Florida Specifier

Practical Information For Environmental Professionals

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Photo by Jason Masoner, USGS

U.S. Geological Survey staff bottle and label landfill leachate samples. Sample analysis showed dozens of contaminants of concern, notably prescription pharmaceuticals, the most frequently occurring, and industrial chemicals. See story on Page 7.

Central Florida water supply plan approved by water management districts

By ROY LAUGHLIN

The Central Florida Water Initiative passed a major milestone in November when governing boards of the three water management districts that established the group approved the final draft of their Regional Water Supply Plan 2015.

The comprehensive water supply plan for Orange, Osceola, Polk, Seminole and southern Lake counties was approved by the St. Johns River, Southwest Florida and South Florida water management districts.

The four volumes of CFWI's water supply plan are important both for their technical aspects and, perhaps more significantly, because CFWI and its report "is the embodiment of the new collaborative process for doing water supply planning at the water management districts," according to Michael Register, director of the Division of Water Supply Planning and Assessment at the St. Johns River Water Management District and the district's representative on CFWI's managing board.

In 2013, the three water districts established the CFWI as the successor to the "sunsetting" Central Florida Water Caution Area. The districts then developed 20-year water supply plans, district by district.

"Florida was increasingly turning to groundwater resources and those don't respect political boundaries," said Register.

In Central Florida, effective water planning needed to be done across district boundaries. The CFWI established a collaborative process that bought together representatives of the three districts, the Florida Department of Environmental Protection, major utilities, industries, agricultural interests and other water supply stakeholders.

In a technical sense, the planning document showcases notable successes of the collaborative effort. The final volume, Solutions, lists strategies including conservation, water reuse and new water supply development to meet the needs of a population that may increase to 4.7 million people by 2035, and see increased water demand from 800 million gallons per day to 1,100 mgd.

Public supply is the largest category of water use and accounts for about 70 percent of the total projected increase in the region. Agriculture on 165,000 acres in 2035 is expected to use less water than current agricultural usage. Its water demand is expected to decline due to crop intensification.

Natural areas including swamps and headwaters of the Kissimmee and Peace rivers and several extensive wetland areas are also in line for a share of the region's water resources.

The planning process used an updated version of the East Central Florida Transient Groundwater Flow Model, an essential planning tool, to evaluate the region's water resource capability to

INITIATIVE
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Mediation may be the next step in the tri-state water saga

By BLANCHE HARDY, PG

In a Nov. 6, 2015, status report related to the "Tri-State Water Wars," lawyers for the state of Georgia suggested that the best way to advance the process is to engage a mediator that is acceptable to all sides.

The states' discussion of mediation during a subsequent conference call indicates that the advice of Special Master Ralph Lancaster may finally be taking hold.

Lancaster was appointed by the U.S. Supreme Court to oversee pretrial proceedings in Florida's October 2013 water rights lawsuit against the state of Georgia, the latest skirmish in the battle.

He has repeatedly promoted seeking a settlement independent of the court during the term of his appointment, warning both states that they may not be happy with the outcome should the case advance through the courts to a final decision.

"I'm delighted to see both the word 'settlement' and the word 'mediator' in the reports and to know that you're moving towards that process because, frankly, your persistent refusal to narrow the scope of this litigation is going to result in astonishing expenses to the two states' taxpayers," he said.

This round of the decades-old water war was initiated by Florida's claim that Georgia's excessive consumption of water from the Chattahoochee and Flint rivers results in inadequate fresh water supply to Apalachicola Bay and associated waterways.

Without sufficient fresh water sup-

MEDIATION
Continued on Page 16

EPA proposes reducing summer NOx standard to further reduce ozone

Staff report

Within a week of finalizing a rule that reduced the ambient ozone standard from 75 to 70 parts per billion, the U.S. Environmental Protection Agency proposed to further reduce summertime nitrogen oxide emissions in 23 states east of the Rocky Mountains under the federal Cross State Air Pollution Rule.

The proposed rule will help downwind states reduce ozone that results from NOx emissions in upwind states. The agency proposed to set the new standard by the summer of 2017.

EPA is specifically proposing to develop federal implementation plans for summertime NOx emissions in states that have not developed their own state implementation plan by the time the rule is effective.

The new standard will primarily affect large fossil fuel burning plants, particularly power plants.

The proposal is an update of the "good neighbor" provision of the 2008 Cross State Air Pollution Rule. The EPA's action will affect the 23 states that have not developed NOx emission standards that prevent ozone levels in downwind states from exceeding a 70 ppb standard updated last year.

In addition, the EPA's effort responds to a July 2015 remand by the U.S. Court of Appeals for the District of Columbia Circuit to appropriately modify CSAPR NOx budgets to meet the standards.

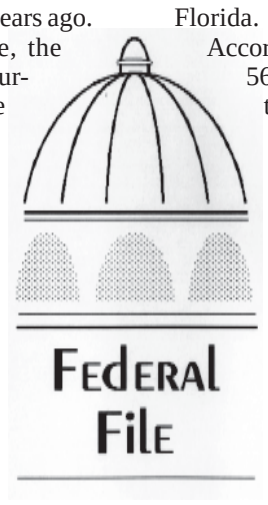
Sixteen of the 23 states are east of the Mississippi River but do not include South Carolina, Georgia or Florida.

Florida formulated its SIP years ago.

In proposing the new rule, the EPA acknowledged that the current NOx budget may not be fully adequate to meet the 70 ppb standard. The agency said that the proposed rule, nevertheless, will certainly provide justifiably sufficient ozone reductions in the near-term.

The agency also requested comments as to whether western states, not currently subject to the rule, should be included.

A 45-day comment period will begin when the rule is published in the Federal Register.



Direct potable reuse survey. As part of more assertive efforts to convince the U.S. public to accept direct potable reuse, a team of investigators distributed an online survey to assess perceptions of existing drinking water supplies as well as municipal wastewater that has undergone advanced water treatment processes that comply with drinking water regulations.

The effort yielded approximately 1,600 valid responses from individuals in four cities in Georgia, Texas, California and Florida.

According to the research team, about 56 percent of respondents agreed that "purified" wastewater being used as drinking water is a good idea for society. Slightly more, 62 percent, reported comfort levels above neutral when it came to drinking purified water.

The primary concerns for both municipal drinking water and purified water were its taste and smell, and potential microbial contamination.

In a pattern well-characterized by sociologists, the influence of recent experience was apparent in the results. Respondents in California and Texas mentioned response to drought as a reason for acceptance while those in Florida and Georgia pointed to the benefits of using DPR in lieu of withdrawing additional water from surface waters and groundwater aquifers.

The report's authors said their survey indicated several significant points for successfully communicating the benefits of DPR to the public, among them the ability to adequately address concerns about microbial contaminants and taste/smell.

In addition, fostering community trust in water and wastewater treatment facilities, regulators and local officials is vital for strengthening support for alternative water supplies.

The survey and its conclusions were discussed in the November 2015 issue of the *American Water Works Association Journal*.

Florida lags on climate change. A recent study ranked Florida as one state that has not done enough to prepare for the risks associated with sea level rise. The state is projected to have more than 4.6 million people living within the 100-year coastal flood plain by 2050.

Only Louisiana faces risks as high as Florida, yet the report gave that state a B- for its preparedness efforts to address coastal flooding.

Florida earned an F for efforts at the state and local levels to formulate and adhere to preparedness efforts.

Coastal flooding results from sea level rise and severe storms. The report said that of all the risks associated with climate change, coastal states as a whole have made the most successful preparedness efforts for coastal flooding, but that Florida lags significantly behind other members of its peer group.

The report also assessed climate change risks due to inland flooding as a result of exceptional rainfall, increasing summer heat, summertime drought and wildfires.

Residents in California and Florida share the top spot for the risk of inland flooding. In Florida, 1.3 million people currently live within FEMA-designated inland flood plain.

Residents of Gulf of Mexico states will face the highest risk of increased summer heat that seriously endangers human health. By 2050, Florida could have as many as 80 "heat wave" days each year. Its inland county residents could be among those in the country experiencing the most frequent heat days.

Heat and low rainfall are expected to increase the frequency of wild fires, putting Florida in a second-tier status for fire risks.

The rankings of all 50 states are available online in a special report, States at Risk: America's Preparedness Report Card, prepared by Climate Central and ICF International.

The report ranks states' preparedness on combined risks associated with climate change. Overall, Florida received a C grade for preparedness, but its lack of a plan to prepare for sea level change is seen as a serious failure exposing millions of residents in the state to coastal flood risks.

EPA renewable fuel targets. The EPA released renewable fuel standards for the years 2014-2017. Most notable is the dramatic increase in production standards for cellulosic biofuel and, to a lesser extent, advanced biofuels.

In 2014, just 33 million gallons of cellulosic biofuel were produced. In 2015 production will rise sharply to 123 million gallons and continue to increase in 2016 to 230 million gallons.

In the past half year, several large production plants using corn stover have overcome technical problems and are expected to contribute tens of millions of additional gallons annually to the cellulosic biofuel tally and to the total ethanol-based biofuel inventory.

Advanced biofuel production in 2014 was 2.67 billion gallons, and that will increase in 2015 and 2016 to 2.88 and 3.61 billion gallons, respectively, an increase of 35 percent.

FEDFILE

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Second lawsuit filed over misuse of Amendment 1 funds

Staff report

A second environmental group sued the state of Florida for allegedly misusing funds set aside by Amendment 1.

The funding was approved by voters in November 2014 for the state's conservation land acquisition trust fund.

But Florida Defenders of the Environment claims that the state misused hundreds of millions of dollars that was set aside in the conservation fund.

The environmental group said in a case filed in circuit court in Leon County that the state violated the water and land conservation constitutional amendment.

The advocacy group claims the state used about $237 million of the $740 million set aside by the referendum on salaries and benefits, capital projects, vehicles, insurance and other items not related to conservation.

Florida Defenders said the money should be used for buying and restoring lands only.

The Florida Wildlife Federation, St. Johns Riverkeeper and the Florida Sierra Club also filed suit earlier against the Florida Legislature and Chief Financial Officer Jeff Atwater for misuse of funds.

The latest lawsuit asks the court to order the state to transfer general fund money to the land acquisition trust fund in order to "repay" it.

The lawsuit by Florida Defenders names the heads of the Florida Department of Environmental Protection, Department of State, Department of Agriculture and Consumer Services and Fish and Wildlife Conservation Commission as defendants.

The group wants an injunction to block state agency heads from spending the money as approved in this year's budget.

Landfill plans withdrawn. Duda & Sons has decided to pull the plug on a landfill project until a better road network is in place at the site north of Immokalee.

