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Volume 37, Number 5

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The G3 Group has developed a new below-ground visualization technology called the multi electrode resistivity implant technique that can produce a high resolution image of subsurface structures and conditions.

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The U.S. Department of the Interior issued long-awaited rules covering hydraulic fracturing on public lands.

Landfill shut down 14

An administrative law judge ruled that state regulators can revoke the operating permit of the Rolling Hills Construction & Demolition Debris Disposal Facility in Escambia County.

South Florida report 14

SFWMD and DEP released their "2015 South Florida Environmental Report" that detailed a year of science, engineering and environmental restoration progress to improve the Everglades, Lake Okeechobee, the Kissimmee Basin and South Florida coastal zones.

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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.

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FKAA to install deep well on Cudjoe Key

By BLANCHE HARDY, PG

After a lengthy hesitation and a flurry of lawsuits, the Florida Keys Aqueduct Authority Board of Directors voted in March to request funds from Monroe County to install a deep injection well at the Cudjoe Regional Wastewater Treatment Plant site on Cudjoe Key.

Then in mid-April, Monroe County Commissioners approved Amendment 9 to their agreement with FKAA adding \$7.1 million in additional funding for construction of the well.

The \$185-million Cudjoe advanced wastewater treatment facility is currently under construction and scheduled to begin hook-ups by early this summer.

Cudjoe is permitted to treat 0.94 million gallons of wastewater a day collected from 9,000 customers occupying the islands from Lower Sugarloaf Key to Big Pine Key.

The facility is the result of an interlocal agreement between FKAA and Monroe County and is projected to divert roughly 700 tons of primary pollutants and 115 tons of nutrients a year from discharge into near shore waters.

The implementation of wastewater collection has not, in itself, been an issue with local citizens. Opposition has

CUDJOE
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Photo courtesy of Custom Drilling Services Inc.

Driller Toby Hill and drill hand Tate Seger, both with Custom Drilling Services Inc. of Mulberry, take direct push soil samples near Cross City. The drilling industry is highlighted in this issue, starting below with our "state of the biz" report.

More changes ahead for DEP's Petroleum Restoration Program

By ROY LAUGHLIN

In March, the Florida Department of Environmental Protection announced several changes to the procurement process within the state Petroleum Restoration Program.

The first change is to directly assign natural attenuation monitoring to an agency term contractor for post active remedial monitoring.

This assignment can be made based on the ATC's acceptable prior performance at the site, and when a rehabilitation assignment has not already been made to another contractor.

The eQuote threshold for all site rehabilitation activities was increased to \$325,000 from \$195,000. State-funded tasks with costs above the new threshold will be procured by requesting an eQuote from all eligible ATC's, as has been the practice for the past two years.

Tasks with costs at or below the threshold will be initially assigned using the program's RCI algorithm, which has been modified as explained below. Staff at the PRP may make direct assignments for efforts below this threshold for a subsequent phase of site rehabilitation.

In its characterization of the new procedures, DEP said that changing the threshold "will help promote increased consistency by reducing the times when

contractors would have to change between subsequent jobs at a state-funded petroleum restoration site."

That should provide for less down time during contractor transitions and thus be more cost effective.

Contractors and DEP will also benefit because contractors become familiar with a site and its ongoing business activities that continue during site cleanup in most cases.

The DEP also modified its relative capacity algorithm. Exponents for the

bonding cap, encumbered balance and schedule ranking (pay and cost schedules) have been modified slightly.

The algorithm now includes a new factor in the equation, the invitation to negotiate scores or ITN, raised to an exponent of seven.

In the RCI used first, the schedule rank was the predominant factor influencing a high score because a schedule

PETROLEUM
Continued on Page 16

Drilling industry diversifies, downsizes in response to slowdown in PRP work

By PRAKASH GANDHI

Florida's environmental drilling companies have downsized and sought work in alternative markets as a result of reforms made to the state Petroleum Restoration Program that lead to a slowdown in workload.

"Business has dropped off significantly," said Ben Huss, owner of Huss Drilling Inc. in Dade City, when asked about the state of the drilling business in Florida. "We used to do quite a bit of preapproval work under the state (petroleum) cleanup program, but we hardly do any of it any more.

"If we do get work, people beat us up on prices. So it's hardly worth do-

ing anymore."

His opinion was echoed by others interviewed for this article. Most said that companies have had to find other types of work to stay busy due to slowdowns in the petroleum program.

Huss is concerned about the way the reform of the petroleum cleanup program has been handled.

"Nothing is being cleaned up," he said. "This was once a successful program that got the environment cleaned up and put people to work. But now, people are going out of business left and right."

DRILLERS
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BOEM funds offshore ecological research project

Staff report

The shores off Cape Canaveral contain a potential source of dredge material for beach renourishment. But before the Bureau of Ocean Energy Management allows sand removal there, it has funded a research project to characterize the area's habitat value to fish and invertebrates, and how ecological utilization might change with dredging.

The research team, employees of InoMedic Health Applications Inc., has contracts with both Kennedy Space Center and BOEM to study the shoals.

Investigators are tagging large fish such as sharks and large drum with surgically implanted acoustic transmitters. Smaller fish and other organisms will be tagged with external plastic streamers.

Sounds from the transmitters are sensed by a network of submerged receivers along the Atlantic Coast when the fish swim

within half a mile of them. The acoustic receiver network is part of a collaborative effort called the Florida Acoustic Cooperative Telemetry network, or FACT, and the Atlantic Cooperative Telemetry network, or ACT.

The data collected primarily illustrates the migration patterns of tagged animals. To date, the program has produced some unexpected findings.

Two black drum caught and surgically implanted with acoustic pingers in the Indian River Lagoon were later sensed in the Chesapeake Bay region. One of the two was later identified in New Jersey by its acoustic signal.

In the long term, researchers hope to better characterize how fish migratory

behavior indicates the shoals east of Cape Canaveral are important for breeding, schooling and other aspects of critical habitat. This information will better inform decisions about dredging sand from the shoals.

FACT and ACT are regional networks of acoustic receivers from South Florida to the Canadian Maritimes. Multiple small research projects give the network its "cooperative" characteristic. Each research group places, retrieves and downloads data from sensors.

The sensors may be moored on the ocean bottom or suspended from buoys. ACT began in 2004 and FACT later became part of the network. Currently, more than 80 scientists are using transmitters and sensors under the ACT aegis.

Since 2004, more than 9,000 acoustic transmitters have been implanted in fish drawn from more than 70 species.

The value of isolated wetlands. Isolated wetlands are important to the water quality of streams, rivers, lakes and estuaries because they retain sediments and carbon, transform nutrients and provide other ecological housekeeping processes that help maintain water quality in larger bodies of water.

Isolated wetlands include prairie pot-holes, playas in the Southwest U.S. and vernal pools. A number of isolated wetlands in Florida are disappearing each year due to the lack of legal protection.

The primary issue working against legal protection for isolated wetlands is that preservation decisions must be made one wetland at a time. They are not currently protected as "waters of the U.S.," which is the basis for protection and permitting under U.S. Environmental Protection Agency and U.S. Army Corps of Engineers regulations. Indiana University at Bloomington researchers recently released a report characterizing the extent of the loss of functional value associated with the loss of isolated wetlands.

The report noted that the accepted estimate of the loss of half of the isolated wetlands present in the U.S. over the past 250 years is a guess at best. It is only now that a good inventory of the remaining wetlands is being created.

Across the country, some regions have lost much more than the national average. As a result, five million to 150 million tons of sediment per year now enters surface waters. Carbon sequestration by wetlands has dropped by one million tons to 14 million tons per year.

The authors noted that as uncertain as these estimates are, they leave little doubt as to the huge losses of water quality protection to waters of the U.S.

The report's author characterize isolated wetlands' functions as critical to preservation of water quality, and their continued loss as seriously harmful to North American lakes, streams and rivers.

For this reason, they argue that isolated



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

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- Bioremediation
- Emerging/innovative technologies
- 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 abstracts 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.

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FPL plan to shut down coal-fired power plant will benefit customers, environment

Staff report

Florida Power & Light Co. requested permission from the Florida Public Service Commission to buy a coal-fired power generation plant. The utility wants to gradually shut it down to save money for both the utility and its customers.

FPL wants to buy the Cedar Bay Generating Plant in Jacksonville. The utility said it would save millions of dollars if it shuts down the coal-fired plant and would then pass along \$120 million a year in savings to its 4.7 million customers.

Shutting down Cedar Bay would halt the emission of nearly one million tons of carbon dioxide into Florida's atmosphere, according to the firm.

FPL told the PSC that its power generation facilities now use natural gas for the most part that produces electricity more cleanly than coal and is less expensive.

If it's allowed to buy the Cedar Bay plant, FPL would drastically reduce its output to about five percent for the next year or so.

By then, FPL's proposed natural gas pipeline may be pumping fuel into the state, allowing the company to shut down Cedar Bay for good.

Tallahassee solar. The city of Tallahassee is looking for companies interested in building a solar energy facility. City officials want to receive proposals in May for review.

Commissioners agreed with a staff recommendation to seek plans for a utility systems solar model. The city hopes to sign a long-term purchase power agreement with a third party that would build, own and manage the facility.

Under the plan, the city would negotiate an agreement to purchase the electricity.

Clean energy advocates have criticized Gov. Rick Scott's administration for its stance on solar power production.

Floridians for Solar Choice has launched a petition drive for a constitutional amendment to remove state- and utility-imposed barriers to the sale of local solar power.

About 99 percent of Tallahassee's energy is generated by natural gas. It is estimated that the proposed 10-megawatt photo voltaic plant would produce about one percent of the daily electricity needed or enough power for 1,200 households per year.

The city of Tallahassee has 116,000 utility customers.

Sand mine voted down. In early May, commissioners in Lake County rejected a controversial sand mine project.

CEMEX proposed to build the mine in the Four Corners area south of Clermont and northwest of Walt Disney World.

County staff recommended that commissioners approve the mine despite fierce opposition from local residents.

CEMEX may choose to resubmit its application, but it could not be considered for another year.

Clermont Mayor Gail Ash urged commissioners not to approve the project, saying the plans would clash with Wellness Way, an area in Four Corners that officials hope to develop into an entertainment, recreation and shopping district.

Miami park reopened. The city of Miami reopened Merrie Christmas Park two years after it was closed to address heavy metal soil contamination.

Cleanup of the park at South LeJeune Road and Barbarrosa Avenue included installing clean fill material.

The playground was also refurbished and new sidewalks were installed. The total cost of the project was \$1.2 million.

DEP enforcement action. The Florida Department of Environmental Protection initiated an enforcement action against Thatcher Chemical of Florida after inspec-

tions at two of its facilities showed problems including contaminated soil.

At Thatcher Chemical's Palmetto site, inspectors found discharges of pollutants on the ground and in the stormwater management system near the facility.

At the DeLand site, the department said the company buried 100,000 to 200,000 pounds of ferric sulfate sludge in a wooded area.

Thatcher, a chemical manufacturer with locations nationwide, will be hit with civil penalties of over \$230,000 and be required to take the necessary corrective actions.

Office openings. United Water opened a new office in Miami-Dade County to explore business opportunities in southern Florida.

The opening is part of United Water's broader plan to bring environmental services to municipalities faced with increased environmental and economic demands on their drinking water and wastewater treatment systems.

