

## Staff report

The Environmental Integrity Project and the Humane Society of the U.S. want the U.S. Environmental Protection Agency to reduce emissions from livestock facilities and concentrated animal feeding operations.

In January, these organizations and six others filed two complaints against the EPA in U.S. District Court for the District of Columbia. The organizations petitioned the court to require EPA enforcement of the Clean Air Act to reduce emissions of ammonia, methane, hydrogen sulfide, volatile organic compounds and particulate materials.

In 2011, the Environmental Integrity Project, the Humane Society and four other environmental advocacy groups petitioned EPA to classify ammonia from animal operations as a public health hazard and to set air emission standards.

The EPA took no action on that request. Led by the Environmental Integrity Project, the groups filed a lawsuit, *Environmental Integrity Project v. EPA*, 15-cv-00139, U.S. District Court, District of Columbia, requesting the court to order the EPA to respond to its 2011 petition.

Prior to that in 2009, the Environmental Integrity Project, the Humane Society

and three other groups had petitioned the EPA to formally consider factory farms as a pollution source subject to performance standards for new and existing facilities.

Standards would apply to ammonia and other emissions from CAFOs.

The EPA, according to the plaintiffs, has not responded to that petition either. The groups are asking the court to reply to the petitions within 90 days following the court's decision.

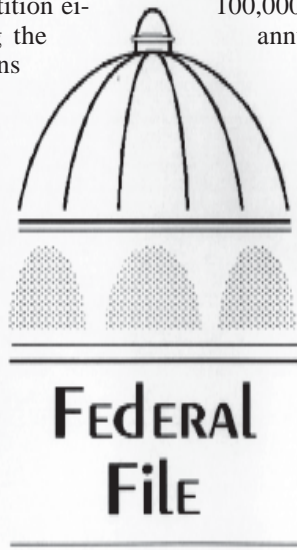
In a press release, the Environmental Integrity Project estimated that there are nearly 20,000 factory farms in the country that produce 500 million tons of livestock manure that often receives no more treatment than storage in open pits.

Those pits are the source of significant air emissions, they said.

In addition, spraying manure onto fields produces bacteria-laden droplets that may be carried off-site by wind and lead to human exposure, according to the advocacy groups.

Animal agriculture, according to EIP,

is the country's leading source of ammonia emissions. Poultry operations alone release at least 700,000,000 tons of ammonia annually. Livestock operations release about 34 percent of U.S. methane emissions. Dairy and swine animal feeding operations emit approximately 100,000 pounds of hydrogen sulfide annually.



### CBD seeks offshore fracking info.

The Center for Biological Diversity filed suit in U.S. District Court for the District of Columbia to force the U.S. Department of the Interior's Bureau of Ocean Energy Management to release the information it has about fracking in the Gulf of Mexico.

CBD filed a Freedom of Information Act request with BOEM last year for information about how often oil companies use fracking in the Gulf.

BOEM has not yet supplied the requested documents.

CBD asked the court to order BOEM to immediately supply the requested docu-

ments.

On land, hydraulic fracturing is used in new wells and to stimulate additional production from old wells.

In its lawsuit, CBD claimed that about 115—roughly 15 percent—of the wells completed in 2013 could have used fracking.

CBD representatives are concerned that fracking may release oil and gas emissions. The group also alleges that oil and gas companies are allowed to release fracking fluids directly into the ocean.

Regulators do not require drillers to file separate environmental impact reports or statements for marine fracking operations. That is one reason why the extent of offshore fracking—and its environmental effects—remain uncertain.

**Technical assistance for St. Pete.** The city of St. Petersburg was one of 22 applicants selected nationwide to receive technical assistance from the EPA through its Building Blocks for Sustainable Communities Program.

St. Petersburg will receive technical assistance for a bike-share planning program. St. Pete was the only Florida community selected this year by the agency for participation in this program.

Other Region 4 communities to receive assistance included Baton Rouge, LA; Canton, MS; Mobile, AL; Asheville, NC; and Prichard, AL.

The EPA offers assistance as a sustainability tool in the area of interest identified by the applicant. The tool is a one- or two-day workshop conducted by EPA staff and national experts in the communities.

Nationwide, the EPA received 121 applications for this year's program. Since 2011, 130 communities received assistance from EPA's Building Blocks for Sustainable Communities program.

**Perfluorinated chemical review.** The EPA's Office of Chemical Safety and Pollution Prevention announced that perfluorinated chemicals that have been phased out may not reenter the marketplace without review.

The agency is proposing this Significant New Use Rule, or SNUR, for long-chain perfluoroalkyl carboxylate chemicals. The EPA already passed an end-of-2015 phase-out deadline for these chemicals.

In 2013, the agency issued a SNUR for perfluorinated chemicals in carpets and carpet after-care products. In addition, the EPA issued related SNURs for perfluorooctane sulfonate and perfluoroalkyl sulfonates that were voluntarily phased out of production.

These chemicals have been used in industrial applications and consumer goods including cleaners, textiles, carpet, leather, paper, paints, fire fighting foams and wire insulation.

The EPA said that the chemicals are toxic, persist in the environment worldwide, and accumulate in animal and human tissues.

EPA's SNUR requires anyone who intends to import perfluorinated chemicals—including those contained in products, those domestically produced or those processed for any new use—to submit an application to the EPA at least 90 days before beginning the proposed activity.

The EPA may take action to prohibit or limit the activity or use of the chemicals.

**New NOAA habitat areas.** The National Oceanic and Atmospheric Administration designated Biscayne Bay in Florida, and the Northeast Reserves and Culebra Island in Puerto Rico as its newest habitat focus areas.

Under its Habitat Blueprint Program, habitat focus areas are "selected to prioritize long-term habit science and conservation efforts ... NOAA and partners will provide conservation planning and devel-

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## Tools, Techniques and Practices for Soil and Groundwater Cleanup

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We are now identifying sessions and talks for presentation at FRC 2015 this fall and are seeking abstracts on a variety of topics:

- Green remediation
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- Bioremediation
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- Mixed-waste challenges
- Site assessment technologies/characterization
- Field sampling
- Contaminant transport and modeling
- Site stabilization
- Vapor intrusion
- Regulatory policy and initiatives
- Brownfields

Cleanup case studies of sites and surface water contaminated with petroleum, PCBs, DNAPLs and LNAPLs, chlorinated solvents, arsenic and heavy metals, pesticides, nitrates/nitrites and other contaminants.

In addition, we are considering presenting several sessions featuring open forum discussion on technologies, site assessment techniques and regulatory subjects. If you have a suggestion for an open forum subject, please chime in.

Please submit abstract of approximately 250 words by July 15, 2015. FRC presentations are limited to 25 minutes in length. E-mail abstracts to [mreast@enviro-net.com](mailto:mreast@enviro-net.com).

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## Asbestos-tainted soil removed from South Florida airport

### Staff report

Efforts are now underway to remove asbestos-tainted soil from a construction staging area near a South Florida airport.

Cherokee Enterprises Inc., the Miami Lakes firm handling the job, will transport an estimated 50,000 cubic tons of soil and other construction materials to Waste Management's Monarch Hill landfill near Coconut Creek.

Fort Lauderdale-Hollywood International Airport officials said the asbestos found at the staging area does not pose a health risk because it is not the kind that can become airborne.

But as a precaution, the soil is being trucked to where officials said the material will be properly contained.

Dania Beach officials alerted state and federal regulators after taking a tour of the site and spotting signs warning of asbestos contamination.

The entire site is fenced off and only workers wearing proper gear are allowed to enter.

**Mangrove permit violation.** State environmental officials said a developer violated the conditions of a mangrove trimming permit.

The Florida Department of Environmental Protection granted Palma Sola Bay Development a permit to trim 6,032 square feet of a 122,549-square-foot stand of mangroves to create a 302-foot windowed view of the bay.

DEP later inspected the site and cited the developer for trimming outside the scope of the permit by removing more than 25 percent of the foliage on many of the affected trees and for filling in wetlands.

The developer will be discussing corrective actions with the DEP, which may include both penalties and fines.

Mangroves are essential to the health of Florida's environment, improving water quality in bays and estuaries, and protecting property by lessening the impact of heavy winds and waves.

**Conservation lands purchased.** The Florida Department of Environmental Protection acquired two high value properties in Southwest Florida using funds from Florida Forever.

669-acres was acquired within the Charlotte Harbor Flatwoods Florida Forever project located northwest of Fort Myers.

The project protects the largest and highest-quality slash-pine flatwoods in Southwest Florida and connects to the Babcock-Webb Wildlife Management Area.

The purchase of the Bond Ranch parcel abuts a portion of the Florida Department of Transportation widening project for Interstate 75.

Acquisition of the parcel will significantly improve water quality in the area and provide an economic benefit of more than \$14.1 million.

DEP agreed to pay \$3,150,000 for the parcel. The Florida Department of Transportation will contribute over \$1.4 million to the project.

The property will be managed by the Florida Fish and Wildlife Conservation Commission.

DEP also acquired about 620 acres within the Corkscrew Regional Ecosystem Watershed Florida Forever project for \$9,765,000.

The area contributes to the protection of the Florida Panther National Wildlife Refuge, Fakahatchee Strand Preserve State Park and other areas.

The property will be managed by the South Florida Water Management District.

**New recycling center.** Waste Pro opened a new 65,000-square-foot recycling facility in Ocala.

Plastic, paper, cardboard, glass, aluminum and other metals will be sorted at the plant, baled and then sent to ports to be sold for recycling into new products.

Waste Pro is expecting to process about

1,200 to 1,300 tons of recyclable material a month at the plant.

The facility is looking into serving additional communities including Alachua and Lake counties, among others.

Glass is not handled directly by employees at the plant, but is filtered out mechanically, crushed in trammels and then deposited in a separate bin.

Waste Pro spent \$6.5 million on the land, construction and equipment for the plant that lies just east of Interstate 75.

They bought the property about three years ago due to its easy access to I-75, U.S. 27 and other roads in the area.

**Plant expansion.** Ground/Water Treatment & Technology LLC expanded its manufacturing facility in Tampa. The expansion enables the company to better serve the demand for remediation skids and trailers.

GWTT has been manufacturing remediation trailers and skid-mounted treatment equipment for more than 20 years.

**Development at former power plant site.** JEA approved a contract with real estate mogul Peter Rummell and Mike Balanky for a new development that would be built at the utility's former Southside Generating Station site.

