Florida Specifier

Practical Information For Environmental Professionals

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Volume 36, Number 4

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Photo courtesy of U.S.Geological Survey

U.S. Geological Survey researcher Dan Calhoun collects a water quality sample in Mounds Pool No. 1 at St. Marks National Wildlife Refuge in Wakulla County. Data from this and other studies are now publicly available on the web following the release of a new USGS watershed water quality characterization tool.

2014 Legislative Preview:

Environmental issues loom large but action remains uncertain

By PRAKASH GANDHI

When it comes to the environment, the Florida Legislature appears to have a full plate this year.

Springs legislation, continued funding for restoration of the Florida Everglades and a controversial water permitting bill are among the most pressing environmental issues expected to be debated this session.

But exactly how much is accomplished in a year when politics will take center stage remains to be seen, say industry insiders that follow the annual get-together known as the Florida legislative session.

"Overall, given that this is an election year, the legislative session could end up being one that has lots of talk and little action," said veteran Tallahassee environmental attorney Bill Preston. "These are politicians we are talking about and they want to get reelected. They are not going to want to take up a lot of controversial issues."

Bills that would extend liability protection for the cleanup of contaminated sites are moving through both the House and Senate.

Senate Bill 586 and House Bill 325 would expand liability protection for those doing site cleanups to include property damage or the diminished value of property.

The bill also clarifies language related to public notice of brownfield site designations by local governments.

The bills passed their first committee steps with support from the Florida Brownfields Association and the Florida Chamber of Commerce.

The FBA, the Florida Redevelopment Association and the Florida Community Development Association are also seeking as much as $10 million for a one-year increase in the tax credit to reduce the brownfield program's substantial tax credit backlog.

In 2011, the Legislature voted to increase the program's Voluntary Cleanup Tax Credit from $2 million to $5 million annually.

Preston said that increased protection for Florida's springs will be another one of the top priorities during this year's session.

"We have heard talk that this is supposed to be the 'water year,'" Preston said. "Continued efforts to pass legislation that would provide some additional springs protection is on the legislative list."

In addition, continued funding and implementation of Everglades restoration efforts will be high on the list of things to accomplish, Preston said.

"The governor's budget has put a lot of money towards that and I suspect the South Florida delegation will support

SESSION
Continued on Page 14

Judge asks for higher penalties in Miami-Dade sewer case

By DAN MILLOTT

A federal judge, who in January questioned low fines that Miami-Dade County was to pay for not yet making repairs to its aging wastewater system, ruled that higher penalties should be part of the revised consent decree.

U.S. District Court Judge Federico Moreno in early February had called the $500 per day penalty that the county would be levied for not making the repairs "ridiculous."

Judge Moreno asked the county and federal governments to make two changes to the consent decree. First, increase the per-day penalties charged for noncompliance and, second, appoint a special master to make sure sewer repairs are being made in a timely manner.

The special master would also monitor projects to ensure that sewer repair funds are not being diverted to nonenvironmental projects.

With the low penalties in mind, Judge Moreno ruled that the revisions would "enhance the court's confidence that Miami-Dade will comply with the U.S. Clean Water Act."

Miami-Dade is currently working on design specifications for 39 sewer projects.

Douglas Yoder, deputy director of the Miami-Dade Water & Sewer Department, said the agency has advertised

SEWER
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Latest EPA TRI report: Level of U.S. toxic releases drops in 2012

Staff report

In 2012, releases of toxic chemicals to the U.S. environment dropped 12 percent from the prior year. This continues a trend that began in 2009, during the persistent economic slowdown.

According to the U.S. Environmental Protection Agency's latest available Toxic Release Inventory, 3.63 billion pounds of listed toxic chemicals were released to, or disposed of in, the environment.

The TRI tallies emissions to air, and disposal or releases to water and land. Reductions of toxic chemical releases to these different environmental compartments varied.

Hazardous air pollutants dropped eight percent from the prior year. Notably, mercury and hydrochloric acid led the decline in HAPs, continuing a trend that is the result of a focused effort to significantly reduce their release.

Toxic releases to surface waters and land dropped three percent and 16 percent, respectively, in 2012.

The TRI is an ongoing annual effort with reporting details that evolve over time. The EPA added hydrogen sulfide to the list of reported chemicals in 1994, but deferred reporting requirements until 2011. This is the first year its numbers are part of the TRI.

In its first reporting year, 25.8 million pounds of releases were reported.

Paper, petroleum, and chemical manufacturing facilities are the primary sources of hydrogen sulfide released to the air.

Another recent update in TRI reporting is a requirement that facilities located in Indian country submit TRI reports to the EPA and to the appropriate tribe, but no longer to the state where the facility is geographically located. This is an attempt by the EPA to increase tribal participation in the TRI program.

Making toxic chemical release information more accessible to the public has become a major goal of the TRI effort during the Obama administration. The information has been available online, with increasing analysis and visualization capability for over a decade.

This year, the online reporting includes "new analyses and interactive maps for each U.S. metropolitan and micropolitan area."

Also new this year, the website provides information about efforts to reduce pollution, including a list of chemicals used in consumer products.

The online program includes an expanded TRI Pollution Prevention Search Tool that performs a comparison of facilities within the same industry based on multiple environmental metrics.

Focus on major violations. During the past several years, the EPA's enforcement division focused most of its efforts and resources on violations that involved the release of large quantities of contaminants, or which potentially have the most impact on public health.

In 2013, the agency litigated cases whose criminal sentences yielded more than $4.5 billion in combined fines, restitution and court-ordered environmental projects for community benefit.

Civil penalties amounted to more than $1.1 billion.

The federal government's Deepwater Horizon litigation efforts yielded over $3.7 billion so far. The EPA highlights this effort as a primary example of pursuing the worst violators.

In 2013, Walmart paid more than $80 million in fines and penalties for mishandling pesticides and hazardous wastes. As part of the settlement, the retail company made a commitment to adopt "cutting edge hazardous waste handling systems as well as compliance and training programs that will protect employees and nearby residents."

Additional progress came from other enforcement actions across the country. Through its Superfund program, EPA obtained the largest single site cash settlement in history when the AVX Corp. agreed to pay $366 million. It will be used to cleanup contamination in New Bedford Harbor in Massachusetts.

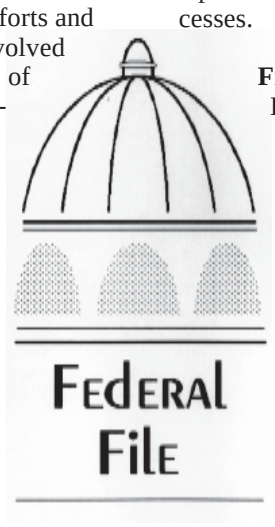
As part of the agency's effort to reduce air toxics from the Gulf Coast refinery complex, Shell Deer Park in Texas initiated continuous monitoring of cancer-causing benzene. It will also refit its vehicles to reduce diesel emissions. Other refineries in the region also made similar commitments to reduce air emissions.

Although many of the agency's efforts to control emissions from coal-fired power plants ended up in court, EPA made some progress promoting energy efficiency and reducing air emissions from coal-burning power plants.

With respect to clean water, EPA focused on several enforcement activities with municipal utilities that cut discharges of raw sewage and contaminated stormwater.

These enforcement efforts resulted in improved service, rather than fines and penalties.

In its most recent five-year strategic plan, EPA committed to continuing the approach of high profile enforcement and compliance efforts, based on recent successes.



Fracking fluids guidance. The EPA released some long-awaited revised permitting guidelines for fracking fluids that contain diesel fluids. The guidelines are part of the agency's Underground Injection Control program.

EPA issued guidance along with an "interpretive memorandum" that clarifies Class II UIC requirements that apply to hydraulic fracturing activities using diesel fuels.

Diesel fuels are defined in statutory terms by reference to five Chemical Abstracts Service registry numbers. The new guidance defines when the EPA is the permitting authority, characterizes existing Class II requirements for diesel fuels used for hydraulic fracturing wells and provides additional technical recommendations that apply to permitting requirements.

EPA noted that "decisions about permitting hydraulic fracturing operations that use diesel fuels will be made on a case-by-case basis, considering the facts and circumstances of the specific injection activity and applicable status, regulations and case law, and will not cite this guidance as a specific basis for decision."

The agency's efforts to regulate fracking operations is complicated by a 2005 law that exempts hydraulic fracturing operations from UIC permits except when diesel fuel is used as a fracking fluid.

As a result of the law and continuing sentiment about the value of increased petroleum and gas production, EPA is attempting a delicate regulatory balance that allows increasing oil and gas extraction while protecting underground drinking water sources and public health.

Consistent with that philosophy, the agency noted that its recent guidance recommendations are consistent with best management practices for hydraulic fracturing and with state regulations and model guidance developed by the industry and other stakeholders.

Nutrient maps, databases. As nitrogen and phosphorus receive increasing attention as surface water contaminants, the U.S. Geological Survey made available a new database that includes maps and tables of major sources and watershed inputs of nutrients in the U.S.

The database covers 31 states within watersheds that contribute nutrients to the Great Lakes and to estuaries along the Atlantic Coast, Gulf of Mexico and the Pacific Northwest.

The data features the major nutrient sources and areas within a watershed that contribute to estuary and watershed contamination.

A new reporting feature provides summary information on amounts and sources from upstream states or major hydrologic regions.

This particular tool is very useful for the Mississippi River basin. It can provide summary information for each of the states whose water drains through the Mississippi River to the Gulf of Mexico.

Florida users will find the Panhandle and upper Peninsula watersheds well characterized in the USGS database system.

For the Ocklawaha, Crystal, Lower Santa Fe, Lower Suwannee, St. Marks and Chipola river basins in central and northern Florida, the USGS gives additional guidance on the website.

In these basins, the flow from or into the underlying aquifer affects nitrogen dy-

FEDFILE

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DeBary votes to designate new SunRail station as brownfield

Staff report

The DeBary City Council voted to designate the city's Transit Oriented Overlay District around the new SunRail station as a brownfield. The Springview Commerce and Benson Junction industrial areas are also included.

Property owners in the district can choose to exclude their properties from the brownfield area.

Brownfield designations are a tool for promoting and enhancing redevelopment. The designation also provides a community with access to state funds that provide environmental assessments, possible cleanup of properties, refunds for qualified target industries, voluntary cleanup tax credits, environmental cleanup grants, low interest loans and loan guarantees.

If prospective buyers discover contamination there, the property owner could be eligible to receive state funds for soil or groundwater cleanup.

The biggest benefit to the brownfield designation is job tax credits for employers.