The project had been opposed by local residents and first responders concerned about the hundreds of trucks traveling to and from the landfill daily.

Company Spokesperson Donna Duda said the company spent a lot of time discussing whether to go forward with the project. But ultimately, they decided to table plans to seek land use approval to build the Class 1 regional solid waste facility.

Even though most of the traffic concerns from the site were in Collier County, the landfill itself was proposed in Hendry County. Hendry officials had the final say over the permitting and were set to hear the company's proposal in January.

The proposal was for a 300-foot-high, 1,190-acre landfill about ten miles north of Immokalee. The facility would have collected trash from Miami-Dade County and elsewhere in Southeast Florida.

Most of the estimated 400 daily trips by trucks to and from the landfill would have passed along State Road 29.

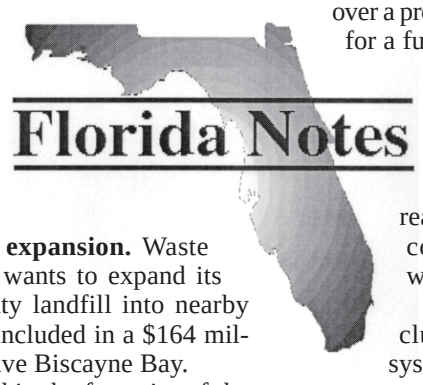
Immokalee residents, first responders and elected officials were opposed to the facility because they said the trucks would add to an already dangerous stretch of road for area pedestrians and bicyclists.

But Duda said the location is ideally suited for such a facility and it would provide economic benefits to Hendry County.

The Florida Department of Transportation plans to expand State Road 29, adding lanes and changing its route.

Duda said the company is still hoping the project can go ahead in the future once transportation corridors are more conducive to the needs of the facility.

Ultimately, the project will benefit the region and the state in meeting its waste disposal requirements, she said.



Dade landfill expansion. Waste Management Inc. wants to expand its South Dade County landfill into nearby wetlands on land included in a $164 million project to revive Biscayne Bay.

The land is within the footprint of the Biscayne Bay coastal wetlands project.

The project aims to restore the natural flow of freshwater and protect wellfields that supply drinking water. The revived marshes are also expected to fight flooding and saltwater intrusion.

The county has spent $8.6 million on the project so far.

The county's main 300-acre landfill along south Biscayne Bay is expected to reach full capacity by 2032. But Waste Management's landfill will likely be full in eight years.

An expansion would add another 15 years and keep the landfill open until 2050.

Alachua settlement. Alachua County dropped a lawsuit against the city of Alachua over a proposed 100-acre development for a future Walmart near 1-75.

The county's main concern was intensive development and water quality in the area. Under a settlement, the property owners reached an agreement with the county to develop the land with certain requirements.

Walmart has agreed to include a four-bay stormwater system and areas where runoff contaminants can be contained.

Company news. Alpha-Omega Training and Compliance Inc. moved its headquarters office from Rockledge to Cocoa. The professional service company's new address is 518 South Industry Rd., Cocoa, FL 32926. Their phone number is (321) 445-9845.

WERF, WRRF to merge

Staff report

The Water Environment Research Foundation and the WateReuse Research Foundation boards have agreed to merge operations.

The organizations believe that merging will reduce future water research redundancy, further the evolution toward a unified voice for water, and increase value to their respective audiences.

Both organizations conduct research in clearly-defined and complementary niches. WateReuse focuses on water reuse and desalination, while the Water Environment Research Foundation focuses on resource recovery and water quality impacts from wastewater and stormwater.

Emerald Coast Utilities Authority to expand reclaimed water system

Staff report

The Emerald Coast Utilities Authority plans to expand its reclaimed water system including a 750,000-gallon reuse storage tank and an additional six-mile reuse water distribution main.

The expansion will provide water to residents and property owners between the Portofino and Westpark developments on Santa Rosa Island near Pensacola.

It will be a substantial expansion of the island community's reclaimed water system that currently provides water to the Santa Rosa Island Authority for irrigating a portion of the Via De Luna right of way.

Currently, ECUA uses less than 15 percent of its treated water for landscape irrigation. The remainder flows into Santa Rosa Sound.

The reuse water expansion will end releases to the sound, and substantially reduce potable water costs for those residents who substitute reuse water for landscape irrigation.

Expansion plans hit a snag recently. The authority proposed to place the reuse water storage tank and pumping station in an area near the Via De Luna tennis courts, and between a Catholic Church and the Pensacola Beach Elementary School.

The proposed site is near the current wastewater treatment plant, as is usually the case.

At a public meeting, local residents were unanimous in supporting reuse water as a way of improving Santa Rosa Sound, but only about half supported construction of a storage tank anywhere. Fewer still supported the proposed location of the tank.

THE WATER WATCH

The Northwest Florida Water Management District provided a $425,000 grant for tank and pumping station construction—contingent upon completion of initial construction by October, 2017.

ECUA has $1.5 million in its current budget for construction and proposed another $1.6 million over the next six years. The authority said it will also seek additional funds through the RESTORE Act.

Following the meeting, the Santa Rosa Island Authority asked the utility to select an alternate site for the storage tank.

Paolo Ghio, director of environmental and developmental services with ECUA, said that the authority will reconsider other sites as well as its budget to decide if and how to proceed with the reuse water project.

Cocoa Beach stormwater. The city of Cocoa Beach will receive an extra $1.1 million loan from the Clean Water State Revolving Fund for its stormwater project on Minuteman Causeway.

The city will construct a stormwater treatment train along the causeway to redirect stormwater away from the Banana River Lagoon.

It will include urban rain garden planters, underground water storage tanks and pervious planters that will hold water so that it can percolate into the sandy soil and replenish the shallow aquifer.

It's estimated that redirecting the stormwater to the shallow aquifer rather than draining it to the Banana River Lagoon will eliminate 33 and 60 pounds of nitrogen and phosphorus, respectively, from entering the lagoon every year.

Total project funding is now near $4.3 million. Along with the recent $1.1 million SRF loan, the project received $800,000 in legislative funding, $544,540 through an EPA Section 319 grant, $450,000 from a state total maximum daily load grant, $50,000 from a St. Johns River Water Management District grant and $1,395,000 from the Florida Department of Transportation.

The stormwater project is part of a larger Minuteman Causeway streetscape effort. The entire cost of the project, including sidewalk pavers and other amenities in one of Cocoa Beach's oldest neighborhoods, is expected to be about $5.6 million.

Construction began in mid-summer, 2014, and is expected to be completed in mid-2016.

Martin County stormwater retrofit. With more than $1.1 million recently provided by a federal Clean Water Act grant administered by the Florida Department of Environmental Protection, Martin County is ready to begin its All American Ditch water retrofit project.

It currently drains untreated stormwater from 268 acres in Palm City into the South Fork of the St. Lucie River.

The retrofit project includes a deep detention lake and a 36-acre shallow stormwater treatment area planted with submerged and emergent wetland plants.

Part of the All American Ditch will be filled and graded to move water into the stormwater treatment area.

When complete, the project will reduce suspended solids released to the St. Lucie River by 91 percent. Total phosphorus and total nitrogen will be reduced by 69 and 48 percent, respectively.

Project funding also included $822,500 in matching funds from Martin County.

The South Florida Water Management District exchanged ownership of the property for the stormwater treatment area with Martin County for the county's 50 percent ownership in Williamson Ranch, a wetland restoration area in western Martin County.

Construction is slated to begin Spring, 2016 and be completed by the summer of 2017.

St. Johns monitoring stations. The St. Johns River Water Management District added five new water quality monitoring stations in the Amelia River, Nassau River and Sister's Creek.

The stations collect real-time data for temperature, dissolved oxygen, conductivity, chlorophyll, pH and other water quality parameters.

The monitors connect wirelessly through the district's telemetry network to its headquarters in Palatka. The system provides real-time access to water quality data that will help the district to better manage its programs to improve and maintain water quality.

In 2014, DEP provided $746,000 for 15 water quality sensors. Five of those were located in the Indian River Lagoon. The remaining 10 were placed in the northern coastal basin, as were the recent five.

The northern coastal basin extends about 125 miles, from the Florida-Georgia state line south through Nassau, Duval, St. Johns, Flagler and Volusia counties to the Ponce de Leon Inlet.

New Clean Marina designation. Whiting Park Marina received a Clean Marina designation from the state's Clean Boating Partnership.

Whiting Field's Whiting Park Marina is on the Blackwater River, east of downtown Milton, in Santa Rosa County.

The award recognized the marina's management for its commitment to using best management practices that promote environmental stewardship and protect Florida's waterways.

Those efforts included adopting safeguards to keep solvents, sewage, fuel and oil out of the waters near the marina.

The marina program also educates voters and improves operations at the marine facilities. Florida has more than 300 marinas enrolled in the Florida Clean Marina program.

Conservation funding. A total of $4 million in state funding is available for water conservation projects in both the Central Florida Water Initiative region and the North Florida Regional Water Supply Partnership region.

The St. Johns River Water Management District, in partnership with the Suwannee River Water Management District, Southwest Florida Water Management District, South Florida Water Management District and DEP, is soliciting for water conservation projects from public entities that help create sustainable water resources, enhance conservation efforts and improve efficiency of use.

The St. Johns district is accepting applications through Jan. 29, 2016, for conservation projects that will protect or enhance springs in central and north Florida.

Although the St. Johns district is administering the contractual portion of the program, applicants outside the jurisdiction of the district will be given equal consideration.

Water conservation projects that result in measurable water savings affecting priority springs, such as those in the Lower Santa Fe, Ichetucknee and Wekiva river systems, are among the program's highest priorities.

Altamonte Springs, FDOT partner on effort to reuse stormwater from I-4

By ROY LAUGHLIN

The city of Altamonte Springs jointly developed a stormwater reuse project with the Florida Department of Transportation in anticipation of the Interstate 4 Ultimate project that will widen 21 miles of the highway through Orlando.

Rather than direct the stormwater to a retention pond, water running off the interstate in Altamonte Springs will flow to the city's Cranes Roost Regional Water Reclamation Facility and eventually into its reuse water system for landscape irrigation use.

Officials said the project, Altamonte-FDOT Integrated Reuse and Stormwater Treatment, or A-FIRST, is the first of its kind the nation.

The project arose as a result of the serendipitous juxtaposition of Altamonte Springs' existing Cranes Roost regional stormwater facility and I-4. FDOT's interest in lowering the cost of I-4's construction led to the mutually beneficial collaboration

Altamonte came to the table with its reuse system and an innovative alternative water supply proposal. The Orlando suburb began its reuse system, Project APRICOT, in the late 1980s.