The development is expected to include 100,000 square feet of retail space. The deal includes assignment of the portion of the current brownfield agreement that covers the development parcel.

JEA and the developers will work with DEP to revise the current brownfield agreement and associated lands.

The developers will spend the coming months taking care of zoning and land use changes that must be completed before the project can proceed.

**People news.** Cliff Wilson, who recently served as interim secretary of DEP, was named president of Preble-Rish Consulting Engineers. He worked as a project manager for the firm between 2005 and 2011 before moving to DEP.

Between 2011 and 2014, Wilson also held positions as assistant director for the Northwest district office of DEP.

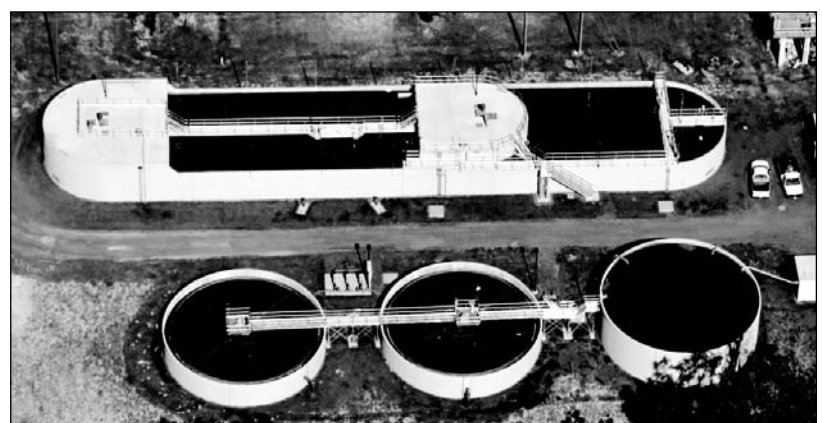
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# DEP sets total maximum daily loads for four Polk County lakes

Staff report

The Florida Department of Environmental Protection adopted total maximum daily loads for nitrogen and phosphorus for four lakes in Polk County—Lake Bonny, Lake Hollingsworth, Lake Lena and Deer Lake.

Lake Bonny and Lake Hollingsworth are within the city of Lakeland's boundaries. Deer Lake is on the west side in Winter Haven and Lake Lena is located in Auburndale.

These lakes are currently listed as impaired waters by the state. The new

TMDLs, according to Tom Fricke, director of the DEP's Division of Environmental Assessment and Restoration, were developed using site-specific data.

The TMDLs will be a primary tool in the development of a long-term restoration plan for these lakes.

The lakes, all within the Peace River drainage basin, show markedly different levels of impairment. Deer Lake's TMDL for total nitrogen is 1.42 mg/L, 12 percent lower than geometric means of long-term monitoring data.

Lake Lena has a TN TMDL of 1.14 mg/L, 42 percent lower than its long-term av-

erage.

DEP set Lake Hollingsworth's TMDL for TN at 0.86 mg/l, a reduction of 52 percent of a long-term median total nitrogen concentration of 1.78 mg/L. DEP also set a TMDL for total phosphorus of 0.03 mg/L, a 57 percent reduction from the long-term median of 0.07 mg/L total phosphorus.

Lake Bonny's TMDL standards for TN and TP are 0.89 mg/L, a 64 percent reduction, and 0.04 mg/L, a 60 percent reduction, respectively.

The city proposed to construct the new tank at the golf course because the course is the largest customer for its reuse water used for irrigation.

It will also make the city's reuse system more efficient.

Currently, the golf courses' ponds are used for stormwater management as well as a source of irrigation water. The new storage tank will store some of the rainwater currently drained to ponds on the golf course.

This is expected to reduce the level of golf course flooding following heavy rains.

The Southwest Florida Wa-

ter Management District will provide 46 percent of the project cost, approximately \$2.2 million. The money will come from the district's Cooperative Funding Initiative. The city will pick up remaining costs.

Construction is expected to begin in March and be completed by September.

**Cost-share projects in Santa Fe, Suwannee river basins.** The Suwannee River Water Management District and the Florida Department of Environmental Protection announced joint support for four agricultural cost-share projects in the Suwannee and Santa Fe river basins.

The initiatives' goals are to conserve water and reduce nutrient loading to the two rivers and the springs associated with them. The goal is to conserve six million gallons of water a day and reduce nutrient loadings by nearly 600,000 pounds annually.

Commercial nurseries in the Santa Fe River Basin Management Action Plan area will receive grants to convert overhead spray irrigation systems to drip or micro-spray irrigation.

The new irrigation systems apply water directly to plants, reducing water lost to overspray and evaporation. They similarly target liquid fertilizer applications and may reduce fertilizer loss by leaching. This initiative will receive \$980,000.

Qualifying farmers within the Suwannee River BMAP area will be eligible to receive grants to implement center pivot fertigation.

Fertigation, applying fertilizer with irrigation water, applies less fertilizer at greater frequency, reducing the risks of fertilizer runoff and leaching to groundwater. This initiative will receive \$948,000.

Qualifying dairies within both BMAP areas may receive grants to cover the cost of expanding their existing manure management lagoons.

Larger storage capacity in manure lagoons gives farmers more flexibility in using the water for irrigation.

By delaying the spraying of lagoon water after heavy rains, nutrients and runoff are reduced. In addition, farmers may delay spraying fields until after crops are planted.

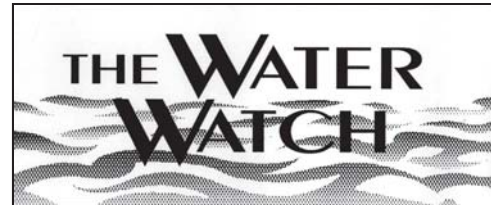
This third initiative will receive \$959,000.

The largest grant initiative in terms of funding will help farmers to retrofit their center pivot irrigation systems with water saving equipment.

The grants will fund monitoring and metering equipment to allow farmers to tailor irrigation based on crop needs and weather. Up to \$2,120,000 in grants is available to farmers for this fourth initiative.

The grant program will be open for three years, or until available funding is committed.

Megan Wetherington, PE, a senior professional engineer with the Suwannee River district, said the application process is straightforward and does not necessarily require the hiring of engineers or assistance from consultants.



## Osceola nutrient reduction.

Osceola County adopted a new set of water quality ordinances that will reduce nutrient inputs into the county's lakes and streams.

Osceola's ordinance, called the Lake Toho Nutrient Reduction Plan, is based on DEP's model ordinance for Florida-friendly fertilizer.

The ordinance includes restrictions on the percentage of phosphorus in landscaping fertilizer, fertilizing schedules and application rates, application setbacks from surface waters, and training for institutional and commercial fertilizer applicators.

Multiple violators could face mandatory resource protection training and fines of between \$100 and \$500.

**Tarpon Springs reuse.** The city of Tarpon Springs is planning a \$4.9 million project to construct a five-million-gallon reuse water storage tank and pumping station.

The tank will be built at the Tarpon Springs golf course, which is city property.

With more reclaimed water, Tarpon Springs will be able to serve more customers, most of whom are expected to be in neighborhoods south of the golf course along Pinellas Avenue in the Grassy Point subdivision, Oakleaf Village and Westwinds Village.

The Tarpon Springs' Public Works Department plans to build a 170-foot diameter pre-stressed concrete storage tank. It will be buried between four and seven feet below grade, and will have sidewall height of between 22 and 25 feet with a dome height of 32 feet.

A parapet wall around the roof's rim will catch rainwater that will be added to the tank. Piping will be underground. It will be painted light green to blend in with landscaping.

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**WATCH** \_\_\_\_\_  
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**WATCH**  
From Page 4

Applications and additional information about these grants are available from Kevin Wright at [klw@srwmd.org](mailto:klw@srwmd.org), or on the district's website.

**Martin County wetland treatment.** In December, Martin County began construction on a hybrid wetland treatment project.

The constructed wetland, located in Palm City, will treat stormwater runoff from Bessey Creek after heavy rains. The wetland will remove phosphorus from the water before releasing it to the St. Lucie River.

WaterShed Technologies LLC is the contractor for the project. The company has several other stormwater treatment facilities in Florida.

The project will cost \$3 million and will be funded by the state Department of Agriculture and Consumer Services.

Construction is expected to wrap up in 2016.

**Lower Keys sewer construction continues.** Construction on sewers for the Florida Keys Aqueduct Authority Cudjoe Regional Wastewater System will continue in spite of an active group of homeowners dissatisfied with its design.

Monroe County Judge Wayne Miller denied a request for an injunction to halt the authority's construction work. A local group called Dump the Pumps filed the lawsuit.

The group opposes the treatment plants' decision to install electrically operated grinder pumps on the wastewater collection system. The pumps will be placed on each homeowner's property and electricity to operate it must be supplied by the homeowner.

The Dump the Pump website said that homeowners are responsible for obtaining permits and installing wiring to the grinder pumps that could cost up to \$2000.

They are not happy with having to fund the work.

They also claim that if electrical service is interrupted during hurricanes, the sewage system will not work properly. A non-operating pump could cause overflow and contamination.

They want the utility to install a gravity flow sewage system, similar to what is installed in other Keys communities.

The judge apparently did not consider these criticisms to have sufficient merit to stop construction.

Dump the Pumps also initiated a state administrative hearing challenging the validity of DEP's permit for the sewer project. The administrative judge ruled in favor of the permit.

The group may be running out of options to successfully impose their point of view on the wastewater treatment project in the Lower Keys.

**Lake Lillian restoration.** The city of Winter Park's Lake Lillian will soon see the start of specific activities to improve its water quality.

In mid-January, the Winter Park City Commission approved two grant agreements that will upgrade the Mead Grove wetland area.

With the acceptance of a \$400,000 DEP grant and a \$50,000 grant from the Florida Fish and Wildlife Conservation Commission, the Winter Park Public Works Department is ready to begin building an otter pond in a wetland near a pavilion in Mead Botanical Gardens.

The funding, which will create open water behind a stage in the pavilion and maintain it as open water, is only the beginning of work that may cost Winter Park millions of dollars to complete.

**DEP improvement grants.** Two Northeast Florida counties, Nassau and Putnam, will receive more than \$1.5 million from the Florida Department of Environmental Protection.

The money will support projects to improve stormwater drainage, reduce nutrients in runoff and improve sanitary sew-

ers.