City officials say the properties' proximity to the SunRail station could lure developers interested in creating affordable housing communities.

Those developers would be eligible for sales tax rebates on building materials.

Big-box brownfield. A unnamed "big-box" retailer is seeking brownfield remediation incentives in Miami-Dade County.

The retailer and grocery chain is looking for incentives to cleanup and redevelop a site in southwest Miami-Dade.

The company has pledged to create 180 full-time jobs with annual wages of $20,000 and invest $9.5 million in capital improvements to build a 112,534-square-foot store.

The state would have to approve the award of up to $360,000 from its own coffers.

According to the application, the confidential company has spent $125,000 so far investigating the environmental issues at the site, and found soil and groundwater contamination including heightened levels of arsenic, dieldrin and cadmium due to herbicide and pesticide use.

Dredge material for landfill cover. Manatee County is looking at the possibility of using millions of cubic yards of unwanted dredge material from Port Manatee for its landfill operations.

Port Manatee needs to clear some of its sand, gravel and other sea-bottom sediment to make room for a major maintenance dredging expected to take place around 2018.

Likewise, the county needs dirt, primarily for covering garbage at its Lena Road landfill.

Workers there are required to bury any exposed garbage with clean dirt every night. The landfill uses about 100,000 cubic yards of dirt per year to cover garbage.

The port has been selling the dredge material for 35 cents a cubic yard to companies needing it for construction and fill material.

The county's public utilities department must evaluate the quality of the port's dredge material before a change in dirt suppliers could be made. The material must meet state standards to be used on the landfill.

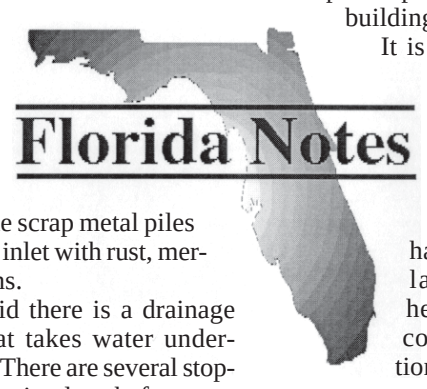
If the port material meets the specifications, the utilities department must also determine how much it will cost for excavation and dewatering.

County officials said they will honor their current procurement contract with Florida Dirt Source. It would not switch to the port or any other supplier until the terms of that contract are fulfilled.

Concerns with scrap recycler. Some residents near the Port of Palm Beach are worried that at least one company operating there may become a scrap yard.

Delaware-based Stonerock Shipping Corp. recently began a large scale bulk metals export operation.

The company receives bulk metal, breaks it apart and stores it on site before loading it onto ships for export to international destinations.



Nearby residents are concerned that stormwater runoff from the scrap metal piles is contaminating the inlet with rust, mercury and other toxins.

Port officials said there is a drainage system in place that takes water underground and filters it. There are several stopgap drainage systems in place before runoff can flow into the water.

In addition, the port said it complies with all Florida Department of Environmental Protection regulations. The department issues all port permits.

Most of the metal accumulated at this point came from the demolished Florida Power & Light plant at Port Everglades. The company's first shipment was in November.

EZBase issue. Clay County commissioners have written letters to state lawmakers in an attempt to prevent the controversial product EZBase from being used in the county.

EZBase is a by-product of JEA's coal-fired power plants used for fill and road-building.

It is regulated under a beneficial use permit issued by the Florida Department of Environmental Protection. But some people claim it is toxic.

Clay County attorneys have drafted a letter to state lawmakers seeking their help. The letter points out concerns about the regulations for EZBase's use.

New clean marina. The Florida Department of Environmental Protection designated the Hurlburt Field Air Force Base Marina as a Florida Clean Marina.

The marina offers a range of environmentally protective amenities for boaters including recycling services and wash racks over a containment area with a water recovery system.

To become a member of the Florida Clean Marina Program, facilities must implement a set of environmental measures designed to protect waterways.

St. Johns County addresses long-term water usage with new plan

Staff report

Long-term planning is a top priority when it comes to water use in Northeast Florida's St. Johns County.

The region's population is expected to increase by 40 percent by 2035, and the reality is that traditional groundwater supplies will not be enough to meet the anticipated demand.

Careful planning of complex water supply issues, competing interests, environmental regulations, and supply and demand are among the concerns that led to the formation of St. John County's Integrated Water Resource Plan.

According to Bill Young, director of St. Johns County Utility Department, the plan covers only unincorporated areas of the county, and will ensure reliability, protect water quality and protect the natural environment, while exploring alternative sources.

Grant for Apalachicola Bay. The Northwest Florida Water Management District's Governing Board approved grant funding for the construction of a water quality improvement project in Apalachicola Bay.

The district will provide the city of Apalachicola with $443,000 in grant funding for the construction phase of a stormwater improvement project that will treat runoff before it is discharged into Apalachicola Bay.

The Battery Park Basin Stormwater Improvement Project has two components designed to treat stormwater before it discharges into the Bay.

A treatment system in the upper area of the basin will separate pollutants including nutrients, bacteria, suspended solids and heavy metals from stormwater using a baffle box, improving water quality and protecting aquatic habitat.

The structure will also help to address localized flooding problems within the Battery Park basin.

According to water management district officials, protecting the Apalachicola River and bay remains one of the district's top priorities.

Suwannee restoration projects. The Suwannee River Water Management District is conducting surveys of canals—noting hydrologic features, drilling test wells and using surface water gauges to collect aquifer-level and elevation data for existing hydrologic structures in Lafayette and Dixie counties.

The district has constructed 16 test wells to assess geologic and hydrogeologic conditions in the area in an efforts to determine where flows need to be reestablished.

The effort is referred to as the Middle Suwannee River and Springs Restoration and Aquifer Recharge Project. The district hopes to rehydrate ponds and wetlands, while also enhancing surface water storage and recharging the aquifer to benefit spring flows along the Middle Suwannee River.

Troy, July, Little River and Pot Hole springs will benefit from the recharge. The effort will also augment domestic and agricultural groundwater supplies for both counties.

A cooperative effort between the district and the state Department of Environmental Protection, the project will provide far reaching benefits to Florida's springs and groundwater supplies.

Lake Yale cleanup. The city of Umatilla will receive a $2.9-million grant to clean up Lake Yale, even though the lake is outside the city limits.

Located in the crosshairs of the Lake Yale basin, the city's wastewater treatment plant is the prime location for the installation of a stormwater treatment system.

Grant money will be used to install stormwater collection systems that will help divert untreated water to the plant on Golden Gem Drive in southwest Umatilla.

Rapid infiltration basins will be used to treat runoff before it reaches Lake Yale, absorbing nitrogen and phosphorous, and improving water quality before it is discharged to the lake.

Jackson County water treatment. The adoption of new water standards by DEP has engineering and environmental consultants scrambling to find funding to construct a central wastewater system for neighborhoods located near Merritt's Mill Pond in Jackson County.

Jones Edmunds, hired by the county to handle various environmental projects, is conducting the preliminary due diligence effort, seeking a legislative appropriation for planning a central wastewater system and possible additional funding to construct the treatment system.

The goal is to reduce the number of individual septic tanks being used in the area seeping pollutants and nitrates into the environmentally sensitive Blue Springs basin.

In the past, leakages of nitrates has caused harm to plants and marine animals, and led to toxic algal blooms that clog waterways and deplete oxygen.

Having to meet tangible numbers set by the department has prioritized springs protection and river restoration throughout Florida.

If awarded the funding, construction of a new wastewater plant—or an upgrade to the city's existing system—could begin within the next two years.

PSJ water system improvements. A decades-old pump station critical to the city of Port St. Joe's water supply system will receive necessary improvements thanks to $10 million in water quality grant funding from the Northwest Florida Water Management District.

The city will spend close to $200,000 in rehabilitation costs to retrofit a second supply pump and add a new diesel generator to the Chipola Pump Station.

The station pumps water from the Chipola River into a freshwater canal that flows into the city's surface water treatment plant.

According to water management district officials, the project will help improve public health and safety by providing a more reliable drinking water supply system for the area.

The station will become even more critical as the city expands, becoming more of a regional water supplier.

Broward beach project. The U.S. Army Corps of Engineers, Jacksonville District, recently completed its final inspections of approximately 5.1 miles of eroded shoreline that was reconstructed as part of the Broward County Beach Erosion Control Project.

The sand placement will increase storm protection to upland development between the Hillsboro Inlet and Lauderdale by the Sea.

The restoration effort was undertaken in response to impacts from Hurricane Sandy's passage in 2012, and was federally funded under the Flood Control and Coastal Emergency program.

Eastman Aggregate Enterprises LLC of Lake Worth started sand deliveries in early November.

The corps' Jacksonville District is placing approximately 7.5 million cubic yards of sand on 38.5 miles of eroded beaches in Florida as part of the federal FCCE program.

Picayune Strand to cost $100M more than expected

By SUSAN TELFORD

The Picayune Strand restoration, considered a key project in Everglades restoration, is anticipated to cost close to $100 million more to complete than originally anticipated.

According to South Florida Water Management District officials, unexpected expenses drove the price tag up to $620 million.

The district called on Congress to okay an increase in funding to help cover the increase in cost.

The Picayune Strand provides habitat for the endangered Florida Panther, black bears and wading birds.

"It's within our grasp," said Brad Cornell of Audubon Florida in a press release. "It's one of the biggest habitat restoration projects we have on the books."

Higher construction costs, the need for more land and rising fuel costs combined to increase the price tag of the 55,000-acre project between Alligator Alley and Tamiami Trail in Southwest Florida.

Transforming the land back to its natural state has involved clearing out exotic plants, opening plugged drainage canals and removing roadways that blocked flow.

Additional work includes adding a levee, backup pumps and additional channels, as well as manatee protections.

Audubon Florida supports the cost increase to complete the restoration effort with the anticipated completion date only three years away.

But SFWMD Governing Board Member Timothy Sargent thinks officials need to do a better job forecasting costs and reducing expenses.

"We really need to button down these costs," said Sargent. "We have got to be careful."

Cleanup underway at Lake Tulane

By DAN MILLOTT

Lake Tulane in the city of Avon Park is getting some needed assistance to ensure that its clean, clear waters stay that way.

Clell Ford, lakes manager for the Highlands County Parks and Natural Resources Department, said that according to the U.S. Geological Survey, Lake Tulane is over 60,000 years old.

"Even though it has extreme age, its waters remain very clear with transparencies reported by Florida Lakewatch that average 17 feet and maximum values of more than 25 feet, which are extremely good," said Ford.

The lake has been incorporated into the water management district-funded Select Lake Wales Ridge Lakes Best Management Practice Alternative Analysis and Conceptual Plan.