By the early 1990s, every parcel in the city had access to treated wastewater for irrigation, said Jo Ann Jackson, director of water, wastewater and reuse for Altamonte Springs. It was one of the first Florida municipalities to institute a citywide reuse system.

Later, Altamonte built Cranes Roost, which serves as a city park surrounding a large stormwater management facility that Jackson described as a "huge focal point" for the city.

Before the A-FIRST project, Cranes Roost provided flood control by capturing stormwater and discharging any excess to the Little Wekiva River.

For FDOT, it was a major opportunity just waiting for them.

"A-FIRST was a very unique project in that a lot of the infrastructure was already in place," said Ferrell Hickson Jr., PE, district drainage design engineer for FDOT's District 5. "All the department had to do was convey its stormwater to the pump intake location."

The A-FIRST project substantially changes stormwater management in Altamonte Springs. Crane's Roost serves as the first stage of stormwater management by allowing retention and particulates settlement. But now, rather than releasing excess stormwater to the Little Wekiva, it is piped to the city's new Reuse Augmentation Facility, or RAF.

The intake water is screened before pumping to the RAF to remove any remaining particulates or larger objects, and then filtered and disinfected at the RAF to meet reuse water standards.

The city converted an older water treatment plant to serve as the RAF, according to Jackson. The treated stormwater is blended with reclaimed water from Altamonte Spring's wastewater reclamation facility, and pumped through the reuse water system for landscape irrigation.

When the I-4 Ultimate project is complete, its rainfall drainage will amount to about 0.5 million gallons a day for a typical daily rainfall event.

A priority will be to reuse the combined stormwater and reclaimed water within Altamonte Springs' city limits. However, any excess water will be carried by a new six-mile-long pipeline with a 4.5 mgd capacity to the nearby city of Apopka, which will distribute it as needed through their reuse system.

During the most extreme storms, stormwater could still be released to the Little Wekiva River.

Jackson said that Altamonte Springs will end frequent releases to the Little Wekiva from Cranes Roost as a result of the stormwater sharing agreement with Apopka.

That will prevent up to about 28,000 pounds of phosphorus and more than 62,000 pounds of nitrogen from being added to Little Wekiva River annually.

Piping the excess to Apopka will provide additional water to that growing region to augment its reuse system and provide recharge to both the shallow and upper Floridan Aquifer that nourish Wekiva Springs and other springs in the area.

The expansive new stormwater management scenario will improve surface water quality on one side of Altamonte Springs, and increase water supply for the aquifer and springs on the other side.

An immediate benefit to FDOT was that land acquired for a retention pond along I-4 is no longer needed for that purpose. It is now being used as a staging area for the massive interstate widening project through Orlando.

Hickson noted that for FDOT the project represented a unique opportunity because the city already had much of the needed infrastructure in place.

It's value for other projects going forward is to "provide a model for pursuing outside-the-box thinking to develop promising opportunities," he said.

FDOT is actively seeking additional opportunities to pair their projects with other reclaimed water facilities.

"There are some issues regarding chlorination requirements for stormwater, and there are recommendations to remove those barriers, as noted in the Senate Bill 536 draft report," he said. "One line of thinking would be to provide stormwater to the downstream side of the plant to avoid the unnecessary cost of treating it."

The benefits seem too great not to manage stormwater from major highways as a source of reuse water.

The A-FIRST project began operation in October and was formally inaugurated in November.

"It provides a major source of water to Altamonte Springs to meet irrigation demands, as well as to Apopka," Jackson said. "It reduces groundwater pumping near springs. It also set an example for stormwater reuse partnerships between FDOT and other agencies."

The project may not represent a plug-and-play effort for all highway projects, but building similar sustainable water reuse strategies into future FDOT projects seems a certainty.

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From Page 1

meet expected growth in water demand over the next 20 years.

The report's Solutions volume is a document that may very well guide the next 20 years of water resource development in the region. It identifies a list of projects that might be undertaken to meet the gap between supply and demand.

Water users in the region can select from those projects or suggest alternative projects, Register noted.

He said that the managing committee met in early December and will recommend that CFWI continue its work for at least another five years.

During that time, CFWI will focus on refining the flow model developed in collaboration with the U.S. Geological Survey.

In the next few years, CFWI staff will collect water supply data and will then spend the final two years completing the next iteration of regional planning documents. That effort will provide structure for consumptive use permitting in the region.

"CFWI will not be developing and managing water resources and supplies," said Register. That will be done by stakeholders such as utilities, agricultural interests and others. But the collaborative structure established by CFWI can, going forward, foster partnerships and identify potential areas of funding.

Increasing the future water supply will require substantially larger projects than have been the norm in the past. Anticipated regional efforts will likely include multi-million dollar projects, far too large to be funded by borrowing from the State Revolving Fund.

The initiative's collaborative nature, Register suggested, should work effectively with multiple jurisdictions and the Florida Legislature, whose combined contributions are capable of providing tens of millions of dollars for such projects.

Cooperative water supply planning among multiple agencies seems to be the new methodology for water supply planning in Central and Northeast Florida.

"We've got most of the state covered where the districts overlap," said Register to characterize similar water supply planning efforts in Northeast Florida and less formally in the Silver Springs and Rainbow Springs area.

While the CFWI water supply document marks an important milestone in Florida's water planning, the initiative will not step down with the WMD's approval of the plan.

"The importance of the CFWI efforts to be inclusive and collaborative, and the commitment to implement and update the plan going forward cannot be overstated," said Register.

It will refine regional water supply planning at least until 2020, and will foster some, or perhaps many, of the solutions.

Palm Beach County exploring new ways for disposing of horse wastes

By BLANCHE HARDY, PG

Every January, Palm Beach County becomes awash in polo matches and horse shows. Polo has been played in the county for almost a century, and the village of Wellington has become an internationally recognized center for equestrian sports.

The once elite equestrian activities have grown in both physical and commercial extent. More than 20,000 horses now occupy the county during the season and they, and the county's regular year-round equine occupants, generate roughly 200,000 tons of horse waste a year. Disposal has become a voluminous challenge.

Historically, local growers accepted the waste composed of manure, urine and contaminated bedding for use as fertilizer, but as the nursery business has waned so have options for disposal.

Illegal dumping prompted the county to create best management practices governing the volume of waste that can be disposed of as well as where it can be disposed.

Even though animal waste is now regulated, illegal dumping continues to be a problem.

Dr. J. William Louda, a research professor in the Department of Chemistry and Biochemistry and the Environmental Sciences Program at Florida Atlantic University, has been engaged in addressing the waste issue for some time.

Louda said that nurseries have been accepting much more horse waste than they need for growing their plants.

"They do this because the trucking companies pay (the nurseries) a 'tipping fee,'" he said. "Thus, a nursery may only need two truckloads for a 40- to 100-acre operation in a single year," but will accept much more to obtain the fees.

Other issues have been exacerbating the problem.

"Competition for the lowest price per load by the waste haulers is driving some of the actions that do not currently meet Palm Beach County's best practices," said Rebecca Driskill Caldwell, executive director of the Palm Beach County Planning, Zoning, and Building Department.

Some relief has come through U.S. Sugar Corp.'s acceptance of horse waste on 250 acres of their land in Clewiston. The company allows the waste to be dumped at no cost, benefiting the haulers.

In addition to the problems of smell and insect attraction, the spreading of animal waste and its exposure to the elements represents a potential for contamination.

"Horse manure, fresh or aged, is prone to leeching phosphorus and nitrogen, the two main plant and algae growth nutrients," said Louda. "Extracting manure with plain water and mild bicarbonate solutions, typical of Florida conditions, removes 3.6 grams of phosphorus per pound of manure on a dry weight basis. This equates to 15.9 pounds of phosphorus per ton of manure.

"We are trying to get the Everglades under the 10 parts per billion (threshold). This is an enormous environmental load to remove through the use of filtering marshes."

Louda also expressed concern about the potential for animal waste pharmaceuticals to enter surface and ground waters.

Given proximity to the Everglades, long term continuation of even the currently acceptable land application of wastes is prompting consideration of alternative disposal methods.

"The county's recently constructed waste-to-energy plant is able to burn the manure and bedding for electrical power generation," said Caldwell.

In addition, she noted that a site plan for a recycling plant specifically for horse waste and bedding was recently approved, but has not yet moved forward to the permitting stage of development.

Keeping waste disposal and recycling local as a means of reducing the equestrian carbon footprint is critical to Louda.

"A single round trip from Wellington to Clewiston to transport 20 cubic yards of manure and bedding would generate 324.5 pounds of CO2," he said. "Thus, only (a handful of) trips are required to add another ton of carbon dioxide to our atmosphere."

Louda suggests siting a waste recycling facility locally to produce products.

"Products would be pelletized or bagged compost and fertilizer, fire logs and reclaimed cleaned bedding," he said. "The idea of recycling manure into fertilizer is not new. Since 1926, human 'manure' from Milwaukee has been sold and safely used as Milorganite.

"When this is done, the pathogens and pharmaceuticals in the manure, human or horse in the present case, are also remediated."

Commercial poultry operation under construction in Fort White

By BLANCHE HARDY, PG

This summer, owners of the pending JTC Farm's chicken facility received a general environmental resource permit from the Suwannee River Water Management District authorizing construction of 12 chicken houses along with other nonproduction buildings.

The permit is required to address stormwater runoff from impervious areas.

Residents and local government officials had no idea the substantial poultry farm was underway until land clearing and construction began.

County governments are preempted from regulating nonresidential agricultural structures by Florida Statute 553.73(10)(c).

No building permit is required, so no notification was made by the farm's owners at the local level.

In response to citizen inquiries, the project was subsequently discussed before the Columbia County Commission in mid-October.

The property is zoned agricultural and the county's land development regulations allow all non-intensive agricultural activities.

The buildings will be raised to prevent water infiltration and the owners intend to collect, compost and sell the poultry-generated waste. A litter storage building is planned to store the litter while processing.

Jason Scarborough, a representative of Pilgrim's Pride Corp. provided details about the flock to the commission.

He said that they plan to build twelve poultry houses that will each hold between 22,000 and 26,000 birds.

They expect to have five or six flocks every year. The poultry houses will produce about 15 tons of litter per house per flock.

Up to 312,000 chickens will be on the site at any one time and approximately 1.8 million chickens will be produced by JTC farms annually. At five flocks, the farm will generate 900 tons of chicken litter annually.

Residents were surprised that the county could not regulate the poultry operation and concerned that surface and ground waters may be adversely impacted by the volume of chicken litter being generated.

The Lower Santa Fe and Ichetucknee rivers are within two miles of the farm's location. In addition, the county's comprehensive plan indicates the farm is situated in a high aquifer recharge area.