Nassau County will receive \$567,000 for the restoration of Thomas Creek that will reduce flooding and improve water quality in the creek's drainage basin.

The funding will pay for removal of debris and fallen vegetation now blocking water flow. Water will drain more quickly during heavy storm events.

The town of Hilliard will receive \$200,000 to clean and replace broken clay pipes in its wastewater collection system. Other deficiencies in the system will also be repaired.

Putnam County will receive \$750,000 to fund the hookup of additional residences and businesses to its regional wastewater system in East Palatka. The new customers are currently using septic tanks.

This activity is part of Putnam County's Basin Management Action Plan that was established to improve water quality in the St. Johns River basin.

**Interest-free loan for Clewiston plant.** The city of Clewiston will receive over \$800,000 as an interest-free loan to renovate its master pump station, a critical component of its wastewater treatment system.

The Florida Department of Environmental Protection is providing the loan through its Clean Water State Revolving Fund program. DEP recently began offering rural agricultural communities with lagging economies access to no-interest loans.

In the past, the Clean Water State Revolving Fund depended, in part, on interest from existing loans to fund new ones. The federal Clean Water Act, the original source of capital for the loans, was recently amended to allow interest rate reductions.

Clewiston, classified as a "disadvantaged community," was the first in Florida to qualify for an interest-free loan.

A DEP press release said that the funding will immediately improve public health by preventing contaminants from reaching surface waters.

In addition, it will contribute to the future growth of the community because the new station will require only minor future modifications to increase capacity to keep pace with population growth.

**Miami-Dade plant upgrades.** The Miami-Dade Water and Sewer Department took the first steps in a \$1.6 billion project to upgrade three regional wastewater treatment plants.

It has hired MHW Global to prepare preliminary and final design construction documents, and perform permitting and bid services during the construction of all three treatment plants.

The three wastewater treatment plants are the 143-million-gallon-a-day Central District WWTP, the North District WWTP and the South District Wastewater Treatment Plant, both able to handle 112.5 mgd.

As a result of a 2013 consent agreement with EPA and DEP, MDWASD will spend \$1.6 billion to improve wastewater and stormwater collection and transmission systems, and to upgrade wastewater treatment plants.

It has up to 15 years to meet the terms of the consent agreement, but the current schedule is to complete the work by 2019.

**Corps funding for Kissimmee restoration.** Herve Cody Contractor Inc. of Robbinsville, NC, won the bidding to perform the \$4.65 million MacArthur Ditch Backfill Project.

The effort involves backfilling the 18,000-foot-long MacArthur Ditch northwest of the S-65C lock. The ditch will be backfilled to natural grade.

The work is expected to restore the natural sheet flow to the floodplain.

So far, the U.S. Army Corps of Engineers has completed 25 construction projects related to Kissimmee River restoration.

Three are ongoing, including the MacArthur Ditch Backfill project. Only three construction projects remain to complete the restoration effort.

The entire project encompasses the re-

moval of two water control structures, filling nearly 22 miles of canals, and restoring over 40 square miles of the river channel and floodplain ecosystem including 27,000 acres of wetlands.

By slowing the water flow down the Kissimmee River, flooding around Lake Okeechobee can also be controlled.

Ecologically, the Kissimmee restoration effort has been lauded as an unequivocal success.


**New DEP counsel.** In early February, Craig Varn was appointed as special counsel on water policy and legal affairs at DEP. Varn will serve as the department's general counsel and will also oversee the Office of Water Policy.

He brings more than 15 years of experience in both the public and private sectors, including legislative and executive branches of government, agencies, cabinet and gubernatorial commissions on growth management, environmental and local government issues.

Varn served as chief policy advisor to Senate President Jeff Atwater on issues involving environmental, growth management, agriculture and utility issues.

Varn began his professional career as an engineer designing stormwater management and drainage systems and their support structures.

He holds a civil engineering degree from the University of Florida and law degree from the Florida State University.



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# FPL's Turkey Point power plant struggles with cooling water supply, salinity challenges

By ROY LAUGHLIN

Last summer, Florida Power & Light's Turkey Point power plant experienced a severe shortage of cooling water in its 68-mile closed loop cooling water system.

Three situations developed simultaneously to create the problem.

First, a microalgae bloom occurred. FPL officials said that caused the water to retain more heat. Beginning in early July, contractors treated the water with copper and hydrogen peroxide to kill the algae.

During August, however, water temperatures in the canal system routinely

reached 100°F—much too close to the U.S. Nuclear Regulatory Commission's 104°F mandatory power down temperature for cooling water.

In addition, the water became too saline, occasionally reaching levels three times that of seawater.

FPL attributed the increased saline levels to a lack of adequate rainfall that would have both cooled the recirculating cooling water as well as cut down on its high salinity levels.

FPL's immediate problem in August and early September was to find additional

freshwater, up to 100 million gallons a day, to add to its cooling system canals. The South Florida Water Management District approved a permit for 14 mgd of additional water withdrawals from the Floridan Aquifer, and a temporary permit to withdraw up to 100 million gallons per day from the L-31E canal north of Turkey Point.

In September, FPL received approval from the NRC to increase operating temperatures in its closed loop canal reservoir, pending approval by the Miami-Dade County Commission. The commission delayed making a decision but said that it would exercise its local regulatory authority.

County officials were quoted in the local press saying they wanted to be sure that FPL maintained the cooling water system so that it would not endanger drinking water supplies or harm recreational and biological resources in the Biscayne National Park.

By the end of September, cooler seasonal temperatures and rainfall ended the immediate problem at the plant.

But since late summer, FPL has been embroiled in a complex effort that ended local regulatory authority over the management of its cooling water supplies, leaving only the Florida Department of Environmental Protection to regulate the company's environmental compliance on cooling water.

In late December, DEP issued an administrative order for a salinity management plan that gave the utility five years to address its cooling water problem, including a plume of salty water that has spread through the Floridan Aquifer in all directions from the Turkey Point plant.

Local jurisdictions including Miami-Dade County and the South Florida Water Management District will no longer be involved, effectively reducing local government oversight in regulating the electric utility.

In early January, a three-judge NRC panel conducted a hearing to address complaints from the Miami-based Citizens for Allied Safe Energy, that a recent 20 percent expansion in the plant's generating capacity is the immediate cause of high cooling water temperatures, and that the plant is responsible for the saltwater plume contaminating the aquifer.

Then in early February, DEP received a challenge to its December administrative order in the form of four petitions for an administrative hearing from Miami-Dade County; the city of Miami, Tropical Audubon and Atlantic Civil, a rock mining company near the power plant.

At the time of this article's preparation, DEP had not made a determination on any of the four petitions' sufficiency, a prereq-

uisite for a hearing.

As FPL moves forward, whether or not the applicants for an administrative hearing are successful, it faces two challenges in addressing its cooling water issues. DEP's administrative order gave the utility five years to monitor the high salinity plume spreading from 6,000 acres of cooling canals into the Floridan Aquifer, and to develop a remediation plan.

Two years ago, FPL expanded its monitoring well array to track the salinity plume. The plume extends about four miles from the plant in all directions.

The plume is moving toward drinking water wellfields in southern Dade County that supply the Florida Keys Aqueduct Authority and is threatening other groundwater users west and southwest of the plant.

The plume has also migrated eastward in the aquifer under Biscayne Bay and its national park. The cooling reservoir has an interceptor trench around it, intended to prevent saline water from the reservoir from migrating away from it, but recent monitoring shows the trench to be ineffective.

FPL's immediate fix has been to draw from several freshwater sources to dilute the salinity level of its cooling water system. In addition to these sources, FPL's website said that it has an agreement in place with Miami-Dade County to obtain up to 90 million gallons a day of treated wastewater.

Under the arrangement, treated wastewater will be sent through a dedicated nine-mile pipeline.

FPL will further treat the wastewater before introducing it into its cooling water system before its two new 1,100-megawatt nuclear units come online in 2027 and 2028.

For its nuclear reactors, FPL proposes to build six cooling towers that will use the recycled water.

In its most recent 10-year planning report, FPL estimated the proposed cooling towers would "cycle through" 55 million gallons a day. After use for cooling, the treated water will be injected into deep wells for disposal.

Electricity generation is single largest water consumer in Florida, dwarfing all other water uses combined. Florida's utilities predominantly rely on saltwater for cooling.

More than 40 years ago, FPL stopped withdrawing cooling water from Biscayne Bay because of ecological damage. Cooling water being returned to the bay was overheating it, killing plants and animals.

Cooling towers may be the only useful technology available to cool the prodigious amounts of water the Turkey Point plant uses. For those to succeed, hundreds of millions of gallons of fresh water per day will be needed.

## North of the border: Contractors investigating contamination

Staff report

Environmental contractors are investigating how far contamination has spread from a chemical plant in South Georgia near the Florida border.

The groundwater beneath the chemical plant has been found to contain pollutants, most notably benzene. Contractors have been installing test wells at the Hercules Inc. plant to determine how far the contamination has spread.

A test well has been drilled diagonally across U.S. 17 from the plant grounds by workers from Antea Group, the environmental contractor.

"They are trying to determine the pathways for the migration of chemicals," said Ron Adams, who owns property in the area in Brunswick, about 70 miles north of Jacksonville. "So far, we don't have any results."

"There are some chemicals like benzene that are in the surficial aquifer 90 feet below the ground that have migrated to adjoining properties."

Southeast Georgia Health Systems bought 8.6 acres of land north of the Hercules property for use as an employee parking lot. The company said that Hercules' permit to handle and store hazardous wastes had not been modified to reflect the changes at the facility.

Hercules has responsibility to cleanup the plant grounds and the groundwater beneath neighboring properties.

The U.S. Environmental Protection Agency is reviewing the company's plan to cleanup groundwater contamination.

Testing of the parking lot grounds in 2013 turned up no pollution that required cleanup or any other action.

"The state (of Georgia) does not think the drinking water is at risk, but they don't want anyone to use the water from the surficial aquifer for any purposes," Adams said. "There is concern that contamination in the surficial aquifer may migrate to the surface."

Adams noted that there are three sites in the area on the federal Superfund list of contaminated sites.

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# ACF water dispute between Florida, Georgia heads to Supreme Court

By **BLANCHE HARDY, PG**

The ongoing dispute between Florida, Georgia and Alabama over water consumption and environmental impacts in the Apalachicola-Chattahoochee-Flint River Basin and Apalachicola Bay entered its next chapter in early February.