In simple terms, the Southwest Florida Water Management District, the city of Avon Park and the Highlands County Tourist Development Council committed over $400,000 to divert nitrogen, phosphorus and suspended solids from the lake's pristine waters.

Michael Peck, PE, project manager for the Lake Tulane project and a similar project at nearby Lake Isis, said a contract for the Lake Tulane work was awarded to Excavation Point Inc. of Sebring. Work began in late February and is due to be completed by mid-May.

Peck said that the reduction of pollutants running into Lake Tulane will be accomplished by capturing stormwater runoff from 32.13 acres of drainage area on the west side of the lake.

To accomplish that, a series of swales will be constructed allowing the runoff to percolate into the sandy soils, halting further degradation of the lake.

SWFWMD officials estimate that when completed, the project will annually remove 89.3 pounds of nitrogen, 14.9 pounds of phosphorous and 18.11 pounds of suspended solids.

At Lake Isis, stormwater runoff will be collected from 37.12 acres of drainage area on the south side of the lake. That runoff will be captured in a lakeside swale and pond that will allow runoff to percolate into the soils.

With the later start, Peck said the Lake Isis project will be done in July.

At Lake Isis, engineers estimate 28.9 pounds of nitrogen and 4.8 pounds of phosphorus will be removed annually.

John Ruggiero, president of the Highlands County Lake Association, noted that there are 100 lakes in the county and Lake Tulane is one that his organization targeted for restoration work.

He said that many lakes in the county are exposed to stormwater runoff, especially those that border U.S. Highway 27, the main north-south route that cuts through Highlands. He said other projects on Lake June, Lake Clay and Lake McCoy would help in efforts to treat stormwater runoff.

City and county officials point to the two Avon Parks projects as positive steps in maintaining area tourism levels.

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PDHs for PEs

Day One

Thursday, May 8, 2014

Session 1

9:00 **Opening Remarks**
Joel A. Mintz, Professor of Law
Nova Southeastern University Shepard Broad Law Center
Fort Lauderdale

Joel has been a faculty member at Nova Southeastern University Shepard Broad Law Center since 1982. He teaches courses in environmental law, torts and environmental enforcement, and he has taught courses and seminars in land use planning, state and local government law and comparative environmental law.

His scholarship focuses primarily on environmental law and policy, environmental enforcement, sustainable development, regulation of hazardous wastes, and state and local taxation and finance. He is the author of a well-received monograph, *Enforcement at the EPA: High Stakes and Hard Choices* (University of Texas Press, 1995, revised edition, 2012) and a treatise on the federal environmental liabilities of state and local governments. His law review articles have appeared in numerous journals and his articles and book contributions have been widely cited, quoted and excerpted in texts, scholarly books and articles.

Prior to joining the Law Center faculty, Joel was an attorney and chief attorney with the U.S. Environmental Protection Agency in Chicago and Washington, DC. He is an elected member of the American Law Institute, a Fellow of the American Bar Foundation, a member scholar of the Center for Progressive Reform and a member of the Board of Directors of the Everglades Law Center, a not-for-profit environmental public interest law firm.

Joel received his bachelors from Columbia University, his JD from NYU School of Law, and his LLM and JSD from Columbia Law School.

9:30 **A Recommitment Towards Developing an Accurate Conceptual Site Model Prior to Remedial Implementation**
Nicholas Albergo, PE, DEE
CRA, Tampa

There is still a fair bit of jumping the gun when moving from assessment to remediation. We call the approach remedial assessment and the concept is that we conduct site assessment with the likely remedial approach in mind, rather than the old style of simply defining the horizontal and vertical impacts and then moving on to focus on remedial alternatives (the Superfund approach). Unfortunately, sometimes we fail to have sufficient understanding of the issues that led to the impacts (the conceptual site model) and thus needless surprises are encountered during remediation resulting in schedule delays and cost overruns because we don't implement the scientific method to routinely confirm that the data being collected makes sense. It's time to recommit to the conceptual site model and scientific method as a means of maintaining focus and efficiency when designing and implementing remediation projects.

10:00 **2014 Florida Legislative Session: *Hot Topics***
John J. Fumero, Esq.
Board Certified State & Federal Government & Administrative Practice Lawyer
Nason, Yeager, Gerson, White & Lioce PA, Boca Raton

10:30 Morning Break

Session 2

11:00 **Destruction of Perfluorooctane Sulfonate and Perfluoroctanoic Acid Using Activated Persulfate**
Patrick Hicks, PhD, Technical Manager, Southeast Territory
PeroxyChem, Philadelphia, PA

Perfluorooctane sulfonate is a man-made fluorosurfactant listed in Annex B of the Stockholm Convention on Persistant Organic Pollutants. It was used in stain repellants and also widely used in fire-fighting. Perfluoroctanoic acid is used in the emulsification of fluoropolymers and was widely used in non-stick coatings and water resistant clothing. Soil and groundwater contamination by PFOA occurred as a result of manufacturing operations. PFOS and PFOA have been recognized as pollutants and authorities around the world are in the initial stages of establishing regulatory limits for groundwater. PFOS and PFOA are both difficult to remediate in soil and groundwater systems due to their recalcitrant nature. Activated persulfate chemistry has been used effectively to treat soil and groundwater contaminated by a wide range of pollutants of concern. Recent laboratory work has demonstrated that activated persulfate is capable of oxidizing and mineralizing PFOS in groundwater with minimal daughter product formation. This presentation provides the latest in data demonstrating the reduction of PFOS by activated persulfate utilizing a variety of activation methods, such as high pH, hydrogen peroxide and chelated iron, as well as an overview of peer-reviewed papers investigating the destruction of PFOA by persulfate.

11:30 **Use of ZVI Catalyzed Hydroxyl & Sulfate-Free Radicals to Address BTEX Contamination via In-Situ Chemical Oxidation followed by Intrinsic Facultative, Biologically Mediated Processes**
Michael Scalzi, President
Innovative Environmental Technology Inc., Pipersville, PA

In-situ chemical oxidation via zero valent iron activated sodium persulfate and hydrogen peroxide has been used in numerous sites across the country. Two specific sites are discussed specifically where the objective was to reduce the concentration of volatile organic compounds, such as BTEX and trimethylbenzene, in soil and groundwater. The first site is a former gasoline service station located in St. Augustine and the second site is a former gas station located in Clinton, NY. The remedial design that was implemented at both sites managed to initially oxidize the targeted contaminants and then promote facultative biodegradation in the subsurface. The introduction of a unique mixture of hydroxyl, peroxyl and sulfate-free radicals allows for both Fenton-like reactions and long-lived sulfate-free radical oxidation. These reactions extend the oxidant and free radical residual, and further stimulate the biological mineralization of the petroleum compounds. Through the use of the oxidation by-products, iron and sulfate, biological mineralization proceeds following the oxidation event. The sulfate ion produced as a consequence of the decomposition of the persulfate allows for the attenuation of the targeted contaminants under sulfate-reducing conditions. Both remedial designs were implemented by Innovative Environmental Technologies Inc. The injection in St. Augustine was performed in April of 2008 and the one in Clinton in October, 2009. The three targeted wells in St. Augustine showed BTEX concentration decreases of 74%, 95% and 91% respectively, 12 months after the completion of the injection event. The site in Clinton recorded a total decrease of 79% in BTEX concentrations, 17 months after the implementation of the remedial design. Compounds that are more readily biodegraded, such as xylene, readily disappeared and compounds that are more recalcitrant, such as benzene, were degraded at high rates and eventually disappeared. In Clinton, trimethylbenzene compounds were targeted by the remedial design and were successfully reduced to standard within 12 months of the remedial event. Both sites have since received notices of no further action.

12:00 **FRC-South Luncheon**
Sponsored by **Advanced Environmental Laboratories**
Guest Speaker: **Wilbur Mayorga, PE, Chief**
Pollution Regulation and Enforcement Division
Department of Regulatory & Economic Resources
Miami-Dade County

Session 3

1:30: **An Update: Broward County's Environmental Programs, Practices and Activities**
David Vanlandingham, PE, Senior Environmental Engineer
Broward County Environmental Assessment and Remediation Section

Additional panelists from Broward County include:
Leonard Vialpando, PE, Director
Environmental Licensing and Building Permitting Division
Monica Pognon, Natural Resource Specialist III
Pollution Prevention, Remediation and Air Quality Division
Maribel Feliciano, Planning Administrator
Planning and Redevelopment Division

3:00 Afternoon Break

Session 4

3:30 **Electron Acceptor Selection for Enhanced Bioremediation of Non-Chlorinated Hydrocarbons**
Bill Walsh, Technical Acct. Manager
EOS Remediation, Raleigh, NC

Replenishment of electron acceptors in the subsurface is a common method to stimulate biodegradation of non-chlorinated hydrocarbons in groundwater. Two widely used products are calcium-based peroxides for aerobic degradation and sulfate-based salts for anaerobic degradation. What design parameters should a consultant consider in selecting from multiple electron acceptors? A small consulting firm was responsible for addressing BTEX contamination at a former gas station site. The challenge was to select the appropriate electron acceptor that could cost-effectively stimulate bioactivity and reduce contaminant concentrations that had remained above the state MCL for over a decade. Of the electron acceptors considered, Electron Acceptor Solution, EAS™, was selected to enhance anaerobic biodegradation of BTEX under established sulfate-reducing conditions. During the pilot study, 52.5 gallons of EAS was introduced into the former UST pit area via a single injection well and samples were collected at several downgradient monitoring wells. After six months, concentrations of toluene and xylenes decreased by 98% and 87%, respectively; benzene and ethylbenzene concentrations decreased to a lesser extent (<34%). Sulfate levels remained elevated up to five feet from the injection point. Results from the pilot study will be used in designing the upcoming full-scale application.