Residents asked the commission to modify existing regulations to address the proposed farm and potential similar operations in the future.

Extensive research delves into contaminants of chemical concern at landfills across the country

By ROY LAUGHLIN

A team of U.S. Geological Survey researchers recently published the second of two papers characterizing contaminants of emerging concern, or CEC, found in leachates from 19 landfills located across the country.

The first paper, published in 2014, revealed a complex mixture of more than 129 different CEC in "fresh landfill leachate."

In late 2015, the research group published a sequel study of CEC in "final leachate," landfill leachate that had been stored or treated. Compared to fresh leachate, final leachate contained fewer chemicals—101 different CEC—and they were typically lower in concentrations than in fresh leachate.

The contaminants included both prescription and over-the-counter pharmaceuticals, household chemicals, industrial chemicals, plant and animal steroids, and steroid hormones.

CEC are widely used but not necessarily in large quantities in any given location. Their use is a ubiquitous. For example, containers of household and industrial chemicals for widely used consumer products are likely to be discarded after use.

In addition, many CEC are not included in the current criteria for landfill monitoring under the Code of Federal Regulations, Part 258. Many occur globally in the environment and their fate and biological effects are poorly characterized in spite of increasing evidence of deleterious environmental influences.

In the U.S., landfill waste disposal is the norm, and in developing countries, its use is expected to increase at a far greater rate in the coming decades than has been the case previously.

Because of rainfall, groundwater entry, or intentional flooding to control fires or increase biodegradation rates, aqueous leachates are intrinsic landfill components.

These leachates are a chemical soup reflecting the constituents of the landfills and the chemicals associated with the waste most likely to be leached by water.

The pair of studies, headed by USGS Hydrologist Jason Masoner and colleagues, represent the most extensive to date characterizing landfill leachates geographically, as well as in terms of landfill age and annual waste load.

The researchers studied 19 landfills—twelve municipal and seven private landfills—located in 17 states, including Florida. They analyzed for 202 CEC compounds in fresh leachate samples and 190 in final leachates.

The group identified at least one CEC in every single leachate sample analyzed, ranging in number from six to 82 CEC, with the median of 31 per sample in fresh leachate. Analysis showed at least one CEC in every final leachate sample, but the number of CEC in samples ranged from one to 58, with a median of 22, lower numbers than in fresh leachates.

In both fresh and final leachates, pharmaceuticals occurred most frequently, followed by industrial chemicals, nonprescription pharmaceuticals, household chemicals that included two pesticides, plant and animal sterols, and finally steroid hormones.

The authors distinguished between the frequency of occurrence and the amount of chemical in the leachates. Pharmaceuticals, which occurred most commonly, accounted for just one percent of the total concentrations.

Household and industrial chemicals combined contributed more than 80 percent of the total measured CEC concentrations in both fresh and final leachates. In a concentration-based leachate comparison, para-cresol, bis-phenol-a, BPA and phenol concentrations dominated.

Nonprescription pharmaceuticals, surprisingly, were detected at similar frequencies to household and industrial chemicals, but accounted for only 12 percent of the total measured CEC concentrations. Of the remaining concentration percentages, plant and animal sterols and steroid hormones accounted about four and one percent, respectively, of the total measured CEC concentrations in fresh leachates.

The researchers correlated landfill characteristics including loading volumes, age and annual rainfall with fresh leachate CEC concentrations and composition.

The researchers found large differences among three landfill groups based on leachate production, but those were not statistically significant based on use of the Kruskal-Wallis test.

The same was true when landfills were placed into three groups based on age of waste.

When the landfills were grouped and analyzed by region, the seven in the Pacific Northwest and Northeast regions produced fresh leachate with the greatest numbers of CEC detected and total measured CEC concentrations.

More than half of the total detections and two thirds of the total measured concentrations were in leachate samples collected in the Pacific West and Northeast region. Landfills in the Southeast ranked fifth for detections and third for total measured concentrations.

The remaining regions' leachate accounted for only 36 percent of the CEC detections and 10 percent of the total measured CEC concentrations.

Leachates from landfills located in high rainfall environments displayed the greatest total measured CEC concentrations.

The report noted a significant difference in the frequency distribution of detection in total measured concentrations for pharmaceuticals between landfills located in dry, moderately wet and wet environments. This is consistent with other studies that have shown that rainfall plays an important role in CEC concentration in landfill leachates.

USGS' Masoner compared landfills to wastewater treatment plants as sources of CEC to surface waters. Another USGS team has reported that wastewater treatment plants are a primary source of pharmaceuticals and other CEC to rivers.

He noted that the inputs to surface waters from WWTPs dwarf any inputs from landfills. Landfill contributions based on measured leachate concentrations amount to, at most, a few percent—likely less.

Consumers do not buy medicines to throw them away, and what they consume ends up in treatment plants. This is the case even when landfill operators send excess leachate to wastewater treatment plants, as some do.

In general, the USGS's more recent paper on CEC in final leachates mirrored the results of fresh leachate, except that several fewer CEC were found, and CEC in leachates from closed, unlined landfills were lower than for final leachates from operating, lined landfills.

Many reasons could account for the difference. The research team said that given the variety of CEC from either type of landfill and the uncertain toxicological effects of chemical mixtures, the chemical soup in leachates from either type could pose similar environmental risks

The persistence of chemicals in final leachates may surprise some readers. "Treatment" at landfills covers a broad spectrum of effort, from simple storage, to disposal on sprayfields. Some leachates sent to WWTPs were treated to reduce ammonia before being discarded to sewers.

Although few requirements exist for landfill leachate treatment, the adoption of contaminant destruction treatments used in the remediation industry is clearly a prospect to reduce CEC at many landfills al-

LEACHATE
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Activists escalate cane burning complaints from state to federal level

By PRAKASH GANDHI

Environmental activists are challenging sugar cane burning in South Florida, claiming it leads to serious health and environmental impacts.

The groups have filed a legal challenge asking the U.S. Environmental Protection Agency to start regulating the practice.

The burning is allowed on 400,000 acres of sugar cane fields in the agricultural region that stretches south of Lake Okeechobee.

The legal challenge was filed by the Sierra Club and Earthjustice who believe the cane burning pollutes the air and worsens health problems such as asthma and allergies.

Frank Jackalone, senior organizing manager for the Sierra Club in St. Petersburg, said sugar cane growers should be more responsible for their impacts to South Florida's environment.

"This practice is causing serious environmental effects," he said. "There is ash on people's homes and in their yards. People have to go indoors to avoid breathing the smoke as it blows. Kids have to breathe it as they walk to school."

State health officials, however, said that sugar cane field burning doesn't violate air pollution limits. Sugar industry officials also claim the practice to be safe and efficient.

South Florida's sugar cane harvest lasts from October until April. In 2015, it was expected to produce nearly 17 million tons of sugar cane that would be processed into more than two million tons of sugar.

Growers have long used the controlled burns to get rid of the leafy portions of the sugar cane surrounding the stalk. After the fast-burning fires die down, harvesting machines chop and gather the stalks that are taken to a sugar mill for processing.

The legal challenge from the environmental advocacy groups requests that emissions during the months of sugar cane burning should be linked to the mill's state-permitted air emissions limits.

The Sierra Club and Earthjustice want federal regulators to void the state permit for U.S. Sugar Corp.'s sugar mill in Clewiston.

The groups maintain that the state permit governing emissions from the mill fails to factor in all the smoke from the burning sugar cane fields, many of them in Palm Beach County.

"There are health impacts from sugar cane burning," Jackalone said. "These companies are saving money by burning and then passing along the costs to everybody else. We are concerned with the environment—not just with how this practice affects the Everglades but communities as well."

The legal challenge requests that emissions during the months of burning should be linked to the mill's permitted air emissions limits.

The Sierra Club and Earthjustice argue that sugar producers in other countries have stopped burning their fields. Instead of burning, the leafy portion of sugar cane plants are cut and used for mulching in the fields, or taken and burned elsewhere as biofuel.

"There are alternatives to this," Jackalone said. "We believe the sugar cane trash can be harvested beneficially, which is what is being done in places like Australia and Brazil. You can recycle this material and use it for other things."

But Jackalone said it is cheaper for the sugar industry to keep burning the sugar cane.

"We think that in the long-term there are economic benefits, but it takes investment to do this," he said. "We are not trying to drive the sugar cane farmers out of business, but to make them more responsible to the communities where they do business."

Sugar industry officials strongly defend the burning of sugar cane, saying they have received very few complaints. They criticized the steps taken by the environmental groups.

Sugar officials said that cane burning is a widely accepted, closely regulated and monitored process.

"We believe that this attack is simply another of their efforts to put the sugar farming industry out of business in Florida," said U.S. Sugar Spokesperson Judy Sanchez. "And we're prepared to defend this action as we have defended every other attack that they have made on our business."

Industry officials said there have been fewer than two verified complaints per year over the past 11 years related to cane burning.

Ongoing air quality monitoring shows that the burns do not violate federal air quality standards, officials said.

The Palm Beach County health department has found no medical studies indicating an increase in local hospital or health care visits because of smoke related to cane burning.

"This petition is not unexpected given that similar arguments were previously made and dismissed by the Florida Department of Environmental Protection," said Sanchez. "Considering that critics have already lost at the state level, they are now attempting to shop the same discredited arguments with federal regulators."

She said the petitions are motivated by a desire to inflict economic harm on the sugar cane business.

"We look forward to seeing this baseless petition dismissed," she said.

Jackalone said he hopes a workable solution can be hashed out.

"We had a meeting with sugar industry officials in which we laid out our case and alternatives to sugar cane burning," he said. "We would like to see some progress made on this issue."

Gilchrist County, SRWMD partner on springs restoration

Staff report

Gilchrist County and the Suwannee River Water Management District completed a successful restoration project at Hart Springs that will improve the health of the spring.

Sediments, sand and parts of the retaining wall had washed into the spring vents, altering its magnitude of flow.

Over the past few years, the county replaced deteriorating retaining walls, built access points to the spring and spring run, stabilized erosion issues and removed major amounts of debris blocking the vents.

Officials said these collective actions have restored the spring, removed hazards and improved water quality.

The district contributed $76,700 towards the restoration project and the county provided in-kind services in support of the effort.

Noah Valenstein, executive director of the Suwannee River Water Management District, said springs restoration and other water resource development projects allow the district to protect natural resources and support local economies.

"It's a win-win situation," he said.

Dave Dickens, administration and operations director for the district, agreed. He said the restoration of Hart Springs was truly a partnership effort.

"Collaboration with Gilchrist County officials, volunteers and local contractors demonstrates the strength of communities and the immeasurable value of springs," Dickens said.

