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September 2011

Volume 33, Number 9

Lake Worth RO 6

Lake Worth officials are trying to meet the area's increasing water demands with a new reverse osmosis plant. The Palm Beach County plant recently started operations during an initial 30-day test.

Pompano Beach reuse 7

The city of Pompano Beach is trying to spark interest from an estimated 1,200 homeowners to hook up to their reuse system to access irrigation water for their lawns and gardens. The goal is to get 700 residents to sign up.

DeLand contamination 8

Recently, some DeLand residents learned that their water wells were contaminated with dieldrin, a chlorinated hydrocarbon used as an insecticide on crops and golf courses. The Volusia County Health Department has embarked on an extensive testing program of the contaminated well water.

Waste not 16

A new waste incinerator can treat up to 50 tons per day of organic material. Its end products can include a range of materials including charcoal, carbon black, gas, hydrocarbon distillates similar to diesel or furnace oil, and other elements that can be washed, filtered or precipitated from the combustion stream.

FRC 2011 9

Complete information previewing the 2011 Florida Remediation Conference begins on Page 9.

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Got a story lead?

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

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Photo courtesy of Wastech

This Wastech incinerator can treat up to 50 tons of organic material per day. Its end products can include a range of materials that can be washed, filtered or precipitated from the combustion stream. See story on Page 16.

June opinion reverses 2009 ruling in tri-state water war

By JANET BENTE ROMERO

Much like the national conflict over the country's debt, the battle between Florida, Georgia and Alabama over water allocation from the Apalachicola-Chattahoochee-Flint river basin has been contentious and lacking in any movement toward compromise.

Continuous litigation by the three states in the decades-old tri-state water war has been the regional equivalent of kicking the can down the road.

For Florida, even as the state's interests are moving forward on several fronts, the eventual outcome of this prolonged battle is daunting.

Recent activity in the 11th Circuit Court of Appeals has Florida back in the courts. A June opinion by a panel of that court—viewed as a victory for Georgia—reversed a 2009 court ruling that denied the U.S. Army Corps of Engineers' authority to allocate water from Lake Lanier for Atlanta's use.

The June ruling triggered Florida and Alabama to file a joint petition in mid-August for rehearing before all members of the court. Included in the points cited in the ruling were inconsistencies with past decisions of the U.S. Supreme Court and lower courts.

The two states continue to insist that the primary purposes of the federally-constructed Buford Dam that created Lake Lanier at the top of the ACF basin were flood control, hydropower and navigation—not water supply for metro Atlanta's use.

The petition by Florida and Alabama argued that the corps has no authority to reallocate hydropower storage to water supply storage under the Rivers and Harbors Act of 1946.

Further, they argue that under the Water Supply Act of 1958, only Congress has the authority to affect the

major operational change of supplying Atlanta with water.

As part of the 2009 ruling, the courts ordered the three states to arrive at a compromise on water sharing by July 2012. This latest ruling added a requirement for the corps to develop a management plan for Lake Lanier within one year.

With the lake storing over 60 percent of the basin's water and Atlanta's population still growing, the prospect of increasing water allocation to the area is a serious concern for all downstream users.

As the 2012 deadline looms closer, there is little hope that litigation or compromise among the states will end

Seminole to tap St. Johns to augment reclaim, drinking water supplies

By PRAKASH GANDHI

Seminole County is turning to the St. Johns River to help augment reclaimed water supplies in a move that is drawing fire from environmental activists.

The Central Florida county plans to withdraw one million gallons of water a day from the river in an effort to provide more water for irrigation purposes.

"We are on schedule to open a facility to make water withdrawals in March of next year," said Terrence McCue, PhD, PE, who works in utilities engineering for the Seminole County environmental services department.

The Yankee Lake surface water treatment plant that is nearing completion is being built in Sanford.

County officials planned to start testing new pumps along the river in

New Titusville wellfields expand water supply

By ROY LAUGHLIN

The city of Titusville will soon be adding 2.7 million gallons per day of extra capacity to their drinking water supply system. The new water comes from the Area IV Wellfield, 12 miles northwest of Titusville in an unincorporated area near the St. Johns River.

The new water resource is being developed under a novel partnership between the city of Titusville's water department and the Miami Corp., which owns a large tract of land including the wellfield area.

The two have formed a partnership, TIFA LLC, to develop the wellfield and deliver water to Titusville's water treatment plant.

Titusville benefits from the arrangement because it will reduce pumping demands on its existing wellfields and equipment associated with them.

"We're planning on shifting our

TITUSVILLE
Continued on Page 12

this long controversy.

The greatest potential for advancing a collaborative plan from this murky mix may be found with the ACF Stakeholders.

Comprised of fourteen different interest groups from each of four sub-basins of the ACF, the non-profit organization's 56 representatives are working to put forth equitable water-sharing solutions that balance economic, ecological and social values.

Dan Tonsmeire, a staff member of the Apalachicola Riverkeeper and an executive committee member of the ACF Stakeholders, said the group is trying to accomplish at a grass roots

TRI-STATE
Continued on Page 12

August and hope to take water from the river only to augment their other reclaimed water supplies, McCue said.

"Water will only be taken from the river when there are not sufficient supplies of reclaimed water," McCue said.

The county has about ten million gallons of storage available in its reclaimed water system.

The county initially hoped to start the second phase of its project—pumping up to 4.5 million gallons of river water a day for potable use—within two to three years.

Now, it will have to wait six to ten years, say utility officials.

They say the slumping housing market, slower growth and an increase in water conservation efforts have reduced their water demand.

"We are permitted to withdraw wa-

SEMINOLE
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Buckson to head National Marine Fisheries Service Office of Law Enforcement

Staff report

Bruce Buckson has been appointed to head the Office of Law Enforcement for the National Marine Fisheries Service. Buckson currently works for the Florida Fish and Wildlife Conservation Commission where he is deputy director of field services and training for boating and waterways.

Buckson began his career in Florida as a marine officer for the (then) Florida Department of Natural Resources. Since that time he rose through ranks of law enforcement positions including patrol sergeant, followed by positions in Hillsborough and Citrus counties.

His career then took him to Tallahassee, where his first position was statewide fisheries enforcement coordinator. He was later promoted to assistant to the chief of the Florida Marine Patrol in Tallahassee. Since 2007 he has held his current deputy director position.

Buckson has received numerous awards for fisheries conservation and advocacy for consistency in fisheries enforcement. He received the National Fish and Wildlife Foundation's Guy Bradley Leadership and Lifetime Achievement Award.

In his new role, Buckson will super-

vised more than 200 employees including those in the national headquarters, six divisional offices and 52 field offices.

Buckson replaces Acting Director Alan Risenhoover, who will return to his appointment as director of sustainable fisheries within the National Marine Fisheries Service administration.

Buckson begins his job in Washington on Sept. 4.

Proposed cooling water intake rule. The U.S. Environmental Protection Agency extended the public comment period for its proposed cooling water intake structures rule.

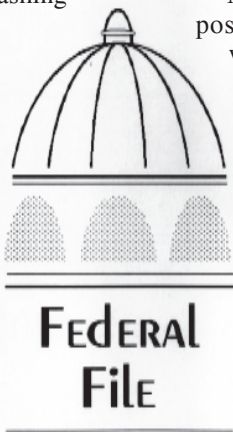
The intent of the proposed rule is to protect fish, fish larvae and other aquatic organisms. Early life history stages (larvae and young) are particularly vulnerable to impingement—being trapped against screens and filters—or entrainment—being killed or injured while being drawn through—in cooling water intake systems.

The EPA passed rules under 316 (b) of the Clean Water Act in 2004 and 2006 for existing facilities. Predictably, litigation

followed both rulemaking efforts. The current rulemaking intends to combine and re-promulgate rules for all existing CWIS facilities in 2012.

The 30-day extension does not otherwise influence the EPA's schedule for the new rule. The agency expects to issue a final rule by July 27, 2012.

More information about this proposed rule is available at <http://water.epa.gov/lawsregs/laws/guidance/cwa/316b/>.



EPA proposes secondary air standards. The EPA initiated rulemaking procedures in mid-July to establish secondary air standards for nitrogen and sulfur oxides, NOx and SOx. In a twist, EPA proposed two pairs of numbers for regulation.

The first pair of secondary standards are 0.053 parts per million NO2 (averaged over a year), and 0.05 ppm SO2 averaged over three hours, not to be exceeded more than once per year.