Florida issued subpoenas to utilities, municipal governments and water advocacy groups in Georgia in preparation for its presentation to the U.S. Supreme Court special master appointed to oversee the contentious issue.

Georgia's attorneys also issued subpoenas to municipalities, and academic and fishery organizations in Florida.

"In August 2013, Gov. Scott announced that the state would file a historic lawsuit in the U.S. Supreme Court," said Florida Department of Environmental Protection Spokesperson Dee Ann Miller. "In November, the U.S. Supreme Court agreed to take up Florida's lawsuit. This litigation is ongoing."

Florida has taken part in seven ACF-related federal court proceedings extending as far back as the 1970s.

Georgia also filed suit against the U.S. Army Corps of Engineers last November for failing to address their increasing water needs in the associated Alabama-Coosa-Tallapoosa River Basin.

Alabama, a frequent party in the ongoing debate, has of yet to engage in the current legal actions.

The Supreme Court appointed special master Ralph Lancaster Jr. in November 2014 to facilitate with the Florida-Georgia lawsuit. Lancaster previously served as special master for the apportionment of waters from the Potomac River between Virginia and Maryland.

The special master's authority includes the capability to conduct an evidentiary hearing and to request and record evidence.

He will ultimately make a recommendation to the Supreme Court for their consideration regarding ACF basin water apportionment.

Lancaster issued an order in mid-December to complete written discovery by July and deposition by late November 2015. Motions to dismiss or request summary judgment are due in January 2016.

Attorneys for both states are requesting a more lenient schedule due to the complexity of the situation and the number of entities involved.

Georgia issued a response to Florida's petition to equally divide waters of the ACF basin claiming that the Apalachicola region is not being harmed by Georgia's increasing consumption of water—even though the basin's greatest consumer, the metropolitan Atlanta area, has grown dramatically since Florida's initial action in the 1970s.

Georgia blames Florida for the harm taking place in the Apalachicola region claiming it has failed to correct local sources of degradation.

The response also implies that Georgia's Flint and Chattahoochee rivers, historically considered to form the Apalachicola River, are disassociated from the Apalachicola because they flow into Lake Seminole from which the U.S. Army Corps of Engineers releases water to form the Apalachicola.

Florida's case is firmly centered on the river and bay.

"The health of the Apalachicola River and Bay is vitally important to the environment and economy of Northwest Florida," said Miller. "The state of Florida remains committed to the protection of this waterbody and to fighting for the families who depend on it."

The river provides the bay with the nutrients and salinity-regulating freshwater critical to Florida's oyster industry.

DEP estimates the total commercial

fishing industry in Apalachicola Bay is responsible for \$134,000,000 in economic output and an additional \$71,000,000 in value-added impacts.

Among those subpoenaed is the ACF Stakeholders organization whose membership includes parties with interests on both sides of the Florida-Georgia border.

ACFS's long-term goal is to develop an equitable solution that protects economic, ecological and social interests within the entire ACF basin. In April of 2014, ACFS initiated the development of a sustainable water management plan for the basin to facilitate that goal.

The ACFS effort includes establishment of a trans-boundary water management institute to coordinate information, resolve conflicts between stakeholders and advise all three states in drought management.

The University Collaborative, a consortium of universities researching water management mechanisms, has been asked for guidance in structuring the planned institute.

Like special master Lancaster who frequently advocates for the pursuit of settlement, ACFS hopes to craft an agreeable solution outside the courts.



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## Duke Power abandons plans for solar farm in Pinellas County

Staff report

Duke Power stepped back from its plans to build a 22-acre solar farm in Tampa at the site of a former landfill. Duke planned to build the facility, at least in part, by redirecting \$2 million it now spends on a solar panel rebate program that pays homeowners to install the panels.

Duke requested permission from the state Public Service Commission to allow them to reprogram the money for "community solar projects" that used large numbers of solar panels set up at one location to feed power to the grid.

The PSC denied that petition, binding Duke to continue to operate its SunSense rebate program through 2015. Duke paid rebates again this year—the final year they will be available. All of the \$2 million has been paid to applicants.

Duke's plans for the solar farm may not be permanently scuttled. A Pinellas County official said that the 22-acre site Duke Power wanted to use is still available.

Last November, Florida's PSC largely ended the rebate programs for individual homeowners. Next year, power companies will not have to provide rebates to homeowners and they could use the money formerly used in that program to build community solar projects.

Other Florida power companies are moving forward with solar projects. Florida Power & Light is still planning to add 225-megawatt solar power generating capacity by the end of 2016.

FPL plans to build three 77-MW photovoltaic generating facilities. The added solar generating capacity will be sited near existing power plants that will provide access to the grid including the FPL Citrus Solar Energy Center in DeSoto County, the FPL Babcock Ranch Solar Energy Center in Charlotte County and the FPL Manatee Solar Energy Center in Manatee County.

In addition, FPL said that it will build a

number of three-megawatt community solar projects at yet to be disclosed locations.

Duke Power, among Florida's top three electricity providers, is in a transition with its generating facilities and its plans are changing, said Sterling Ivey, a Duke Energy spokesperson.

"We recognize solar power is a part of our future and a part of Florida's energy future," said Ivey.

But it may be a while before the company decides exactly what role solar generation will play in its future energy mix.

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# ARC completes listing of this year's potential Florida Forever projects

By **BLANCHE HARDY, PG**

The Florida Acquisition and Restoration Council, responsible for reviewing and recommending the annual Florida Forever list of potential projects, recently completed its 2015 listing process.

This year's candidate projects are divided into six categories—critical natural lands, partnerships and regional incentives projects, less-than-fee projects, climate

change lands, substantially complete projects and critical historical resources—and ranked in priority within categories.

In any given year, a number of the projects retain their previous year's positions on the list, such as the long-standing Save Our Everglades project that retained its place in the substantially complete projects list and the more recently added climate change lands projects.

Florida Department of Environmental Protection Spokesperson Mara Burger

noted that on this year's priority list, "the total acres remaining to be acquired is 2,075,920. There are 119 Florida Forever projects on the list."

Four new projects were also added: the Myakka Island Conservation Corridor that was added to the existing Myakka Ranchlands Project; Upper Lake Lafayette Aquifer Protection that was added to the existing Wakulla Springs Protection Zone Project; the Arbuckle Creek Watershed; and the Coastal Headwaters Longleaf Forest.

"Now that the Acquisition and Restoration Council has compiled its recommendations, the list will go to the board of trustees for approval," said Burger. "This will likely happen in May."

The board of trustees is made up of the governor and cabinet.

While the 2015 list moves through the state's vetting process, currently pending acquisitions continue to be processed. Those underway include Florida First Magnitude Springs/Plum Creek, Florida Keys Ecosystem/Johnson Estate/FK Land Co., CREW/Gargiulo, Charlotte Harbor Flatwoods/Bond/TPL and Clear Creek-Whiting Field/Thomas West Allen Farms.

After board approval, the Division of State Lands within DEP will create a work plan, pursuant to Section 259.105(17), Florida Statutes.

"This work plan will be used for acquisition activities in the 2015-16 fiscal year," Burger said. "The work plan automatically includes those projects ranked high or high/medium on the new Florida Forever priority lists, but also includes projects that are under negotiation or encumbered from a previous list."

Where circumstances warrant, the Division of State Lands has the flexibility to add projects at lower priorities to the work plan. Examples of the type of circumstances that may influence such a decision include an unexpected partnership opportunity or a project that will fulfill priorities set by budget proviso, as well as similar unique opportunities.

The work plan is reviewed and adopted by ARC and is provided to the board of trustees no later than Oct. 1.

"It is important to note that any acquisition of lands in the work plan is contingent upon the amount of funding appropriated in a given budget year," said Burger. "Many of the top ranked projects on the new ARC-approved list were top priorities on the current list and are already on the current work plan."

On Jan. 13, 2015, the governor and cabinet agreed to acquire two Florida Forever-funded acquisitions from the Trust for

Public Lands.

The state will acquire approximately 669 acres within the Charlotte Harbor Flatwoods Florida Forever project located northwest of Fort Myers. The project protects the largest and highest-quality slash-pine flatwoods in Southwest Florida and connects to the Babcock-Webb Wildlife Management Area.

The second acquisition includes approximately 620 acres within the Corkscrew Regional Ecosystem Watershed Florida Forever project. This project provides connectivity between three conservation areas, offers critical protection for wildlife like the Florida panther and Florida black bear, and protects the flow of water into the Florida Panther National Wildlife Refuge, Fakahatchee Strand Preserve State Park and other areas.

The project supports at least two species of rare and endangered orchids, and includes an unusual strain of dwarf bald cypress.

## Southwest FL brownfield conference set

### Staff report

The 3rd Annual Southwest Florida Brownfields Symposium is set for March 20 in Fort Myers.

The theme for this year is "Economic Enrichment through Redevelopment."

Developers, investors and other interested community members are invited to the day-long conference that will be held at the Lee County Public Education Center on Colonial Boulevard.

Conference hours are 8:30 a.m. until 4:00 p.m.

The event offers an opportunity to learn more about the state's brownfield redevelopment program, including success stories. It is co-hosted by the Florida Department of Environmental Protection and the Southwest Florida Regional Planning Council.

Speakers include lawyers, environmental industry professionals and officials from local government agencies, the DEP and the U.S. Environmental Protection Agency.

Symposium presentations include "Developing a Successful Brownfields Redevelopment Program," "How Can the Brownfields Program Help You?" and "Financial and Technical Support for Redevelopment."

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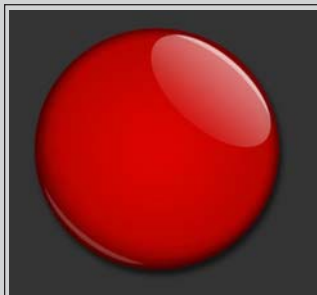
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# New application allows soil boring data to be captured electronically

By ROY LAUGHLIN

Characterizing soils collected by boring is an essential task in many environmental and geotechnical projects. The software application LogitEasy, a data logging and visualization program, is designed to make that process better and quicker.

John Gobins, LogitEasy's co-founder and product/business development manager, characterized the application as "electronic data capture according to an industry soil classification standard" with "the possibility of electronically validating some of the data entered."