4:00 **Optimizing Sustainability and Cost for EVO Injections**
David Alden, Technical Associate
Tersus Environmental, Wake Forest, NC

Management of common environmental contaminants including chlorinated halogenated straight chain and aromatic hydrocarbons such as perchloroethene; trichloroethene and chlorinated phenols; perchlorate; explosive materials such as aromatic nitrates and residues of energetic munitions; nitrates; acids; radionuclides and metal oxides allows restoring aquifers and the environment to productive use. It is well known that creating anaerobic groundwater conditions by adding organic substrate stimulates biological mechanisms to degrade such contaminants. Once the organic material initially consumes any oxygen and other electron acceptors such as nitrates and sulfates, it provides a carbon source and serves as an electron donor during reductive dechlorination of contaminants by indigenous or exogenous microorganisms. Better understanding of the processes undergoing this degradation mechanism has increasingly taken those charged with remediating contaminated groundwater to engineer systems that enhance these biological mechanisms. During these biostimulation practices, emulsified vegetable oils are a commonly deployed carbon source for enhanced halorespiration, the use of halogenated compounds as sources of energy. The EVO selection and delivery process must, on one hand, favor a substance with appropriate characteristics for subsurface delivery while providing a short- and long-term source of hydrogen and carbon for enhanced reductive dechlorination. On the other, sustainability and cost considerations are factors that can determine using a product that ships as a 100% vegetable oil base solution yet emulsifies on-site without additional high-energy mixing simply by adding local water. Self-emulsifying organic substrates are an isotropic mixture of vegetable oil and vegetable oil derived fatty acid esters that have a unique ability of forming fine oil-in-water emulsions when mixed with aqueous media under mild agitation. Spontaneous emulsification to produce fine O/W emulsion under gentle agitation followed by dilution in aqueous media occurs since the entropy change favoring dispersion is larger than the energy needed to increase the surface area of dispersion. Emulsification occurs spontaneously due to the relatively low positive or negative free energy required to form the emulsion. Secondary environmental advantages of using self-emulsifying vegetable oils include reducing greenhouse gas emissions by eliminating mechanical energy inputs and reducing substrate-shipping volumes. In addition, a self-emulsifying EVO substrate with a long shelf life allows bulk storage that reduces the need for excess drums and totes that would require additional energy and materials for recycling or disposal at the conclusion of the project. This non-perishable characteristic allows considering, particularly for large projects, intermodal or consolidated shipping to reduce the transportation carbon footprint. This presentation shows how the low-cost self-emulsifying organic substrate is implemented, shares project data and illustrates the advantages of optimizing sustainability, site geochemistry and hydrogeology to address groundwater impacted with chlorinated hydrocarbons.

4:30 **Design and Implementation of a Large-Scale Bioaugmentation/ Bioremediation Remedy at a Superfund Site in West Palm Beach**
Bill Ware, PG, Senior Geologist; Leighton Walker, Senior Staff Engineer; and Will Burke, Senior Staff Hydrogeologist
Geosyntec Consultants, Boca Raton

Geosyntec began work at a circuit board manufacturing facility in May, 2012, as a subconsultant tasked with 1) technical/field support for the assessment of chlorinated volatile organic compounds; 2) identification of a "treatment" zone for targeted CVOC remediation; 3) selection of a remedy for impacted groundwater and generation of a Remedial Action Work Plan; and 4) implementation of the RAWP. Completion of these tasks was challenging due to the depth interval of contaminated groundwater at approximately 188-245 feet below land surface and the client's goal of having a remedy in place by September, 2013. Geosyntec used CVOC assessment data and 3D modeling software to generate a conceptual site model that facilitated the resolution of data gaps, the identification of a target treatment zone and the selection of injection well spacing. The RAWP utilized an 83-injection well network that was installed from March through May, 2013, and a biostimulation/bioaugmentation injection of ~28,000 gallons of diluted potassium lactate, ~400 L KB-1, ~190,000 gallons of diluted EOS PRO and ~137,000 gallons of anaerobic chase water, completed from June through August, 2013. Implementing the RAWP was met with significant challenges including raw material storage/preservation, generation of anaerobic mix water, injectate quality control, site control, personnel health and safety, and progress communication with the client. Adjustments for lessons learned allowed for activities to be completed safely, attaining design goals and meeting the client's schedule for remedy implementation.

5:00 **2014 FRC-South Reception**
Sponsored by **Flowers Chemical Laboratories** and **Vironex**

6:30 **FRC-South After Party**
The South Florida Environmental Discussion Network and SCS ES Consultants will host the FRC-South After Party immediately following the FRC-South Reception at WAVES, the pool deck bar area at the Bahia Mar Hotel.

Day Two

Friday, May 9, 2014

7:15 **Beach Walk** in support of Narcotics Overdose Prevention & Education Task Force

Session 5

8:30 **Characterization of Groundwater Flow Patterns through Permeable Reactive Barrier Systems Created using Hydraulic Fracturing Technologies**
Richard Hall, Senior Scientist
FRx Inc., Cincinnati, OH

Hydraulic fracturing technologies can be used to create lenses of zero valent iron in subsurface formations that can function as effectively as permeable reactive barriers constructed by trenching. Hydraulic fractures, emplaced with long axes parallel to flow, intercept little fluid directly but

Continued on Page 12

Continuing Education Credits

National Technical Communications Co. Inc., producer of FRC-South, is an approved Continuing Education Provider (CEP 0004002) for the Florida Board of Professional Engineers. As a CEP, NTCC offers professional development hours for FRC-South to professional engineers who are licensed in Florida and other states. FRC-South conference attendance will earn 8.5 PDHs (both days)—5.5 PDHs for Day One and 3 PDHs for Day Two. **Sign-in/sign-out is mandatory for PEs and your PE license number is required.** In addition, our conference provides continuing education credits for professional geologists and other professionals licensed in states that require continuing education to maintain licenses.

Registration

The registration fee for the full 2014 FRC-South event is $295; Day One only is $240, and Day Two only is $100. The fee includes a conference manual and flash drive with all talks, continental breakfast(s), beverage break(s), and the luncheon and reception for all Day One attendees.

To register for FRC-South, complete and return the form on the next page with payment in full to: NTCC Inc., P.O. Box 2175, Goldenrod, FL 32733, e-mail attachment to mreast@enviro-net.com, or fax completed registration form with credit card information to (407) 671-7757. (This is a secure fax number.) Purchase order numbers are accepted for government employees. We encourage you to register early. Conference registration is limited to avoid overcrowding. Note: Payment in full is required to confirm your registration. Cancellations received before April 8, 2014, will be refunded, less a $75 service charge. No refunds will be made for cancellations received after this date. However, paid no-shows will receive a copy of the presentation materials upon request. Substitutions will be accepted at any time, preferably with advance notice.

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Registration Form

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If registering more than one person,
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Full Conference	__ **(Both days)**	$295
One Day Only (Indicate which day)	__ **Day 1** (Thursday, 5/8/2014, full day)	$240
	__ **Day 2** (Friday, 5/9/2014, half day)	$100
Beach Walk for Charity (Friday, 5/9/2014, 7:15 AM)		$20

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Water initiative a step in the right direction for water supply planning

By BLANCHE HARDY, PG

Three water management districts—the St. Johns River, South Florida and Southwest Florida districts—are working with the Florida Department of Environmental Protection, the Florida Department of Agricultural and Consumer Services and regional water supply utilities in five Central Florida counties to develop a unified water supply plan for the thirsty region.

The Central Florida Water Initiative is working to implement effective and consistent water resources planning, development and management in the co-joined area.

The initiative's draft water supply plan was rolled out in November last year.

"The groups will experience economies of scale by jointly pursuing larger projects, sharing the costs and the benefits, and diversifying the water resources available to meet future needs," said Hank Largin, public communications coordinator in the Maitland office of the St. Johns River Water Management District.

The initiative's regional water supply plan is intended to ensure the protection of water resources and related natural systems, and to identify sustainable water supplies for all water uses in the coordination area through 2035.

This goal is in keeping with the water management districts' commitment to identify alternative water supplies in the region.

"Diversifying water resources is the best option for meeting long term water demands moving forward. These can include increased water conservation to reduce the demand for fresh groundwater. Other alternative water supplies include the use of reclaimed water, stormwater and some additional Lower Floridan Aquifer wells at certain locations."

Hank Largin, SJRWMD

The comment period on the draft document ended in late February and, as Largin noted, the team "will incorporate the responses into the revised document. Concurrently, the Solutions Planning Team is working on regional projects to meet long-term water needs.

"The results of these efforts will be incorporated into the regional water supply plan updates and local governments' comprehensive plans for implementation by utilities, water management districts and the state," he said.

Among the most discussed issues are the proposed augmentation of groundwater supplies with alternative surface water withdrawals and an increased emphasis on water conservation.

"Diversifying water resources is the best option for meeting long term water demands moving forward," said Largin. "These can include increased water conservation to reduce the demand for fresh groundwater. Other alternative water supplies include the use of reclaimed water, stormwater and some additional Lower Floridan Aquifer wells at certain locations."

Some environmental advocates, including St. Johns Riverkeeper Lisa Rinaman, express concerns about the proposed increase in surface water withdrawals.

"Withdrawals from the St. Johns River will worsen existing pollution problems, increase the frequency of toxic algal blooms, further reduce flow, increase salinity levels farther upstream and adversely impact the fisheries, wildlife and submerged vegetation in and along the St. Johns River and her tributaries," she said.

According to Rinaman, the SJRWMD regional plan envisions a greater potential for water conservation than for tapping additional surface water resources—if more incentives are provided, stricter regulation is required or the cost of new water supplies rises sharply.

Water conservation measures are required within any water supplier's consumptive use permit.

"The districts will continue to require water conservation through their water use permitting and through funding incentives," said Largin. "In addition, the districts will work with water users to increase the level of water conservation even further in the future.

"As part of the Solutions Phase now under way in the CFWI, a team has been assembled to investigate how to maximize water conservation to meet future water supply needs," he said.

Creation of the CFWI is a step in the right direction for all the parties involved, and while not yet perfected, it is likely one of the most important moves the state has made since undertaking water supply planning in Central Florida.

Hopefully, having broken the ice on territorial thinking, the CFWI will proceed with planning for all the impacted parties, including environmental advocates.

As Rinaman suggests, "Florida needs bold leadership to craft statewide water policy that emphasizes water conservation, sustainable building and planning practices, incentives that encourage the efficient use of water and market solutions, such as aggressive conservation rates."

Soil vapor removal now accomplished quickly with mobile vacuum equipment

By ROY LAUGHLIN

In the early days of soil cleanup—when organic compounds such as gasoline or dry cleaning fluids contaminated the soil— bulk soil removal was the common approach used.

But it wasn't long before remediation professionals realized that if the organic contaminants were volatile, the vapor phase was the lowest hanging fruit in terms of its removal from the vadose zone.

Extracting vapors under vacuum takes advantage of vapor behavior that sometimes vexes cleanup efforts that focus on plumes of contaminated water.

Photo courtesy of CalClean

CalClean's truck-mounted mobile systems have been active in Florida, offering vacuum vapor-trapping remediation services.

If an organic compound is present in concentrations at or below its water solubility in groundwater—often a low concentration—it moves toward a collection point no faster than diffusion through water or the flow of the water that contains it.