Universal Engineering Sciences announced the opening of their first satellite office in St. Petersburg. The new office expands their number of branch offices to 18 in Florida and two in Georgia.

The UES St. Pete office will handle general engineering including an emphasis on geotechnical and materials testing.

People news. Evangeline Cummings, a current director with the U.S. Environmental Protection Agency, has been named assistant provost and director of UF Online, the University of Florida's online bachelor's degrees and programs.

She will assume her new position on July 1.

Cummings has worked with EPA since 1999 in several roles, including special assistant to the agency's chief information officer.

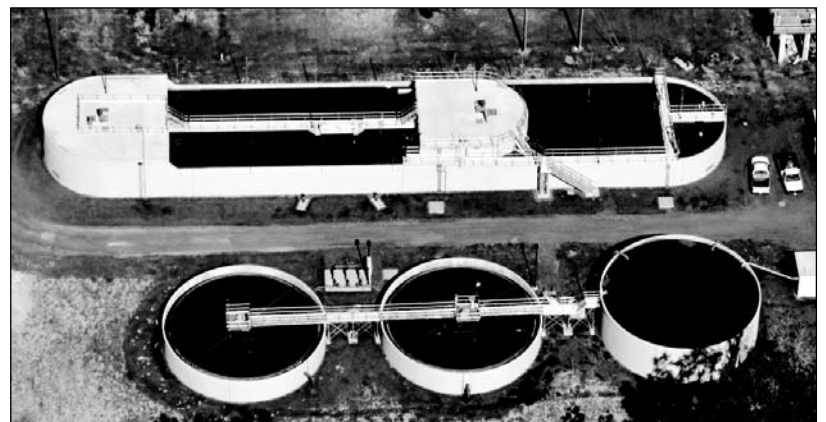
Todd Romero has joined Advanced Environmental Services Inc. as lab manager in their Gainesville office. He most recently worked with KB Labs Inc. in Gainesville.

Florida Notes

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New study identifies, quantifies ecological benefits of wetlands along St. Johns River

Staff report

What's the value of the ecological benefits provided by the wetlands and marches along the St. Johns River? A partial tally indicates at least \$122 billion for nitrogen removal, and \$400 million for phosphorus removal.

The natural systems also provide \$3 billion worth of flood protection and boost property values in the area.

Those are the estimated values and benefits noted in a recently completed report by the University of North Florida for the St. Johns River Water Management District.

The district contracted the study to better understand the economics of a decade-old policy of steering water utilities toward withdrawing more surface water from the St. Johns as an alternative source to tapping the Floridan Aquifer.

Annual surface water withdrawals are currently valued at \$70 million. Groundwater withdrawals for public drinking water utilities are worth much more, exceeding \$420 million annually.

If and when additional withdrawals from the St. Johns River occur, phosphorus and nitrogen removal processes performed by area wetlands may increase in

value.

The public often has no clue that the natural landscape provides extremely valuable nutrient reduction capabilities until the marshes and wetlands are gone, often irreplaceably.

A spokesman for the University of North Florida said that the marshes along the St. Johns River—at least some of them—may be at a tipping point as far as their ecological capabilities for water purification.

Should further natural system losses occur, state residents who depend on the St. Johns for water will pay billions more for nutrient reduction technologies.

Restoration project in Polk. With a DEP permit in hand, the South Florida Water Management District is poised to begin the first phase of the Rolling Meadows Restoration Project in eastern Polk County.

The project will restore approximately 2,000 acres of natural wetland habitat, reconnect hydrologic flows to Lake Hatchineha and restore water flows to the Kissimmee River—all of which will benefit water quality in the Lake Okeechobee basin.

The Rolling Meadows Restoration Project is the first new restoration project permitted within the Lake Okeechobee

basin management action plan.

The plan was approved last December.

A primary goal of that plan is to reduce phosphorus flows into Lake Okeechobee.

The project will also provide additional water storage north of Lake Okeechobee, a benefit seen as increasingly necessary in the past couple of years.

The Rolling Meadows project is on a 5,800-acre property that borders Lake Hatchineha and Catfish Creek.

It is part of the federally authorized Kissimmee Headwaters Revitalization Project and the larger Kissimmee River Restoration Project.

These projects are jointly funded by the U.S. Army Corps of Engineers and the SFWMD.

Construction is scheduled for May 2015 through July 2016.

Port St. Joe dredging. The Florida Department of Environmental Protection issued a permit to the U.S. Army Corps of Engineers allowing dredging of a ship channel from the Gulf of Mexico to Port St. Joe in Gulf County.

The permit authorizes ship channel dredging to a depth of 34-36 feet.

This is the final permit needed; dredging can now begin.

DEP also issued a permit for the dredge spoil disposal site. It will accommodate approximately five million cubic yards of dredge sediment.

The permitting process lasted approximately 18 months for the final two parts of the project.

With permitting now complete, the next steps involve construction of the spoil disposal site and contracting for the dredging work.

The start of dredging is still about a half year away and is expected to be completed six months after commencing.

Some channel dredging has already occurred, so the dredging remaining will complete the planned ship channel.

Dredging is budgeted for \$40 million. The dredge spoil site will cost \$15 million. State sources may fund at least part of the cost of the dredge spoil facility.

Wetland enforcement in Pensacola. Mohamad Mikhchi, a property owner in Pensacola, will be required to restore more than six acres of wetlands that DEP said was illegally cleared and dredged.

Mikhchi is the owner and manager of the Westpointe Retirement Community, an assisted living facility adjacent to the wetlands in question.

Mikhchi purchased the acreage about two years ago and subsequently had 30-40 trees cleared from the property, a pond dredged and a retaining wall constructed.

Last October, a Florida Fish and Wildlife Conservation Commission patrol officer noticed the land clearing efforts. That initiated an investigation and enforcement action by DEP officials.

A DEP report noted several discrepancies between statements made by Mikhchi to justify his actions and statements made by his neighbors, and the characteristics of the wetland shown on maps drawn before the recent clearing of the site.

DEP is requiring Westpointe to submit a professionally prepared restoration plan, most of which deals with regrading the land to remove the pond.

Additional efforts such as replanting trees may be part of the restoration plan.

The agency has not yet made a decision about the level of fines.

SRWMD cost-share awards. For the fourth time since 2012, the Suwannee River Water Management District awarded a total of \$1.5 million to municipalities and other local government entities to fund projects and activities that improve water supply and water quality within its district.

This year's Regional Initiative Valuing Environmental Resources and Cooperative Program recipients are the cities of Alachua, Archer, Live Oak and Jasper; the towns of Mayo, Trenton, Branford and Jennings; Dixie County; Levy County; Madison County; Taylor County; and the Big Bend Water Authority.

The funded projects include wastewater facility improvements, work to prevent the potential discharge of wastewater into receiving waters during flood events, and removal of a substantial number of septic tanks to significantly reduce nutrient leaching.

The district's governing board authorized the awards in March during its regular monthly meeting.

New Palm Coast wastewater plant. The city council of Palm Coast approved the construction of a new wastewater treatment facility expected to cost over \$30 million.

Construction is expected to be completed in 2018, about the time the current wastewater facility will reach its capacity due to population growth.

Plans call for the plant to be constructed in phases beginning in 2016.

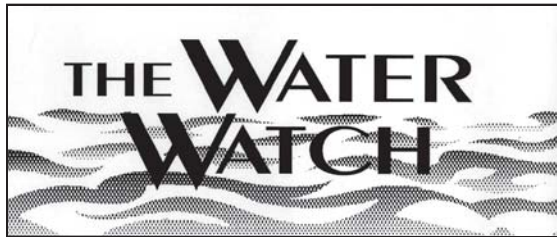
The construction will add an additional two million gallons per day of treatment capacity.

As demand increases due to the anticipated level of population growth, the wastewater facility could be expanded to a capacity of six mgd.


Palm Coast will finance construction with funds borrowed from the state revolving loan program.

The interest rate will be 0.83 percent with an annual repayment of \$1.7 million.

The city expects to handle loan repayment without raising utility rates beyond the annual inflation adjustments already programmed into utility bills.




WATCH
Continued on Page 5



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WATCH
From Page 4

Flagler Beach plant upgrade. Like other cities in Florida, Flagler Beach is considering upgrading its wastewater treatment plant capabilities and capacity.

The city had planned to upgrade its plant several years ago but the recession intervened, and both the funding and justification waned.

Recent population growth, although slower than during the boom period, has resumed.

If the legislature approves the use of funds from last year's Amendment 1 for wastewater treatment plant construction, the city is likely to apply for it.

More money for Cape Coral projects. The Florida Department of Environmental Protection approved an additional \$14 million loan to the city of Cape Coral to underwrite water projects there.

The projects will provide potable water and municipal sewer services to about 5,200 residential lots currently on septic tanks and drinking water wells.

The loan will help the city purchase pumping stations and other treatment equipment. More than 700,000 feet of irrigation and wastewater lines will be installed.

The city and the South Florida Water Management District are currently engaged in a 25-year water supply and pollution control program.

So far, the state's revolving loan program has provided \$71 million to the city to expand and improve its drinking water system and wastewater treatment plant, and to reduce overall freshwater withdrawals by expanding its water reuse system for landscape irrigation.

Cape Coral began the planning phase for this work in June, 2014. It has contracted with Tetra Tech for construction, engineering and inspection services.

Construction should be completed by the end of the year.

Indian River seagrass mapping. Seagrass beds in the Indian River will be mapped later this year.

The effort is a joint project between the St. Johns River Water Management District, the South Florida Water Management District and the Florida Department of Environmental Protection.

The projected total cost is \$304,000. SJRWMD will contribute the lion's share, \$152,000. DEP will provide \$102,000 and SFWMD will pay \$50,000.

This mapping exercise is an important one. The 2011 seagrass survey showed a loss of 47,000 acres of seagrass. That loss was attributed to two algal blooms in the lagoon's northern and central reaches.

Following that massively destructive event, a basin management action plan was finalized for nitrogen and phosphorus reduction.

The most recent seagrass survey indicated a 12 percent recovery rate for seagrass beds. A follow-up study of specific sites in 2014 showed no loss of seagrass at 52 of 69 study sites in the lagoon.

But that finding was not all good. Seagrass beds typically lost grass at both their shallow and deep margins.

Rules restricting fertilizer use, stormwater runoff and, in some cases, reductions in septic tank use have now been in effect for as long as two years along some segments of the lagoon.

The upcoming survey may reflect some good news—that these efforts have resulted in a significant return of the seagrass beds.

Pump construction at C-44. In early March, the governing board of the South Florida Water Management District, approved construction of a pumping station to move water between the C-44 Canal and the C-44 reservoir and stormwater treatment area.

The reservoir will store and treat surface water before releasing it to the St. Lucie River and Estuary.

The construction project includes a 21,000-square-foot, three-story building. It will house four remotely operated elec-

tric pumps capable of moving up to 1,100 cubic feet of water per second from the C-44 Canal to the reservoir.

Harry Pepper and Associates Inc. was awarded the construction contract.

Completion date is scheduled for September 2018.

The 3,400-acre reservoir with a capacity to hold about 16 billion gallons of water will include a stormwater treatment area that uses aquatic vegetation to sequester nutrients before the water is released to the St. Lucie River.

Last summer, the SFWMD forged an agreement with the U.S. Army Corps of Engineers to assume responsibility for construction, a change intended to expedite completion of the pumping station and part of the discharge canal.