LogitEasy's data collection process is menu-driven, using templates and labeled buttons for choice of entry.

Gobins said that electronic data entry helps consultants "improve their (data) quality in the four areas of consistency, assurance, efficiency and cost-effectiveness."

It helps prevent inappropriate choices on forms.

In addition, the use of menus gives substantial freedom from using a digital or physical keyboard and mouse. Numerical data and extensive text notes are the exception; they must be entered using a keyboard.

The choices and logging procedures are consistent with current Florida Department of Environmental Protection Petroleum Restoration Program methodologies, the state of Michigan's soil classification and logging, and the New Mexico Bureau of Geology & Mineral Resources' standard operating procedures for drilling, logging and sampling.

The content of the entry form is based on ASTM International's visual-manual

## Redevelopment of Duval landfill good for environment, economy

Staff report

Work is continuing on redeveloping a former Duval County solid waste landfill that officials believe will benefit both the environment and the economy. A new hardware store is being constructed on the site in Neptune Beach in Northeast Florida.

In a bid to breathe new life into the area, the Florida Department of Environmental Protection partnered with Penman Plaza Associates LLP to cleanup the contaminated brownfield site and redevelop it.

For Neptune Beach officials, the site redevelopment is great news.

"We are happy to see this site developed," said Neptune Beach City Manager Jim Jarboe. "It's providing some construction jobs, and it helps the environment and brings additional revenue to the city."

Officials took groundwater and soil samples at the start of the project to assess the extent of contamination. After receiving the results, they decided the best option was to remove all waste debris and contaminated soil from the area.

Cleanup efforts involved removing about 30,000 tons of buried waste and soil, and properly disposing of it at a permitted landfill in Georgia. The work took about nine weeks.

Jarboe said the landfill that operated on the site took household waste. There were concerns about the environment because the site is close to a creek.

He said the removal of waste and other toxic substances helps improve the city's environmental health. Instead of allowing contaminants from the landfill to leach into the groundwater, the cleanup moved the pollutants to a secure facility.

DEP Northeast District Director Greg Strong said the department is excited about the new opportunities coming to the greater Jacksonville area.

"Not only are these businesses bringing new economic opportunities to the region, but they are also cleaning up contamination and restoring the environmental integrity of the sites," he said.

procedure for description and identification of soils. LogitEasy users have a choice of two visualization programs familiar to most geologists: gINT Software™ and LogPlot™.

As data is uploaded, it can be viewed in real time by any account user at any location connected to LogitEasy's servers. For example, if a person in the field has a wireless link to the cloud and is entering data line by line, that same data can be observed in real time by a manager or colleague elsewhere using a PC.

This feature allows real-time collaboration and interaction with managers who may not be at the work site. Users who prefer paper-based data collection can later enter it on LogitEasy using a PC or iPad as a first step to computer-based characterization, analysis and presentation.

After the logged data are stored on LogitEasy's cloud servers, programs on those computers complete the visualization of the data in either gINT or LogPlot formats.

Gobins said the company's protocols encourage users to review and edit data, before the drafting stage of data presentation. He noted that the "clock starts ticking" for deliverables after LogitEasy receives reviewed final data files from the

user.

After final data are uploaded, users have several choices for deliverables and turnaround times. Within a day, the data can be returned in a spreadsheet. In three to seven days, a log file in PDF format as either a gINT or LogPlot File will be provided to the user. LogitEasy's website provides examples of data presentations for gINT and LogPlot.

With respect to turnaround times, LogitEasy's standard turnaround schedule posted on its website is intentionally conservative. It could be that the customer will get the results in less than a week. It may be useful to talk to LogitEasy for time-critical work when time is short.

"We will store the data for as long as the user requires. But usually once the user has received the log and data files, our service is done and they store the deliverables in their own systems," said Gobins.

The LogitEasy application introduced in 2012 is an established program. Gobins said he and his business partner expect to grow the program's capability in response to customer feedback and the evolution of electronic data gathering and reporting.

Some users have asked for an Android version and Gobins said that is on the horizon, perhaps within the year. But in the

mean time, LogitEasy is available on a PC to those who do not use the iPad.

The first iPad was released in April 2010, not even five years ago. Since then, scientific and field work has been transformed, not only because data can be recorded in digital and photographic formats on a mobile device, but because it can be transmitted from the collection site through increasingly robust wireless networks.

Over the past couple of years, the U.S. Environmental Protection Agency has endorsed the use of mobile devices for sending and recording data submitted directly to the agency in digital format.

The Florida Department of Environmental Protection is following EPA's lead. Last fall, the state Petroleum Restoration Program required submission of chemical analysis data for water, soil and air using the Automated Data Processing Tool.

ADaPT, developed by DEP's Division of Waste Management, is based on the Microsoft Access database program. Currently, DEP does not use ADaPT to store lithologic data, but according to Gobins, DEP staff agrees it would be useful when selecting remedial alternatives.

What was once merely allowed is now required for chemical analysis data. Perhaps lithologic data will be next.

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# Using technology with best business practices makes best use of resources

By W. ROGER COX, PE and  
JEFF THURMAN, CPM

Creating long-term efficiencies and sustainability is a huge focus in today's government sector. Every day, the charge of public works leaders is to do more with less. Technology, if used correctly, can be an effective tool for organizing work and cutting costs.

From late 2010 until 2014, Hillsborough County implemented a two-phase process of cultural change and process improvement.

The goals were to establish a baseline of current operations, develop and identify opportunities that would improve operations, and formulate recommendations that would lead to improvements and strategies to enhance work methods and management efforts.

The review was not an audit. It was an internal effort to improve service, consistent with the county's mission statement and guiding principles.

The initial phase was a top-to-bottom review to determine the most effective and efficient way to deliver high-quality service. While the review revealed that the county was performing at a high level in many areas, there were opportunities identified for improvement.

Hillsborough County is located on the

west coast of Florida, southwest of Orlando. The county has 1,051 square miles of land and an additional 215 square miles of shoreline, Tampa Bay is the largest bay in Florida that opens to the Gulf of Mexico.

The county's population has seen consistent growth and is expected to grow even more—to 1.58 million by 2030. The county draws over 15 million tourists annually, increasing traffic and infrastructure use and placing additional emphasis on repair and maintenance.

The Transportation Maintenance Division maintains a roadway network of considerable size and associated assets, including over 3,300 centerline miles of roadway. The lane miles would, for instance, cover the approximate distance from Tampa to Bellingham, WA, and back. The road miles are the state's third largest.

Hillsborough maintains more road miles than the departments of transportation in Hawaii, Rhode Island, New Jersey, Vermont and Massachusetts combined.

In addition to pavement features, the division is responsible for maintaining approximately 2,500 miles of sidewalks, 119,000 sidewalk ramps, 3,000 miles of curb, 3,500 miles of shoulder, 1,200 miles of culverts, 1,200 miles of ditches, 7,000 stormwater manholes and junction boxes, 2,400 control structures, 72,000 end treat-

ments, 14,000 headwalls and 2,200 detention/retention ponds.

They also have responsibility for the maintenance of 251 bridges. The county has assets valued at over \$10 billion.

The evaluation path followed the four phases of ideal maintenance management including planning, organizing, scheduling and controlling. The result of the evaluations was a complete outline of their current state or baseline, the identification of 86 opportunities for improvement, and 68 key recommendations comprised of all four phases of ideal maintenance management.

The review's final report served as a game plan for achieving the goals of the organization. After the evaluation and development of the plan, it was time to implement its recommendations, charting a path to improvement.

Initially, the county had to re-establish and define their maintenance and repair activities and determine which assets they were responsible for. This first step used a combination of the institutional knowledge of employees, GIS technology, and other manual and automated databases.

They utilized GIS and its capabilities to initially create maps of assets, boundaries and other features. Managers, supervisors and field staff reviewed the maps for accuracy and completeness. They used

technology as a tool to assist in this process but used the knowledge of staff to assist—not direct—the effort.

The final report of the review process included as a recommendation the creation of an overall planning section designated to work with all of the field units and the acquisition of a new computerized management maintenance system to replace the existing system.

The purpose of the planning section was to provide guidance, oversight and accountability for the work performed by the county's field units. This ensured that the work outlined as part of the department's annual plan was fully transparent to the crews and management at the field units, and provided user support, data integrity and process checks.

The new computerized system outlined in the review process was integrated with the GIS allowing for spatial data and relationships to be fully understood and used to create viable maintenance plans.

The division used a combination of technology and manual processes to develop maintenance routines to address the goal of planning at least 80 percent of their work and concentrating on the "significant few" that have the largest impact on their organization.

From their initial effort of defining their activities with resource needs, levels of effort and knowing what they are responsible for, they were able to develop routines for the majority of their work activities.

For example, with the activities of right-of-way mowing, tree trimming, sidewalk repair and ditch cleaning, they used GIS to establish routines and create operational blocks for efficient execution by maintenance resources.

The top activities were mapped and scoped to quantify their efforts. Most operational blocks were based on the amount of work that can be produced in a two-week time period, which correlates to the time period established for the short term scheduling process that has been established.

With known quantities and established average daily productions, they are able to calculate production and levels of service for each activity. Through this, the division is able to measure the effectiveness of field crews and create a level of accountability.

For mowing, operational blocks were established that include the acreage to be mowed in a specific time period. For tree trimming, they have operational blocks that include the linear feet of trees to be trimmed and operational blocks for right-of-way mowing.

For canals, they measure the linear feet of canals to be cleaned. The division has also developed operational blocks for hand, slope and canal mowing.

As a result of the establishment of operational blocks and routines for several of their maintenance activities, levels of service have increased.

For example, right-of-way mowing cycles have increased over 48 percent. They have also developed a routine for canal cleaning that will allow their canal system to be maintained on five-year cycles, where before there were portions of the system that had no maintenance recorded since records have been kept.

Other technologies were also established and are currently being used to accomplish recommendations from the game plan.

For example, as a result of the service unit's maintenance yards being geographically too far apart to meet bi-weekly, web-based meeting technology is now being used to review previous bi-weekly schedules, complete audit work, establish work schedules, and increase communication and cooperation between groups.