The EPA proposed that the other set of standards would be, for NO2, 100 parts per billion averaged over one hour; and for SO2, 75 ppb averaged over one hour. These numbers are identical to the public health standards that the EPA tightened in 2010.

Secondary standards for pollutants are those intended to prevent ecological damage or damage to the public welfare. The first set of numbers was established to prevent sulfur and nitrogen oxides from interfering with photosynthesis in plants.

The ultimate goal is to ensure that these pollutants do not reduce crop yields by plants. This set of standards was initially established in 1971.

The new secondary standards, which are much lower, address the eutrophication potential of these compounds: "NOx and SOx, when deposited on land and in estuaries, lakes and streams, can acidify and over fertilize sensitive ecosystems resulting in a range of harmful indirect effects on plants, soils, water quality, and fish and wildlife," stated EPA.

The agency cited changes in biodiversity and loss of habitat, reduced tree growth, loss of fish species, and harmful algal blooms as adverse effects the new lower secondary standards will protect against.

The agency noted in background material to the proposed promulgation of the lower concentrations that the existing secondary rule does not address eutrophication potential.

As of early August, the EPA was soliciting public opinion and input regarding the proposal. Additional information for providing input or following the rulemaking procedure is available on-line at <http://www.epa.gov/air/nitrogenoxides/actions.html#jul12>.

Environmental workforce grants. In July, the EPA awarded more than \$6.2 million in national environmental workforce development and job training grants.

Twenty-one grantees nationwide were selected to receive up to \$300,000 each. Grantees include governmental entities and nonprofit organizations in 20 states. Florida State College at Jacksonville received \$299,996.

Individuals working in the programs develop green jobs skills including: contaminated site cleanup, human health and safety, lead and asbestos abatement; environmental site sampling; recycling center operator training; green building design; energy efficiency; weatherization; solar insulation; construction and demolition debris recycling; emergency response; and native plant revegetation.

The grant program is oriented towards recruiting, training and placing unemployed, low income residents from environmentally impacted communities. The expectation is that skills acquired will improve the environment and residents' health in those communities while supporting economic development.

Applications for next year's funding are due in November, 2011. More information is available on-line at http://www.epa.gov/oswer/engagementinitiative/16_action_factsheet.pdf.

New air pollution rule. In July, the EPA finalized its most recent version of the Cross-State Air Pollution Rule. The rule is aimed at helping states reduce air pollution and attain the 1977 ozone and fine particle ambient air quality standards.

This rule helps states whose air pollution problems are caused by facilities in other states upwind, particularly coal burning power plants whose emissions are a primary source of poor air quality.

All states affected by the new rule are east of the Rocky Mountains. The EPA is adopting federal implementation plans to speed up implementation of the new rules. The agency, though, encourages states to replace the federal plan with state implementation plans, which could be in place as early as 2013.

The plan categorizes states in four groups. The majority of states, 23, will have to control annual fine particles (annual SOx and NOx). 20 states are required to reduce ozone season NOx emissions to help downwind states control ozone.

Florida is among a group of five southern states that will be required to control ozone only during the ozone season. Some states must begin to reduce their SO2 emissions beginning in 2012; the second group has until 2014 to accomplish significant emission reductions in downwind air pollution.

EPA estimates the new rule could reduce SOx effluents by about 60 percent, NOx by about half. Ozone reductions would be more modest, perhaps 30 percent.

Safeguards for hazardous waste recycling. The EPA proposed a modification to its 2008 Definition of Solid Waste Rule. The agency says that the revision will "improve accountability and oversight of hazardous materials recycling, while allowing for more flexibilities that will promote its economic and environment benefits."

Proposed modifications will increase transparency, oversight and accountability for hazardous waste recycling.

The 2008 rule made special provisions, termed "reduced regulatory requirements," for facilities that recycle at the

FEDFILE
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PBC considers rule change to accommodate wind turbines

Staff report

Palm Beach County commissioners are considering changes to their local development rules to better accommodate the construction of wind turbines for power generation. The final vote on the alternative energy development guidelines was scheduled for Aug. 29.

Representatives from the Sierra Club and Audubon Society said that putting wind turbines in the Everglades Agricultural Area will create hazards for endangered and migrating birds. Putting wind turbines on the farmland in western Palm Beach County could pose too great a risk for the birds, say environmentalists.

The wind turbines' large rotating blades can spin nearly 200 miles per hour with each tower potentially generating enough energy to power 400 homes.

Missouri-based Wind Capital Group says it plans to construct 80 wind turbines across 16,000 acres of sugar cane land near Belle Glade. The project has not yet been approved.

Tampa fuel spill. Hillsborough County health officials plan to test more water wells near a pipeline in Mango that leaked jet fuel. The pipeline was repaired three days after it ruptured in July, but it leaked 31,500 gallons of jet fuel into a small creek just behind the Sabal Business Park.

Residents and environmental experts were concerned that the fuel might leak into the Tampa Bypass Canal, a source of drinking water for county residents.

The Hillsborough County Department of Health says it doesn't expect to find any contamination. County, state and federal agencies have been overseeing the cleanup.

The pipeline's owner, Kinder Morgan, will conduct long-term cleanup.

Port cleanup. The Tampa Port Authority has approved spending \$2.3 million for remediation of the former Tampa Scrap Site, a 17-acre tract of land that will be available to serve port development needs.

It may also support the growth of the Hooker's Point container terminal.

In 2010, the container terminal was expanded from 25 to 40 acres, and most recently, an additional 700 feet of berth length was added.

The nearly \$50 million terminal is a gateway for petroleum imports for eight million consumers in west and central Florida, and provides aviation fuel to the Orlando International Airport.

Power plant improvements. Florida Power & Light Co. plans to tear down its Port Everglades plant in Hollywood and invest about \$1 billion to build a combined-cycle natural gas energy center.

The project is similar to improvements underway at its Cape Canaveral and Riviera Beach plants. Like the Port Everglades facility, the plants previously used fuel oil and natural gas.

Over 30 years, the new plant is expected to generate more than \$400 million in savings for FPL customers, over and above the cost of construction.

The existing plant's demolition is expected in 2013, but the project still has to be approved. The company expects to file its site certification application with the Florida Department of Environmental Protection in 2012.

The plant will have the capacity to produce up to 1,280 megawatts or power, enough for 260,000 customers. The current capacity is 1,200 megawatts.

Correction

In August, our *Notes* brief about the new Palm Beach County waste-to-energy plant mistakenly identified CDM as part of the design-build consortium. The consortium actually includes only Babcock & Wilcox Power Generation Group Inc. and BE&K Construction Company LLC. CDM is a subcontractor to BE&K.

The new Riviera Beach Next Generation Clean Energy Center is scheduled to go into service in 2014.

The \$1 billion Cape Canaveral Next Generation Clean Energy Center is scheduled to open in 2013.

Bradenton brownfield. City officials in Bradenton are considering designating the former Manatee River Hotel as a brownfield site so it can qualify for state environmental cleanup and jobs incentives.

Two years ago, the city used federal grant money to conduct a brownfield assessment and discovered that the property showed minor petroleum contamination where underground heating oil tanks were once buried.

The property's current owner, The Widewaters Group Inc., wants to transform the eyesore into a Hampton Inn & Suites hotel.

The company has estimated the total project cost at about \$1.5 million.

The hotel building on 10th Street West has been vacant since 2005.

Garbage contract extended. Port Orange officials have retained the city's current solid waste collection contractor for another five years. The city council voted to award its new five-year solid waste contract to Veolia Environmental Services.

Veolia was one in a pool of six companies that bid on the contract. Residents will pay less under the new contract than what they are paying now for trash pickup.

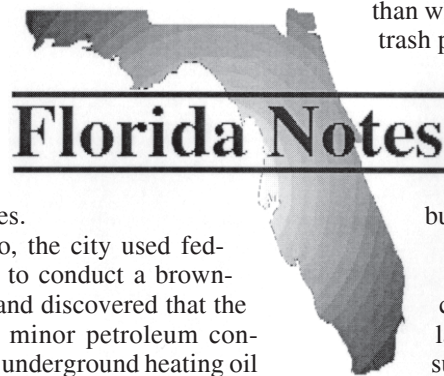
The company plans to move toward using trucks fueled with compressed natural gas, which officials say burns cleaner than diesel.


Dade City landfill. A company seeking to build a landfill near Dade City has submitted a scaled-back proposal to state officials.

Worried that a sinkhole could open up below the landfill, the Florida Department of Environmental Protection rejected the proposed 90-acre landfill in 2009.