In August last year, SFWMD awarded a \$5.4-million contract for spillway construction, a single point of water flow from the 3,400-acre property.

Even before the pumping station becomes operational, the spillway allows stormwater retention on approximately 7,000 of the site's 12,000 acres.

In September last year, the board approved a \$101 million contract for construction of the stormwater treatment area on the site.

Orange County water reclamation expansion. Orange County is about halfway through a major expansion of its Eastern Water Reclamation Facility, Phase V of the project.

The expansion will increase treatment capacity by 20 percent.

When completed, the facility will have a new preliminary treatment structure, additional disk filters plus additional chlorine contact chambers, a new dewatering facility and expanded effluent pump station.

The county obtained an additional \$30 million loan from DEP's Clean Water State Revolving Fund Loan Program. That brings to \$58 million the total in loans Orange County has received from the fund to expand the facility.

Preplanning began in 2013. The construction project is expected to be complete by May 2018.

The expansion's benefits include protecting drinking water supplies, reducing the impacts of wastewater on receiving streams, work for the local construction industry and specifying domestically manufactured components in construction.

Lake Worth Lagoon Initiative. State and local governments have committed over \$4 million to the Lake Worth Lagoon Initiative.

The funding will be used to restore seagrass beds, mangroves and oyster reef habitats, along with the construction of

stormwater control projects.

It will also support coastal monitoring efforts to assess Lake Worth Lagoon's environmental health and water quality, and to document construction projects along the lagoon's shoreline.

The grant funds will specifically support the following projects that are already underway: expansion of artificial reef projects in the Peanut Island Reef Complex; the Grassy Flats Restoration Project that will reestablish more than 12 acres of seagrass mangrove salt marsh and oyster habitat in degraded lagoon areas; the Living Shoreline Projects in West Palm Beach that will create new mangroves, cord grass and oyster reef habitats; and, lastly, various monitoring projects that will assess the

progress of the remediation and restoration projects.

The major ecological benefits of these efforts include providing habitat refuge during periods of high freshwater inflows to the lagoon, and mitigation of erosion due to waves and boat wakes along the lagoon's shorelines.

The Lake Worth Lagoon Initiative is a collaboration that includes the Florida Department of Environmental Protection, Palm Beach County, the South Florida Water Management District and the Florida League of Cities.

The program has received more than \$17 million in state funds and \$59 million in local funds for use in restoring the Lake Worth Lagoon.

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Company name / Contact information	EMR rate	Years in biz	Total staff / Staff in FL	Services / Capabilities	Equipment / Tools							1) Other services 2) Firm's specialty 3) Specialty business designations 4) Other equipment/tools 5) Areas served in Florida <small>Note: NA = No Answer</small>	
					Hollow stem auger	Air/mud rotary	Dual rotary	Sonic	Direct push	Diamond coring	Cone penetration testing		
Ambient Technologies 4610 Central Ave. St. Petersburg, FL 33711 (727) 328-0268 Fax: (727) 328-2477 Carlos Lemos, President info@ambienttech.com www.ambienttech.com	0.7	22	32/23	Environmental & geotechnical drilling, (Florida and Central America); rock coring (Central America); concrete coring and drilling. Instrument Installation in borehole, dewatering	■	■			■	■			1) Central America office in Panama 2) Excellent safety record 3) MBE, SDB, DBE 4) Utility locate capabilities and surveying 5) Serves Central Florida
Cascade Drilling LP 6424 Pinecastle Blvd., Suite D Orlando, FL 32809 (206) 396-1561 Brian Gose, Regional Manager bgose@cascaedrilling.com www.cascadedrilling.com	0.73	26	550/35	Nation's largest env. drilling contractor; 24 locations. Rota-sonic, direct push (DPT) and auger drilling equipment. Direct sensing and subsurface profiling with ZEBRA Technologies and Vironex subsidiaries. Experienced with injection for site remediation.	■	■		■	■	■	■		1) Waste handling/management 2) Sonic: smallest to full size; DPT: remedial injection, direct imaging, sampling; auger & rotary 3) NA 4) Air/water knife, vacuum extraction 5) Serves entire state
Custom Drilling Services Inc. 100 Kid Ellis Rd. Mulberry, FL 33860 (863) 425-9600 Fax: (863) 425-9620 Michael Johnson, Drilling Services Mgr. mdjohnson@customdrilling.net www.customdrilling.net	1.0	25	33/33	Environmental drilling: DPT services	■	■			■	■			1) Well abandonment 2) NA 3) NA 4) NA 5) Serves entire state
Earth Tech Drilling 2703 NW 19th St. Pompano Beach, FL 33069 (954) 974-2424 Fax: (954) 974-2423 Bob Orlando, President borlando@earthtechdrilling.com www.earthtechdrilling.com	0.93	13	9/9	Environmental and geotechnical drilling	■	■	■	■	■	■			1) NA 2) Quality, safe environmental drilling 3) SBE 4) NA 5) Serves entire state
Ellis & Associates Inc. 7064 Davis Creek Road Jacksonville, FL 32256 (904) 880-0960 Fax: (904) 880-0970 Michael Lithman, PE, Executive VP m.lithman@ellisassoc.com www.ellisassoc.com	NA	45	72/68	Geotechnical and environmental drilling services, consulting engineers and scientists; drilling capabilities include difficult access sites and overwater drilling (EB998; GB 265)	■	■			■	■	■		1) Falling head permeability test, double ring infiltrometer test, drawdown modeling, dilatometer soundings 2) Geotechnical engineering, construction materials testing & inspection, and environmental engineering/consulting 3) NA 4) All terrain and floating equipment 5) Serves state of Florida and coastal Georgia
Environmental Drilling Service Inc. 4712 Old Winter Garden Rd. Orlando, FL 32811 (407) 295-3532 Fax: (407) 296-3957 Doug Leonhardt, President doug@edsenvironmental.com www.edsenvironmental.com	NA	26	10/10	Sonic, DPT, hollow stem auger, mud/air rotary drilling, sampling and well installation	■	■			■	■	■		1) We assist consultants and contractors with in-situ remediation using chemical injection, air/biosparge, vapor extraction point installation, pumping and mixing 2) NA 3) NA 4) NA 5) Serves entire state
EnviroTek 3007 N. 50th St. Tampa, FL 33619 (813) 909-0040 Fax: (813) 909-0042 Shane Billings, Business Development sbillings@envirotek.com www.envirotek.com	0.89	22	31/31	Geoprobe and drilling services including small diameter wells (1/2" - 1 1/2" dia.), conventional wells (2" and 4" dia.), injection wells, dewatering wells and dewatering system installation, directional borings, air sparge wells, SVE wells and well abandonment. Now providing LDA source removals.	■	■			■				1) Remediation product injections, soil stabilization 2) Direct push technology and injection services 3) NA 4) Geotech SPTs, large diameter auger deep source removals 5) Serves entire state
Geologic & Environmental Testing 2509 Success Dr., Suite 1 Odessa, FL 33556 (727) 376-7833 Fax: (727) 376-7433 David Harro, PG, Professional Geologist david.harro@geo3group.com	NA	16	5/5	Geotechnical and environmental drilling	■	■			■				1) Geophysics 2) Geotechnical, environmental 3) WBE, FDOT certified DBE 4) NA 5) Serves Central Florida
Groundwater Protection 2300 Silver Star Rd. Orlando, FL 32804 (407) 426-7885 Fax: (407) 206-0856 Brian Shutts, Owner brian@drillprollc.com www.groundwaterprotection.com	0.69	29	32/32	Monitoring and remediation well installation; injection and well abandonment services; horizontal well installation. Auger, DPT, Sonic, angle drilling	■	■			■	■			1) Remediation systems, injection 2) Sonic, difficult access/low clearance angled wells 3) Certified small business, FL Water Well Contractor, NC/SC Water Well Contractor, Bonded in GA 4) Well abandonment 5) Serves entire state and Southeast U.S.
Huss Drilling Inc. 35920 State Road 52 Dade City, FL 33525 (352) 567-9500 Fax: (352) 567-6646 Ben Huss, Owner ben@hussdrilling.com www.hussdrilling.com	0.74	25	24/24	Environmental, geotechnical, exploration and water resource drilling services	■	■			■	■	■		1) Well rehabilitation 2) Environmental, geotechnical and exploration drilling 3) NA 4) ATV rigs, barge rigs 5) Serves Central, NE and NW Florida
JAEE Environmental Services Inc. 3010 Peachtree Cir. Davie, FL 33328 (954) 476-8333 Fax: (954) 476-8347 Willie Smitherman, President jaee@bellsouth.net www.jaeeenv.com	0.96	24	11/11	Soil and groundwater sampling, installation of monitoring wells, well abandonment, bioremediation injection	■				■				1) Bio-injecting, well abandonment 2) Sampling using Geoprobe equipment 3) Water well contractor 4) NA 5) Serves entire state

New underground modeling tool offers advantages to existing technologies

By ROY LAUGHLIN

The G3 Group of Tampa has developed a new below-ground visualization technology called the multi electrode resistivity implant technique, or MERIT.

David Harro, director of geologic services with G3, said that MERIT's fundamental technology is measurement of electrical resistivity in the ground around an array of electrodes.

MERIT, according to Harro, is an improved technology for several reasons. First, it uses a linear array of electrodes. Up to 112 electrodes may be used in one array, half at the surface and the other half down to a maximum of 1,000 feet.

Electrodes are implanted by direct push. Harro said it takes several hours to install 14 shallow electrodes. Borehole wells are not necessary.

He noted that using electrical resistivity to image below-ground features is practiced by others but said, "We have a better method of using it."

He noted that G3's major contribution is its patent pending algorithm that massages data from a linear array of up to 112 electrodes to produce a high resolution image of subsurface structure.

This algorithm's development has been in progress for more than two years, and involves an international research team including Harro; Dr. Sarah Kruse, a University of South Florida doctoral candidate; Henok Kiflu, a USF graduate student; Dr. Paul Wilkinson of the British Geological Survey; and Dr. Menghenge H. Loke of Malaysia, one of the world's foremost authorities on electrical resistivity measurement and interpretation.

Where competing techniques can provide 200 points at a given site, MERIT is capable of generating up to 1,000.

The result is a three-dimensional higher resolution characterization of subsurface

soil structure than can be provided by other techniques. Harro compared the technology to a medical CAT scan.

In addition to touting MERIT's capabilities, he noted that it is less expensive because the electrodes are hammered in rather than installed down boreholes.

The electrodes can stay in place for up to 40 years, making possible the continuous monitoring of structures such as dams or salt intrusion in an aquifer.

Potentially, the system could be used to evaluate soil for the presence of

DNAPL, the movement of plumes from or through a contaminated site, subsurface characterization of sinkholes and flow channels.

For bioremediation efforts that involve injection of a conductive reagent, the MERIT system can provide a highly detailed characterization of the reagent's flow after injection.

MERIT can also be used to do identify concrete and metal components of infrastructure, such as a bridge foundation.

Harro noted that the technique couldn't

reliably identify a two-inch pipe, but it could identify a larger sewage main, for example.

A typical site determination for a sinkhole, for example, takes a couple of days. Hammering in electrodes may take several hours, and taking measurements from them may then take a few hours.