In the vapor phase, volatile hydrocarbons occur at higher concentrations in equivalent air volumes, as compared with solutions. The vapor phase diffuses more rapidly from regions of high concentration or high pressure to those of low concentration or low pressure than is the case with solutions. This behavior often explains why vapor extraction works quickly.

Exploiting volatility to remediate contaminated soils went through several stages in the developmental process that eventually led to today's capabilities.

Research in the late 1980s first focused on locating wells or other access structures to direct an air flow path through soil to increase the flow through the most contaminated areas.

As experience increased, characterization of vapor phase behavior and air flow in low permeability soils followed in ways that increased performance of vapor phase removal methods.

Remediation methods that heated soils to increase a contaminant's vapor pressure began in the 1990s and became widely used after 2000.

Even under a relatively modest vacuum, adding heat brought two major improvements, albeit at a cost: A broader molecular weight range of substances could be recovered, and recovery times dropped dramatically.

Heating soils combined with vapor recovery is generally a broadly applicable in-situ method. Removal of volatile compounds by vacuum often involves installation of vacuum pumps and collection equipment at the site.

Modest vacuum pressures translated to treatment intervals lasting only weeks or months. In recent years, the shift to mobile and modular has influenced volatile contaminant recovery by vacuum technology.

California–based CalClean is one of the few companies today that offers a truck-mounted mobile vapor extraction system. The soil remediation company has been active in Florida lately, offering its vacuum vapor trapping remediation services to national gasoline clients.

Its equipment consists of a vacuum pump and a flexible one-inch tube leading to a perforated wand, "the stinger," that pulls vapors from soil into the extraction treatment components.

Volatile hydrocarbons collected by the stinger are led to a catalytic oxidizer that produces CO2, which is released to the atmosphere.

The system is also capable of removing and trapping volatiles such as dry cleaning fluids or chlorinated solvents that are not readily combustible. Those can be trapped as liquids in barrels that can be transported off site for appropriate disposal.

Noel Shenoi, CalClean's president and principal engineer, said that few companies offer a technology based entirely on vacuum extraction.

He noted that his firm's technology relies on lower pressures under vacuum than many others, and that it is mobile. Access wells on site are needed, but those are typically already present as a result of site contamination characterization or other cleanup efforts.

Shenoi said that three to four 30-day extraction events are typical of cleanup efforts at Florida sites to lower hydrocarbon contamination to natural attenuation or risk-based target levels.

CalClean is not a well known name in Florida, but hopes to become more familiar: "We're a pure vendor firm," said Shenoi.

CalClean primarily works as a subcontractor for consultants who manage a larger site cleanup plan. "But we also work for mom-and-pops. They can hire a consultant or they can hire us (to clean up contamination)," said Shenoi.

The 15-year-old company is one of the largest gas station site remediation service companies in California and works with over 200 consultants in that state. It has also been working in Idaho, and is entering the Arizona market as well.

"We've used the CalClean system at multiple sites including performance-based cleanup sites, with great success," said Marc Eichenholt, PG, president of MAS Environmental in Tampa.

"Within 30 minutes, we can be up and running," he said, explaining how quick and simple placing the stinger in wells is.

He also noted that where the water table is high, he combines air sparging to remove volatile organics from water, while also using the CalClean system to clean soils above the water table.

Vapor removal has gone from being a vexing exception to available remediation technology to an exploitable cleanup method that is now accomplished quickly with mobile equipment.

State air permitting requirements: Do I need an air permit?

By JEFF KOERNER, PE

Part one in a series

Modern day businesses employ an assortment of equipment and processes to create a wide variety of commercial products. As such, it is important to plan not only for water demands and waste disposal, but air pollution discharges as well.

This can include products of combustion, organic compounds, dust, etc. Sources of air pollution can be subject to federal, state and local regulations that are typically identified in some type of air pollution permit.

This column is the first in a series of four that will cover air permit exemptions, air general permits, air construction permits and air operation permits.

Businesses are encouraged to conduct a thorough survey to identify activities that generate or control air emissions.

Examples of some common types of equipment and processes include fuel combustion (boilers, furnaces, curing ovens, stationary engines, etc.), activities using solvent-containing materials (paints, degreasers, adhesives, fiberglass layup, etc.), and air pollution control equipment (fabric filters, dust collectors, paint spray booths, etc.).

Even though you may have some of this equipment, your facility may be exempt from the air permitting requirements depending on the potentially applicable regulations, equipment size and emissions levels. In fact, the Florida Administrative Code provides several options that exempt small sources from permitting.

Categorical and conditional exemptions, Rule 62-210.300(3)(a), FAC

This rule exempts entire categories of emissions units as well as some conditional activities from the requirement to obtain an air construction permit and a minor source air operation permit.

A few examples of categorical exemptions include equipment used for steam cleaning; equipment used exclusively for space heating, other than boilers; brazing, soldering or welding equipment; fire and safety equipment; petroleum lubrication systems; and vehicle refueling operations and fuel storage.

A conditional exemption applies to activities within a specific source category below certain capacities or that meet specific limitations.

Examples of conditional exemptions include bakery ovens located at any retail bakery facility which derives at least 50 percent of its revenue from retail sales on premises; and surface coating operations within a single facility that are not subject to any unit-specific limitation or requirement, and that use only coatings containing five percent or less volatile organic compounds, by volume, or the total quantity of coatings containing greater than five percent VOC, by volume, used at the facility does not exceed six gallons per day, averaged monthly.

For conditional exemptions, you should maintain sufficient records to demonstrate that the activity meets defined limitations.

Generic exemptions, Rule 62-210.300(b), FAC

Individual emissions units or activities may also be generically exempt from the requirement to obtain an air construction permit or a minor source air operation permit if they meet all of the criteria identified in the rule.

This includes not being subject to any unit-specific requirement, having potential emissions below certain defined thresholds, and not being a "modification" as defined by specific state and federal regulations.

In addition, the potential emissions from the proposed exempt project cannot cause the facility to become a Title V major source—greater than or equal to 100 tons per year of any regulated pollutant, greater than or equal to 25 tons per year of all combined hazardous air pollutant, and greater than or equal to 10 tons per year of any single HAP.

An entire facility may be exempt from permitting requirements if all emissions units and activities are exempt. An entire facility may also be exempt if none of the individual emissions units and activities are subject to any unit-specific requirement and the entire facility has potential emissions below certain defined thresholds. Again, a Title V major source facilities may not be exempt from permitting.

Case-by-case exemptions, Rule 62-4.040, FAC

If your business doesn't qualify for the above exemptions, you may request a case-by-case exemption from the permitting authority, which must determine that the existing or proposed activity will not cause adverse air impacts within the state and that regulation is not reasonably justified.

Generally, such projects will have relatively minor emissions levels and not be subject to any unit-specific requirement.

Even if your facility doesn't qualify for one of these types of exemptions, don't panic! You could be eligible for one of 17 air general permits that only require a simple online registration.

In fact, air general permits account for approximately 64 percent of the nearly 3,900 permitted sources in Florida.

Jeff Koerner, PE, is the program administrator in the Office of Permitting & Compliance at the Florida Department of Environmental Protection in Tallahassee. The permitting section website is http://www.dep.state.fl.us/Air/emission/permitting.htm.

DEP outreach assistance yields positive results for Florida's environment

By SUSAN BEASON

The Florida Department of Environmental Protection's emphasis on outreach and compliance assistance activities is helping to improve compliance rates among regulated businesses and residents, focusing on preventing environmental harm.

The department's regulatory programs and six local district offices frequently host workshops and outreach initiatives that focus on the most common compliance issues within targeted industries such as drycleaners and automotive recyclers. These events serve as educational forums where business owners and facility operators can gain a better understanding of the agency's rules and permit requirements.

Outreach activities help the regulated community avoid damage to natural resources through education and open communication with the department.

The department conducts thousands of onsite inspections and reviews hundreds of thousands of air, waste and water quality data points every year.

In addition, compliance assistance activities help the regulated community return to compliance after the discovery of minor noncompliance, in some cases avoiding the need for formal enforcement that can carry significant costs.

As a result of targeted efforts to identify and educate high-risk facilities, overall compliance rates in Florida are at 96 percent—the highest level ever measured.

DEP's district offices around the state have been providing free outreach training to educate the public on common and preventable compliance issues.

For example, the Northwest District, in partnership with the Northwest Florida and Apalachee regional planning councils, led a workshop on the environmental and economic benefits of brownfield redevelopment.

The Northeast District hosted two workshops with a small-business focus regarding the handling of commercial hazardous waste and the proper storage of used oil. More than 75 representatives of businesses ranging from construction to transportation attended the meetings.

The Central District has had no instances of significant noncompliance at Class I landfills since July 2012. One factor in this success is the regularly scheduled meetings the department holds with solid waste directors from the Central District's eight counties. The meetings promote compliance and closer working relationships.

Elsewhere, the Southeast District initiated Realtor outreach events that focus on environmental issues related to waterfront properties. This training helps real estate agents and their clients better understand regulations regarding issues such as docks and boat lifts, wetlands and mangroves.

The South District is hosting open houses in each of its nine counties with information booths and the option of meeting face to face with agency experts. Free training is offered on topics such as wetlands permitting and asbestos.

A workshop hosted by the Southwest District targeted marine contractors and others who work with commercial and private docks. Staff provided information on the application and permitting process, state lands requirements and compliance assistance.

In all, the department participated in nearly 7,500 events in 2013, educating more than 87,000 customers about Florida's environmental practices and standards.

BEASON
Continued on Page 11

EZVI technology cleans up at KSC facility

By LINDA HERRIDGE

For the first time, a groundwater treatment technology developed at Kennedy Space Center was used to treat subsurface contaminants near one of the center's buildings, the Reutilization, Recycling and Marketing Facility, or RRMF.

Located on Ransom Road just west of Kennedy Parkway, the RRMF was constructed in the late 1960s to store and recycle a variety of equipment and chemicals. Over the course of nine days in November, remediation program professionals injected emulsified zero-valent iron into an area of about 2,200 square feet to a depth of 27 feet below ground surface.

The target was the chlorinated solvent tetrachloroethene, also known as PERC, which had been historically released into the environment.

Remediation Project Manager Anne Chrest of Kennedy's Center Operations Directorate is leading the cleanup efforts. Workers with Jacobs Engineering Group and CORE Engineering and Construction Inc. used more than 9,000 gallons of EZVI in the treatment area.

Chrest said seven remedial technologies were evaluated to treat the chlorinated solvent-affected groundwater at the facility and EZVI was the technology selected.

"The site will be monitored for several years," Chrest said. "The monitoring data will enable us to follow the groundwater cleanup progress and ensure our cleanup objectives are achieved. Groundwater samples will be collected over time to demonstrate cleanup."