The state was concerned that contami-

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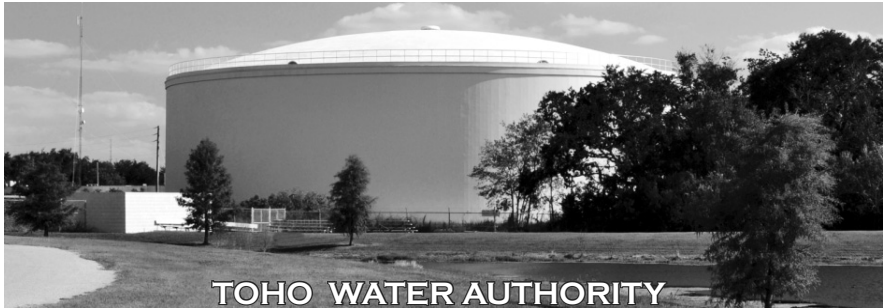




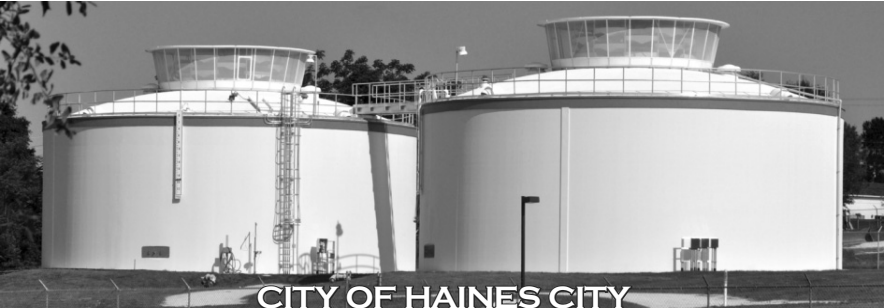
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Green to step down as executive director at St. Johns water district

Staff report

Kirby Green, the long time executive director of the St. Johns River Water Management District, announced plans in July to retire from the agency no later than May, 2012.

Green, 61, has headed the St. Johns district for 10 years. Prior to that, he worked for 23 years for the Florida Department of Environmental Protection.

The retirement announcement was

made at a monthly board meeting of the district. At the same meeting, significant cuts in staff and operations were revealed. The cuts were mandated for all the water management districts by the Florida Legislature this year.

In May, when the heads of both the South Florida and Southwest Florida WMDs suddenly resigned, Green said he would continue running the district to make the cuts of staff and budget as painless as possible.

Beach water testing cut. The state of Florida will cease water quality tests at beaches during the winter months. A \$500,000 cut in state funding necessitated the monitoring cut-back.

The reduction applies only to the northern parts of Florida. There will be no monitoring of beach waters between Nov. 1 and Feb. 28, and in months when monitoring will still take place, the checking of water conditions at beaches will be reduced from weekly to twice a month.

Beach water testing is part of the state Department of Health's Florida Healthy Beaches Program.

While the program is not empowered to close beaches if unhealthy conditions are found, it serves as a public service vehicle to advise the public of poor water conditions.

While tests on beaches will be cut back, health officials say Florida beaches have rarely shown signs of significant threats to public health.

Brevard stormwater improvements. Phase I of a stormwater improvement project in Brevard County will convert a 73-acre borrow lake on the north side of Pine Island Road into an 80-acre stormwater treatment system.

The Pine Island improvements call for installing a 1,500 gallon per minute pump station. When both Phase I and II are completed, the pump station will be capable of moving 62,000 gallons of stormwater per minute.

The project includes construction of a diversion weir in the Palm Island drainage ditch, and construction of perimeter berms, a paved entrance road, new entrance bridge and a canoe launch.

The work also includes the installation of several culverts with flap gates along the Pine Island subdivision canal to allow

water to flow out of the canal, but prevent water from the borrow pit from flowing back into the canal.

More than \$1.3 million in grant money was provided by the Florida Department of Environmental Protection to cover some of the costs of the project.

Sarasota Bay economic study. Eckerd College in St. Petersburg has been retained by the Sarasota Bay Estuary Program to conduct an economic value study of Sarasota Bay.

The SBEP wants the Eckerd study to evaluate the economic benefits of the estuary and its adjacent natural resources covering Sarasota and Manatee counties.

SBEP Director Mark Alderson said this is the first economic value study concentrating on Sarasota Bay. He said it's timely because of the importance of the bay to the region.

The study will be headed by Dr. Paul Hindsley, an assistant professor of Environmental Studies at Eckerd.

Pierson seeks water treatment funds. The town of Pierson is considering funding options to pay for a new well and water treatment facility.

Officials in the western Volusia County town are also lobbying for a new elementary school. They are seeking the new water source for fire safety so they can get the new school.

The new water source and treatment plant will cost \$1.3 million. The Volusia County School Board currently does not have funds allocated for the new school.

The school board had budgeted for a new school in Pierson in 2008-2009. But the district kept moving the project back

WATCH
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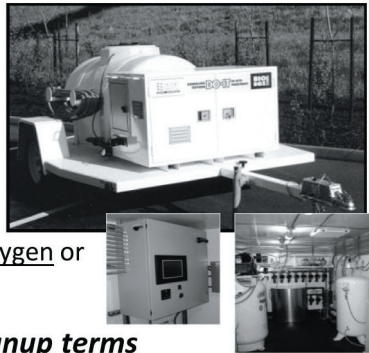
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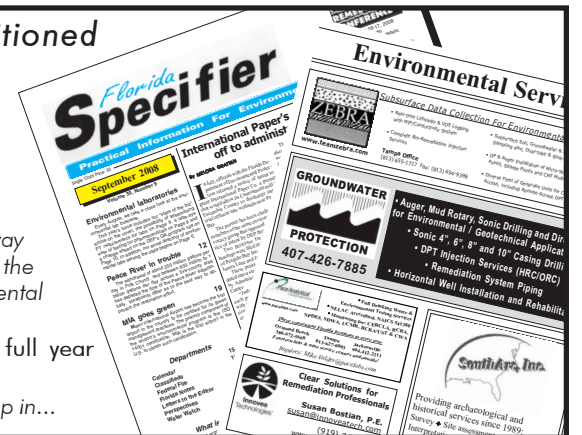
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WATCH

From Page 4

until it failed to make the 2010-2011 budget.

Pierson has identified a location in town for the new source water well. Since the new school construction is not eminent, Town Clerk Debbie Bass said they are in a position to drill the well now but can wait on the treatment plant until construction of the new elementary school is forthcoming.

Sewer talks to continue. Talks between the Islamorada Village Council and the Key Largo Water Treatment District, apparently doomed a few weeks ago, have been revived.

The district cut off negotiations when the village council sent a proposal to Key Largo offering to pay them \$3 million to connect to its wastewater treatment plant. The district sought \$11.5 million.

A majority of the Islamorada council now says they regret the low counter offer and are seeking to reopen talks.

The district's commissioners are divided on taking in Islamorada. But one commissioner, Susan Hammaker, who first voted to cut off talks, is willing to reopen them if she is convinced Islamorada will come close to meeting the district's \$11.5 million price tag.

One stipulation made by Hammaker is that Islamorada would be a customer of the district and not a district member.

Aqua Utilities in hot water again. Aqua Utilities of Florida has been cited by the Florida Department of Environmental Protection for violations at two sewer plants in Pasco County.

State inspectors documented violations at the Palm Lake Terrace and Jasmine Lakes sewer plants in February and May. Inspectors observed solid waste in ponds.

A pair of letters were sent to the privately owned utility noting that they face up to \$10,000 per day in fines for each violation if they are not corrected.

Aqua President Judy Wallingford said she is working to correct the violations and was scheduled to meet with the DEP.

Aqua was granted a water and sewer rate increase in May. The timing drew criticism from Pasco County Commissioner Jack Mariano who noted the DEP conducted follow up inspections of the sewer plants one day after the rate increase was approved.

Scott appoints pair to NFWFMD. Gov. Rick Scott named two panhandle businessmen to serve on the governing board of the Northwest Florida Water Management District.

The new members are Angus Andrews of DeFuniak Springs and Nicholas Patronis of Panama City.

Andrews, 55, is the owner of Andrews & Arnsdoff Realty. Patronis is the co-owner of Captain Anderson's Restaurant.

Both appointments run until March 1, 2015, and are subject to state Senate approval.