The results, a three-dimensional representation of the subsurface structure, can

MERIT
Continued on Page 15



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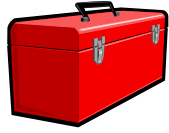
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					Hollow stem auger Air/mud rotary Dual rotary Sonic Direct push Diamond coring Cone penetration testing	Note: NA = No Answer
Preferred Drilling Solutions Inc. 11747 87th St. N. Largo, FL 33773 (727) 561-7477 Fax: (727) 561-9028 Chad Campbell, President chad@pdsflorida.com www.pdsflorida.com	0.81	13	38/38	Environmental drilling, direct push and remediation services. Statewide service with three locations in Florida	■ ■ ■	1) Remediation services 2) Environmental services provider with focus on safety, quality and service 3) NA 4) NA 5) Serves entire state
SMW GeoSciences Inc. 668 N. Orlando Ave., Suite 1009A Maitland, FL 32751 (407) 426-2836 Deborah Swan, Office Manager smwhitaker@smwgeosciences.com www.smwgeosciences.com	NA	13	6/6	Environmental drilling and wetlands monitoring wells. Geoprobe with narrow entry and limited close quarters capabilities, macro-coring, discrete water sampling, piezometers. Well design and construction oversight. Large public supply and geothermal	■	1) A) Env. assessments, water quality sampling, water level monitoring, APTs, water resources management, WMD/DEP permitting; B) Well abandonments 2) Hydrogeological investigative services 3) M/WBE 4) NA 5) Serves entire state
Terra Sonic International Drilling Services Division 2401 Clark St., Unit 2 Apopka, FL 32703 (407) 730-9853 Fax: (407) 730-9858 David Boggs, Manager dab@terrasonicinternational.com www.terrasonicinternational.com	<1	3	10/10	Sonic drilling in all applications, tracked DPT	■ ■ ■ ■	1) Remedial injections, well abandonments, tech work 2) Sonic drilling 3) SBE 4) DPT 5) Serves entire Southeast U.S.
Universal Engineering Sciences Inc. 3532 Maggie Blvd. Orlando, FL 32811 (407) 423-0504 Fax: (407) 423-3106 Gwen Viglione, Marketing Coordinator getinfo@universaleengineering.com www.universaleengineering.com	.84	51	480/465	Drilling, engineering design & consulting, code compliance plan review & inspection, materials testing/quality assurance, site assessment & remediation	■ ■ ■	1) Haz materials assessment & remediation, sinkhole assessment & remediation 2) Geotechnical engineering & testing, soil borings, monitor wells 3) NA 4) NA 5) Serves entire state from 15 offices
ZEBRA Technical Services 1020 S. 82nd St. Tampa, FL 36619 (813) 626-1717 Fax: (813) 626-1718 Mike Early, Branch Manager mikee@zebratechservices.com www.teamzebra.com	0.75	22	15	All aspects of DPT drilling and sampling, injections, well installations and direct sensing data collection. Fleet of over 30 DPT units including the newest Geoprobe® 7822 and 8040 models.	■ ■ ■ ■ ■ ■	1) UVOST/LIF technology 2) DPT: Soil sampling; groundwater sampling; in-situ injections and installations; direct sensing: MIP, HPT, MiHPT, HPT-GW, CPT, EC; well installation services including prepacked screens, soil vapor implants; conventional drilling services 3) NAICS 562910 & WOSB 4) Chem-Ox and bioremediation injections; site conceptual modeling-2D and 3D visualizations; triads-direct sampling ion mass spectrometer (DSITMS) 5) Serves entire state and Southeast U.S.



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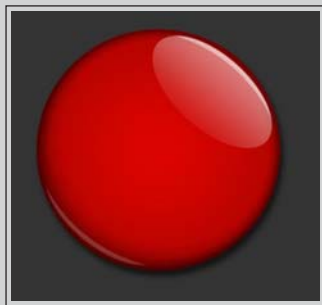
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Potential contamination shuts down Chipley drinking water wells

By **BLANCHE HARDY, PG**

In March, the Chipley City Council approved an agreement with the Florida Department of Environmental Protection to abandon two potable water supply wells—City Well and the Blackburn Well.

Both drinking water wells are active but considered “imminent threat” sites by regulators due to their potential to be impacted by petroleum-contaminated groundwater in the immediate vicinity.

Funding to assist well abandonment, as well as other improvements planned for the city’s water supply system, is being provided by a DEP grant.

“Contamination is not in the drinking water well at this time,” said Dan Miner, city administrator for Chipley. “It has, however, reached monitoring test wells that have been drilled in the immediate area. Contamination hasn’t reached the depth at which our water well is drilled.”

Miner said that leaking underground fuel storage tanks were the source of the contamination.

“There was also a cleanup completed on a dry cleaner property adjacent to the property,” he added.

“Contamination was initially reported across the street to the north and east of the public supply well in November of 1988 and confirmed in July 2000 and July 2001,” said Jodi Marsden, operations manager with Advanced Environmental Technologies LLC and a consultant for the city. “At that time, both properties were occupied by retail gas stations.”

According to a time-line provided by Marsden, shallow contamination was initially detected, but didn’t persist, on the public supply well property in June 2007.

Contaminants were detected in a deeper zone “within the same water-bearing zone as the public supply well” in September 2012, Marsden said.

“Contamination at 100 feet below land surface was identified across Highway 77 in August 2010, and on the public supply well property in August 2013. No monitor wells deeper than 100 feet have been installed to date.”

The producing zone of the public supply water well is 120-147 feet below land surface.

Two efforts to mitigate the contamination have been undertaken, but contaminants continue to leech back into the soils and groundwater underlying the site.

“There is much contamination under U.S. 90 and State Road 77 that can’t be mitigated,” Miner said.

“Significant soil contamination was confirmed beneath the Highway 90 right-of-way in March 2012 and continues to act as a source for groundwater contamination on the adjacent properties,” said Marsden. “The area of Highway 90 assessed in 2012 indicated soil contamination above state standards in an area approximately 3,600 square feet extending to a depth of 40 feet below land surface, where the limestone aquifer was encountered. Soil assessment has not been conducted beneath the Highway 77 right-of-way to date.”

DEP is helping the city develop a replacement water supply with a \$1.3 million grant that the city will combine with a \$440,000 grant provided by the Northwest Florida Water Management District to install a new drinking water supply well.

The grant will allow the city to extend water main conveyance and complete associated infrastructure improvements along the Interstate 10 corridor.

“We are being proactive in our approach by reducing or eliminating the possibility of our potable water wells being impacted by the contamination,” Miner said.

The new city water well is currently under design and should be in place within the next 18-24 months.

Deltona nears completion of WWTP

By **PRAKASH GANDHI**

The city of Deltona is building a new \$25 million wastewater treatment plant on its east side to deal with rapid growth there.

The new plant is being built at the site of the existing facility. That plant was constructed in 1962 and is nearing capacity, said Lee Lopez, a spokesperson for the city.

“Without a new wastewater treatment

plant, the opportunities for commercial growth in Deltona were extremely limited,” Lopez said. “Also, sanitary sewer services are available in limited areas, and the new facility will provide (those services) for the eastern half of the city.”

Officials say two-thirds of the plant has already been completed. The facility will nearly double the city’s current capacity to treat wastewater.

It will have the capacity to treat 1.5 million gallons a day and can ultimately be expanded to 4.5 mgd.

Groundbreaking on the new plant occurred in October 2013 with substantial completion expected by September this year, Lopez said.

The facility will be online in October. It is being funded through a 20-year state revolving fund loan from the Florida Department of Environmental Protection.

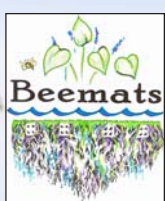
The plant will handle between 22,500 and 26,000 equivalent residential connections, Lopez said.

“The new plant will allow the city to serve new development with sanitary sewer services, rather than by septic tank installations,” he added. “This will result in more reclaimed water being available for irrigation purposes and potable water supplies being conserved and in groundwater withdrawals from the Upper Floridan aquifer being reduced, thus conserving that resource.”

The new facility will use a cyclone processor to mill out a dry fertilizer that carries no odor.

The remaining liquid will flow into one of the tanks for treatment, producing recycled water that will be stored onsite before being transmitted through pipelines across the city.

About four in five Deltona homes are not connected to central sewers. In recent years, septic tanks have been blamed for the contamination of many springs and waterways in the state.



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Department of Interior issues new regulations for fracking on public lands

By ROY LAUGHLIN

In March, the U.S. Department of the Interior issued long-awaited rules covering hydraulic fracturing on public lands.

Well drillers subject to the new regulations will be required to submit detailed information about the well's geology, depth and location of preexisting wells so that the Bureau of Land Management can evaluate site characteristics and avoid the possibility of cross-well contamination with chemicals and fracking fluids.

Well drillers must install strong cement barriers between the well bore and water zones, and demonstrate the barrier's integrity. Federal inspectors will be able to inspect those wells to verify the integrity of the barrier between borehole and casing.

Additionally, wastewater from fracking operations must be stored in rigid aboveground tanks. Well drillers will be required to publicly disclose the chemicals they use within 30 days of completing fracking operations using the WebFocus website.

However, they will not be required to disclose proprietary formulations. The determination of what is proprietary remains with the drillers and chemical providers.

In addition, BLM has new provisions

to limit gas and oil leasing to protect sensitive environmental lands.

The new fracking rules do not include setback requirements between homes and schools. There is also no requirement for monitoring drinking water sources before and after drilling. And well drillers are not required to disclose chemicals that they're using before they are pumped underground during fracking.

Methane emissions from fracked wells will be the subject of future rulemaking. The U.S. Environmental Protection Agency already has rules for handling fugitive emissions of methane and other gases. States are free to impose stricter regulations within their own boundaries.

By far, the vast majority of fracked wells is on private lands and yields most of the gas and oil produced by fracking.

DOI noted that more than 100,000 oil and gas wells are on federal lands. More than 90 percent of active wells are fracked wells, which produce 14 percent of the country's natural gas and 5 percent of its oil.

Before the recent drop in oil and gas prices, BLM received 5,000 drilling permits per year, and already 32 million acres of public land are leased for oil and gas production.

The federal government estimates that about a quarter of all shale reserves are on public land, so even though these rules do not apply to fracking on private lands, their influence is likely to be significant across the board.

The U.S. Energy Information Administration estimated that compliance costs will be less than 0.025 percent of the cost of drilling a fracked well.

DOI spent four years developing this rule and said that the proposed regs received more than 1.5 million public comments, more than half them asking DOI to ban fracking on public lands.

Pennsylvania has banned fracking on state lands, and Ohio is expected to follow suit with a bill that bans fracking from the surface but allows fracking as long as the surface is not disturbed.

The new rules will go into effect by July 1, 2015. Maybe. The Independent Petroleum Association of America filed a lawsuit as soon as DOI released its final rule, asking the court to set aside the new rule.

In Florida, federal lands potentially subject to fracking under these new regulations include the Big Cypress Swamp, the Everglades, and the islands in the Gulf of Mexico along the Panhandle.

Sarasota gas-to-energy facility online

Staff report

Aria Energy's new landfill gas-to-energy facility is now operational at Sarasota County's solid waste disposal complex in Nokomis.

The 4.8-megawatt landfill gas facility will generate electricity using methane extracted from the landfill and will sell it to the Jacksonville Electricity Authority.