New study: Smart irrigation technology can yield sizable water savings

By ROY LAUGHLIN

Homeowners typically use more water to irrigate their landscaping than they use inside the house for drinking, cleaning and bathing. And if a timer-controlled irrigation system is in use, chances are they are using far more water than needed.

With a renewed focus on identifying new water sources for Florida's growing population, the state's utility directors and water management officials are focusing more on the conservation component.

The effective use of intelligent irrigation controllers to ensure more efficient landscape irrigation is receiving increasing attention. At best, they may reduce water usage by more than half while successfully maintaining landscape plants.

University of Florida Professor Michael Dukes, PE, PhD, and his research team are at the forefront of evaluating smart irrigation technology available to residents in the state.

Currently, two types of smart irrigation controllers suitable for homeowners are on the market. One measures soil moisture and provides water accordingly.

The other bases irrigation schedules on estimates of evapotranspiration as determined by soil moisture and other weather conditions.

Soil moisture sensors are the older of the two types. When soil moisture drops below a selected threshold, the controller activates the irrigation system.

Most soil moisture systems allow for zone irrigation, and can be programmed to respond zone by zone to different soil moisture levels. They are the least expensive, least prone to need adjustment and some models have greater longevity.

Multiple soil moisture sensors can be placed throughout a yard. Soil moisture controllers, which cost less than $200, can typically be added to an existing irrigation controller.

Evapotranspiration sensors, or "weather-based controllers," are a more recent category of intelligent irrigation controllers. They follow an irrigation schedule based on soil moisture, temperature, relative humidity and wind conditions.

The environmental data is collected on site and a microprocessor algorithm determines when to irrigate. The ETSs are more expensive because of their complexity.

They cost about $250 plus installation costs and require placement of an irrigation controller usually completed by a professional.

Either type of system should last about 10 years, according to Dukes. Sensors are the component likeliest to fail, but the better systems have replaceable sensors.

Homeowners can buy intelligent irrigation controllers at home improvement stores but most are purchased through an irrigation contractor.

The U.S. Environmental Protection Agency is an important source of information about irrigation controllers. The agency conducts third party testing through its WaterSense program.

Irrigations controllers can carry the WaterSense label if they improve water savings of 20 percent over an accepted benchmark.

Currently ETS-based systems are WaterSense certified. Moisture-based controllers can be certified in the future when appropriate test protocols have been developed.

Dukes said that programming some smart irrigation systems may be challenging to users who aren't savvy with electronic devices.

"It's not hard if you take an interest. It's just not obvious," was how he characterized the challenge.

His group at UF provides some web-based instruction on how to operate the programmers, including Agricultural Extension Service articles and research reports.

Dukes and his researchers have demonstrated the superior performance of intelligent irrigation controllers, however they often run afoul of local irrigation regulations.

Since 1991, the state has mandated rainfall bypass controllers on automatic irrigation systems that prevent yard watering during or immediately after rainfall.

In addition, water management districts and local governments typically have day-of-the-week irrigation schedules, and may limit irrigation frequency to one or two days.

In studies done by Dukes' team, the use of smart irrigation controllers showed that considerable water savings occurs. The savings can range from 30-60 percent because properly calibrated smart systems irrigate only where and when necessary.

Dukes said just a few localities currently provide incentives for the use of intelligent irrigation controllers.

"Manatee County has a long-standing program to subsidize water conservation devices," said Dukes. "And Miami-Dade incentivizes smart controllers." Those incentives are monetary.

Dukes urges local agencies and government planners to offer rebates to create some process "of getting the newest science into the hands of contractors."

In a collaborative study in Orange County, Jacqueline Torbert, manager of the county's Utilities Water Division, worked with Dukes on a study funded by the county, the St. Johns River and South Florida water management districts, and the Water Research Foundation.

They evaluated how ready property owners in Orange County are to adopt intelligent irrigation systems, and how much water it saved in test uses. Torbert said the study showed that "it actually works," and the public is prepared to adopt it.

But before Orange County can update ordinances to promote wider use of intelligent irrigation techniques, the water management districts "have to get on the same page" with the county.

"We think we have the foundation to move forward now," Torbert said.

Both Orange County and the two water districts are working through the process of drafting new rules and ordinances.

Tolbert said that approval for routine installation of intelligent irrigation systems is likely more than a year away.

But changes will happen so that residential and urban landscaping receives the most efficient irrigation possible, while stretching the region's water supplies.

TBW announces grant recipients

Staff report

Tampa Bay Water has awarded grants to a number of organizations in the Tampa Bay area for their efforts to protect the sources of the region's drinking water supply.

"This program is an important component of Tampa Bay Water's outreach and education efforts because a major line of defense in protecting our drinking water sources is public awareness and support," said Michelle Stom, chief communications officer for Tampa Bay Water.

Since 2008, Tampa Bay Water has awarded more than $150,000 in grants to fund projects and events sponsored by local community groups, non-profit groups, schools and universities that help promote protection of the region's drinking water sources.

This year's recipients include Keep Tampa Bay Beautiful who received $10,000 for an environmental education program, the Girl Scouts of West Central Florida who received $8,000 for the "What's In My Bottle Matters" program, Keep Pinellas Beautiful who received $5,300 to support an education and outreach program, and the Glazer Children's Museum who received $4,000 to support a water conservation education program.

New desal process

Site owner strategies, options in the DEP Petroleum Restoration Program

By STEVE HILFIKER

This column is intended to help property owners understand the most commonly used options available for contaminated sites eligible for funding through the Florida Department of Environmental Protection's Petroleum Restoration Program.

Site owners have the right to participate in their remediation strategies. Most of the information here also applies to sites that are not currently eligible for funding.

The terms of funding are important and often form the basis of the selected strategy. Risk-based solutions are being used more frequently for sites with funding caps, complicated remediation or circumstances where the owner is seeking a prompt and less intrusive method to close the regulatory file.

There are numerous factors to consider based on the long-term objectives for the site. Professional consultants can help determine the best strategy.

Remediation

The DEP cannot force risk-based corrective action, which is a method to close the regulatory process on a contaminated site by demonstrating that there are no exposure risks.

Since deed restrictions are often involved with RBCA, full remediation to cleanup target levels is the option most owners select.

The most common alternatives to remediation are outlined below. Each may be expanded through pending legislation.

Low-Score Site Initiative

LSSI is a voluntary site assessment that involves no cost to an owner. The owner can select the contractor and the work is limited to $30,000. Roughly 27 percent of LSSI sites are clean and receive closure through a site rehabilitation completion order.

If soil or off-site groundwater impacts are identified, the site would not qualify for closure but would still be eligible for funding, as if no LSSI work had been done.

If there are no soil impacts and contaminated groundwater is found within site boundaries, the site would qualify for a no further action letter.

Deed restrictions are only required if impacted soil exists within two feet of land surface. File reopener provisions are included in the closure letters.

Advanced Cleanup Program

This program is for sites that are scored below the priority funding score for remediation, which is currently 30.

With a minimum contribution of 25 percent, owners can submit an application to have their site score waived and obtain remedial funds without waiting for remedial funding.

The 25 percent contribution can be demonstrated by using risk-based corrective action procedures if 20 or more sites are bundled.

Contractor selection

If an owner has a 25 percent cost contribution, they can select their contractor. A pending change to Rule 62-772.401, Florida Statutes, would allow the cost contribution to be demonstrated using RBCA cost savings.

Most sites are directly assigned by the DEP to an approved agency term contractor by using a formula for work distribution.

Limited Site Assessment

There are roughly 5,000 sites now scored below 30. The state wants all of these sites assessed within the next five years.

The DEP is sending letters to site owners to obtain access for assessments, which will be assigned to contractors by the DEP. If LSSI as outlined above is initiated before a LSA purchase order is issued by the PRP, the LSSI work would proceed instead of the LSA.

DEP/FDOT MOU

For sites with impacts that cross into a Florida Department of Transportation right of way but would otherwise qualify for closure, this Memorandum of Understanding establishes criteria that would enable regulatory closure.

Risk management options

The site cleanup rule, Chapter 62-780, Florida Administrative Code, outlines risk management options that can result in a conditional site rehabilitation completion order using risk-based corrective action.

The RMOs typically require prohibitions against water use and engineering controls to prevent exposure to impacts.

These conditions may require a restrictive covenant—a deed restriction—to alert future property purchasers of the controls.

RBCA closure without recording covenants

For sites located in areas where water use is already restricted, deed restrictions may not be required.

DEP Institutional Control Registry

All sites closed via RBCA procedures are added to the Institutional Control Registry maintained on the DEP website.

Ideas have been presented to provide the ICR with more legal authority that could further minimize the need to record restrictive covenants.

Consulting

Since there are now more options than ever to close a discharge file, consulting has never been more important. There are other strategies in addition to these outlined above, and there are many details associated with each of the above options.

The long term objectives for each site should be evaluated by a professional consultant to assist with the selection of the best strategy for each site.

Steve Hilfiker is president of Environmental Risk Management Inc. in Fort Myers. He can be reached through www.ermi.net.

Officials withdraw application for St. Lucie compost plant

By PRAKASH GANDHI

Residents and nearby landowners won a major battle against a company that planned to build a biosolids compost facility in western St. Lucie County.

In November, CompostUSA withdrew its application to build the plant, ending a fight that pitted the company against environmental activists, government agencies and nearby residents.

The company was seeking approval to setup shop on a 182-acre citrus grove on Shinn Road, about a quarter mile west of Port St. Lucie's city limits.

The plant would have mixed sewage sludge from municipal wastewater treatment plants with chopped yard waste and wood chips to produce mulch, fertilizer and potting soil.

Becker Holdings Corp., which owns the land, would have been a half partner in the business.

Martin County commissioners came out strongly against the plant, urging St. Lucie County to reject it.

The proposed facility would have been about a half mile north and upstream of the C-24 Canal.

The St. Lucie County planning department hired Tetra Tech Inc. to conduct a study on the proposed plant. They produced a report that indicated that the facility would likely send nutrients, pathogens, bacteria and heavy metals into nearby canals.

The report indicated that the plant would "ultimately have a negative effect on water quality downstream" in the St. Lucie River and Indian River Lagoon.

Water samples collected from a retention pond at a Compost USA facility in Sumter County contained nitrogen, copper, arsenic, lead and several herbicides,

COMPOST
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Calendar

January

JAN. 4-8 – Course: Backflow Prevention Assembly Tester and Certification, Lake Buena Vista, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

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

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

JAN. 11-15 – Course: Wastewater Class A Certification Review, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

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

JAN. 15 – Conference: 25th Annual Southwest Florida Water Resources Conference, Ft. Myers. FL. Presented by the Florida Section of the American Water Resources Association. E-mail awra@awraflorida.org or visit www.awraflorida.org.