Lake Wales moves on maintenance. The Lake Wales City Commission has approved contracts to maintain its water facilities, purchase backup generators for lift stations and maintain a cleaning contract for the city's water tower.

The commission took the action prior to the end of the current budget year.

The decisions on the lift station generators and the water tower maintenance helped the city to stay in compliance with Florida Department of Environmental Protection regulations.

The city will spend \$151,897 to purchase five generators to serve their lift stations. The city uses portable generators at the lift stations, but DEP said dedicated generators are needed at the five lift stations due to the high volume of sewage pumped.

Sarah Kirkland, utilities program administrator, asked the commission to add the southern water tower to the city's cleaning and maintenance agreement with Utility Service Holding Company. The

\$14,895 increase will bring the contract amount up to \$52,934.

The commission also renewed a \$15,000 engineering services contract with Kimley-Horne & Associates Inc. The consulting firm holds the operating permit for the wastewater treatment plant and runs the software that shows the plant is operating properly.

Dredging resumes at Port Manatee. A 14.8 million dredging project at Port Manatee has resumed after a leak in a reservoir was patched. Before the repair, millions of gallons of tainted water were released into the Gulf of Mexico.

The Florida Department of Environmental Protection gave the go-ahead to resume the dredging operation in late July.

Initially Great Lakes Dredge & Dock Co., the contractor on the project, was instructed to pump the slurry into the patched reservoir for 36 hours, and then stop for 12 hours to check the plant's dike system to make sure repairs were working.

The dredging was halted in May because a protective liner tore at the plant. In the following weeks, 169 million gallons of tainted water was released. That action was ordered by the state because the water was contaminated with heavy

WATCH

Continued on Page 13



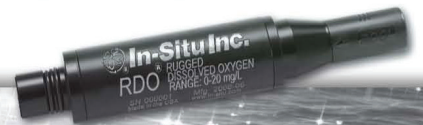
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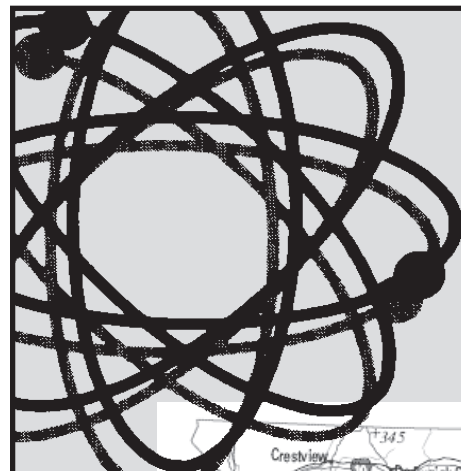
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New Lake Worth reverse osmosis plant will lessen strain on surficial aquifer

By PRAKASH GANDHI

Officials in the city of Lake Worth are trying to meet the area's increasing water demands with a new reverse osmosis plant. The plant and deep injection well in Palm Beach County recently started operations during a initial 30-day test by contractor Reynolds Inc.

The contractor will operate the plant while training Lake Worth Utilities employees. The goal was to turn it over to the city's water plant operators in late August.

"All in all, we have had minimal problems and the plant is running 24 hours a day," said Doug Lovelace, water plant supervisor for Lake Worth.

The plant is located in the city's utility complex south of Lake Worth High School. It is producing about 1.5 million gallons of drinking water a day—a third of the amount used daily by Lake Worth Utilities' 12,600 customers.

The plant has the capacity to produce 4.5 million gallons a day and can be expanded in the future to produce up to 9 mgd. The city won't need to reach that maximum capacity for some years, Lovelace said.

"The city began looking for an alternative water supply following the 2001 drought, when monitoring wells began to show signs that salty ocean water was moving inland toward drinking water wells," said Walt Smyser, the city's water and sewer manager.

Water from the deeper Floridan Aquifer, about 1,500 feet underground, is quite salty and must be filtered before it can be used for drinking water—hence the need for the RO system, Smyser said.

About three-fourths of the well water will become drinking water. The remaining brine byproduct will be sent 3,300 feet underground through a deep injection well, Smyser said.

The rest of Lake Worth's drinking water supply comes from shallow wells. But the city has been under pressure from South Florida water managers to reduce withdrawals from these wells.

"We are having the use of the surficial water wells curtailed by the water management district to the point where we can't meet demand," said Lovelace.

The new plant cost roughly \$16 million and was a two-year project, Lovelace said.

Water from the RO plant is blended with traditional lime-softened water to

give it better taste before being sent out of the plant for distribution.

"This plant meets existing demand and provides a cushion for future demand," Lovelace said. "Right now, we are trying to find any bugs or problems while it is still the contractor's responsibility, although there is a one-year warranty on the facility."

The main environmental benefit of the

plant is that it lessens the strain on the surficial aquifer, Lovelace said. "Fresh water is a limited resource and we are no longer putting a strain on that resource."

Lake Worth's new water plant is one of about 30 public systems in South Florida that use the reverse osmosis process to treat brackish water from the Floridan Aquifer, say officials with the South Florida Water Management District.

Ocala gets the nod from water managers to drill deeper for source water

By PRAKASH GANDHI

The city of Ocala has been given the green light to use the Lower Floridan Aquifer as an alternative source for its drinking water. Officials with the St. Johns River Water Management District have told the city that it can't take any more water from the Floridan Aquifer after 2027 than already allocated.

Faced with having to find an alternative water source to handle future population growth, the city had several options. They could withdraw surface water from the Ocklawaha River or build a desalination plant using saltwater from the Gulf

of Mexico.

Neither of these two options was attractive, said Jeff Holcomb, the city's water and sewer director.

"The Ocklawaha is a scenic river and we were not too enthusiastic about drawing water from there," Holcomb said. "As for desal, it's a very expensive option and there are a lot of environmental concerns."

Estimates for building a desal plant ranged from between \$300 million and \$500 million, officials said.

"So we decided to look under our own feet" Holcomb said.

The city drilled a deep well in Ocala to see if there was water available in the Lower Floridan Aquifer that could be used.

"We were able to convince the district that it is an alternative water source," Holcomb said. "The main benefit is that it will give us better control of our destiny. We will not have to worry about water quality with desal or adequate rainfall to draw water from the Ocklawaha."

St. Johns officials say that before Ocala can use the water from the Lower Floridan, officials will have to further test the well to determine the level of confinement between the Lower and Upper Floridan aquifers.

The city will monitor the deep well.

Additional sampling will be conducted to determine the quality of water at that depth and what kind of treatment plant will have to be designed, Holcomb said.

Then, the city will complete an aquifer performance test, which will indicate how much water can be withdrawn without harming the environment.

Right now, the city uses about 12.85 million gallons on an average per day. In 2027, that usage is expected to grow to about 17.5 million gallons a day.

"Our hope is that through water conservation and using water wisely, we can extend the date when we have to use the Lower Floridan beyond 2027," Holcomb said.

NRDC ranks Florida beach water quality as sixth best

Staff report

A 2010 nationwide survey of beach water quality by the Natural Resources Defense Council placed Florida in sixth place among the nation's beaches.

The study reported that four percent of samples taken during the year exceeded national standards and recognized the impact of the BP oil spill on the Florida Panhandle. In 2009, before the spill, state beaches were rated fifth best in the country.

During the year, 1,747 oil notice and advisory days were posted for 30 beaches. Bayou Chico Beach in Escambia County had the highest percentage of samples exceeding state water quality standards (62 percent) of any beach in the state.

Florida has 637 public beaches. Of that number, 308 were monitored weekly as part of a Florida Department of Health program. The level of exceedance for Florida beaches was at four percent—the same level of 2007-2009 and below the five percent level reported in 2006.

Other beaches with a high level of exceedance included Hagen's Cove in Taylor County (47 percent); Garniers, Okaloosa County (42 percent); Bayview Park

BEACHES

Continued on Page 7



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St. Johns water managers urge utilities to reduce Floridan pumping

By PRAKASH GANDHI

St. Johns water managers are taking extra steps to reduce excessive pumping from the Floridan Aquifer. The St. Johns River Water Management District wants local utilities to co-

operate in reducing their pumping to save springs and lakes in Central Florida.

These include Starbuck, Palm and Sanlando springs in Seminole County and Sylvan Lake near the community of Heathrow.

Water managers are also concerned

about Prevatt Lake in Wekiva Springs State Park and the nearby Lake Brantley. Here, fish, wildlife and plants could be harmed by drawdowns, say district officials.