The Sarasota facility will produce enough power to meet the base load requirements of 2,800 homes, according to U.S. Environmental Protection Agency estimates.

The EPA considers electricity generation using landfill gas a net plus with respect to greenhouse gas production. Meth-

ane from landfills, unless extracted for electricity production, seeps to the atmosphere.

The Sarasota facility is Aria's sixth Florida landfill gas-to-energy conversion project. Its facilities have capacities from 1.6 to 9.6 megawatts, so Sarasota's new plant falls in the middle of their capacity range.

Its two largest plants, which produce 9.6 megawatts of electricity, are located in Jacksonville and in Brevard County.

Aria Energy's six generators in Florida have a total capacity of 32 megawatts of power.

Their technology consists of modular generators that can be operated individually as power demands require.

Haines City expected to break ground on compost facility this month

By PRAKASH GANDHI

Haines City is set to build a new wastewater compost facility. Officials will break ground in May on the new facility after city commissioners voted 3-0 to grant the city a conditional use permit for the plant.

The commission also voted 3-0 to allow City Manager Jonathan Evans to enter into both a design-build agreement and a lease agreement with BCR Environmental.

The new facility is capable of producing about 100 tons of compost a day depending on how much waste supply is available, said City Utilities Director Michael Stripling.

"For the city of Haines City, the big benefit is to have a disposal method for our biosolids," said Stripling. "The added benefit is that we now have an outlet for green waste such as tree trimmings. Other municipalities that treat their wastewater can bring their biosolids to this facility as well."

The cost of construction for the compost facility is about \$5 million, which the city plans to pay for with a loan from the Florida Department of Environmental Protection.

Haines City will find out in June if it has secured the DEP loan.

Repayment of that loan will come from BCR Environmental's rent paid to the city over a 20-year period.

"This project has been in the planning stages for a couple of years," Stripling said. "But we've taken this long because we had to do the financing and engineering."

Construction will take about 15 months

to complete.

"This project definitely has some major environmental benefits," Stripling continued. "We are taking two substances that would end up in a landfill and bringing them together to create a marketable product."



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United Nations Water Report: Notable progress made on endless challenges, shifting goals

By ROY LAUGHLIN

Few other organizations possess the United Nations' reach when characterizing global conditions. The UN draws on this unique capability when it produces its annual global water report.

This year, the result is an authoritative document with notable changes in format and focus.

Over the past 20 years, global progress has been made in multiple societies to provide adequate water quantity and quality for agriculture and industry, and clean water for sanitation and public health.

In reviewing the progress, this year's report discusses challenges to the sustainability of progress already made, as well as the likelihood that increased demand for water in many regions still looms as a goal hardly amenable to effortless success.

The fundamental concept behind this year's report is an endorsement of the sustainable development of water resources.

The report said that sustainable development is dependent on technology, fair social and economic policies for affordable access to all members of society, conservation of ecological resources that play a significant role providing water resources, and legal mechanisms that include all members of society and provide ad-

equate guidance and protection. Technology alone has not and will not suffice.

"With today's access to vast technological resources, this undeniable reality will certainly become an inexcusable circumstance for which we all will suffer the consequences," said Nicholas Albergo, PE, DEE, a senior engineer with Conestoga-Rovers & Associates Inc. in Tampa and a well-known consultant involved with remediation activities that protect groundwater.

Within the broader context of the themes above, this report is different—and potentially more valuable—than its predecessors because it characterizes continental and subcontinental regional differences that affect water development priorities.

In Europe and North America, "reconciling different water use is at the basin level and improving policy coherence nationally and across borders will be priorities for many years to come."

In Arab regions, largely desert areas around the Indian Ocean and in North Africa, water shortages will threaten long-term sustainable development.

Access to safe water that is free of pollutants and sanitation are the primary challenges. Improving groundwater manage-

ment and resilience to water-related disasters will also be critical to sustainability goals.

In Latin America and the Caribbean, building formal institutional capacity to manage water resources and developing fair policies for socioeconomic development and poverty reduction is the major challenge.

According to the report, "the fundamental aim for Africa is to achieve durable and vibrant participation in the global economy while developing its natural and human resources without repeating the negatives experienced on the development path of some other regions. Currently only five percent of Africa's potential water resources are developed."

The report fleshes out these differences in its final chapters. That discussion enlarges on the primary themes and includes a number of case studies in different countries.

Much of this information will be generally familiar to those who follow the trends but this report has a few nuggets of new information—or at least a new presentation—that adds to previous discussion.

In the past two decades, more than 2.3

billion people gained access to improved drinking water and 1.9 billion to improved sanitation facilities.

Nevertheless, 748 million people do not currently have an improved source of drinking water and 2.5 billion do not use improved sanitation facilities.

Supplying technology, the report noted, does not automatically produce sustainability. The combination of weak governance and low incomes, along with a demand for low-cost water and wastewater treatment, are serious challenges to sustainability.

"As much as 30 to 50 percent of water supply projects fail after two to five years ... About 30 percent or more of water supply points are nonfunctioning, with another 10 to 20 percent being only partially functional."

According to the report, much of the failures have to do with the inability to collect fees for services, to manage procurement processes to buy supplies and repair parts and, in some cases, to find qualified operators for the facilities.

This situation exacerbates the inability of many political entities to adequately fund new infrastructure based on taxes and fees, and who are therefore dependent on an unreliable source of developmental aid, such as aid from another country.

The inability of local governance to provide or maintain water supplies leads the report writers to endorse an open, broadly based and transparent governance mechanism extending well beyond water managers to make decisions.

This year's report discusses climate change far differently from many of its predecessors. In one section, it characterizes the challenge of existing regional climates. Proceeding from that by anticipating the new normal as a result of climate change, the discussion focuses on increased weather variability and extreme events in the time frame of the report's consideration.

For water supply, the issue will be a variation in replenishment; for water infrastructure, the challenges come from increased risks of floods and sea level rise.

The report cites a World Bank report estimating that the costs of adaptation to global climate change could be \$70-\$100 billion per year—a cost not so different from the current global water infrastructure expenditures needed in undeveloped countries.

Another surprise in this report is an estimate of bottled water use in countries underserved by sanitary piped water. A steady increase in the number of people drinking bottled water has occurred.

In 15 years, it has grown from essentially zero to 54 percent in Turkey, 23 percent in Ghana, 40 percent in the Philippines, 29 percent in Indonesia and 51 percent in Laos.

The authors see this as unsustainable economically, inadequate to serve disadvantaged members of the societies, and unacceptable from a waste standpoint due to disposal issues related to the plastic containers.

This report contains lessons for residents of this country and those in Florida. Nationally, over the last decade, the Great Plains and California have experienced record-breaking droughts.

Florida's residents have never had a more uncertain future for water resources as well as economic development in the face of climate change. Florida's political establishment stifles even the discussion of it.

Reports such as this may be our only recourse for evidence-based, competent technical consideration of the multiply layered problems likely to take place in the future.

The first line in United Nations Secretary General Ban Ki-moon's preface states that, "Water flows through the three pillars of sustainable development—economic, social and environmental."

That statement applies to us too, whether or not we accept that inconvenient reality.

Florida Specifier

2015 Environmental Lab Directory

Each August, we turn our attention to the environmental laboratory business in Florida. As part of this special annual issue of the *Florida Specifier*, we include a directory of environmental labs providing analytical services in the state.

You're invited to complete the form below, providing details about your lab and its analytical capabilities. **There is a fee of \$200 to list your lab this year.** (*Fee waived for Specifier advertisers, and FRC exhibitors.*) In addition to your listing in the directory, **your lab will also be included in a special lab listing on our Enviro-Net website.**

Please type or LEGIBLY print the information requested and return as soon as possible to Mike Eastman via fax at (407) 671-7757, e-mail mreast@enviro-net.com or mail to P.O. Box 2175, Goldenrod, FL 32733. You can reach us at (407) 671-7777. The deadline for submissions to the August Lab Directory is **Friday, July 10, 2015.**

Note: If you were listed last year, we will be in touch. Do not complete this form.

Please include only lab operations, capabilities and personnel in Florida.

Laboratory name: _____

Primary Florida address: _____

City, State, Zip: _____

Phone: _____ Fax: _____

E-Mail: _____ Web: _____

Contact: _____ Title: _____

Locations in FL: _____

State of incorporation: _____ Years under same ownership: _____ years

Lab capabilities/specialties: _____

Sample types: _____

Certifications: _____

Additional services: _____

Number of years in business: _____ years

Staff: Total: _____ Engineers/scientists: _____ Technicians: _____

What single issue has most affected labs in Florida over the past year?

Are you a current *Specifier* advertiser or FRC exhibitor? _____ Yes _____ No

Contact me about: _____ Advertising in the *Specifier's* Lab Focus issue

_____ Submitting a column for the Lab Focus issue

Calendar

May

MAY 3-6 – Conference: Florida Water Resources Conference, Orlando, FL. Presented by the Florida Section of the American Water Works Association, the Florida Water Environment Association and the Florida Pollution Control Operators Association. Call 407-363-7751 or visit fwrc.org.

MAY 4 – Course: Asbestos Refresher: Project Design, Dania Beach, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

MAY 4-8 – 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.

MAY 4-8 – Course: Backflow Prevention Assembly Tester 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.

MAY 4-6 – Course: Process Control of Advanced Waste Treatment Plants, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

MAY 5 – Course: Asbestos Refresher: Inspector, Dania Beach, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

MAY 5 – Course: Asbestos Refresher: Management Planner, Dania Beach, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

MAY 5-6 – Workshop: Florida ADaPT Training, Royal Palm Beach, FL. Presented by LDCFL. Contact Cathy Katsikis at (561) 753-0483 or visit www.ldcfl.com.

MAY 6 – Course: Asbestos Refresher: Contractor/Supervisor, Dania Beach, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

MAY 6-7 – Conference: FICE Transportation Conference, Orlando, FL. Presented by the Florida Institute of Consulting Engineers. Call (850) 224-7121 or visit www.fleng.org.

MAY 7-8 – Course: OSHA HazWoper Annual Refresher, Tallahassee, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

MAY 7-9 – Conference: Florida Ground Water Association Annual Convention and Trade Show, Orlando, FL. Call (850) 205-5641 or visit www.fgwa.org.

MAY 8 – Course: Lead Refresher: Renovation, Repair & Painting, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

MAY 8 – Symposium: Apalachicola River and Bay System, Tallahassee, FL. Presented by the Florida Lake Management Society and Florida Agricultural and Mechanical University School of the Environment. Call (352) 434-5025 or visit www.flms.net.

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

MAY 11-15 – Course: 40-Hour OSHA HazWoper Training Course, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

MAY 12 – Course: Initial Training Course for Spotters at Landfills, C&D Sites and Transfer Stations – 8 Hour, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

MAY 12 – Course: Refresher Training Course for Experienced Solid Waste Operators – 8 Hour, Gainesville, FL. Presented by the University of Florida TREEO Center.

MAY 12 – Course: Refresher Training Course for Experienced Solid Waste Operators – 4 Hour, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

MAY 12-13 – Course: Initial Training Course for Transfer Station Operators and Materials Recovery Facilities – 16 Hour, Port Charlotte, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

MAY 12-13 – Course: Refresher Training Course for Experienced Solid Waste Operators – 16 Hour, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

MAY 12-14 – Course: Initial Training Course for Landfill Operators and C&D Sites – 24 Hour, Port Charlotte, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

MAY 12-14 – Course: Initial Training for Operators of Landfills and Waste Processing Facilities, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

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

MAY 12-15 – Workshop: National Pretreatment & Pollution Prevention Workshop & Training, Greenville, SC. Presented by the National Association of Clean Water Agencies. Call (202) 833-2672 or visit www.nacwa.org.