Invented by Dr. Jacqueline Quinn, a NASA environmental engineer, EZVI currently is one of several available groundwater remediation technologies that can treat chlorinated solvent source material, known as dense nonaqueous phase liquids. These liquids are denser than water and do not dissolve or mix easily in water.

Co-inventors are Dr. Kathleen Loftin, a NASA analytical chemist, plus Dr. Christian Clausen, Dr. Cherie Yestrebsky and Dr. Debra Reinhart, PE, from the University of Central Florida in Orlando.

The first field demonstration of EZVI was successfully performed in 2002 at Launch Complex 34 on Cape Canaveral Air Force Station under the U.S. Environmental Protection Agency's Superfund Innovative Technology Evaluation program. After that, the injection methods for field-scale deployment became the focus.

Lew Parrish, a senior technology transfer specialist with QinetiQ North America supporting Kennedy's Technology Transfer Office, said a total of nine licenses have been granted to nine companies and two U.S. patents have been issued for the EZVI technology, making it one of NASA's most licensed technologies.

"Not coincidentally, one of the EZVI licensees provided the product for the remediation project at the RRMF," Parrish said. "It was transported to Kennedy in a large tank trailer."

EZVI won NASA's Government Invention of the Year and Commercial Invention of the Year awards in 2005.

Quinn, Loftin and the group received an Award for Excellence in Technology Transfer from the Federal Laboratory Consortium for Technology Transfer in 2006 and were inducted into the Space Technology Hall of Fame during the 23rd National Space Symposium in 2007.

The team also was recognized as Laureates of the Tech Museum for the global humanitarian impact of the EZVI technology.

EZVI is in use at Port Canaveral and several locations at CCAFS, in 17 U.S. states, and in France and Japan.

Linda Herridge is a public affairs writer with Abacus Technology at the National Aeronautics and Space Administration's John F. Kennedy Space Center.

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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.

Calendar

April

APR. 2-4 – Course: OSHA 24 Hour Emergency Response Course, Tallahassee, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

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

APR. 4-8 – Symposium: The Fifth International Symposium and Exhibition on the Redevelopment of Manufactured Gas Plant Sites, Destin, FL. Presented by INSTEP the Center for Biomedical & Toxicological Research at FSA and Association & Conference Management LLC. Call (850) 558-0617 or visit www.mgp2012.com.

APR. 6-10 – Conference: Florida Water Resources Conference, Orlando, FL. Presented by the Florida Water Environmental Association, the Florida Section of the American Water Works Association and the Florida Pollution Control Operators Association. Visit www.fwrc.org.

APR. 7-9 – Forum: National Water Policy Forum, Washington, DC. Presented by the National Association of Clean Water Agencies, the Water Environment Federation and the Water Environment Research Foundation. Call (202) 833-2672 or visit www.nacwa.org.

APR. 7-10 – Conference: 2014 Annual Conference of the National Association of Environmental Professionals, St. Petersburg, FL. Call (863) 949-0262 or visit www.naep.org/2014-conference..

APR. 7-11 – Course: Asbestos: Contractor/Supervisor, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

APR. 8-9 – Seminar: Southeast Regional Stormwater Seminar, Atlanta, GA. Presented by the Southeast Stormwater Association. Call 1-866-367-7279 or visit www.seswa.org.

APR. 9 – Course: 4-Hour Refresher Course for Spotters at Landfills, C&D Sites and Transfer Stations, Lakeland, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

APR. 9 – Course: Spotter Training for Solid Waste Facilities, Lakeland, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

APR. 10 – Course: Exposure to Bloodborne and Airborne Pathogens, Lakeland, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

APR. 11 – Course: Backflow Prevention Recertification Review, West Palm Beach, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

APR. 11 – Course: Backflow Prevention Recertification Review, Venice, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

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

APR. 12 – Course: Backflow Prevention Recertification Exam, West Palm Beach, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

APR. 14-16 – Course: Backflow Prevention Assembly Repair and Maintenance Training and Certification, Altamonte Springs, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

APR. 14-15 – Course: Advanced Backflow Assembly Tester, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

APR. 14-18 – 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.

APR. 15-18 – 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.

APR. 18-19 – Course: Backflow Prevention Assembly Repair and Maintenance Training and Certification, Venice, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

APR. 20 – Course: Backflow Prevention Recertification Exam, Tampa, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

APR. 21 – Course: Asbestos Refresher: Project Design, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

APR. 22 – Course: Introduction to DEP SOPs for Surface and Groundwater Sampling, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

APR. 22 – Course: Asbestos Refresher: Inspector, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

APR. 22 – 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.

APR. 23 – 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.

APR. 24 – Course: Backflow Prevention Recertification Review, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

APR. 25 – MAY 3 – Course: Backflow Prevention Assembly Tester Training and Certification, Ft. Myers, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

APR. 25 – Course: Backflow Prevention Recertification Exam, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

APR. 26 – MAY 4 – Course: Backflow Prevention Assembly Tester Training and Certification, Jacksonville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

APR. 28 – Course: Lead Refresher: Renovation, Repair & Painting, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

APR. 29 – Course: The Science of Disinfection, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

APR. 29 – Course: Lead: Renovation, Repair & Painting, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

May

MAY 1 – Course: Refresher Training Course for Experienced Solid Waste Operators- 8 Hours, Ft. Myers, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570.

MAY 1 – Course: Initial Training Course for Spotters at Landfills, C&D Sites and Transfer Stations - 8 Hour, Ft. Myers, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570.

MAY 1 – Course: Dissolved Oxygen & Oxidation Reduction Potential Training, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

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

MAY 1-3 – Convention: 2014 Florida Groundwater Association Annual Convention & Trade Show, Orlando, FL. Call (850) 205-5641 or visit www.fgwa.org.

MAY 2 – Course: Refresher Training Course for Experienced Solid Waste Operators- 8 Hours, Ft. Myers, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

MAY 3 – Course: Backflow Prevention Recertification Review, Bradenton, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

MAY 5-9 – Course: Backflow Prevention Assembly Tester Training and Certification, Lake Buena Vista, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

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

MAY 7 – Course: Asbestos Refresher: Contractor/Supervisor, Dania Beach, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

MAY 8-9 – Conference: 2014 Florida Remediation Conference-South, Ft. Lauderdale Beach, FL. Presented by National Technical Communications Co. Inc. and the *Florida Specifier*. Call (407) 671-7777 or visit www.enviro-net.com.

BEASON

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To learn more about upcoming outreach events and workshops, visit the Public Notices, Outreach & Education Calendar, at http://sharepoint.dep.state.fl.us/PublicNotices/default.aspx.

Compliance assistance can be requested online through the department's Business Portal at www.dep.state.fl.us/secretary/portal/default.htm.

Sign up for technical assistance or site visits, whether it's for an individual or a facility. The Environmental Assistance Directory link provides a list of state and federal staff who handle compliance issues ranging from asbestos to wastewater.

To determine which district office serves your area, visit http://www.dep.state.fl.us/secretary/dist/default.htm.

Susan Beason is a public information specialist with the Florida Department of Environmental Protection in Tallahassee.

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rather capture groundwater by distorting flow around the fracture. Significant volumes can be so captured when the ZVI-formation permeability ratio exceeds two orders of magnitude and typical fractures are utilized. An ability to predict flow capture behaviors is essential to successful design of fracture-facilitated, passive reactive systems. Fracture capture zones and contaminant residence time distributions were characterized by developing analytical solutions and utilizing a numerical flow model. Capture zones for individual fractures are elliptical in the far field with dimensions that consistently increase with increases in kRat and fracture dimension. Contaminant residence times vary based on where flowlines enter the fracture. Overall residence time distribution is a function of kRat and can be scaled to maximum residence time, which is a function of ambient formation flux. Judiciously emplaced systems of multiple, neighboring fractures can be used to capture greater volumes with only modest inefficiency due to competition. This analysis was applied using the hydrological properties and contaminant characteristics of three sites with positive results.

9:00 **Horizontal Remediation Wells Provide Rapid Site Closure in Florida**
Mark Uanino, Regional Manager
Directional Technologies, Tallahassee

Horizontal remediation wells installed using horizontal directional drilling, HDD, technologies are being used to rapidly remediate environmentally impacted sites throughout Florida. The technology was developed from the oil industry where it allowed the removal of oil from reservoirs after conventional wells had ceased production. Oil well productivity surged as a result of the increased efficiency of HDD technology. This increased efficiency has been transferred to the environmental field, where the need for precise delivery of a growing number of in-situ remediation technologies has led to a higher demand for horizontal wells. Many sites have eluded closure due to contamination plumes trapped under buildings, roads, wetlands and other obstructions. Florida's unique geology and dependency on groundwater supplies has amplified the need to quickly remediate these areas. Installing horizontal wells allows for better access to the plume and more contact with the screen. These benefits dramatically decrease the time required to reduce the contamination to target levels. Horizontal remediation wells, with much larger screen surface areas, have a proven history of reducing environmental liabilities by achieving remedial objectives more quickly and cost-effectively than conventional methods.

9:30 Early Morning Break

Session 6

9:45 **Methods of Reducing Variability in Long-Term Monitoring Well Results**
Sandy Britt, PG, CHG, Principal Hydrogeologist
ProHydro Inc., New York, NY

Variability in groundwater monitoring data significantly complicates data analysis at long-term monitoring sites. Separating real long-term trends from seasonal changes, water-level-associated trends, or confounding random error is difficult in many cases because we often cannot isolate the sources of concentration change. In a typical monitoring well, contaminant concentrations are observed to increase or decrease between monitoring events due to a variety of factors that may be unrelated to the long-term effects of natural contaminant attenuation or site remediation. Current efforts are underway to identify and eliminate some sources of groundwater monitoring error. ESTCP project ER-201209 is in the field work phase of an effort to identify alternative methods that limit user sampling error. Sampling error is thought to be one of the primary sources of variability not directly connected with the actual concentration changes present in the subsurface. The objective of the project is to demonstrate an easy-to-apply, cost-effective suite of tools and simple procedures that can be used to 1) reduce monitoring variability, 2) more accurately characterize long-term concentration trends, and in turn, 3) optimize monitoring frequency. Two primary mechanisms are thought to be the source of most sampling error: 1) the process of sample collection from the well, and 2) sample handling once the sample is brought to the surface. Note that "error" is different from "change." Actual concentrations vary over time and even position within a well screen. "Error" is broadly defined here as inconsistent application of methods that tend to increase observed concentration variations. It is currently unknown how much variable sampling techniques, or even personnel, effect long term trend monitoring difficulties. But the ESTCP project underway seeks to measure aspects of these sources of error. Four techniques being tested in the ESTCP project include a standard low flow purging technique where field parameters are measured to determine appropriate sampling time; an alternative low flow technique that uses a low but fixed volume water removal without regard to measured "parameter" water chemistry; and two passive techniques that require no well purging. One of the passive methods is the Snap Sampler, a method that seals VOC samples downhole, so there is no surface handling of collected water. It is unclear whether the primary source of sampling error is surface handling or downhole phenomena either naturally occurring or induced through purging activities. The intent of the ESTCP project is to see if these factors can be isolated and whether simple user techniques can be employed to limit negative effects.