District spokesman Hank Largin said that a few years ago, because of growth and because the public was using more water, the district advised utilities that in about 2013, they wouldn't be able to withdraw more water from the Floridan Aquifer.

"We were reaching the sustainable limit on withdrawals," Largin said.

The current projections for future growth show a smaller increase in population and water demand over the next 20 years than what was originally projected, Largin added.

However, both population and water demands are expected to increase over the next 20 years.

The water management district is now focusing on specific water bodies and wants utilities, environmental groups, homeowner associations and others to work together to find workable solutions to the resource issue.

The district has repeatedly pressured water utilities in Central Florida to reduce their pumping from the Floridan Aquifer by turning to rivers, lakes and even the At-

lantic Ocean as source water for their drinking water needs.

The district believes that springs and lakes need protection even though a sagging economy has reduced Central Florida's demand for water.

"Alternative water supply projects are still needed, although slower growth, better water conservation practices and the availability of reuse water have helped push back the time those alternative sources will be needed," Largin said.

The district has launched similar efforts for water bodies in Lake, Orange and Volusia counties. Water managers will rely on a state law that regulates minimum flows and levels in springs, lakes and rivers.

The standards require that water levels should remain high enough to protect the health of fish, plants and wildlife.

Hal Wilkening, director of the department of resource management at the St. Johns district, said there is no directive to reduce groundwater withdrawals in Seminole County.

"There is a limit on new withdrawals that is being reevaluated to ensure that it will continue to protect the minimum flows and levels in area water bodies," he said.

Pompano Beach utility officials seek wider support for reuse water usage

By DAN MILLOTT

If Pompano Beach City Commissioner Rex Hardin had his way, there would be a consortium of Florida cities and counties that produce reuse water lobbying the state legislature hard to lower the barriers for its use.

The city of Pompano Beach has operated a recycled wastewater plant for years. At first it provided reuse water to just parks and golf courses, but now the city is trying to spark interest from an estimated 1,200 homeowners to hook up to the system to access irrigation water for their lawns and gardens.

The immediate goal is to get 700 residents to sign up. But there has been resistance and Hardin questions why.

"Reuse water is cleaner than canal water, cleaner than other sources out there including lakes," he said. Right now state legislation prohibits the use of reuse water on plants that are consumed as food, such as lettuce.

Pompano's Utilities Director Randy Brown has been working with lobbyists, state regulators and legislators seeking changes that will benefit Pompano Beach and other jurisdictions that provide reuse water.

Hardin said Brown has received a positive response to his efforts, but any formal action can't happen until the legislature meets again next year.

To Hardin, who is passionate on the subject, this is not just a Pompano issue. "Anything we can do to promote reuse water is a good thing for our state. The reasons for not using reuse water on crops are not scientific in nature—they are legislative in nature."

The change that Hardin, Brown and other officials seek is a change in language that will provide for a wider use of reclaim water than presently allowed. Hardin contends that the quality of the water is just below that of drinking water.

The Pompano Beach water reclamation facility got its start by capturing Broward County wastewater plant effluent that was being pumped into the ocean and diverting it to its reuse facility.

Hardin pointed out that wastewater utilities will soon have to identify options other than ocean outfalls for disposing of their effluent. He expects the interest in reuse water to increase.

The push to convince homeowners to sign up for reuse water hookups has been slow, but the city has now devised a plan to make it less painful financially.

The plan is to waive all front-end costs to hookup to the reuse system. The estimated cost of \$1,327 will be incorporated into future water bills.

The city commission only recently approved this new financial option so there hasn't been enough time to gauge how well

BEACHES

From Page 6

and Navy Point, Escambia County (both 38 percent); Higgs Beach, Monroe County (37 percent); Keaton Beach, Taylor County (32 percent); Fort Island Gulf Beach, Citrus County, (31 percent); Coco Plum Beach, Monroe County, (27 percent); Crandon Park, Key Biscayne, Miami-Dade County (26 percent); Olesner Park Beach, Pasco County (24 percent); and Minnesota Street, Broward County (23 percent).

By county, Taylor had the highest exceedance rate at 33 percent. Five counties—Nassau, Flagler, St. Johns, Duval and Collier—had no exceedances.

the public has received it.

Hardin said the benefit will accrue to water customers over time because the rate for reuse water is less than half of what the city charges for potable water. Without the connection, residents will continue using more expensive water to irrigate their lawns.

The reuse pipelines are already in place for the 1,200 candidate homes on the east side of Pompano. In the future, reuse water will be available to additional areas. In the meantime, officials will continue their lobbying efforts.

"We should contact other areas that have reuse water plants. If we band together, we can get this (legal) limitation lifted," Hardin said. "There is power in numbers."



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Wells tainted with insecticide dieldrin raise concerns in DeLand neighborhood

By DAN MILLOTT

Since March, homeowners in DeLand's Country Club Estates have anxiously been waiting for the results of laboratory tests on drinking water from their wells.

Five months ago, residents learned that some of their water wells were contaminated with dieldrin, a chlorinated hydrocarbon used as an insecticide on crops and golf courses across Florida from the 1950s to the 1970s.

The Estates neighborhood borders on

the DeLand Country Club.

The Volusia County Health Department has embarked on an extensive testing program of the contaminated well water. As of Aug. 16, 265 wells had been tested and 87 were found to have traces of dieldrin contamination, while 118 had none. Results from 60 other well tests are pending.

The discovery of the tainted wells has generated a class action lawsuit against both the DeLand Country Club and Shell Chemical, manufacturer of the product.

DeLand attorney Joshua Gale filed the action on behalf of homeowners Bryan and Janice Potter seeking a minimum of \$15,000 in damages. Twenty-nine other homeowners joined in the action, each seeking the same minimum claim.

Originally Gale filed suit in Volusia County Circuit Court in DeLand, but Shell Chemical petitioned to have the case removed to the U.S. Middle District Court in Orlando where it is in the hands of Chief Judge Anne Conway.

Gale has since petitioned to have the case returned to the state court in DeLand. He said it is up to Judge Conway to accept jurisdiction in the case or rule that it be returned to state court.

The original case was filed in June and the chief judge's ruling is not expected until September.

Volusia County Health Department spokesman Stefany Strong said well tests are being conducted by the department as needed and that more tests are possible. The samples drawn by the health department are sent to Florida Department of Health's environmental chemistry lab in Jacksonville for analysis.

The 87 samples with positive hits all exceeded the federal standard of 0.002 milligrams per liter of dieldrin.

Lisa Kelley, external affairs director with the Florida Department of Environmental Protection's Central District office, said the county health department shares the results of tests with the DEP. Funds for the testing come from a trust fund administered by the DEP.

The department gets involved in such cases when results from well tests show contaminants above the health advisory level. At that point, a home owner with a tainted well can participate in the Water Supply Restoration Program administered by the agency.

Kelley said the program is voluntary, not mandatory. "The first thing that happens is the homeowner gets a notice and coupons for bottled water. They use the coupons until a filtration system is installed at their well or a connection is made to the city water system."

In some cases, homes involved have water pipelines nearby so it is relatively easy to hook up to the local water system. Kelley said in cases where there are no water lines, the DEP works with the local utility to try and get pipelines installed.

"For those eligible, the cost of the filtration system or connecting to city water is covered by the Water Supply Restoration Program," Kelley said.

As of Aug. 16, 15 homes are in the process of being connected to city water and four more homes need to apply for city water. Twenty-six homes in Country Club Estates have installed filter systems and 16 have filter installations pending.

Kelley said there are 26 other residents who have not responded to the DEP's notification.

"As more test results come in, there may be more homes eligible for the WSRP program, hence more applications for connecting to the city water system," she said.

Practice makes perfect:

Workshop provides sustainable remediation training opportunity

By LAURA J. GIMPELSON

Two years ago, I started writing regular columns for the *Specifier* on sustainable remediation, focusing on less energy- and resource-intensive alternatives to air sparge and excavation.

Topics have ranged from evaluating remediation options to identifying best management practices to reduce energy and resource consumption of existing treatment systems.

While the column has increased the awareness of these alternatives and BMPs, various misconceptions and data gaps remain. Some of these issues cause delays in obtaining regulatory approval of a remedial action plan. Others cause project managers not to even consider requesting a proposal to compare the alternative to an air sparge option.

To increase the understanding of how innovative processes such as chemical oxidation, reduction or biodegradation can be implemented to reach cleanup target levels while applying the core elements of the U.S. Environmental Protection Agency's Greener Cleanup Principles, I am hosting a post-conference workshop on using innovative remediation processes during this fall's Florida Remediation Conference on Friday, Oct. 14.