JAN. 25-29 – 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.

JAN. 25-27 – Course: Asbestos: Inspector, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

JAN. 28-29 – Course: Asbestos: Management Planner, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

JAN. 30 – Meeting: Quarterly Membership Meeting of the Florida Ground Water Association, Crystal River, FL. Call (850) 205-5641 or visit www.fgwa.org.

JAN. 30-FEB. 7 – Course: Backflow Prevention Assembly Tester Training and Certification, Tampa, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

February

FEB. 1-5 – Course: Water Class A Certification Review, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

FEB. 1-2 – 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.

FEB. 1-3 – 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.

FEB. 2-5 – Course: Water Class B Certification Review, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

FEB. 3-5 – 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.

FEB. 4 – Course: Asbestos Refresher: Worker, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

FEB. 5 – Course: Introduction to Lift Station Maintenance, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

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

FEB. 15-19 – Course: Backflow Prevention Assembly Tester and Certification, Destin, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

FEB. 16 – Course: Asbestos Refresher: Management Planner, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

FEB. 16 – Course: Asbestos Refresher: Inspector, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

FEB. 17 – Course: Asbestos Refresher: Contractor/Supervisor, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

FEB. 17-18 – Seminar: Winter Water Seminar, Tallahassee, FL. Presented by the Florida Engineering Society and the Florida Association of Professional Geologists. Call (850) 224-7121 or visit www.fleng.org.

FEB. 18-19 – Course: Backflow Prevention Recertification, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

FEB. 18 – Course: Asbestos Refresher: Worker Trainer, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570.

FEB. 21-23 – Summit: 2016 Joint Summit: Partners in Progress, Orlando, FL. Presented by SWANA Florida and Recycle Florida Today. Call (727) 940-3397 or visit www.swanafl.org.

FEB. 22-23 – Course: Backflow Prevention Recertification, Destin, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

FEB. 23-25 – Course: Train the Trainer: How to Design & Deliver Effective Training, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570.

FEB. 27-28 – Course: Backflow Prevention Recertification, Tampa, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

March

MAR. 1 – Course: Refresher Training Course for Experienced Solid Waste Operators-4 Hours, Crestview, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

MAR. 1 – Course: Initial Training Course for Spotters at Landfills, C&D Sites and Transfer Stations-8 Hours, Crestview, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

MAR. 1 – Course: Refresher Training Course for Experienced Solid Waste Operators-8 Hours, Crestview, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

MAR. 1-2 – Course: Initial Training for Transfer Station Operators of and Materials Recovery Facilities-16 Hours, Crestview, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

MAR. 1-2 – Course: Refresher Training Course for Experienced Solid Waste Operators-16 Hours, Crestview, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

MAR. 1-2 – Course: Refresher Training Course for Experienced Solid Waste Operators-16 Hours, Crestview, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

MAR. 1-2 – Summit: Emerging Contaminants Summit, Westminster, CO. Produced by BNP Media. Call (847) 405-4127 or visit www.contaminantsummit.com.

COMPOST

From Page 10

said the report. The metals were not at high levels, but Tetra Tech said they could be released into the nearby environment.

For their part, CompostUSA said numerous long piles of yard waste and wood chips would absorb most of the rain falling on them.

The company said that any trace amounts of contamination in the water leaching off the piles would be absorbed by vegetation in swales and a surrounding moat.

But St. Lucie County officials and residents were concerned about the project, said Mark Satterlee, deputy county administrator.

"I think initially, staff was supportive of this project," he said. "But as more and more evidence came to light, everybody became increasingly uncomfortable and very concerned. There were some real difficulties with the project.

"We were worried that airborne pathogens would possibly leach into the groundwater and into the north fork of the St. Lucie River and ultimately into the Indian River Lagoon."

Satterlee said the county received comments from hundreds of residents and surrounding landowners, including vegetable growers in and around the proposed site.

"The concerns that the Tetra Tech report raised only amplified the water quality issues that were already there," he said.

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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.

Lake County initiative to develop conservation, drinking water, reuse projects

By ROY LAUGHLIN

In November 2013, the Lake County Board of County Commissioners, the South Lake Chamber of Commerce and the city of Clermont hosted the South Lake Water Summit.

The public was invited to the forum that delved into the problem of declining water levels in many southern Lake County waterways and addressed future water supply from the aquifer.

Two years later, Lake County's South Lake Regional Water Initiative is now orchestrating water projects, conservation and reuse projects intended to keep water available for South Lake County's growth through the next two decades.

Lake County planners predict significant population growth in the county in existing communities and in Wellness Way, a development of regional impact near Clermont in the extreme southeast corner of the county.

That growth will increase water demand dramatically—and unsustainably—in the absence of adequate planning.

By 2035, the South Lake County area will need to draw as much an additional 12.7 million gallons a day of water to meet demand—a total of 30.99 mgd.

The lower Floridan Aquifer is expected to provide that extra water as the county has no surface water sources capable of providing the additional water without significant adverse consequences.

Initially, planners proposed a single large wellfield south of Highway 50, far from the county's Lake District. Water from the Floridan in this region is brackish and would require membrane filtration to make it potable, as well as the transmission infrastructure to deliver it population centers.

The planning document estimated capital costs for the single large wellfield approach to be $118 million, with annual operating costs of $12 million, a large portion of which would be the costs to move water from the wellfield to the member utilities' distribution systems.

The southern wellfield could become operational as early as 2023. Water from this source would cost about $2.50 per thousand gallons.

The alternative plan was to drill four new wells into the upper Floridan from among six member utilities, including Lake Utility Services Inc. and those in the cities of Clermont, Groveland, Minneola, Mascotte and Montverde.

The aquifer under these communities is not brackish and would not require membrane filtration, lowering the cost to about $0.50 per thousand gallons.

"The premise behind (the dispersed wells) option was to see if drawdown impacts could be reduced by spreading withdrawal locations over a wide area in lieu of the single, concentrated withdrawal point," said Sean Parks, a member of the Lake County Board of County Commissioners and recently elected to chair the initiative.

"The modeling results showed the difference in drawdown impacts to be insignificant," he said.

Although no documents indicate that the initiative has formally endorsed the dispersed well option, all signs point to it as the preferred solution.

The initiative received funding for the wellfield study mentioned above. In 2015, the Legislature provided $300,000 for a study to determine whether alterations to the Clermont Chain of Lakes and others in the area are causing lake levels to drop.

The study will integrate with another study examining water supply from the lower Floridan. That study uses the U.S. Geological Survey's East Central Florida Transient Groundwater Flow Model, which the Central Florida Water Initiative has also used for regional aquifer water supply modeling.

The cities of Groveland and Clermont have received grants from the St. Johns River Water Management District for construction of three projects to implement the initiative's preferred water supply plan, Parks noted.

"There will not be enough groundwater to also meet future irrigation demands," Parks said. "Reclaimed water for irrigation and water conservation for outdoor uses will have to be a significant part of our plan going forward."

Irrigation projects may be part of the next stage of water projects and construction.

Parks said the county is proposing a uniform landscape code for the area. He proposed implementing Florida Water Star certification and using water-saving appliances and fixtures as a requirement for all new development in South Lake County.

New development in the county will be responsible for increased water demands and while existing users may choose to comply with water conservation policies, the county has no means to require it, he said.

The initiative has met many of its initial 2013 goals with notable success. The efforts continue, with new water supply alternatives being identified and plans made to utilize them through a dispersed well drilling program.

Conservation and water reuse efforts are in the advanced planning stages, and related county ordinance updates are on the horizon.

Funding for some of the well and reuse projects is the next focus.

Miami-Dade wastewater treatment plant converts to cogen for power

By ROY LAUGHLIN

The Miami-Dade Water and Sewer Department's South District Wastewater Treatment Water Reclamation Plant recently completed a yearlong upgrade, including the addition of a cogeneration unit that uses biogas to generate electricity for the facility.

The upgrade contributes to both its level of sustainability as well as reducing the plant's operating costs.

The cogen approach consists of four two-megawatt electricity generators that replaced three Superior engines that were less efficient than the newer ones, according to Steve Kronheim, chief plant operator at the plant. Methane from biogas fuels those generators with a backup supply of pipeline natural gas.

The biogas comes from the treatment plant's own biosolids fermenter and from the adjacent Dade County landfill.

The generator phase-in occurred in stages over the summer, beginning initially with a single generator. Now, all four generators can be used simultaneously to generate up to eight megawatts of power to supply electricity to the plant.

There are plans to add a fifth in the next 18 months to serve as a backup as well as a source of additional electricity.

Running at full capacity, each generator displaces about $600,000 worth of electricity annually.

Now that all four generators produce electricity, the plant's savings will be over $2 million a year. With four generators running, the plant meets about half its annual electricity demand internally.

The opportunities at the water reclamation plant were unique among the county's wastewater treatment plants. The city landfill adjacent to it is capable of supplying most of the needed methane.

The 138 million gallon per day wastewater treatment plant's biogas production from fermentation could power perhaps a single two-megawatt generator. The landfill's biogas is currently fueling the other three units, and will support the fifth one to be added within the next year.

Kronheim said that Miami-Dade's Central District Wastewater Treatment Plant also replaced three Superior engines with similar two-megawatt generators.

That plant's cogeneration capacity is limited by its digesters' methane production. No additional methane is available from landfill or pipeline supplies.

Kronheim said that department hopes to modify the digester treatment process to increase biosolids consistency. In addition, introducing fats, oils and grease to it will increase methane production.

Excess heat from the generators could be used in a biosolids dryer. All will increase energy efficiency at the wastewater treatment plants.

The Design-Build Institute of America awarded the plant one of its 2015 DBIA Florida Regional Design-Built Project of the Year awards.

Design-build has been described as an "evolutionary project delivery system" because project team members work collaboratively to meet the project's construction requirements.

The Poole & Kent Co. of Florida was the designer-builder. The project included five specialty contractors and five specialty consultants.

New research shows oil dispersant does not increase microbial degradation in spills

By ROY LAUGHLIN

A multinational research group composed of U.S. and German scientists found that treating oil with Corexit-9500 dispersant, such as was done during the massive Deepwater Horizon oil spill, does not increase the microbial degradation of oil.

Contrary to widely help opinion, the oil dispersant substantially decreases microbial oil degradation by deep sea pelagic microorganisms.

The paradoxical lack of oil degradation occurs because, in the presence of Corexit-9500, naturally occurring oil-metabolizing bacteria decrease in abundance and activity.