10:15 **Distinguishing Chlorinated Solvent Releases by Stable Isotope Analysis**
Alan Jeffrey, PhD, Senior Environmental Forensics Consultant
Zymax Forensics / Pace Analytical Services, Escondido, CA

Identifying different releases of chlorinated solvents such as PCE in groundwater is complicated because the compounds are chemically identical no matter the source. However, work in the last decade or so has shown that chlorinated solvents from different manufacturers may be distinguished by differences in their carbon and chlorine isotope ratios. Compound Specific Isotope Analysis is becoming a widely used analytical technique for measuring these isotopic ratios in chlorinated solvents in concentrations in the low ppb level in groundwater. Where there has been little degradation of the chlorinated solvent that was released, differences in its isotope ratios can be inferred to indicate different releases. However, degradation of a chlorinated solvent, *eg.* PCE degraded to TCE, then to cis-1,2-DCE, can result in a significant alteration in the isotope ratios of the residual PCE. This can result in PCE from the same release, but degraded to different extents in different portions of a plume, having very different isotope ratios. This also complicates the identification of different releases. Under certain circumstances it is possible to reconstruct the isotope ratios of the initial, undegraded solvent. A case study in Florida will be presented where measured carbon isotope ratios of PCE in a groundwater plume were unable to distinguish releases from two different sources due to degradation of PCE in the downgradient plume. However, when the initial isotope ratios of PCE were reconstructed from the measured PCE, TCE, and cis-1,2-DCE ratios in downgradient wells, the ratios were similar to each other and to the PCE from one of the sources.

10:45 *Late Morning Break*

Session 7

11:00 **Update: Contaminated Media Forum**
Richard Lewis, PE, PhD, Principal Engineer
CRA, Fort Myers

The former Contaminated Soils Forum, now the Contaminated Media Forum, has reunited to document some of the lessons learned over the last decade and to recommend specific changes. As an example of lessons learned, the CMF has proposed developing databases of existing background studies and alternative cleanup target levels that have previously been approved. Such information could be used at similar sites to streamline the regulatory process by limiting the amount of duplicated effort that might be occurring through a lack of transparency in the process. There are numerous such transparency issues that will be discussed. Secondly, an example of the recommended changes being discussed as guidance and/or rule change to allow for the accommodation of Incremental Sampling Methodology, an innovative sampling methodology. Numerous other documentation, transparency and streamlining issues brought to the table through two in-person meetings and numerous conference calls will be discussed, along with providing some insights into the path forward.

12:00 Conference adjourns

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NOPE TASK FORCE — NARCOTICS OVERDOSE PREVENTION & EDUCATION

The Narcotics Overdose Prevention & Education Task Force is our 2014 Florida Remediation Conference charity. All proceeds from this year's FRC-South Beach Walk and FRC-Orlando Charity Golf Tournament this fall will go to this organization.

NOPE is a non-profit organization that was formed in Palm Beach County in 2004. NOPE's mission is to diminish the frequency and impact of drug overdose death through community education, family support and purposeful advocacy. NOPE provides innovative substance abuse prevention programs that are comprised of community partners such as: law enforcement agencies, addiction/prevention professionals, treatment providers, businesses and loved ones who have lost family members to drug related deaths. The NOPE program empowers youth to become peer advocates to prevent substance use among our youth. NOPE has established 14 chapters across Florida and Pennsylvania.

Dunedin delays dredging of lakes

Staff report

The Dunedin City Commission voted to postpone the dredging of Lake Sperry, and East and West Cedar Creek.

The 3-2 vote against an immediate dredging remedy concluded an emotionally charged city commission meeting earlier this year. Following the vote, the commission approved a plan to seek other options for cleaning up the creeks and lake.

Jon Armbruster, vice president of waterfront engineering at Taylor Engineering, and David Sites, the firm's director of environmental services, gave a presentation at the meeting noting several options available to the city.

Armbruster tempered some of the options. He said, for example, that dredging both West and East Cedar creeks would provide limited improvement to stormwater conveyance because the creeks are also influenced by tidal action.

For Lake Sperry, the report concluded that lake sediment results from both stormwater runoff and lakeside bank erosion. Actions taken by the city to create a gradient treatment system along with other methods of trapping sediment have reduced the volume flowing into the lake.

Lake Sperry is a potential locale for flooding. The report concluded that dredging would not increase the storage volume of the lake.

Environmental Services

SESSION
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these efforts," Preston said. "It has been such a commitment over the past few years that I don't see the state backing away from that job."

On the water front, there has been much discussion, Preston said, over dwindling water resources.

"As the economy improves, more development will take place that could add pressure to continued withdrawals of groundwater. To some extent, the pressure might be taken off because it has been a pretty wet fall and winter across the state," Preston said.

He also expects water quality will also be at the forefront of talks among lawmakers.

"You will see a lot of talk about maintaining or improving surface water quality in the state, particularly nutrient levels," he said. "I'm not sure you will see a lot of legislation getting through, however."

The state has about $1 billion extra available this year in its coffers due to the slowly improving economy. "There could be some additional funding for programs that have been starved of cash," Preston said.

Water concerns carried over from 2012 and 2013 include the fate of springs threatened by groundwater over-pumping, discharges from Lake Okeechobee to the Indian River Lagoon and Caloosahatchee River, and a legal fight with Georgia over water flows in Florida's Apalachicola River.

Attorney Frank Matthews, a shareholder at Hopping, Green & Sams in Tallahassee, agreed that legislation providing greater protection for Florida's springs will be high on the list of environmental issues.

"Springs legislation will be highly debated," he said. "There are some very important springs initiatives, but I don't know what will happen. I'm not sure there is a real will to initiate significant regulatory programs for the springs.

"This is going to be a really low profile legislative session. This is an election year and there will be very few environmental initiatives," he said.

Michael Minton, an attorney with Dean Mead in Fort Pierce whose practice focuses on water resource issues, said that our current drinking water infrastructure cannot support the expected increase in demand.

"We're going to have to create and use water resources more wisely," said Minton.

Because Florida does not have the laws and infrastructure in place to capture surface water, Minton said, we are gradually tapping out what's left of our groundwater resources.

Legislation being discussed this year requires water management districts to identify springs that are declining in water quality and flow levels, and to develop five-year plans to restore the springs identified.

Five Senate committee chairmen are supporting draft legislation that provides an estimated $378 million per year toward sewer hookups and other projects that will benefit springs.

Draft legislation requires homes near impaired springs to either upgrade their septic tanks or hook up to a sewer system at no cost to the property owners. The draft springs legislation would require water management districts to set minimum flows for 38 of the state's largest springs by July 1, 2015.

A Senate select committee has recommended $210 million for projects to reduce freshwater flowing from Lake Okeechobee into the Indian River Lagoon and Caloosahatchee River estuary. The governor has requested $130 million for those projects.

In addition, advocates for cleaning up contaminated sites want $150 million for the Inland Protection Trust Fund to finance petroleum cleanups around the state.

Among the more controversial environmental bills this year is House Bill 703. It extends water use permits for landowners, prohibits enforcement of recently modified local government environmental regulations, and requires the state to consider the costs of greenhouse gas reduction rules.

The bill would provide 50-year water use permits for landowners participating in government water storage programs.

This bill has already encountered fierce opposition from environmental groups.

Eric Draper, executive director of Audubon Florida, said he expects the Legislature to deal with the serious water quality issues.

"There's also an issue of funding," Draper said. "This year, there will be an increase in spending overall. But there are a lot of demands on that money."

Draper said he believes more money will be spent on Everglades and springs restoration than in previous years. He also hopes that the Senate and House will allocate more funds for land conservation.

"We are worried about Florida Forever and land conservation," he said.

But the bill that worries environmental advocates like Draper the most is HB 703. "It turns water policy on its head," he said. "It preempts local governments' ability to make decisions on environmental protection."

Another bill requires the state Public Service Commission to adjust public water or wastewater rates, and consider the value and quality of water provided when fixing rates. The bill also provides for the regulation of utilities by the PSC if the utility fails to meet certain standards.

HB 357 would extend tax exemptions to certain investor-owned utilities. It would also require the review of private activity bond allocations for infrastructure projects and exempt certain resellers of water from PSC regulations.

Among the other environmental bills being debated include Senate Bill 536 and House Bill 601 that require state agencies to study and report on the expansion of the reuse of treated wastewater.

FEDFILE
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namics in ways the SPARROW model may characterize poorly.

South Florida is not characterized in the USGS SPARROW model because extensive water management and flood control diversions have changed water flow paths so that they no longer reflect topographic flows modeled.

Encapsulated coal ash "appropriate." EPA put its blessing on two uses of encapsulated coal combustion residuals, otherwise known as coal ash: substitution of the coal ash for Portland cement in concrete and substitution of flue gas desulfurization gypsum for mined gypsum in drywall.

The EPA's evaluation of these two beneficial uses relied on its newly developed "Methodology for Evaluating Encapsulated Beneficial Uses of Coal Combustion Residuals."

In this case, the new evaluation procedure found that in concrete and wallboard, coal ash and gypsum residuals are comparable to natural materials that are already used and whose health risks are "below the agency's health and environmental benchmarks."

These are only two potential uses for coal fly ash residuals. The new methodology is applicable to making evaluations and informed decisions about health risks of other uses of CCR.

The two components evaluated make up about half the total amount of coal ash that is beneficially used. With such an excess of supply over demand, additional beneficial uses are not likely to create supply limitations in the amount of available coal ash.

Sierra Club poll. A recent public opinion survey by the Sierra Club's "Beyond Coal" campaign found that 57 percent of respondents support a move away from coal use completely.

More significantly, more than 60 percent of respondents favored investments in clean energy sources and energy efficiency instead of additional investments in CO2-producing fossil fuels such as coal oil and gas.

Perhaps more troubling for the electrical power generating companies, the poll found seven in 10 voters support "strong carbon pollution limits on power plants."

Those would require either that coal-burning power plants be abandoned or that carbon dioxide sequestration be adopted by them.