The goal of the workshop is to provide the attendees practice in applying the EPA principles to select one or more processes for remediating an impacted site. Topics covered include understanding the factors that influence the implementation of the innovative technology, common deficiencies noted in submitted RAPs, and how to compare dissimilar technologies to select the greenest option.

A hypothetical site has been created to standardize the proposals from vendors and provide the presenting engineers with a common reference point.

Problems with the case study and submitted proposals will be discussed by the

workshop panelists.

The workshop will provide hands-on information that leads to a RAP that is acceptable to your client and the regulatory case manager.

Presenters include Florida Department of Environmental Protection and Orange County Environmental Protection Division practicing engineers that implement and approve green RAPs and some the vendors that supply the technology to reach the CTLs. Additional proposals and vendor contact information will be included in workshop materials.

After two panel discussions by engineers and vendors, attendees will divide into small groups to select a remedial technology or technologies that will clean up the case study site. Each group will complete a spreadsheet listing the selected technology and the reasons why it was selected. The results of the individual groups will be tabulated and reviewed by the attendees and vendors.

Workshop registration information and the case study are available on the FRC website at www.enviro-net.com.

Laura Gimpelson, PE, is president of LG Environmental Engineering in Orlando, a WBE providing environmental and remediation services to public and private clients, and offering green remediation courses at www.suncam.com. She can be reached at lg_environmental@bellsouth.net.

Human pathogen killing Keys coral

A research team from Rollins College in Florida and the University of Georgia has identified human sewage as the source of the coral-killing pathogen that causes white pox disease of Caribbean elkhorn coral.

Once the most common coral in the Caribbean, elkhorn coral was listed for protection under the Endangered Species Act in 2006, due to white pox disease. The team's findings have just been published in the peer-reviewed open access journal *PLoS ONE*.

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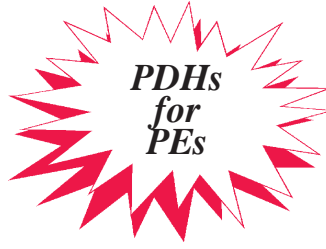
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Day 1

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Session 1: In-Situ Remedial Applications

8:30 Performance of a Microemulsion as a Carrier for In-Situ Chemical Reductive Minerals

Donovan Smith, PE, JRW Bioremediation LLC, Lenexa, KS

Recent research into the anaerobic degradation pathways of chlorinated ethenes, ethanes and other anaerobically degradable contaminants has turned to the evaluation of the biotic and abiotic contributions to overall contaminant degradation. One result of this paradigm is the use of emulsified vegetable oil as a slow release biotic substrate combined with in-situ chemical reductants such as iron to provide an abiotic degradation mechanism. Since suspending solids in liquids is usually problematic, the main challenges with the economical introduction of an ISCR are a general inability to transport the material away from the injection points to ensure adequate coverage and the difficulty in providing a reductant of sufficiently small particle size to optimize surface area and limit agglomeration. The use of microemulsion technology to biologically enhance reductive dechlorination combines two immiscible materials to form sub-micron-sized particles that are thermodynamically stable. Since microemulsions are stable systems, they exhibit superior subsurface transport. Producing iron-based ISCR in the form of materials such as magnetite inside a microemulsion has resulted in iron-based particles ranging from sub-micron up to 2 microns. In order to investigate whether a combined ISB/ISCR microemulsion system could be effective, a series of laboratory tests were performed. Several different ISCRs were successfully dispersed into a microemulsion carbon substrate forming a low viscosity, single phase liquid that retains the physical properties of a microemulsion. This system was compared in a microcosm study with various ISCRs alone and abiotic systems to demonstrate biotic, abiotic, and possible synergistic remedial effects.

9:00 Sustained-Release Permanganate: Reactive Barriers for Green, Sustainable Remediation

Pamela Dugan, PhD, PE, Carus Corp., LaSalle, IL

The intention behind site cleanup is inherently green, however, remedial activities use energy, water and materials resources to achieve cleanup objectives. Traditional remediation technologies require electricity and fossil fuel to power equipment to remove contamination from soil and groundwater. Extracted fluids are then processed aboveground, or disposed of in landfills when filters are used. The intractable nature of subsurface contamination suggests the need to explore the use of innovative technologies that reduce the environmental footprint of remedial treatments. Reactive materials in permeable reactive barriers have proven very useful for transforming or destroying organic waste in situ. Once emplaced they typically do not require a continued supply of electrical power and have the added benefit of creating a reactive zone for the destruction of contaminants in place. Controlled-release techniques have been utilized extensively in diverse fields such as pharmaceutical and agrochemical technologies. However, controlled- and sustained-release of an oxidant during in-situ chemical oxidation is an emerging concept that is extremely relevant to the field of environmental remediation, yet to-date has received little attention. ISCO using the oxidants permanganate, persulfate and catalyzed hydrogen peroxide has shown great promise for remediation of many recalcitrant organic contaminants of concern. Because the oxidant also reacts with natural organic matter, inorganic soil constituents and other reduced compounds, the presence of a protective barrier that controls oxidant release may enhance the efficiency of ISCO and allow for long-term low-cost treatment of chlorinated solvents. To this end, sustained-release permanganate was developed. Paraffin wax was used as the environmentally benign and biodegradable matrix material for encapsulating the solid potassium permanganate particles. The paraffin matrix protects the solid KMnO4 particles from fast dissolution and potentially undesirable nonproductive reactions. The SRP material contains between 60-80 percent permanganate and can be formed as candles for direct push applications in reactive barriers, or chipped material for hydro-fracturing into low permeability media.

9:30 Field Experience with Combined Anaerobic Bioremediation and Chemical Reduction with Zero Valent Iron

John Haselow, PhD, PE, President
Redox Tech LLC, Cary, NC

Redox Tech has injected Anaerobic Biochem Plus, ABC+, a mixture of carbon substrate and zero valent iron, at nearly 100 sites throughout the U.S. and Europe. The carbon substrate ZVI mixture has proved to be a robust amendment for treating DNAPL contaminated sites and soluble halogenated alkenes and alkanes in different geologic environments. Often times, reaction times are comparable to those obtained with chemical oxidation approaches. ABC+ is documented to persist for over two years in low permeability environments. Post injection, hydrogen gas has been observed as high as sixty-three percent by volume. ABC+ is a proprietary carbon substrate mixture, ABC®, and ZVI. ABC® is a mixture of lactates, soluble fatty acids, micronutrients and pH buffer. ZVI is the most widely applied chemical reductant in the groundwater remediation field. Carbon substrates are widely available and are often viewed as commodities for anaerobic bioremediation. ZVI has been proven and widely accepted as an effective in-situ remediation technology of chlorinated solvents such as TCA, PCE, TCE and daughter products. The combination of carbon substrate and ZVI is applied through an intellectual property license with Adventus Americas. Redox Tech has been applying ABC+ for over five years in diverse geologic settings including saprolite, partially weathered rock, Coastal Plain sediments and glacial deposits. Combined anaerobic bioremediation and chemical reduction with ZVI produces a greater reducing environment than with substrate alone. The "penalty" for the low oxidation potential is loss of hydrogen to methane production. However, the slight penalty is balanced by a more robust and rapid remediation solution. Data obtained from sites in South Carolina, Florida and Denmark will be presented.

10:00 Morning break

Session 2: Accelerating Remediation

10:30 Surfactant-Enhanced Remediation via Short-term Recirculation Process

Brian Timmins, Director, ETEC LLC
Portland, OR

Two surfactant-enhanced remediation case studies were conducted in Florida and Georgia in 2010 and 2011. These projects involved the injection and extraction of surfactant solution within target remediation zones to mobilize and capture residual sorbed fuel constituents from soil and groundwater. The process utilizes a biodegradable surfactant solution which is injected into wells under pressure and subsequently extracted from surrounding wells using submersible pumps. By performing this process over a period of one to two weeks, subsurface contact between the surfactant solution and residual sorbed fuel is achieved, resulting in subsequent mobilization and capture. Surfactant-enhanced treatment can dramatically accelerate site remediation, and is applicable as a stand-alone remedial approach, or for use with operating remediation systems as a "polishing" process. The data from two separate projects will be presented. One project utilized surfactant-enhanced remediation as a stand-alone remediation approach while the other project involved the use of surfactants to enhance the effectiveness of an existing dual-phase extraction system. Both sites demonstrated substantial capture of fuel mass as a result of application of the short-term recirculation process. Information on the remediation layouts and injection/extraction procedures will also be presented. A discussion of process costs will also be included as part of the presentation. The site remediation results will demonstrate that surfactant-enhanced remediation using a short-term recirculation process is a cost-effective remediation alternative both as a primary remediation approach, and also as a polishing step to reach stringent soil and groundwater cleanup standards.