One bacterial genus, *Colwellia*, does increase in abundance, perhaps because it is able to use the dispersant as a carbon and energy source.

The group's experiments were modeled to evaluate the uses of dispersants during the Deepwater Horizon blowout.

Their conclusion was that the dispersant application was counterproductive to enhance microbial degradation of oil, even if it did break up oil slicks before they reached beaches and coastal marshes.

Researchers established microbial microcosms that included deep-sea pelagic bacteria species from the Gulf of Mexico.

They used four treatments that included a biotic control: one with deep sea water-enriched "water accommodated fractions," or WAF, of oil; one with Corexit-9500 dispersant only, one receiving additions of Corexit-9500 plus water accommodated fractions; and one receiving `additions of Corexit-9500 plus water accommodated fractions and nutrients for the microorganisms.

The researchers collected seawater used in the experiment from a depth of 1,200 meters near oil seeps in the Gulf of Mexico.

Experimental results showed that in deep water amended with WAF, microbial populations increased by 60 times, and were dominated by three groups known to degrade oil, *Marinobacter, Cycloclasticus* and *Oceaniserpentilla.*

Microbial microcosms treated with oil dispersant saw bacterial numbers increased by only 29 times, not even half as much.

A single organism, *Colwellia*, dominated the microbes in the microcosms treated with Corexit-9500. *Marinobacter* decreased in microcosms treated with dispersant.

The combination oil and Corexit-9500 markedly changed microbial hydrocarbon metabolism. Dispersant amendments significantly inhibited hexadecane degradation, and naphthalene degradation was not stimulated compared to microcosms receiving WAF only.

On the other hand, where *Colwellia* was abundant in dispersant-treated microcosms, chemical analysis by Fourier transform ion cyclotron resonance mass spectrometry indicated that *Colwellia* was metabolizing dioctyl sodium sulfosuccinate, a dominant surfactant constituent in Corexit-9500.

The same analysis indicated that the oil-degrading bacteria were breaking down both hydrocarbons and nitrogen-containing hydrocarbons as nutrient sources.

Pelagic bacteria that grew in the microcosms formed "marine snow" by releasing expolysaccharides that bind oil. Bacteria cells raft up on the particles and metabolize the oil.

Bacteria in the WAF and Corexit+WAF treatments form marine snow similar to that observed in the Gulf of Mexico after the Deepwater Horizon spill.

Those in microcosms receiving Corexit-9500 only formed a difficult-to-quantify marine snow.

Formation of the marine snow differed in the two treatments involving WAF. In the Corexit+WAF microcosm, *Colwellia* seemed to be the dominant contributor, even though it did not contribute to oil degradation.

The researchers interpret their results to contradict the widely accepted justification for using dispersants such as Corexit-9500 to enhance oil degradation by marine bacteria.

Oil degradation was highest in WAF treatments, and the addition of Corexit+WAF, even in the presence of additional nutrients, did not generate higher overall hydrocarbon degradation rates, they noted.

In some cases, dispersants reduce oil oxidation rates. In fact, the presence of dispersant selected against the most effective hydrocarbon-degrading microorganisms, such as *Marinobacter*.

The conclusion that dispersant use enhances oil degradation in seawater is based on general measurements of microbial metabolism such as CO_2 evolution or increases in cell numbers.

However, the new research shows that those indices may be the result of microorganisms such as *Colwellia* that metabolize dominant components in the dispersant.

For petroleum-degrading bacteria, "dispersant addition did not enhance bacterial oil degradation or microbial activity in general, as reflected in rates of hydrocarbon oxidation, bacterial protein production and isoenzyme activities," they noted.

The authors advise caution when considering dispersant applications as a primary response for future oil spills in deep water environments similar to the Gulf.

Oil slick treatment with dispersants clearly prevents oil coating and suffocating animals and macrophytes in shallow water. But the lack of hydrocarbon degradation in oil treated with Corexit-9500 suggests that enhanced microbial degradation is not a phenomenon that justifies oil dispersant use in the sea.

The research paper, Chemical Dispersants Can Suppress the Activity of Natural Oil-Degrading Microorganisms, by Sarah Kleindienst and 13 coauthors is available in the *Proceedings of the National Academy of Sciences*, Vol 112 pp. 14900-14905, Dec. 1, 2015.

FSU researchers to study Gulf ecosystem

Staff report

Two Florida State University researchers received grants from the National Academies of Sciences, Engineering and Medicine to study the Gulf of Mexico's ecosystem in order to better understand its processes. The work could provide answers that may help contain future oil spills.

Allan Clarke, the Adrian E. Gill Professor of Oceanography, and Steven Morey, a research scientist for the FSU-based Center for Oceanic and Atmospheric Prediction Studies, received separate awards to conduct projects that could shed light on how oil and other contaminants move throughout the Gulf.

"These projects will add value to earlier investments in monitoring while improving our understanding of Gulf of Mexico ecosystems and communities," said Evonne Tang, senior program officer for the Gulf Research Program.

Clarke will receive $433,000 to develop predictions of where oil floating at the top of the water column will go and how long it would take to reach the coastline.

Theory suggests that surface flow can differ considerably from flow even half a meter beneath the Gulf's surface.

Clarke will use drift card data collected by the Gulf Integrated Spill Response Consortium during 2013 and 2014, combined with measurements of winds, waves and state-of-the-art numerical models to understand the connectivity between deep Gulf and coastal waters.

Morey will lead a team of FSU scientists as well as researchers from Scripps Institution of Oceanography, Woods Hole Oceanographic Institution, the University of Rhode Island, Leidos Corporation, and the Centro de Investigaciòn Cientifica y de Educaciòn Superior de Ensenada.

They will receive a grant of $897,000.

Morey's team will use a variety of historical observations with new models to better understand the currents that flow through very deep waters of the Gulf of Mexico.

Despite a vast body of work on the Gulf of Mexico, there is little information on the circulation and processes that occur at depths below 1,000 meters.

A more comprehensive understanding of how these deep currents work could lead to better understanding of how contaminants such as oil are transported and also how this process affects the ecosystem at such great depths.

After forty years of inactivity, oil exploration heats up in Florida

By BLANCHE HARDY, PG

Texas-based Burnett Oil Co. has submitted a plan of operations to the National Park Service to conduct a 110-square-mile seismic survey within the north/central portion of the 720,000-acre Big Cypress National Preserve.

The application addressed roughly one third the size of Burnett's previous requests and will cover slightly less than ten percent of the entire preserve.

The survey will be conducted using 67,000-pound vibroseis buggies, vehicle-mounted vibrators that "thump" seismic energy into the ground. The resulting seismic waves are recorded by geophones and processed to produce a stratigraphic profile.

Matt Schwartz, executive director of the South Florida Wildlands Association, characterized the proposal as "a treasure chest of diversity getting a huge industrial impact."

"Two independent groups of three trucks each will be traversing the preserve," he said. "Geophones laid and retrieved by helicopter and ground crews will crisscross the lines traversed by the vehicles."

He said that between the vibrator trucks, helicopters, support vehicles and people, "all species will behave differently."

Thirty federally listed species and 100 plants occupy the preserve, he noted.

The preserve was established in 1974 to protect Florida panther habitat. Currently, between 80 and 100 Florida panthers remain in the wild.

They are one of the most endangered mammals in the world and the preserve is frequently referred to as their most significant remaining habitat.

"Some of the panthers are collared, but most are not. So if a female is denned, it is very possible she will abandon the den and no one will know," he said.

The buggies will likely cut ruts in the preserve's easily damaged soils, killing native vegetation and its roots.

"Once rutted, the pathways become susceptible to invasive species such as Brazilian pepper which runs along areas where trucks have traveled," he said.

Oil production is not new to Florida or to the preserve. Petroleum exploration has taken place in Florida since the 1940s.

A significant portion of the preserve was owned by the Collier family who established multiple oil wells on the site. The preserve overlays the oil-producing Sunniland trend that stretches 145 miles from Lee to Dade counties.

The Colliers sold surface ownership of the preserve to the NPS in the 1970s while retaining their private oil and gas rights. NPS documents indicate the land was designated a preserve rather than a park in recognition that certain existing uses would be allowed to continue, including oil and gas operations.

The NPS has unsuccessfully discussed purchasing the mineral rights with the Colliers in the past, and two active oil patches currently occupy the preserve.

An environmental assessment has been prepared for the proposed seismic survey. Three alternatives were proposed of which the vibroseis buggy was one.

In most cases examined, NPS found that impacts from the use of vibroseis buggies were adverse, but short-term.

Several environmental advocacy groups oppose the EA. Swartz characterized it as woefully insufficient, and called on the NPS to prepare "a full environmental impact statement as required by the National Environmental Policy Act."

FEDFILE

From Page 2

Renewable fuel targets will increase from 16.28 billion gallons in 2014 to 18.11 billion gallons in 2016, an 11 percent increase.

Biomass-based diesel will increase from 1.63 billion gallons in 2014 to 2 billion gallons in 2017.

The rule accepted the actual ethanol production in 2014 as the standard for that year. Going forward, the standards promulgate a balanced ethanol supply and mandates for increasing renewable fuel use in the short term.

Failure of cellulosic ethanol production technology to make substantial contributions to ethanol production has been a major uncertainty in setting ethanol standards. But that may be in the past.

Estimating demand has also been problematical because of the "E-10 blend wall."

In the past several years, less driving due to high gasoline prices and more fuel-efficient vehicles meant that ethanol production was sufficient to blend with all gasoline purchased for vehicles capable of using 10 percent ethanol-gasoline fuels.

In the near term, EPA expects that increases in E85 and biodiesel will dominate efforts to increase the use of renewable fuel.

Living shorelines improve habitats. Planting or encouraging the growth of marsh grass, dune grasses, mangroves and other plants that create a living shoreline to control erosion and enhance natural habitat is the subject of a recent NOAA publication, Guidance for Considering the Use of Living Shorelines.

Living shorelines represent an effective method for reducing the constant erosion that occurs along shorelines. Erosion results from intense storms, wave erosion and sea level rise. All endanger natural, economic and cultural resources.

The use of plants and other living organisms along a shore to control erosion is primarily suited to sheltered coasts. Plants provide "soft protection."

In combination with oyster reefs and rocks to add greater stability, living shorelines substantially reduce erosion while enhancing coastal resilience. They are a good substitute for hard engineered structures such as seawalls and bulkheads, which in many cases increase erosion levels.

Ag program conservation easements. The U.S. Department of Agriculture announced the availability of $350 million through the Agricultural Conservation Easement Program, or ACEP.

ACEP has two goals: to protect critical water resources and wildlife habitat, and to encourage private owners to maintain land for farming and ranching.