A majority of poll respondents do not believe that abandoning coal will cost jobs or hurt the economy.

Registered voters support President Obama's proposal for stricter carbon dioxide emissions under the Clean Air Act. They believe it will beneficially influence public health and climate change.

The public sees climate change as a major disruptive effect of greenhouse gas emissions, and believes that the federal government should be doing more to address it, not less.

In spite of that opinion, very few of the respondents understood that there are currently no federal regulations to limit greenhouse gas emissions from power plants and other large coal-burning facilities.

Greenberg Quinlan Rosner Research conducted the poll during the week of January 11-20.

It contacted 1000 registered voters nationwide to poll opinions on the use of coal, the use of alternative energy and national policy initiatives to limit greenhouse gas emissions.

The Sierra Club's Beyond Coal initiative commissioned the opinion poll. The complete results are online at http://www.sierraclub.org/pressroom/climatepoll/.

Hendry, Collier counties see increase in oil drilling permit applications

By SUSAN TELFORD

Environmental activists and some Northwest Florida residents are challenging Florida Department of Environmental Protection approval of oil and gas drilling permits on property in the Big Cypress National Preserve in Collier County.

Citing the potential negative impacts to drinking water and Florida Panther habitat, the South Florida Wildlands Association challenged DEP's decision to allow the drilling.

Meanwhile, two more companies vying for drilling rights have pending exploration applications on file with DEP.

"I feel like absolutely more should be done to notify the public. What we're seeing is the opposite of that," said Jennifer Hecker, natural resource policy manager at the Conservancy of Southwest Florida.

Burnett Oil Inc. of Texas filed papers last month to search 366 square miles—more than 234,000 acres including the National Panther Wildlife Refuge and Big Cypress National Preserve.

Tocala LLC was approved by DEP to detonate explosives underground over 161 square miles in Collier and Hendry counties. The Dan A. Hughes Company plans to drill in Golden Gate Estates.

"These are some of the most important lands—not only in Florida but for the country in terms of biodiversity," said Matt Schwartz, executive director of the South Florida Wildlands Association.

Over the past year, DEP has received 16 drilling permit applications, 14 of them in Hendry or Collier counties.

Drilling for oil in Florida is not new, and drilling operations have been going on since the 1940s in Big Cypress National Preserve.

The production amounts are minuscule compared to Texas or North Dakota, but speculation has some oil companies exploring the area to see if there is anything there, and the feasibility of extraction.

At its height of production in the 1970s, the Sunniland Trend—a region that runs diagonally from Lee County, through Hendry and Collier counties and into western Broward and Miami-Dade counties—produced close to three million barrels a year. Today, through the use of advancing technologies, a well in the same formation can produce up to 200 barrels of oil per day.

According to DEP, the new permit applications in Southwest Florida are all exploratory and approved for drilling for feasibility only. State rules stipulate that a prospective driller needs to control a majority of the mineral interests in the area it wants to target before the DEP will sign off.

"This means the driller has to have the rights along the path of the drill," said Ed Garrett, PG, administrator with the Oil & Gas Section in the Bureau of Mining & Minerals Regulation at DEP. "For every drill site, there's a designated area where the operator can drill. The rules are pretty straightforward."

However, DEP does not consider if the mineral rights have been severed and does not require the driller to notify or consult with a surface rights holder prior to drilling as long as the drill stays 920 feet away. So if someone controls large blocks of contiguous mineral rights, they can basically dictate where the drilling occurs.

This has caused problems in Collier County with the Dan A. Hughes Co.'s decision to explore mineral resources within close proximity to the Golden Gate Estates community.

Last spring, the company filed an application for a permit with DEP to drill an exploratory well near the neighborhood.

The company plans to spend up to $30 million drilling three exploratory wells in the area. Each will penetrate up to 17,000 feet in search of untapped oil reserves.

Since June of 2012, the company has filed six permits with DEP for three oil wells and three saltwater disposal wells.

SEWER

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for bids seeking design teams for the work.

"We are still expecting that all of the 39 projects will be underway either in terms of initiating design specifications, initiating design or actually being in construction," Yoder said.

The target date for all projects to be underway is June 30 this year.

Judge Moreno gave all parties involved in the case until March 21 to submit any amendments to his ruling.

In the February hearing when Judge Moreno made his comments on the low level of the fine, he heard complaints from the Biscayne Bay Waterkeeper organization opposing the proposal because the agreement did not consider the future impact of climate change.

Attorney Paul Schwiep, an attorney with the law firm Coffey Burlington who is representing the Waterkeeper, said the sewer system is already in harm's way due to expected future ocean levels.

Cited in his argument was the location of the three wastewater treatment plants in North Miami, Virginia Key and Goulds that would become islands surrounded by flood areas when sea level rises.

The renovation of those three facilities will cost $1 billion alone, the bulk of the $1.6 billion overall cost. Schwiep urged that planners should consider future climate change scenarios in their designs of the wastewater treatment plants.

Rachel Kamons, a U.S. Department of Justice attorney, conceded the importance of climate change, but noted that the decree under consideration covers only a 15-year span, so sea level rise modifications were not required.

The consent decree was the result of a settlement of a lawsuit against Miami-Dade County over violations of the federal Clean Water Act. The joint action was brought by the U.S.. Department of Justice, the U.S. Environmental Protection Agency and the Florida Department of Environmental Protection.

The $1.6-million project is a small part of the total county need to repair its aging water and sewer infrastructure. That price tag is $12.6 billion, including the mandated $1.6 billion now in the works.

That cost is divided as $8.5 billion for sewer system improvements and $4.1 billion for drinking water system work.

Jennifer Messemer, public information officer for the Miami-Dade W&SD, said the county's sewer system treats 300 million gallons of water and 300 million gallons of sewage every day.

"We have 7,739 miles of water pipe in the system. If you linked those pipes end to end, they would stretch from Miami International Airport to Beijing, China."

To cover the cost of the $1.6 billion involved in the 39 projects, the county has issued $4.25 billion in bonds. The commission approved that along with an eight percent increase in water and sewer bills last June. That was effective Oct. 1.

The Miami-Dade Water & Sewer Department, the largest system in the Southeast U.S., operates with a $4.4-billion annual budget.

Because it is seen as a cash cow, the water and sewer department has been a convenient source for funds extraction for non-environmental projects in the county.

The special master, if appointed, would block such actions in the future.

Proposed natural gas pipeline will provide additional fuel source

By BLANCHE HARDY, PG

In October of 2013, the Florida Public Service Commission approved the prudence determination for Florida Power and Light Co. contracts for a third pipeline system to bring natural gas into the state to run its power plants.

FPL Senior Communications Specialist Richard Gibbs said that the proposed pipeline system is needed because "today, unlike many other states, Florida has no natural gas production, no storage capability and there are only two major natural gas pipeline systems available to deliver the fuel necessary to power the state's growing economy.

"In addition, the two pipeline systems, which serve millions of people throughout central and southern Florida, are very close to full capacity," he said.

The existing natural gas pipelines, operated by Florida Gas Transmission Co. LLC and Gulfstream Natural Gas System LLC, are independent and currently unconnected.

After the prudence determination announcement, some environmental and safety proponents quickly requested reversal of the PSC's decision, citing potential leaks, its proximity to existing populated areas, ground and surface water impacts, aquifer impacts, potable drinking water and agricultural water concerns and ecological impacts including impacts to listed species.

Because the prudence determination is based on need and justification to recover costs, the request was rejected, directing safety and environmental concerns to the Federal Energy Regulatory Commission's review process.

The proposed pipeline system is comprised of two pipelines and connecting spurs, according to Gibbs.

Sabal Trail Transmission, a joint venture of Spectra Energy Corp. and NextEra Energy Inc., will include approximately 465 miles of interstate natural gas pipeline that will originate in southwestern Alabama and transport natural gas to Georgia and Florida.

It will terminate at a new Central Florida hub south of Orlando where it will interconnect with the two existing natural gas pipelines that currently serve Central and South Florida.

Florida Southeast Connection LLC, a subsidiary of NextEra Energy, will construct the pipeline from Central Florida to Martin County.

"The Sabal Trail pipeline will be capable of transporting more than one billion cubic feet per day of natural gas to serve local distribution companies, industrial users and natural gas-fired power generators in the Southeast," said Gibbs. "Note that FPL is one customer that has been identified to receive natural gas via this pipeline system. FPL is not building the pipeline. This system is being built to provide natural gas transportation to other large users of natural gas from around the state, not just FPL."

Concerns about the third pipeline include the impact of probable source Marcellus shale gas production on the atmosphere, environment and regional seismic stability and the possibility a new natural gas supply will reduce the incentive for utilities to seek renewable low impact alternative energy sources.

FPL already uses multiple fuel sources and has been diligent in retrofitting plants to use the least impacting fuel available. They are the largest solar energy generator in Florida and, according to Gibbs, FPL is optimistic about the future of solar power in Florida and is now evaluating additional solar projects.

FPL operates three utility-scale solar plants including one of the country's largest solar photovoltaic facilities and the world's first hybrid solar thermal facility to connect to an existing fossil fuel plant, the Martin Next Generation Solar Energy Center.

Large scale infrastructure projects—whether water supply distribution lines, roadways or cleared electrical transmission/communication tower pathways—have both positive and negative impacts.

"One of the most critical issues facing Florida is planning for growth," said Gibbs. "Florida will soon become the third largest state in the country and the Sunshine State relies more on clean, affordable natural gas to generate electricity than any U.S. state other than Texas. To ensure reliable, sufficient access to meet Florida's future needs, the state needs to add a new natural gas pipeline system."

Coalition formed to address water issues

Staff report

One of Florida's most powerful probusiness organizations has formed a coalition to focus on two of the state's top environmental issues: water supply and water quality.

The Florida H2O Coalition, created by Associated Industries of Florida, plans to bring together interested parties to make recommendations on state water laws as well as federal laws that affect Florida.

AIF said the launch of the coalition was triggered by years of below average rainfall in large parts of the state and because infrastructure spending has been cut during the recession. These two factors have led to a shortage in water supply across the state, said the group.

During this year's legislative session, coalition leaders said they will support dispersed water storage programs, an annual source of state funding for water quantity and quality programs, alternative water supply options, and regional projects that offer water quantity and quality options.

The urgency of the supply issue is highlighted by state environmental officials who project a need for an additional 1.3 billion gallons per day of water by 2030.

"The three largest water management districts predict a shortfall of 250 million gallons per day in groundwater by 2035 in the greater Orlando area," said Kristen Bridges, a spokeswoman for AIF.

She said that a shortfall of 256 million gallons per day in 2035 is predicted in Northeast Florida alone.

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