MAY 13-15 – Course: 24-Hour OSHA HazWoper Training Course, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

MAY 15-16 – Course: Backflow Prevention Recertification, Fort Myers, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

MAY 20-21 – Symposium: Produced Water Handling and Management Symposium, Galveston, TX. Presented by the Society of Petroleum Engineers. Call (713) 457-6872 or visit www.spe.org.

MAY 20-22 – Meeting: 2015 Spring Meeting and Technical Session of the Florida Society of Environmental Analysts, Clearwater Beach, FL. Call (941) 748-5700 or visit www.fsea.net.

MAY 28 – Workshop: Free Cybersecurity Workshop, Orlando, FL. Presented by the U.S. Environmental Protection Agency. Visit www.horsleywitten.com/cybersecurity.

June

JUNE 1-3 – 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.

JUNE 3-5 – Course: Microbiology of Activated Sludge, Tampa, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

JUNE 4-5 – Course: Backflow Prevention Recertification, Lake Buena Vista, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

JUNE 4-5 – Course: Backflow Prevention Recertification, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

JUNE 6-7 – Course: Initial Training Course for Transfer Station Operators and Materials Recovery Facilities -16 Hour, Daytona, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

JUNE 6 – Course: Initial Training Course for Spotters at Landfills, C&D Sites and Transfer Stations- 8 Hour, Daytona, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

JUNE 6-7 – Course: Refresher Training Course for Experienced Solid Waste Operators- 16 Hour, Daytona, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

JUNE 6 – Course: Refresher Training Course for Experienced Solid Waste Operators- 8 Hour, Daytona, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

JUNE 6 – Course: Refresher Training Course for Experienced Solid Waste Operators- 4 Hour, Daytona, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570.

JUNE 6-14 – Course: Backflow Prevention Assembly Tester Training and Certification, Jacksonville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

JUNE 6-7 – Course: Backflow Prevention Recertification, Bradenton, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

JUNE 6-7 – Course: Backflow Prevention Recertification, Tampa, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

JUNE 10-12 – Conference: 38th Annual Conference of the Florida Association for Water Quality Control, Naples, FL. Call (813) 623-6646 or visit www.fawqc.com.

JUNE 11 – Forum: Northwest Florida Brownfields Redevelopment Forum, Callaway, FL. Presented by the Florida Department of Environmental Protection's Northwest District, in partnership with the U.S. Environmental Protection Agency and the West Florida and Apalachee Regional Planning Council. Visit <http://dep.state.fl.us/northwest>.

JUNE 12-13 – Course: Backflow Prevention Recertification, Venice, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

JUNE 14-17 – Course: Introduction to Backflow Prevention, Gainesville, FL. Presented by the University of Florida TREEO Center.

JUNE 15 – Symposium: 2015 Spring Symposium of the Southeast Desalting Association, Hutchinson Island, FL. Call (727) 781-7698 or visit www.southeastdesalting.com.

JUNE 15-17 – Asbestos: Inspector, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

JUNE 16-17 – Course: Cross-Connection Control: Survey and Inspection, Gainesville, FL. Presented by the University of Florida TREEO Center.

JUNE 17-19 – Conference: Annual Conference of the Florida Stormwater Association, Integrating Water Resources, Sanibel, FL. Call 1-888-221-3124 or visit www.florida-stormwater.org.

JUNE 18-19 – Course: Cross-Connection Control: Ordinance and Organization, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

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

UF review finds Everglades restoration likely effective, if implemented

By ROY LAUGHLIN

An expert group at the University of Florida's Water Institute concluded that water managers in South Florida could use much of the current canal infrastructure to supply additional water of sufficient quantity and quality to the Everglades.

Water officials could also reduce the excessive freshwater releases through the Caloosahatchee and St. Lucie rivers that have wreaked havoc on coastal estuaries on both of Florida's coasts.

But to accomplish those goals, substantial increases in storage capacity around Lake Okeechobee and in the basins of adjacent rivers will be required to remove nutrients to meet numeric nutrient standards.

Some additional benefits for effective

water management may be obtained by modifying current management practices in Lake Okeechobee and transport canals. Water transfers to aquifers, where aquifer structure and characteristics support it, may also be helpful.

The UF report did not recommend a single new option to water managers. Parts of its analysis showed that current plans to store water north of Lake Okeechobee would likely be inadequate to meet both water quantity and water quality goals.

The current planned reservoir capacities are about half of what will be needed to reduce freshwater releases through the St. Lucie and Caloosahatchee rivers, and simultaneously, to meet numeric nutrient standards for phosphorus in that water.

The report is a complex document commissioned by the Florida Legislature. Early in the report, it noted that no less than three

major planning exercises, two major regimes of managing water levels in Lake Okeechobee, one major court decision and remediation efforts underway but underfunded have orchestrated the Everglades present situation.

"Yet except for the period of highest rainfall, much of the EPA (Everglades Protection Area) including ENP (Everglades National Park) remains chronically deprived of freshwater necessary to sustain remnant habitats and native biota," the committee wrote.

The report's authors, often illustrate what they cannot say directly in the interest of preserving harmony with the wide range of South Florida water interests. Figure III-1 and accompanying text show that extensive water releases that diverted flow from the Everglades Agricultural Area through the St. Lucie River into the Indian River Lagoon in 2014 instigated the extensive algal bloom in the lower Indian River.

For the St. Lucie River, the water year annual average (1998-2014) shows that the river received 21 percent of 1.52 million acre feet of water. In 2014, during the wet

season when the algal bloom occurred, the St. Lucie River's share increased to 27 percent of the 155 maf. In the same comparison, the Caloosahatchee's share rose from 45 to 60 percent. The Everglades Agricultural Area fell from 34 to 13 percent.

The report also noted that "both the St. Lucie and the Caloosahatchee basins contribute significant additional local runoff to their estuaries." Significant in this context means 70 percent or more for the St. Lucie Estuary. For that rapidly urbanizing watershed, releases of water from the Everglades are a cause of excessive runoff of poor quality, but perhaps not the main cause.

The report did not discuss in detail three significant aspects of remedial water management efforts in South Florida. The first was the legal constraints. Those were characterized, but not discussed in depth.

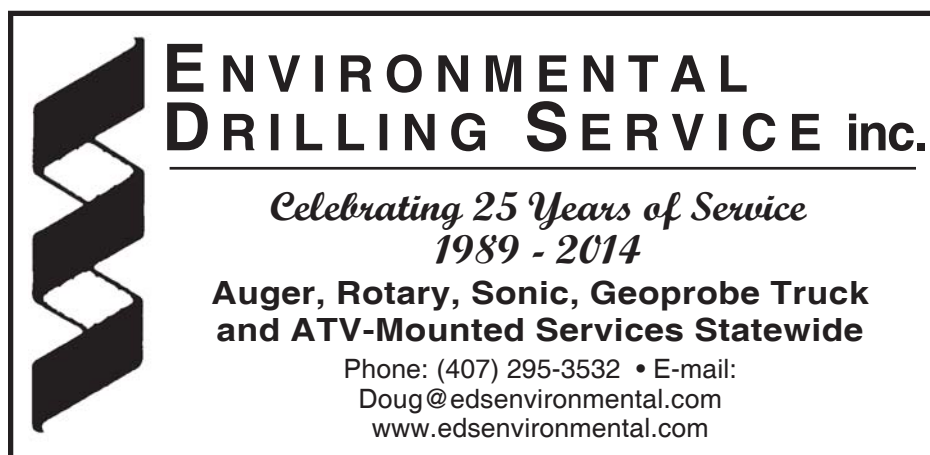
Insufficient financial support for needed efforts was also characterized, particularly during the past eight years. The Central Everglades Planning Project in particular received a strong endorsement for

GLADES
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DRILLERS

From Page 1
Huss, a 30-year industry veteran, said his company has been doing work for the state's water management districts related to surficial, intermediate and Upper Floridan Aquifer wells.

"We're not getting that much work though," Huss said. "We're about half the size we were a couple of years ago."

Other drilling company representatives agreed that business is far from robust.

"We are steady, but business is still slow," said Michael Johnson, drilling services manager at Custom Drilling Services Inc. in Mulberry. "A lot of people are idle. The consultants I talk to say the state's preapproval program is not in a very good state. They are unhappy with the way it is being run now."

"We are seeing a lot of repetitive bidding on the same site because the scope of the work continues to change."

When work is being done, safety is a key issue for environmental and geotechnical drillers and a top priority for Huss' firm.

"We are the safest we have ever been," he said. "More and more companies are adhering to the idea that safety is a state of mind."

New technology has also made a big difference, Huss said. "Sonic technology has really taken off. It's a great way to go especially on sites with hazardous products."

Drilling companies that relied in the past on the preapproval program for work cannot rely on it any more, said Bob Orlando, president of Earth Tech Drilling in Pompano Beach.

"A good portion of our work was related to the state's preapproval program," Orlando said. "But that program has become dysfunctional and the consultants are telling me that nobody is making any money from it anymore. Some of the consulting firms that relied on the program are now out of business."

He said his company has been fortunate to attract other clients. "We have been getting work from people representing property owners or from the property owners themselves," Orlando said. "This has been a mixture of environmental and geotechnical work."

"The real estate portion of our business is very strong. But it will level off soon because there is only so much land left. But even this work is not consistent. There is nothing steady in this business any more. Everything is hot and cold, feast or famine."

One bright spot has been the new technology being used by the company, Orlando said. "We have introduced the sonic drilling technology and that has opened some new opportunities for us."

Fred McKay, drilling division manager with EnviroTek, said their workload re-

lated to the preapproval program is "pretty much nonexistent."

"Business is pretty flat," McKay said. "The program has shaken up the distribution of the workload. A lot of the people that we used to do work for are not doing program work. Most of the work we do is for the mines or for the Department of Defense. The DOD work is environmental, but the mines work is more compliance-related."

The workload is strongest, McKay said, for drilling monitoring and recovery wells for projects. Among their weaker markets are soil and groundwater investigative work.

He agreed that safety is very important. "If you don't have a good safety record, you won't get much work," he said. "It is something that we talk about and push very strongly with our crews."

Jason Goldstein, drilling department manager with AMEC Environment & Infrastructure Inc. in Jacksonville, said business has been good.

"We no longer offer drilling services in-house. We provide them now as subcontract services to support our geotechnical and environmental project needs," he said. "The business on the geotechnical engineering side is going well. Most of the work is in the private sector. Hopefully, the forecast for the rest of the year is bright."

Goldstein said that safety is an important factor. "With a company of our size and the fact that we do a lot of our work in the oil and gas industry, it is a huge concern to us and how we represent ourselves to our clients," he said.

Despite the criticism from drilling industry representatives, state environmental officials said the preapproval program is working well.

In last year's state budget, the Petroleum Restoration Program received an appropriation of \$125 million, said DEP Spokesperson Mara Burger.

The program has implemented improvements over the past six months and is educating the contractor community on invoice submittal so invoices can be promptly paid, Burger said.