11:00 Managing Carbon Tetrachloride and Chloroform in Bioremediation of Chlorinated Solvents

Jeff Roberts, Laboratory Manager, SiREM, Guelph, Ontario, Canada

Chloroform is a toxic and carcinogenic contaminant detected in groundwater as a primary contaminant, as a degradation product of carbon tetrachloride and/or as part of mixed contaminant plumes. Apart from its general toxicity, CF is a potent inhibitor of many anaerobic microbial processes essential for bioremediation including methanogenesis and dechlorination. CF is frequently found as a co-contaminant with tetrachloroethene and trichloroethene, and its presence—even at low concentrations—can prevent the complete dechlorination of PCE and TCE to ethene. Only recently has metabolic reduction of CF been reported (Grostern et al., 2010). This reaction results in partial dechlorination of CF to dichloromethane, which is less inhibitory. A Dehalobacter species has been identified to be responsible for this reaction. Bioaugmentation with Dhb can be used to overcome CF inhibition by converting it to DCM. Cultures capable of this transformation are currently available commercially, increasing the number of CTC and CF sites for which bioremediation may be applicable. Field- and bench-scale case studies highlighting the use of this culture will be discussed. While removal of CF inhibition by conversion to DCM is desirable, complete dechlorination of CF to non-chlorinated end products is preferred. Recent research has demonstrated that complete dechlorination of CF is possible and is of microbial origin. Current research efforts focused on characterizing and scaling up a culture capable of complete CTC and CF dechlorination will be presented with a focus on future field application.

11:30 Bases of the ART In-Well Technologies ... Green & Effective

Mohamed Odah, Phd, PE, Principal Engineer, Accelerated Remediation Technologies Inc., Overland Park, KS

The ART technology combines in-situ air stripping, air sparging, soil vapor extraction, enhanced bioremediation/oxidation and subsurface circulation in an innovative wellhead system. The multiple remediation concepts combined within the ART technology are well suited for recalcitrant compounds because the synergistic systems are attacking contaminants on a number of fronts. The multiple, in-well stripping passes and high air-to-water ratio achieved in the well via stripping and sparging are integral to the physical removal of contamination. Concurrently, the subsurface circulation process actively flushes residual contamination from the soil matrix and mobilizes it back to the well for further treatment. The circulation and extraction processes also actively and continuously provide significant dissolved oxygen boost throughout the radius of influence, enhancing bioremediation/oxidation of the hydrocarbon compounds. The ART system is designed to operate within a four or six-inch well. Its green nature is exhibited in the subsurface

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2011 FRC List of Exhibitors

- A & D Environmental Services
- Aarco Environmental Service Corp.
- Accutest Labs
- Advanced Environmental Labs
- Adler Tank Rentals
- Adventus Group
- Aerotek
- A-C-T Env. & Infrastructure Inc.
- BakerCorp.
- BioManagement Services
- Blackhawk Technology
- Boart Longyear
- Carbon Service and Equipment
- Carbonair Environmental
- Carus Corp.
- Clark Environmental
- Clean Earth Systems
- Columbia Analytical Services
- Custom Drilling Services
- DeepEarth Technologies
- DeWind One-Pass Trenching
- Enviro-Equipment
- EnviroTek
- Env. Remediation Services
- EQ-The Environmental Quality Co.
- ESC Lab Sciences
- ESD Waste2Water
- ETEC LLC
- The FGS Group
- Flowers Chemical Laboratories
- FMC Corp.
- Geo-Cleanse International
- Geotech Env. Equipment
- GES
- Golder Associates
- GWTTI
- Handex Consulting & Remediation
- Hanna Instruments
- Huss Drilling
- In-Situ
- Innoeva Technologies
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- Liquid Environmental Solutions
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- Microbial Insights
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- Monarch Environmental
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- Pace Analytical Services
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- Petrotech Southeast
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- Regenesis
- Republic Services
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- SiREM
- SM Stoller Corp.
- Stillwater Technologies
- Subsurface Evaluations
- SunLabs
- SWS Environmental Services
- Terra Systems
- TestAmerica
- Vironex Inc.
- Waste Management
- Waste Services of Florida
- XENCO Laboratories
- ZEBRA Environmental Corp.

Exhibit space is almost sold out for FRC 2011 ... we have one space still available.
Visit www.enviro-net.com or call Mike Eastman at (407) 671-7777 for complete information.



2nd Annual Florida Specifier/FRC 2011
Charity Golf Tournament
Celebration Golf Club, Celebration, FL
Wednesday, Oct. 12, 2011, 1:00 - 6:00 pm

Play golf?

Then you're invited to participate in the 2nd Annual Florida Specifier/FRC Charity Golf Tournament.

The event is being conducted in conjunction with the 2011 Florida Remediation Conference, but you do not have to participate in FRC to play or get involved as a sponsor.

The tournament will be played at Celebration Golf Club, a short ride from the FRC 2011 host hotel in Orlando.

The fee to play is \$125 per golfer (includes box lunch). Again this year, we are seeking sponsors to help raise money for our charity of choice.

All proceeds from the tournament this year will be donated to the Florida SIDS Alliance.

For complete information, visit www.enviro-net.com or contact Mike Eastman at mreast@enviro-net.com or call (407) 671-7777.



We would like to thank the following companies for stepping up early as sponsors for our 2011 charity golf tournament:

- Accutest Labs
- Alpha-Omega Training & Compl.
- Adler Tank Rentals
- BakerCorp.
- Clark Environmental
- Carbon Service & Equipment
- Custom Drilling
- EQ-The Env. Quality Co.
- Flowers Chemical Laboratories
- Innoeva Technologies
- Petrotech Southeast
- Regenesis
- SWS Environmental Services
- (Your Company Here)

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stripping process which eliminates the need for water extraction and aboveground treatment. The typical short life of the project, and most importantly, success in site treatment and closure will manifest the green nature of the ART remedial technologies. Project summaries will be presented and typical design parameters will be discussed.

12:00 Day One Luncheon sponsored by Jamson Environmental
Green Remediation Eric Kramer, PE, Shaw Group
Speed Talks: Liza Gruden, PE, Handex C&R

Jim Clark, Clark Environmental
 Glenn Iosue, PE, GES

Session 3: Injection Approaches

1:00 Remediation of Petroleum Spill at Grand Teton National Park, WY, using Oxygen Diffusion

Don Ray, President, Performance Technologies, Tallahassee
 A release of gasoline occurred in the UST system supplying fuel to boats at the Colter Bay Marina Village at Grand Teton National Park, WY. Groundwater in the immediate area was contaminated with BTEX to levels exceeding 5,000 parts per billion. Challenges in the selection of an appropriate groundwater remediation system included the need to be successful in a low permeability, glacial till and to find a low effort O&M technology that can operate over the very long, frigid winters common to Teton Park. Consultants for the project selected the in-situ Submerged Oxygen Curtain® technology because of its proven capabilities to meet these two challenges. Seven iSOC® injection wells operated at the Colter Bay Marina site from September 2004 to May 2006. Five injection wells were located in the source area and two wells were located along the shore of Jackson Lake to provide an oxygen barrier. During the 1.5 years of remediation, the iSOC® system created strongly oxidizing conditions through the entire contamination area; BTEX in the UST source area was eliminated; the oxygen barrier along the shore of Jackson Lake kept petroleum constituents from reaching the lake; and the remediation system operated year round in spite of the extreme winter weather conditions and limited access to the site for only three months per year.