As a result, the units can present schedules, check with field operations for final adjustments to schedules and work, as well as monitor overall progress. Units can co-

**HILLSBOROUGH**  
Continued on Page 13







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# Calendar

## March

MAR. 4-5 – Conference: 25th Annual Cross-Connection Control Conference, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 6 – Course: Backflow Prevention Recertification Review, Fort Myers, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 7 – Course: Backflow Prevention Recertification Review, Bradenton, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 7 – Course: Backflow Prevention Recertification Exam, Fort Myers, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 8 – Course: Backflow Prevention Recertification Exam, Bradenton, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 9 – Course: Backflow Prevention Recertification Review, Altamonte Springs, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 9 – Course: Hazardous Waste Regulations for Generators, Orlando, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 9-11 – Course: Water Distribution Systems Operator Level 1, Kissimmee, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 10 – Exam: Backflow Prevention Recertification Exam, Altamonte Springs, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 10 – Course: U.S. DOT Hazardous Materials/Waste Transportation, Orlando, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 10 – Course: Initial Training Course for Spotters at Landfills, C&D Sites and Transfer Stations – 8 Hour, Orlando, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 10 – Course: Refresher Training Course for Experienced Solid Waste Operators – 8 Hour, Orlando, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 10 – Course: Refresher Training Course for Experienced Solid Waste Operators – 4 Hour, Orlando, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 10-11 – Workshop: Florida ADaPT 2-Day Training, Royal Palm Beach, FL. Presented by LDCFL Inc. Contact Cathy Katsikis at (561) 512-9956 or visit [www.ldcfl.com](http://www.ldcfl.com).

MAR. 10-11 – Course: Initial Training Course for Transfer Station Operators and Material Recovery Facilities – 16 Hour, Orlando, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 10-12 – Course: Initial Training Course for Landfill Operators and C&D Sites – 24 Hour, Orlando, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 10-12 – Course: Initial Training for Operators of Landfills and Waste Processing Facilities, Orlando, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 11-13 – Summit: Environmental Industry Summit XIII, San Diego, CA. Presented by Envi-

ronmental Business International. Call (619) 295-7685 or visit [www.ebionline.org](http://www.ebionline.org).

MAR. 12 – Course: 8 Hour OSHA HazWoper Annual Refresher, Tallahassee, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 13-21 – Course: Backflow Prevention Assembly Tester Training and Certification, Fort Myers, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 14 – Course: Backflow Prevention Recertification Review, Jacksonville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 14-22 – Course: Backflow Prevention Assembly Tester Training and Certification, Fort Myers, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 15 – Exam: Backflow Prevention Recertification Exam, Jacksonville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 16-17 – Course: Phase I Environmental Site Assessment and All Appropriate Inquiry Training and Licensed Environmental Professional Exam, Tallahassee, FL. Presented by the International Society of Technical and Environmental Professionals. Call (850) 558-0617 or visit <http://instep.ws>.

MAR. 16-18 – Summit: National Ground Water Association 2014 Groundwater Summit, San Antonio, TX. Call 1-800-551-7379 or visit [www.groundwater.summit.org](http://www.groundwater.summit.org).

MAR. 16-20 – 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](http://www.treeo.ufl.edu).

MAR. 17 – Course: Energy Conservation at Water & Wastewater Treatment Facilities, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 18 – Course: The Science of Disinfection, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 19-20 – Meeting: Annual Meeting of the Southeastern Section of the Geological Society of America, Chattanooga, TN. Contact Jonathan Mies, general conference chair, at [jonathan-mies@utc.edu](mailto:jonathan-mies@utc.edu).

MAR. 22-26 – Meeting: American Chemical Society National Meeting and Exposition, Denver, CO. Call (202) 872-6042 or visit [www.acs.org](http://www.acs.org).

MAR. 23-25 – Course: Backflow Prevention Assembly Repair and Maintenance Training and Certification, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570.

MAR. 23-27 – Course: Backflow Prevention Assembly Tester Training and Certification, Altamonte Springs, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 23-27 – Course: Wastewater Class A Certification Review, Gainesville, FL. Presented by the

University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 24 – Course: Initial Training Course for Spotters at Landfills, C&D Sites and Transfer Stations – 8 Hour, Crestview, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 24 – Course: Refresher Training Course for Experienced Solid Waste Operators – 8 Hour, Crestview, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 24 – Course: Refresher Training Course for Experienced Solid Waste Operators – 4 Hour, Crestview, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 24-25 – Course: Initial Training Course for Transfer Station Operators and Material Recovery Facilities – 16 Hour, Crestview, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 24-25 – Course: Refresher Training Course for Experienced Solid Waste Operators – 16 Hour, Crestview, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 24-26 – Course: Initial Training for Operators of Landfills and Waste Processing Facilities, Crestview, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 24-27 – Course: Wastewater Class B Certification Review, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 27-APR. 4 – 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](http://www.treeo.ufl.edu).

MAR. 30-APR. 4 – Course: 40-Hour OSHA HAZWOPER Training Course, Tallahassee, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 30 – Course: Introduction to Lift Station Maintenance, Boca Raton, FL. Presented by the Univer-

sity of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 30 – Course: Lift Station Maintenance, Boca Raton, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 31-APR. 1 – Course: Hazardous Waste Management: The Complete Course (RCRA), Jacksonville, FL. Presented by the Environmental Resource Center. Call (919) 469-1585 or visit [www.ercweb.com](http://www.ercweb.com).

## April

APR. 1-3 – Course: 24-Hour OSHA HAZWOPER Training Course, Tallahassee, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 2 – Course: Basic Water and Wastewater Pump Maintenance, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 2 – Course: Chlorine First Responder Operations Level, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 6 – Review: Backflow Prevention Recertification Review, Lake Buena Vista, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 7 – Exam: Backflow Prevention Recertification Exam, Lake Buena Vista, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 8-10 – Course: Backflow Prevention Assembly Repair and Maintenance Training and Certification, Lake Buena Vista, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 10 – Review: Backflow Prevention Recertification Review, Venice, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 11 – 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](http://www.treeo.ufl.edu).

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352-392-9570 ext. 212

# Palm Bay Utilities Department using outreach efforts to prevent pollution

By **BLANCHE HARDY, PG**

The city of Palm Bay Utilities Department embarked on a public awareness and participation campaign to encourage residents to adopt best management practices to help prevent wastewater discharges and pollution in Palm Bay.

The program includes educating their residents about the importance of protecting the sanitary sewer system.

Karyn Barber, PBUD's utilities out-

reach coordinator, said the utility's increased outreach began in January of 2015.

"However, we have been working to educate local industrial and commercial users about best management practices for several years," she said.

In 2013, Palm Bay's City Council approved revisions to their sewer use ordinance to provide for a strengthened program for fats, oils and grease. The program implemented regular inspections and allows for the permitting of grease traps and private lift stations.

In addition to public outreach, department staff and consultants are working together to assess the utility's entire wastewater system, including actively pursuing the identification of areas where water infiltration and inflow are occurring.

The review will evaluate historical data, as well as current water flows and infiltration into the sewer system and wastewater treatment plant.

"This information will help us determine where to focus larger efforts for repair and improvement," said Utilities Director Dan Roberts. "Reducing I&I into the city's sewer system and wastewater treatment plant will help prevent overflows and discharges, and also provide increased capacity."

**PALM BAY**  
Continued on Page 15

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## SESSION From Page 1

lion—and will kickoff a 10-year, \$500 million program—to provide an additional 250 million gallons of water a day to Floridians. This includes funding for regional alternative water supply development.

Preston said he is encouraged by the governor's efforts to improve the environment.

"The funding he proposes is for issues that he committed to support during his recent election campaign," Preston said. "I give him credit for putting his budget where his mouth is."

In November, voters overwhelmingly passed Amendment 1 that will set aside millions of dollars from a real estate tax for the Land Acquisition Trust Fund within the Florida Department of Environmental Protection.

That money will be directed toward improving land and water, including wetlands, forests, and fish and wildlife habitat.

Amendment 1 watchdogs said they appreciate the governor's new found focus on land, water and wildlife. But they fear that he and lawmakers will hijack Amendment 1 dollars, using them not for buying environmental lands but for other existing obligations.

The amendment directs the state to tap proceeds from documentary stamps in real estate transactions.

There is already growing disagreement over how this money should be spent. Agriculture Commissioner Adam Putnam has argued that in some cases, the money could be used for municipal sewer and water projects.

Director Alikei Moncrief of Florida Water and Land, the group that campaigned successfully to pass the amendment along with other supporters, believes the money should be used to pay for environmental programs such as Florida Forever, and Everglades and springs restoration.

Sen. Charles Dean, R-Inverness, has filed six bills that would designate a trust fund within DEP to handle Amendment 1 money. The bills would also eliminate existing trust funds that benefit environmental programs. Those programs would then be eligible for financing from the new fund.

Eric Draper, executive director of Audubon Florida, said the big focus during this year's legislative session will be on water policy. Legislation has been introduced in both houses dealing with water policy and both will include springs legislation, he said.

The House version includes changes to the Lake Okeechobee Basin Management Action Plan and the Central Florida Water Initiative, the effort that brings together three water management districts to plan for water supply in Central Florida.

"I think we will definitely see some kind of springs bill come out of this year's session," Draper said. "The conservation community is pushing for a more permit-based approach to springs restoration. We would like to see the permits for water supply be subject to significant water use restrictions when that water use is affecting a spring or other waterbody."

"I think we will also see a significant appropriation for Everglades restoration in this year's session."

Draper said he supports Gov. Scott's proposed budget.

"The governor's budget is aligned with the way Amendment 1 funds should be spent," he said. "He put a significant increase for land conservation funds in the

budget. We would like to see the legislature put more money into land acquisition, but there is some resistance to this.

"There should be transparency in how the Amendment 1 funds are spent. The legislators have to be very careful that the monies are tracked. We hope the legislature reads the amendment the way the voters read it."

Environmental and agriculture groups are concerned about draft water bill language presented by a House committee.

The House State Affairs Commission language addresses pollution threats facing springs and Lake Okeechobee and the need for increased water supplies in Central Florida.

DEP would be required to complete an assessment of water quality for the state's 33 largest "first magnitude" springs. The department would also be required to draw boundaries for springs protection and adopt them as rules by July 1, 2016.

Officials representing fruit and vegetable growers and landscaping professionals said they are concerned about drawing boundaries for all springs when some may not be considered in trouble.

The Sierra Club, meanwhile, is concerned the draft bill does not set deadlines for the state to assess springs for pollution levels or threats from overpumping.