Consistent with the department's strategic direction to ensure that vulnerable springs and future drinking water resources are protected, discharges that fall within vulnerable springsheds will be prioritized for assessment and remediation, Burger said.

In about two months, the program will begin the process of screening about 4,000 discharges on sites scored below 30. "We anticipate screening about 1,000 per year for the next four years," Burger said.

A substantial amount of front-end assessment work is expected in both the second half of the current calendar year and in the 2015-16 fiscal year that ends June 30, 2016.

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From Page 12

components that would provide water storage around Lake Okeechobee.

The near-term prospects for funding fall directly on the Florida Legislature. It could direct additional funding from general revenues, but Amendment 1 is the more likely source. In FY 2016, about \$750 million is expected to be appropriated. But not all of that can go for water projects in South Florida. Expectations are that spending for Everglades restoration will increase by tens of millions of dollars.

Dispersed water management is the third area the report mentions, but does not examine in detail. One reason is that the DWM effort was comparatively modest until last November, as the report was near-

FEDFILE

From on Page 2

wetlands should be considered valuable and essential until proven otherwise, the opposite of which is the current legal status.

These research results are not unique, nor do they contradict widely held professional opinion among scientists who are experts on the biogeochemical processes in wetlands.

The work contributes to a growing body of detailed research that may soon allow the federal government to extend legal protection to isolated wetlands in an effort to further protect water quality.

Nanoscale materials. The EPA recently proposed collection of human health risk and environmental effects information for nanoscale materials already in use.

The agency already reviews nanochemicals that are new to the marketplace.

The requirements are being issued under the authority of Section 8(a) of the Toxic Substances Control Act.

Information the EPA proposes to collect includes specific chemical identity, production volume, methods of manufacture, processing, use, exposure and release information, as well as available health and safety data.

The agency proposed one time reporting of nanoscale materials in the marketplace. The proposal includes electronic reporting requirements using EPA's Central Data Exchange and an electronic reporting portal. The EPA said that electronic reporting saves time, improves data quality and increases efficiencies for both submitters and the agency.

The EPA defines nanochemicals as substances whose chemical behavior is largely dependent upon their very small size, 10-100 nanometers.

Nanochemicals may have the same chemical composition as substances already in the marketplace, but are distinguished by their different reactivity and functionality due to their small size.

The current proposal extends EPA data collection to include nanochemicals that were already in the marketplace before EPA's new chemical review rule became active and applied to nanomaterials.

Recovery from Deepwater spill. In mid-March, BP released a news statement—a call to celebrate the improving environmental conditions in the Gulf of Mexico since the Deepwater Horizon oil spill. The release claimed the ecology of the Gulf of Mexico is returning to pre-spill conditions.

Immediately, trustees of the Natural Resource Damage Assessment issued a rebuttal. They said it was inappropriate—as well as premature—for BP to promote conclusions about impacts from the spill until the completion of their assessment.

The National Oceanic and Atmospheric Administration, the parent organization for the trustees conducting the assessment, said that numerous scientific studies do not support BP's claims.

NOAA said that the agency was continuing to analyze data, conduct studies and evaluate what happened after the spill as a basis for its restoration efforts.

The findings will influence the amount of compensation paid to the public for damages. Plus, NOAA will use the findings to develop a long-term restoration

ing completion. It has recently doubled in capacity and will be spending more than \$10 million annually with the addition of the Alico Tract in Hendry County.

The report mentions DWM in three different places and recommended that a rigorous analysis of its effective implementation and benefits be conducted.

The report's lead author, Professor Wendy Graham, the Carl S. Swisher Eminent Scholar in Water Resources and director of the UF Water Institute, was strongly supportive of dispersed water management.

"We expect the analysis to show (beneficial cumulative impacts of a regional DWM system on restoration). But comprehensive analysis of the costs and benefits of large scale implementation of dispersed

plan with public involvement.

Land cover change, 1996-2010. During the last boom-bust real estate development cycle, 15 percent of the U.S.' Southeast region, 14,420 square miles, experienced changes to its land cover, according to a recent National Oceanic and Atmospheric Administration report.

Land cover data records the physical land type rather than how it is used, according to NOAA.

The extent of development was not surprisingly greatest in coastal counties, which added more than 1,134 square miles of development—an area equal to about four large southern cities.

Florida led the way with more concentrated development activity in Miami, Orlando and Jacksonville.

Savannah, GA, Charleston, SC, and Myrtle Beach, SC, formed the second tier of cities with significant but less extensive land cover changes during the 15-year evaluation period.

The report noted that about 8,500 square miles of forest were cut while more than 1,800 square miles regrew. Much of the cut forests became grass and scrub, areas that could regrow trees.

Nationwide, between 1996 and 2010, almost 65,000 square miles in coastal regions show changes in land cover that include a decline in wetlands and forest cover, with development a major contributing factor. The area involved, the report noted, is about the same size as Florida.

In addition to forest land cover changes, the report provided information about intertidal areas, wetlands and adjacent uplands in Florida and other states on the Atlantic coastal plain.

NOAA collects land cover data under its Coastal Change Analysis Program. Data are analyzed on a five-year cycle. The Miami-Dade Office of Sustainability used NOAA's data to develop maps to educate county representatives on sea level rise.

Energy star recipients. The EPA recognized three cement plants in Florida as Top-Performing Energy Star Certified Manufacturing Plants. The three plants are CEMEX Brooksville South, CEMEX Miami and Titan Pennsulo cement plant, north of Miami.

The three cement plants were among 70 manufacturing plants nationally that EPA recognized for "leading their industries by advancing energy efficiency and making cost-saving improvements while combating climate change."

Energy Star-certified manufacturing plants are independently verified on an annual basis to have achieved energy performance that places them in the top 25 percent of their industries nationally.

The industries whose plants are evaluated include cement manufacturing, corn refining, food processing, glass manufacturing, pharmaceutical manufacturing and petroleum refining.

This year, seven facilities were certified for the first time. Florida's three cement plants were previously certified and retained their status.

The primary purpose of EPA's Energy Star Program is to provide benchmarking tools that help industry representatives assess energy performance in ways that allow them to reduce energy use and greenhouse gas emissions.

water management has not yet been conducted," she said. "We recommended that such an effort be conducted."

The report ends with five recommendations for the Everglades restoration effort: accelerate funding and completion of existing approved projects; provide water storage and treatment north of Lake Okeechobee; provide additional water storage, treatment and conveyance south of Lake Okeechobee; dispose of excess flow via deep wells; and make additional operational changes.

Graham said the recommendations were not prioritized, but all—with the possible exception of deep well disposal—will be required to achieve restoration throughout the Everglades.

"Our review showed that although there are significant political, social and financial challenges associated with Everglades restoration, decades of scientific and engineering analysis have provided sound plans for achieving restoration," she said. "What is needed is to execute those plans."

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Judge revokes permit, shuts down Escambia County C&D landfill

By PRAKASH GANDHI

An administrative law judge has ruled that state regulators can revoke the operating permit of a construction and demolition debris landfill in Escambia County.

The landfill controversy centers on the Rolling Hills Construction & Demolition Debris Disposal Facility.

Residents near the landfill have battled for years to have the facility closed because of permit violations, emanating odors, health concerns and constant truck traffic through their residential neighborhood.

The Florida Department of Environ-

mental Protection issued a notice of revocation to landfill operator South Palifox Properties LLC in July last year, said DEP Spokesperson Brandy Smith.

In response to that notice, South Palifox filed a petition for administrative proceeding in August, Smith said.

An administrative hearing was held in December in Pensacola and in March Administrative Law Judge D.R. Alexander issued a recommended order.

Judge Alexander recommended that DEP enter a final order revoking the C&D permit for Rolling Hills. The judge said he had little choice but to uphold the DEP revocation.

"By clear and convincing evidence, the department has proven that respondent exceeded surface water quality standards for all analytes, except nickel, and including other metals and contaminants," Alexander wrote.

DEP's secretary now has 90 days from the issuance of the recommended order to issue a final order, Smith said.

Exceptions to the recommended order were filed by both parties by March 17.

Smith said the DEP secretary will evaluate the judge's recommended order, the exceptions that were filed and the responses to the exceptions. He will issue a final order by May 31.

Located on Pinestead Road west of Pensacola Boulevard, Rolling Hills is the only C&D landfill operating in the county.

If it closes, builders will have to truck

their waste material to the county-owned Perdido Landfill—which charges twice as much in tipping fees—or find another landfill outside the county.

The only other landfill option, known as the Longleaf facility, was located west of Rolling Hills, but that facility has been shut down for months.

Rolling Hills' management has insisted that they have tried to reduce or eliminate the problems that they claim were worsened by flooding in April last year.

Company officials did not return calls for comment in April.

County officials said they will continue to monitor the situation at Rolling Hills. The county's Community and Environment Department will also monitor air quality in the neighborhood next to Rolling Hills.

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2015 environmental report shows progress in South Florida restoration

By SUSAN TELFORD

The South Florida Water Management District and the Florida Department of Environmental Protection released their "2015 South Florida Environmental Report," marking the 17th year of unified, streamlined environmental reporting by the two agencies.

The 2015 report detailed a year of science, engineering and environmental restoration progress to improve the Everglades, Lake Okeechobee, the Kissimmee Basin and South Florida coastal zones.

Spanning three volumes, the report unifies dozens of individual reports. The volumes, plus a 27-page executive summary, provide extensive peer-reviewed research summaries, data analyses, financial updates and a searchable database of environmental projects.

"The (report) extensively details these efforts and the path forward to sustain the momentum of project construction and the state's restoration strategies initiative," said SFWMD Executive Director Blake Guilory.

Highlights of the 2015 report include restoration strategies, Everglades water quality, best management practices, Kissimmee Basin restoration and "moving the water south."

According to the report, the restoration strategies initiative saw significant progress. Massive flow equalization basins and associated features are beginning to take, and design plans are under development to expand stormwater treatment area capacity.

The 57,000 acres of existing Everglades STAs treated more than 1.3 million acre-feet of water, reducing phosphorous loads by 81 percent.

Within the extensive Everglades water quality-monitoring network, water quality improved. This was the first year that some of the stations previously identified as "impacted" transitioned to "unimpacted" status. Six stations successfully met the phosphorous criterion for the change in designation based on both five-year and annual compliance consistency.

Improved farming BMPs produced a 63 percent phosphorous reduction in the

Everglades Agricultural Area when compared to baseline data. Farmers have continued reducing nutrient discharges in the C-139 basin, maintaining nutrient discharges within allowable historic levels.

Kissimmee Basin restoration is ongoing. Providing water essential for the protection of fish and wildlife in the Kissimmee River, its vast floodplain and upper chain of lakes will involve a public process to reserve water for the ecosystem.

Rule development for water reservation will bring together stakeholders to continue an ongoing public review of Kissimmee science and technical data, with the goal of adopting a final rule this year.

Moving the water south has been one of the biggest challenges for all of the agencies. The reporting period reflected above average rainfall, marked by an aggressive start to the rainy season. As a result, Lake Okeechobee rose more than two and half feet during May, June and July 2013.

Although inflows into Lake Okeechobee were above the historical average, outflows were also significantly higher. And while the east and west coast estuaries received the brunt of the freshwater discharges, extra efforts were made to move the water to the south.

Of the three volumes of the 2015 report, the first volume showed findings derived from regional monitoring and research projects, and highlighted key financial information during 2014.