ACEP buys easements, through voluntary sales by landowners, that limit future conversion of agricultural land to nonagricultural uses.

The program also purchases wetland reserve easements. These allow landowners to restore, enhance and protect habitat for wildlife, to reduce the damage from flooding, to recharge groundwater and to provide outdoor recreational and educational opportunities.

Easements purchased through the program may be either permanent or last for 30 years. Tribal landowners can enroll for 30-year contracts.

Native American tribes, state and local governments and nongovernmental organizations that operate farmland or grassland protection programs may partner with the Natural Resources Conservation Service to purchase conservation easements.

Congress established ACEP in its 2014 Farm Bill. In the two years since inception, it has provided more than $600 million to purchase more than 750 easements that enable landowners to engage in voluntary conservation affecting 250,000 acres of farmland, grassland and wetlands.

Fort Lauderdale waste reduction. EPA recognized the city of Fort Lauderdale as the national winner in the Local Government Category of its Waste Wise Program.

Ft. Lauderdale was among 28 winners in multiple categories in the agency's Waste Wise Program and Food Recovery Challenge.

Both programs apply sustainable materials management practices to decrease municipal and industrial waste.

In the Municipal and Industrial Waste Disposal Category in which Ft. Lauderdale was recognized, Waste Wise participants reported preventing or diverting more than 6.7 million tons of wastes from landfills and incinerators.

Of the two categories, diversion of food wastes appeared to be the most expansive.

In 2014, about 800 governments, businesses and organizations joined the EPA's food recovery challenge. Their efforts included creative reuse of trimmings by University dining staff, donating excess food to organizations that serve the needy, composting in urban settings and using food wastes for cogeneration.

Silver Springs Alliance critical of DEP Silver Springs BMAP

By ROY LAUGHLIN

The Silver Springs Alliance has asked the Florida Department of Environmental Protection to delete their name from the recently approved basin management action plan for the Silver Springs springshed.

In an interview with a local newspaper, Robert Knight, the group's director, said that DEP ignored the alliance's technical advice yet still included them as a supporting stakeholder.

Deleting the alliance's name will prevent any impression that the group endorses the plan, according to Knight.

At issue is the BMAP's goal to reduce nitrogen levels to 0.35 milligrams per liter from the current daily average measured concentration of 1.77 mg/L, a 79 percent reduction.

Knight said that the current BMAP plan is likely to produce about six percent of the needed reductions because most of the BMAP's effort to reduce nitrogen inputs fall on the springshed's municipal wastewater systems.

The BMAP includes a list of 140 projects to reduce nitrogen inputs. For Silver Springs, nitrogen sources include septic tanks, agricultural fertilizer and cattle operations.

Knight said that eliminating septic tanks in the springshed should be the top priority.

The alliance recommended mandatory nitrate loading reductions of 30 percent for agricultural operations over five years, 50 percent in 10 years and 79 percent over 20 years; connections to centralized wastewater treatment plants for 30 percent of current users in the next five years, 50 percent in the next 10 years and 79 percent in the next 20 years; and an increase in the BMAP area.

Currently the BMAP includes 30 springs, including Silver Springs.

In December, the Florida Springs Council sent a letter to Heather McTeer Toney, administrator of EPA Region 4, requesting that EPA review the BMAP plan.

"Our view is that this BMAP does not meet the requirements set forth in Sections 303 and 319 of the Clean Water Act," they wrote. "We therefore request that you exercise your full authority to require the state of Florida to follow the letter of the law with regards to this BMAP."

The request is on the DEP's radar. The *Ocala Star Banner* published a letter on Dec.13 from Drew Bartlett, DEP's deputy secretary for ecosystem restoration. In that letter, DEP did not reject outright the Silver Springs Alliance's recommendations.

Bartlett acknowledged criticism for the plan and noted that "every department action has critics, but what is critical is that the department takes action."

He said that among those currently slated actions are: the elimination of six older wastewater treatment plants and other minor facilities responsible for excess nutrients; stringent treatment standards for the remaining WWTPs; mandated elimination of more than 1,300 septic systems in Marion and Levy counties; and requirements that agricultural operations change practices to reduce nutrient pollution.

"We acknowledge that there is no perfect plan or instant fix, but these are significant strides in the right direction," he concluded.

He also said that the department has chosen a plan that's dependent on incremental progress.

"These plans include monitoring to inform our progress in reaching our restoration goals," he said. "The plans will be modified to add projects and activities as needed until restoration is achieved."

Bartlett made no further commitments to any specific actions endorsed by the alliance, however.

The two sides seem to have little disagreement over the validity of science and data that describes the problem. Both groups are well populated by professional scientists.

At issue, and what the EPA in Atlanta may have to decide, is whether the incremental efforts DEP proposes in its Silver Springs BMAP are sufficient to meet the legal requirements of the federal Clean Water Act.

NWRA releases new safety guidelines

Staff report

The National Waste & Recycling Association released new safety best practices for operators of material recovery facilities, landfills and transfer stations as part of its comprehensive industry-wide safety effort.

The NWRA's Safety Committee encourages all members and service providers to incorporate these guidelines into their operations. The site safety practices are the first step in NWRA's comprehensive emphasis on safety.

The site safety best practices cover issues ranging from tipping floor safety to the use of personal protective equipment, and incorporating safety technologies such as cameras and alarms on mobile equipment.

The guidelines are available at https://wasterecycling.org/our-work/safety.

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New assessment provides input on effects from climate change in Gulf states

By BLANCHE HARDY, PG

Climate change, the resulting measurable sea level rise and renewed population growth are anticipated to produce significant changes to the natural resources along the Gulf Coast.

In order to anticipate their impact and to inform management decisions necessary for adaptation, four Landscape Conservation Cooperatives along the Gulf partnered with the Gulf of Mexico Alliance to conduct and publish the Gulf Coast Vulnerability Assessment.

The assessment project was conducted from 2012 to 2015. It was co-funded by the Gulf Coast Prairie, Gulf Coastal Plains & Ozarks, South Atlantic and Peninsular Florida LCCs and the National Oceanic and Atmospheric Administration.

"GCVA is a qualitative assessment that compiles the expert opinions of managers, scientists, administrators and others across the U.S. portion of the Gulf of Mexico," said Cynthia Kallio Edwards, interim Gulf Coast liaison and assistant science coordinator of the Gulf Coastal Plains & Ozarks Landscape Conservation Cooperative.

"The results are extremely useful in helping identify the relative vulnerabilities of ecosystems and species in different areas of the Gulf Coast, as well as across taxa and habitat types."

One anticipated application of the effort is in project and proposal review as a means to identify vulnerable resources that may require a greater level of scrutiny to ensure future sustainability.

"This information can be used to broadly evaluate where increased conservation effort should be directed to reduce vulnerabilities by focusing efforts to improve adaptive capacity," she said.

More than 50 experts from a variety of organizations were assembled to conduct qualitative assessments of the vulnerability of four ecosystems: mangrove, oyster reef, tidal emergent marsh and barrier islands, and associated wildlife species dependent on their viability.

Using 2060 as the time frame, assessors were given data on climate change, sea level rise and projected urban growth.

They evaluated species and ecosystem vulnerability under three scenarios: low CO2 emissions/low sea level rise, low CO2 emissions/high sea level rise and high CO2 emissions/high sea level rise. In total, 144 three-scenario assessments were completed across the Gulf.

The assessment was done at a sub-region level, three of which cover Florida: the Southeast Florida Coastal Plain, the Central Florida Coastal Plain, and Southern Coastal Plain, from south to north.

"The results can direct you to a vulnerable sub-region but not necessarily a vulnerable community," she said. "The results should not be applied at scales below the sub-region without careful consideration, but they can be used to direct you to the most vulnerable sub-regions from a habitat perspective."

For example, tidal emergent marsh was scored as "very high" in terms of vulnerability, in part due to the sea level rise and urbanization that impacts the system's ability to migrate inland as sea levels rise and constraints on range shifts.

The GCVA indicated a fairly wide ranging vulnerability for species, with blue crab on the low end and Kemp's ridley sea turtles on the high end.

Vulnerability for the four assessed ecosystems ranged less dramatically, with mangroves being the least likely impacted and emergent marsh being the most vulnerable.

The report contains maps illustrating the range and vulnerability of the assessed species within each ecosystem.

The popularity of the Gulf region has resulted in a great deal of development and the associated loss of natural ecosystems.

"The loss of wetlands, barrier islands and oyster reefs coupled with changes to mangrove systems highlighted in this assessment represent only a portion of threats in the area that will be magnified with increasing demands for water, the limitations for freshwater inflow, and the desire of people to live and work along the coast," Edwards said.

LEACHATE

From Page 7

ready practicing leachate treatment or storage.

"Landfill operators are good stewards," said Masoner. "Old landfills are not lined. They could be sources (of CEC) for years."

He said that he hopes his studies will help put CEC risk "on the radar."

The latest USGS report is based on samples collected between 2010 and 2011. As such it is a snapshot of the current status of CEC in U.S. landfill leachates.

The authors conclude that additional research is needed to develop a better understanding of CEC fate in landfill leachate and the need for different or better treatment methods, regulations for disposal of pharmaceuticals, landfill construction and citing considerations and a more extensive knowledge of the ecological effects of landfill leachate CEC.

MEDIATION

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ply, salinity in the bay increases to the detriment of the regionally critical oyster industry and the ecosystems supported by the bay and its associated waters.

Georgia denies Florida's claim.

The move towards mediation is far from a settlement. The attorneys need to agree on the form of mediation and on the mediator.

Lancaster's clearly stated preference is to allow the states to select the mediator, although he offered to get involved in the process if necessary. The special master considers the selection of an appropriate mediator critical in light of the volumes of records and depositions collected by attorneys on both sides.

Meanwhile, in response to numerous requests by stakeholders, the U.S. Army Corps of Engineers extended the public comment period for the Apalachicola-Chattahoochee-Flint River Basin water control manual by 45 days to Jan. 15, 2016.

In excess of 200 people attended the corps open house meetings in October and November. The bulk of attendees were Floridians who met with the corps in Gainesville and Eastpoint, FL.

The water control manual became a point of discussion when Georgia unsuccessfully filed for dismissal of Florida's water lawsuit regarding Florida's failure to name the federal government as a required party.

Georgia contended that the corps' control structures on the Chattahoochee River constituted engagement.

Florida argued that overconsumption of water from the onset by metropolitan Atlanta was the source of harm, not whether or not flows in the Chattahoochee and Flint rivers are controlled, maintained or otherwise managed by the corps.

The special master determined that the waters in question are not federal waters and therefore the federal government is not a party in the lawsuit.

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