Representatives of Audubon Florida and the Everglades Foundation raised concerns about a proposal to replace a South Florida Water Management District permitting program that is used to reduce pollution in Lake Okeechobee with other state pollution reduction programs, which the groups said are voluntary.

Meanwhile, President Obama proposed in February to spend \$195 million to restore and improve the Everglades.

The proposal is \$58 million more than he proposed to spend last year, a sign that he will back the massive restoration effort in his final two years in office.

Environmental activists called on Congress to spend money on projects such as water preserves in Broward County—including two reservoirs and a 4,353-acre conservation area—and the restoration of the Kissimmee Valley at the headwaters of the Everglades.

The goal there is to restore the natural sheet flow to revive the River of Grass, prevent flooding and ensure clean water supplies for much of South and Central Florida.

The projects are designed to filter out polluted runoff from farms and cities while storing water during wet seasons and releasing it during dry periods.

The proposed Everglades spending was included in the president's \$4 trillion budget for fiscal year 2016 that begins in October.

His budget as a whole calls for more investment in public works projects, such as road and bridge work. Everglades restoration fits neatly into that theme because it requires a massive construction effort supporting hundreds of jobs.

Obama asked for a total of \$195 million from the U.S. Department of Interior and the U.S. Army Corps of Engineers.

The corps' portion specifies \$123.7 million for South Florida's ecosystem restoration, nearly double from last year. The agency specified \$17 million for Kissimmee River restoration, \$6.9 million to restore Picayune Strand in Collier County, and \$2.9 million for design of the Broward water preserve areas.

State officials have pressed ahead on some restoration work while waiting for Congress to approve the federal share of costs.

# Brevard County to host state's first liquefied natural gas facility

By ROY LAUGHLIN

The Titusville City Council approved siting for a new liquefied natural gas plant. It will be the first LNG facility in the state.

The council approved a conditional use permit for Florida East Coast Industries to build a liquefied natural gas plant on two parcels of property east and southeast of the Titusville-Cocoa Airport.

The properties are on the west side of U.S. 1, near the Indian River. The plant's connection to a natural gas pipeline will be routed through a narrow strip of land along the south side of the airport. The pipeline will supply the gas to be liquefied.

Tico Development Partners LLC, an affiliate of Florida East Coast Industries, will build and own the facility.

In its application to the city council,

## HILLSBOROUGH

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ordinate equipment needs and potentially insert additional work into a schedule.

Long term projects can also be discussed, which has led to transparency and given all employees a feeling of ownership and involvement in operations. Meetings can be recorded for playback by absent staff members or can be used for accountability purposes.

The result of these efforts includes an increased level of service to the public, a reduced number of complaints and reduced work backlogs. The county has saved over a million dollars through improved efficiencies and improved business processes using less resources.

Through the implementation of specific recommendations, systems and processes were put into place to provide accountability and monitoring of resources compared to established standards.

To date, the Transportation Maintenance Division has realized productivity increases of approximately 15 percent through the development and re-engineering of processes related to planning, organizing and controlling the way they do business—which means 15 percent more work with same resources being used.

Future presentations to the Hillsborough County Board of Commissioners related to budgetary and service level changes can now be better addressed due to improved planning and organizing capabilities.

The division identified, and now focuses on, their primary activities by using the Pareto principle where 20 percent of activities account for 80 percent of the budget. This resulted in the vegetative control activities of tree trimming, roadside mowing and ditch cleaning being identified as the largest work efforts.

The emphasis is to work on the activities that make the most impact and to resist working on activities that add little value.

As an example, Hillsborough County implemented several tasks into routine maintenance cycles, each based on several factors including assets that they are responsible for, available resources and the levels of service they have determined for each activity.

While applying this methodology to one of their highest requested activities, they developed and implemented mowing blocks. As a result, mowing cycles have increased overall by 25 percent system-wide, with some units doubling their mowing frequencies.

Tree trimming and removals are another area of considerable success. After the identification of 100 percent of their needs, routines were developed and resources were deployed.

TMD is projected to complete a tree trimming cycle every three years, increasing safety for the community and reducing the need for customers to call for service.

With the development and execution of further routines in other activities, it is projected that the division will realize similar efficiencies in service delivery to the

FECI said that an existing pipeline will supply the new plant with methane. The gas will be cooled to -260°F to liquefy it.

The proposed plant will liquefy up to one million gallons of natural gas daily. The gas will be stored in a single five-million-gallon heavily insulated storage tank until sold.

As of mid-February, FECI had not submitted its site plan, a step that will take it much closer to construction. In its conditional use application to the council, FECI proposed a 2016 completion date.

The U.S. has several hundred facilities that liquefy natural gas. The predominant LNG use is "scratching," taking gas from a pipeline during periods of low use, liquefying it for efficient storage and then returning it to the pipeline during peak demand periods.

LNG currently has a limited use as a

customers of Hillsborough County.

Through better planning, organizing, scheduling and controlling processes and methods, they have reduced their backlog of work orders by 57 percent, and are projected to reduce them by an additional 30 percent in the near future, reducing customer requests significantly. This includes eliminating all tree trimming requests in the county.

For this type of review to work, elements of success are required. Buy-in to the process must occur on all levels prior to commencement. Senior management must be committed to the entire process and must see it through every step. The right person must be chosen to lead the implementation of recommendations—ideally, an employee who is committed to the entire process from start to finish.

Besides senior management's commitment, communication must occur at all levels and phases to obtain optimal results. Real data must be used and confirmed so that outcomes are accurate and quantifiable.

In the future, feedback to all levels of the organization will be provided and evaluated. Future developed processes and the implementation of new technologies must match the organization's identified needs, further contributing to the goal of continuous improvement.

All work will be systemized so that there will be increased quantifiable efficiency.

Lastly, employees will feel involved and empowered resulting in a feeling of transparency, ownership, pride and job satisfaction.

The game plan was about establishing business processes for overall improvement. Hillsborough County reduced their budget, increased their level of service and lowered backlogs by developing a plan. Second to developing a plan is the critical element of employee participation, ownership, and support for making improvements to the system.

The success of this review has been documented in the observations of others in a performance audit that was conducted in December, 2012, by an independent auditing firm.

According to an October 2010 report, "the Department is transforming field operations in a positive way, and plans exist to expand this success . . . by extrapolating the recommendations to all functional areas, the department will be able to considerably improve the way business is conducted."

Hillsborough County's Public Works and Transportation Maintenance Division established and implemented a clear vision that focused on both effectiveness and efficiency. As a result of the desire to continually improve operations, increase service levels and reduce costs, the county is becoming a national leader in public works efficiency, cost effectiveness and customer service.

W. Roger Cox, PE, is the manager of systems planning with the Hillsborough County Public Works Department and Jeff Thurman, CPM, is a consultant with LA Consulting Inc. in Sanford, FL.

vehicle fuel, but that may change in the future. Some facilities without access to natural gas pipelines use LNG that is transported in heavily insulated 10,000-gallon containers on a semi-trailer or by rail.

LNG is not toxic. Contact with the extreme low temperature of the liquid is its primary hazard to living organisms. The liquid is not likely to burn or explode. When exposed to air, LNG quickly becomes a vapor that burns readily, and may

burn explosively if sufficient vapor is present in the air.

The safety record for LNG storage tanks is good. They are double-walled and heavily insulated. It is extremely uncommon for double-walled oceangoing tankers, large stationary storage tanks or 10,000-gallon mobile transportation tanks

## LNG

Continued on Page 16

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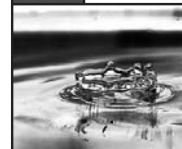
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# Collaborative effort underway by SRWMD, Rayonier on Brooks Sink

By ROY LAUGHLIN

A public-private partnership between the Suwannee River Water Management District and Rayonier Operating Co. LLC is working to restore historic water flows to Brooks Sink in Bradford County.

The goal of the project is to remove half-century-old ditching and drainage structures that diverted water from Brooks Sink. Drainage will be restored to the days when the sink had an approximately 1,000-acre wetland around it and water from the wetland drained through the sink into the Floridan Aquifer below.

In this region, the Floridan is a major water source for springs and helps maintain the water levels and flows of the Suwannee River.

When the Brooks Sink restoration is complete, approximately 220 million gallons per year of runoff, now drained to tidal waters, will be rerouted to the Floridan and follow its natural geological route to the Suwannee.

The project is remarkably simple and inexpensive, according to Abby Johnson in the Office of Communications at the district.

A flashboard riser will be constructed in a drainage ditch that will raise water lev-

els, causing the water to reverse flow and move toward the sink. The flashboard structure will control flows so that during periods of heavy rain, some water can still be drained by the existing route.

Michael Bell, director of economic development & public affairs at Rayonier, said that controlling water flow rates into the sinkhole will reduce erosion along its sides. Water does not fill the sinkhole to its berm, he said. The water levels vary and are sometimes 50-60 feet below land surface.

Unlike temporary dispersed water management projects in the state, this project will be permanent.

"We're committed to doing it for the long haul," Bell said. "There's no opportunity cost. Once we got through the permitting process, there was no permitting for flooding."

The land around the sink and its wetlands are a pine plantation, so the water flow project does not adversely affect Rayonier's use of the property.

Bell credited Brian Kaufman, a senior water resources engineer at SRWMD, with proposing the project following his LIDAR studies of the area's topography.

The district is paying for construction, operation and maintenance. "It is a creative and inexpensive public-private partner-

ship," said Bell in summing up the project.

The weir and riser board installation currently underway is Phase 1. In the future, additional ditches may be outfitted to divert more water to Brooks Sink. Those are months in the future, however.

The SRWMD established its first dispersed water management agreement in April, 2014. "The district has other dispersed water projects in the planning phase, including Phase 2 for Brooks Sink," said Johnson.

Dispersed water management projects in the district are helped in no small way by Rayonier and other large land owners that are supportive of the work.

"There are a lot of answers to solving Florida's land use problems because of the extensive forests," Bell said. "There are many low hanging fruit to solve problems. This one is a few thousand dollars for a very effective project."

"We're working with the district on another project to control flooding and help restore groundwater. There are lots of opportunities to work with water management districts."

This unique perspective will likely make a notable contribution to water supply and water quality initiatives associated with the Suwannee district's dispersed water management projects.

The new rules are expected to prohibit coal-burning plants that lack expensive carbon capture technology.