The second volume provided an annual update on the planning and project status for eight annual reports required of all water management districts.

The third volume expanded on the findings in Volume 1, further streamlined unified reporting and fulfilled various federal and state permit-related reporting requirements.

The 2015 South Florida report covers environmental information for Water Year 2014—from May 1, 2013 to Apr. 30, 2014—and project/budgetary information for Fiscal Year 2014—Oct. 1, 2013, through Sept. 30, 2014.

The 2015 South Florida Environmental Report is available to view or print at www.sfwmd.gov/sfer.

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FAU establishes sensing institute

Staff report

Florida Atlantic University in Boca Raton established a new research institute—the Institute for Sensing and Embedded Network Systems.

The primary focus of their research and technology development is to develop and use "embedded" sensors linked through extensive networks for monitoring and remote measurement.

Presently, environmental monitoring is an area with a growing number of successful programs with many opportunities in Florida.

ISENSE@FAU will serve the dual

functions of performing its own research and as a "hub within the university and with external partners in the area of hardware and software systems."

Success of such an institute within an academic environment depends substantially on the faculty involved. FAU hired Jason Hallstrom, previously an associate professor in the Computer Science Division of the School of Computing at Clemson University, and deputy director and director of technology for Clemson's Institute of Computational Ecology.

SENSING
Continued on Page 16

BMAP now under development for Marion County's Lake Weir

By **BLANCHE HARDY, PG**

The Florida Department of Environmental Protection is in the process of identifying criteria by which water quality in Lake Weir can be improved.

Lake Weir is in Marion County and within the Ocklawaha River Basin. The 5,600-acre lake is divided into of two areas, Lake Weir proper and Sunset Harbor.

The lake was determined to be impaired by nutrients due to elevated annual average trophic state index values.

It has appeared on the verified list of impaired waters for the Ocklawaha River Basin since the list was first adopted in October 2002.

Officials were required to develop total maximum daily loads for the lake once it was listed as impaired.

DEP released their initial findings in the TMDL report, "Nutrient TMDL for Lake Weir," in February 2015.

"The Florida Department of Environmental Protection held a meeting on February 17 in Lady Lake to further the development of restoration goals for Lakes Weir and Denham," said Dee Ann Miller, deputy press secretary at DEP. "The TMDLs for Lakes Weir and Denham will address nutrients, nitrogen and phosphorous. These goals will serve as the basis for future restoration efforts."

Once public comments on the report are received and processed, a final report will be published.

The TMDL report is the department's first step in implementing a basin management action plan to reduce the presence of pollutants resulting in the verification of the impairment of Lake Weir.

DEP relies heavily on the cooperation and assistance of stakeholders, such as the St. Johns River Water Management District, local governments, businesses and others, to assist in the development and subsequent implementation of a BMAP.

Once a plan is established, the department will work with stakeholders to reduce the discharge of pollutants in an effort to reach the established TMDLs.

In the case of Lake Weir, DEP's initial findings indicate that determining the exact sources of excess nutrients—and how to address them—will require investigation, as there are no individual point-source discharges within the watershed.

The nonpoint sources of discharge noted include surface water runoff, groundwater seepage and direct precipitation onto the lake's surface. The impacts of the location and patterns of development and land use will also be evaluated.

The report indicated the dominant land use type to be low-density residential,

which in 2004 accounted for about 23.2 percent of the total watershed area. The second largest usage was forest and range land at 22.1 percent followed by pasture land at roughly 11.7 percent.

But by 2009, low-density residential had decreased by approximately 300 acres, or 22 percent, while medium density residential use increased by over 100 acres, or 16 percent, along with increases in the establishment of crop and pasture lands.

Pollutant loading data for the lake in-

cluded in the report indicated the TMDL for nitrogen in the lake was roughly 0.80 milligram per liter from the mid-1980s until 2006 where it spiked to 1.0 mg/L and has remained consistently elevated.

The total phosphorous level was detected at roughly 0.012 mg/L in the late 1980s to 2007, at which point it reached and has remained around 0.016 mg/L.

DEP is proposing a 0.79 mg/L limit on total nitrogen and a 0.012 mg/L limit on total phosphorous for the lake.

MERIT

From Page 7

be generated by the end of a day.

"We cost more than surface resistivity, but we're much less than any technique that reaches the same depth," Harro said in characterizing the costs involved.

He said that their improved algorithms are "lifting some of the basic limitations of electrical resistivity methods."

The technology operates over a greater range of depth, providing increased resolution for subsurface imaging based on electrical resistivity.

In the future, the research team would like to look at the physics of adding more energy to allow deeper electrode placement than is currently practiced. That might be useful for evaluating gravity-driven move-

ment of contaminants through unconsolidated material to the bedrock.

The company is also evaluating two other geophysical data systems that would use the same electrodes and the same data analysis algorithm, with appropriate modifications.

One is spontaneous potential, which could visualize concentrated flow measurements of DNAPL, for example. Induced polarization, another type of measurement, could more effectively reveal subsurface man-made structures.

The MERIT system can make remediation efforts more effective where high resolution imaging of subsurface geological structures, man-made materials and conductive fluids would enhance underground contaminant characterization.

CUDJOE

From Page 1

centered on the previously proposed shallow injection wells, the location of the facility and its wells, and portions of the low-flow pump system designated to serve the more remote portions of FKAA's 56-square-mile service area.

Citizens fear that treated wastewater discharged into the current 120-foot-deep injection wells located in porous limestone will rise into the highly protected surface waters of the area.

In protest of the proposed use of shallow wells, a notice of intent to sue the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency and the National Oceanic and Atmospheric Administration was filed on March 11, 2015, by counsel for Mike Laudicina, a Lower Keys commercial fisherman, for violation of the federal Endangered Species Act and the National Environmental Policy Act.

The U.S. Fish and Wildlife Service's South Florida office issued a lengthy letter to FKAA in March expressing concern about results from dye-tracer injection tests performed to assess the area of influence of the shallow injection wells and the potential impact the project may have on species listed under the Florida's Everglades Protection Act.

The FWS specifically referenced impacts to "habitats within the adjacent Great White Heron National Wildlife Refuge and federally protected wildlife species."

The county and FKAA engaged Florida International University to evaluate the site and to conduct a tracer study to assist in determining if a deep injection was needed at the facility.

FIU scientists examined remote sensing-generated images of the Cudjoe landfill and surrounding shallow waters for evidence of Karst features and subsurface fracturing, the presence of which could indicate that preferential vertical groundwater flow paths may be present.

Subsequent ground-truthing exercises by FIU confirmed the existence of a significant number of such features within and in the immediate vicinity of the site.

Freshwater injection testing photographs taken by FIU staff show immediate massive air bubble puddling adjacent to shallow injection well IW3, as well as high turbidity water venting into associated puddled waters.

Dr. Henry Briceno of FIU's Southeast Environmental Research Center, who presented the study results to FKAA in March, reported that "a connection between injection depth and surface waters may exist at the injection site."

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Prior to KB, Todd was with MACTEC (now AMEC FW) for 15 years as a Senior Staff Engineer and Department Lab Manager.

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PETROLEUM

From Page 1

rank of "1" did nothing to change the influence of the other terms in the equation, while cubing a schedule rank value greater than "1" led to an exponentially decreasing RCI score.

Introduction of an ITN score raised to an exponent of seven now makes that term in the equation the primary determinant of the algorithm's result.

Contractors received a score at the start of the ITN process, and that score will remain fixed. The range of ITN values is 745.5 to 1656.8.

In response to queries about the new procedures at PRP, DEP Information Specialist III Mara Burger noted that the recent RCI modification "takes into account that the program needs added contractor capacity in anticipation of a substantial expansion of the program into sites scored below 30.

"By incorporating the ITN score into the RCI algorithm, we expect that additional companies that were not being accessed by the previous formula to now be selected based on performance and a broader range of prices."

Companies ranked 16-45, inclusive, in the price schedule are expected to see an increase in site assignments, she continued.

As of mid-April, the PRP had 72 ATCs. If the new RCI algorithm provides work as planned, about 60 percent of contractors are likely to get new contracts.

The program has two new cleanup priorities that will require additional effort and therefore expenditures.

First, Burger said PRP will, through the rest of this fiscal year, screen 1,000 discharges scored below 30 and assign those selected to contractors on the basis of the recently revised RCI. The first contracts will likely be let this summer with additional contracting to continue for an additional four years.

Also, Burger noted, discharges near vulnerable springs and potable water resources will receive priority for necessary remediation. She said that should bring additional work for at least the next year.

SENSING

From Page 14

Clemson's Intelligent River project was a major accomplishment during Hallstrom's decade at the university. He was part of a team that developed a sophisticated monitoring system that included remote sensors in multiple networks incorporated into a "sensing fabric" connected by wi-fi and cell phones to cloud storage and analysis programs.

Development of remotely operated landscape scale, high resolution monitoring and management tools is a complex exercise dependent for success on small size, ruggedness, low power consumption, wireless connectivity, massive storage and retrieval capability, data crunching and data presentation.

Data presentation often includes GPS mapping and multiple database input. Each piece of the system may be relatively simple and standardized, but the art is integrating it all and presenting the data in a useful format.

The Intelligent River project focused on the Savannah River in South Carolina. Components of the project included storm-water measurement with green infrastructure, stream and wetland assessment activities, and precision agricultural initiatives intended to reduce water use in agricultural applications.

The multiple projects in different locations—all of which influenced Savannah River hydrology—were monitored with connected networks of sensors at widely dispersed locations in the watershed.

Hallstrom noted that he sees as a "grand challenge" for constructive use of this technology in urban areas.

"We are in the process of developing a proposal to the National Science Foundation focused on the sensing and control foundations necessary to achieve sustainable growth in tomorrow's smart cities," he said.

The PRP has made a few other management modifications in the past few months to help contractors get work—and get paid. Contractors no longer have to obtain site access agreements.

In addition, educating contractors on the specifics of invoice submittal is expected to result in prompter payments. Plus, reducing the processing time for purchase orders to 21 days from the time the contractor accepts the contract scope of work should lead to quicker contractor payment.

The new procedures and changes to formulas became effective on April 7.

Some contractors have voiced frustration with the rate that PRP has provided cleanup funding. That has shown up during the previous two years when the program has had a few months of peak spending levels and then subsequent months with much lower spending.

The new procedures in the program were partially the reason for this phenomenon a year ago, according to Burger.

In the current fiscal year, PRP obligated \$125 million for rehabilitation work by November 2014, according to Burger. As of March 2015, it obligated \$30 million more, including change orders.

The existence of a few months of peak spending over the past two years is associated with PRP's assignment of approximately 90 percent of the high potential risk projects receiving priority for remediation contracting.

When those are done, the remaining sites of lower priority should get attention. There has been a lag time for completion of site assessments since the summer 2014 when PRP lowered the funding score from 46 to 30.

The program anticipates a steady increase in work obligated for the second half of 2015.

Steve Hilfiker, president of Environmental Resources Management Inc. in Fort Myers, said that expectations are that the new ATC selection process should spread work more deeply into contractor ranks.

But more importantly, "a lot of the initial assignments were for site assessments ... that should now be in or heading to the remedial action plan phase. So ATCs should see more remedial work in 2015 and 2016," said Hilfiker.

If that's the case, it will be good news for the PRP program's mission, contractors and the environment.

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