**Odebrecht USA receives award.** The EPA recognized Coral Gables' Odebrecht USA as one of its Small Business Partners of the Year.

Odebrecht is a design, engineering and construction company and a subsidiary of its Brazilian parent company, Odebrecht. It has been operating in Coral Gables since 1990.

Annually, the EPA WasteWise program gives awards in 15 categories based on company size, federal and local government agencies, college/university and non-profit status.

Odebrecht is the only EPA Region 4 WasteWise Program winner for 2014.

The agency's WasteWise program encourages organizations to minimize waste production in their operations, and to adopt sustainable technologies and materials. The awards are part of their efforts to recognize successful efforts in this endeavor.

**Walton County project receives award.** Walton County's Eden Gardens State Park Estuarine Shoreline Restoration Project received EPA's Five-Star and Urban Water Restoration Program Award.

The award recognizes exemplary watershed and stream restoration projects that play a significant role in improving public health, providing additional recreation opportunities and boosting local economies, according to Heather McTeer Tony, EPA's Region 4 administrator.

Walton County was the only project in Florida to receive this program's recognition in 2014.

The Five-Star and Urban Waters Program develops and supports community stewardship of local natural resources. Through this program the EPA funds projects to preserve natural resources and enhance habitat for local wildlife.

Addressing water quality issues and priority watersheds is a primary focus of the program.

The program is a partnership that includes EPA, the National Fish and Wildlife Foundation, the National Association of Counties, the Wildlife Habitat Council, the USDA Forest Service, U.S. Fish and Wildlife Service, the Corporation for National and Community Service, Southern Company, FedEx, Pacific Gas & Electric, PG&E, Alcoa Foundation and Bank of America.

To date, the program has funded more than 700 projects nationwide with more than \$13.3 million in grants that has leveraged an estimated \$56 million in other funds and donated services.

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FEDFILE From Page 2

oment of a watershed management plan."

For Biscayne Bay, NOAA scientists and resource managers will work to better understand water quality issues that could result in widespread loss of seagrass cover.

They will also work to restore, improve and protect fishery habitats.

Biscayne Bay has 145,000 acres of seagrass beds and fringing mangroves along most of its shoreline—habitats that are essential to commercially important species including grouper and snapper in their early life stages.

Many protected species including loggerhead sea turtles, green turtles, bottlenose dolphins and several threatened coral species also occur in Biscayne Bay.

In Puerto Rico, NOAA will continue its coral research aimed at protecting the ecological richness of the area that is vulnerable to impacts from development, land-based pollution, fishing and climate change.

The agency may also institute conservation projects, long-term monitoring and research activities, habitat mapping, and a training and education program.

The next step for both areas includes developing implementation plans.

**EPA delays power plant emission rules.** The EPA announced a delay in issuing carbon emission rules for power plants, noting that they identified additional issues that had to be considered in the rules for new and existing sources.

In so doing, the agency missed a legal deadline in early January to issue final rules for new power plants.

Janet McCabe, acting assistant administrator of EPA's Office of Air and Radiation, also noted that another rule to cut emissions from modified or existing plants will be delayed until mid-summer from its originally-scheduled early June date.

The agency's new rules are expected to reduce the use of coal, responsible for 40 percent of U.S. electricity generation, in favor of natural gas, renewable energy and increased energy efficiency.

The plan is expected to require states to cut power industry carbon dioxide emissions 30 percent by 2030, based on 2005 carbon dioxide emission levels.

McCabe said that the agency is drafting implementation plans for states that do not develop their own strategies to meet targets set by the agency.

In earlier discussions of the new rule, the agency noted that many power generating facilities have already made substantial progress toward meeting the guidelines that the agency expects to include in its final rule.

## UF study looks at nutrient enrichment potential of reuse water

By ROY LAUGHLIN

Over the past decade, Florida environmental regulators have implemented two major initiatives to conserve and protect water in Florida.

The first, treating wastewater for irrigation use—practiced for more than 20 years—has become pervasive.

According to the Florida Department of Environmental Protection, approximately 720 million gallons per day of reclaimed water was reused for beneficial purposes in 2013, and about half of that was for irrigation.

More recently, Florida adopted statewide numeric nutrient standards for surface waters. The goal is to manage nutrient inputs, especially those from stormwater runoff, so that surface waters do not become eutrophic.

Now, a new intersection is being explored between applications of reuse water for irrigation and the possibility that the nutrients in that reuse water could contribute to the nutrient enrichment of surface waters in an urban watershed.

A team of University of Florida investigators, led by then-graduate student Jinghua Fan and four UF faculty members including George J. Hochmuth II, professor of soil & water science, recently published an article that will be the first of three exploring the intersection of irrigation, adequate nutrition for turf grasses and leaching nutrients not used by turf grass.

Nitrogen was the focus of the first research report published by the team.

They found that two common turf grasses, Floratam St. Augustine grass and Empire Zoysia grass, needed about 5–6

mg/L of nitrogen per week for optimum growth under a controlled irrigation schedule.

In treatments receiving more nitrogen, up to 13 mg/L dissolved in irrigation water, the investigators found insignificant leaching of the nitrogen, even though the turf grass did not grow at a faster rate.

When they applied fertilizer as a dry material as in commercial products and equivalent to 13 mg/L in irrigation water, the leach rate from soil increased up to twice that observed in control plots.

Experimental controls consisted of tap water, which is very low in nutrients, and unamended reuse water from the UF wastewater treatment plant in Gainesville. Unamended reuse water contained, on average, 2.5 mg/L nitrogen.

The nutrient levels in unamended reuse water were not sufficient to optimize turf grass growth, defined as the rate of growth that did not increase significantly with an increase in fertilizer application.

According to Hockmuth, the experiments provide a proof of principle for a method to address the question of whether or not reuse water and its nutrients should be considered when developing an urban watershed fertilization model for managing nutrients in runoff.

### REUSE

Continued on Page 16

## Classifieds

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### PALM BAY

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PBUD conducts periodic smoke tests in areas where the sewer system experiences a higher than normal volume of water. Monitoring for escaping smoke assists staff in locating cracks, leaks and other problems.

"The utilities department sends letters to residents to inform them of any defects that are found on their property through smoke testing conducted in their area," said Barber. "The resident is asked to repair the defect within 60 days and notify the utilities department so that we can confirm that the repair has been made."

PBUD is also developing door hangers to notify residents of problems such as clean-out repair issues including damaged or missing sewer clean-out caps.

This year, PBUD will also utilize their resource action group-administered Water-Wise program to share information about best management practices for the disposal of fats, oils and grease, among other issues.

The program focuses on local fifth graders and is specifically based on water conservation. Each participant is provided with a water conservation kit and additional educational information.

"The program provides another opportunity for us to reach out and educate future leaders on the need to protect our local water and wastewater infrastructure as well as the environment," said Barber.

Related activities include increased K-12 and community outreach activities to promote water conservation and increase awareness about the importance of protecting sewer lines.

One of the promotional items the department will be providing is the utility's "FOG lid." The reusable can lid will encourage customers to "Cool it. Can it. Trash it." when disposing of fats, oils and grease.

PBUD also uses its website as a means to reach out and engage customers. The utility created pages that provide information to residents regarding the disposal of fats and oils, and continues to provide information to customers through their Facebook page and e-notification service.

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## REUSE From Page 15

And if so, how much consideration should those nutrients from reuse water be given?

"If the irrigation schedule is appropriate, then reuse water by itself is not likely to leach into runoff from turf," said Hockmuth, with qualifications.

But the nutrient concentration in the wastewater, unless amended and increased, will be insufficient to optimize turf grass growth.

Hockmuth noted that even unamended wastewater used for irrigation has the potential to contribute nutrients by leaching if the irrigation levels are too generous.

Then, increased mass loadings of nutrients above the assimilation capacity of the turf grasses cause nitrogen to leach from soils.

To further study the leaching potential, Hockmuth suggested performing similar experiments in replicated tests in ground. But at least as a scoping experiment, the results are useful and applicable.

Hockmuth related his research to the larger issue of using turf grass in landscaping.

"The proper management of turf is a hot item," he said. "It can be an environmentally beneficial plant in the landscape.

You get very little leaching when you control the irrigation rate."

His conclusion is that carefully substituting nutrients derived from wastewater and applied with irrigation water is beneficial to landscape plants including turf grasses.

Appropriate irrigation rates control nutrient leaching, and relying on nutrients in

## LNG From Page 13

to fail during normal use.

In the past two decades, the greatest hazards of LNG use resulted from fires and explosions due to failure of processing equipment and piping.

Tanker trucks carrying LNG similarly have good safety records except in cases of substantial collisions. The tanks themselves usually survive the collisions, but leaks in the piping may lead to fires and explosions.

In its public meetings in Brevard County, an FECCI spokesperson was well prepared to answer questions about its site plan in Titusville.

But Florida East Coast Industries, to this point, has been vague about the market for LNG produced at the plant.

Matt Davis, senior land use and environmental planner for the company, said

wastewater is an effective way to reduce the use and cost of synthetic fertilizers on urban watersheds and its leaching from soils.

Hockmuth said that a similar analysis of phosphorus in reuse water should be published soon, and a third, still in preparation, will consider the relationship between irrigation rates and leaching.

the plant is not being built to "shave" gas for resupply to the pipeline during periods of high demand.

FECCI has also been vague about financing and whether it will apply for public subsidies to build the facility.

## COUNCIL From Page 1

provisions for local government wastewater treatment plants, septic tanks, agricultural operations and others, that it died in the Florida House.

Simmons plans to introduce a new version of the bill to the committee for consideration during this year's session.

"It will have local governments working with the state Department of Environmental Protection and water management districts on plans to cleanup water in their jurisdictions," said Simmons.

Simmons said he expects any springs bill coming out of this session to look to Amendment 1 for funding.

Advocates for Amendment 1 said the criteria are not broad and that money should not go toward things such as expanding sewer systems to remove septic tanks based on the premise that they seep nitrates into springsheds and surrounding tributaries.

Knight's hope is that one clear springs voice will be loud enough to have an impact and that a sustainable management plan will be put into action to help the springs.

He expects the council's membership to expand as interest in and support for the future of Florida's springs increases.

"That's been very difficult to do in the past. And that's one reason we are setting up this group—so collective resources can be used when litigation is the only possible way to bring about restoration of a waterbody," said Knight. "But we're going to avoid litigation when we can."



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