1:30 ISCO Remediation of Fungicide Spill on Remote Public Lands

Sterling Turner, Project Manager, GES Inc., Richmond, VA and Charles Blanchard, PE, Project Engineer, GES Inc., Concord, CA
 A bulk shipment of wetttable-powder fungicide was released to state-owned public lands due to a vehicle accident and subsequent fire-fighting efforts. The fungicide dissolved in the groundwater, resulting in a plume of ethylene thiourea, ETU. ETU is highly soluble and generally breaks down quickly to inert compounds in the presence of light and oxygen. However, ETU at the subject site proved recalcitrant to degradation in the slightly anoxic water table aquifer. Ten years after the initial response, levels persisted well above the Florida groundwater criteria. Due to the remote location, lack of nearby power supplies, and somewhat unique conditions such as roaming livestock and occasional controlled burns to limit vegetation, many potential remediation technologies were not feasible. In-situ chemical oxidation remediation via short-duration injection events was utilized to reduce the ETU plume mass and control migration of the plume leading edge. The GES Max-Ox® ISCO technology and HypeAir® mobile injection platform fulfilled the remedial objectives and caused little to no impact to site vegetation and wildlife. A suite of oxidants and amendments was used to facilitate advanced chemical oxidation reactions. Combined liquid and gaseous injection enhanced oxidant distribution and contact with ETU. Performance monitoring indicated sustained increases of oxidation potential and dissolved oxygen in the aquifer for up to two months following each injection. The pilot test was followed by six injection events performed over 2.5 years. Each injection event was tailored to the plume conditions. The ISCO

remediation reduced ETU mass by over 90 percent. One year of post-remediation monitoring has shown further reductions and, assuming continued progress, should allow for the submittal of an MNA plan leading to unrestricted closure.

2:00 Increased In-Situ Remediation Efficacy via Innovative Injection

Patrick Hicks, PhD, Principal, Wavefront Technology Solutions USA Inc., Raleigh, NC
 Groundwater at a site was impacted by chlorinated aliphatic hydrocarbons. Based on results of a pilot test, a full-scale bioremediation via emulsified vegetable oil injection was implemented. The full-scale injection using Primawave™ technology with a combination of readily-degradable sodium lactate and slow-release EVO was used to sustain a biological reaction zone. Injections were designed to stimulate anaerobic biodegradation of CAHs in groundwater. Wavefront Technology Solutions USA Inc. provides Primawave™ technology for pressure pulsing to enhance the introduction of fluid into saturated porous media. Primawave™ technology is applied to environmental remediation projects to increase the effective distribution of remedial products through standard injection wells or direct push rods. The application of a pressure pulse through the injected liquid is modulated by controlling the frequency of the pulsing to maximize injection rates at minimal pressures to minimize blow-by and day-lighting, and also optimize the radius of influence and distribution of the injected fluid in the aquifer. During the full-scale injection event, Primawave™ technology was used to increase the injection flow rate, minimize day-lighting and to reduce field time. The average flow rate achieved during the second full-scale injection was between 7.6 and 11.4 liters per minute without significant day-lighting. In the period from two to seven months after the second full-scale injection, CA concentrations decreased at all locations but still remained above clean-up goals in one small area up-gradient of the source area that will be addressed with a final injection.

2:30 Field Demonstration of Supersaturated Water Injection for Enhanced NAPL Recovery in Source Zones

Gary Birk, PE, Managing Partner, Tersus Environmental, Wake Forest, NC
 Supersaturated water injection is an effective technology for non-aqueous phase liquid recovery. Carbon dioxide supersaturated water injected into the subsurface results in the nucleation of CO2 bubbles at and away from the injection point. As the supersaturated liquid flows through the porous medium, gas evolution occurs in-situ as the system returns to thermodynamic equilibrium. The nucleating bubbles coalesce, rise and volatilize residual NAPL ganglia. SWI offers the following benefits: Light NAPL and dense NAPL recovery enhancement system for trapped and immobile NAPL mass; uses CO2 to strip volatile NAPL component for capture in the unsaturated zone, and mobilizes liquid NAPL trapped in aquifer matrix for recovery. SWI technology is focused on the enhancement of NAPL recovery and is operated in conjunction with conventional recovery systems. SWI uses the gPRO® system by inVentures Technologies to supersaturate water CO2 for injection below the water table. The CO2 gas is dissolved at a pressure higher than the prevailing subsurface pressure. Following injection, carbonated water moves out away from the injection well and begins to release dissolved gas forming a treatment zone. Discrete volumes of gaseous CO2 grow and rise due to buoyancy. Because of the oil's intermediate wettability, some of the oil contacted by gas remains associated with it and is mobilized. This NAPL can then be recovered by conventional systems. Volatile NAPLs are transferred to the gas phase during the SWI process and mobilized up for vapor phase recovery. SWI is more effective at mobilizing residual NAPL than sparging because gas saturation develops in-situ, leading to greater microscopic sweep efficiency. The CO2 gas phase becomes mobile when the gas saturation reaches approximately 12 percent, at which point advective gas flow is initiated. Considerable lateral, and therefore uniform, expansion of the gas phase occurs prior to the onset of upward mobilization of growing gas clusters under the action of buoyancy forces. Gas mobilization is accompanied by fragmentation and stranding of the gas clusters, which prevents fingering of the gas phase and stabilizes the displacement.

3:00 The Triple Benefits of Ozone Sparging:

A BISCO Concept
 William Kerfoot, PhD, Principal
 Kerfoot Technologies, Mashpee, MA
 Three major benefits have been shown with recent ozone sparging: 1) petroleum carbon oxidation with total oxygen supplied, not ozone alone; 2) capacity to break reversibility of in-situ stripping, allowing two-log additional removal for MCL attainment; and 3) ability to degrade new compounds unable to be attacked by oxygen alone. By maintaining ozone and ozone/peroxide concentrations within ranges compatible with bacteria action and use of pulsed sequential gas introduction, bacterial populations flourish during ozone sparging. The combination of a free-radical first step predigests bacterial-resistant long-chain carbon compounds and substitutes oxygen on the alkane or alkene short chains, preparing the mixture for rapid bacteria action with enhanced oxygen from stage one reaction and air. The critical mass proportion of ozone to oxygen approaches 1:10 for stage one and close to 2 total oxygen to 1 hydrocarbon for stage two. This is substantially less than estimates of greater than 1 mole ozone to 1 mole hydrocarbon destruction, which ignores biological action and the total oxygen role. Secondly, the presence of ozone within bubbles stops the process of reverse migration to dissolved forms when vertically migrating bubbles with VOCs enter low organic concentration regions of groundwater. Ozone degrades the HVOCs in the bubble, ceasing back-migration. Under field monitoring in similar situations, the HVOC content is drastically reduced, allowing MCLs to be achieved. Thirdly, both the U.S. Environmental Protection Agency and certain states have added new organic compounds beyond BTEX compounds for required removal in petroleum spills, particularly TBA, naphthalenes, and more recently, EDB and 1,2 DCA. Ozone and particularly Perozone® are reactive with these compounds, whereas normal oxygen from air with normal biological activity is not highly efficient for removal.

3:30 Afternoon break

Session 4: Assessment Enhancements

4:00 The Rise of Incremental Sampling Methodology

Steve Packard, Project Chemist
 Columbia Analytical Services, Jacksonville
 In today's challenging economic climate, scientists performing environmental site assessments are looking for ways to save money, without compromising the thoroughness and integrity of field sampling and analytical support-related activities on which environmental decisions are made. Incremental Sampling Methodology introduces a relatively new technique that provides an alternative to historically utilized discrete field sampling techniques. ISM procedures call for a different method of identifying where on a site should soil samples be taken, and also include additional steps taken to ensure sample representativeness once the samples are received by the laboratory prior to analysis. And as an additional benefit, overall project costs related to site characterization can often be reduced. ISM is now beginning to gain awareness and acceptance by some states, including Florida, as an alternative to traditional sample collection procedures. Two key factors that influence accurate and precise soil contamination representativeness during field sample collection and laboratory subsampling are: 1) the inherent heterogeneity of soils and sediments at many sites; and 2) variable levels of contaminant concentrations distributed across a site, and even in individual samples. Therefore, the use of traditional methods for field sampling and laboratory subsampling have always included the possibility of missing contamination hot spots at sites, or generating site characterization reports that are not necessarily representative of actual site conditions. The first projects using ISM have now been carried out here in Florida, or are underway at the present time. As time goes on, the use of ISM will be more accepted into the mainstream of site characterization procedures.

4:30 The Effect of Multiple Hydraulic Features on Assessment Activities of Dissolved Petroleum Hydrocarbon Plume

Joshua Hirten, PG, Project Manager
 URS Corp. Orlando
 Assessment activities have been completed in association with two former retail petroleum facilities that were in operation from approximately 1933 to 2000. The general extent of dissolved petroleum hydrocarbon concentrations associated with retail petroleum facilities are typically confined to the site boundaries and the

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2nd Annual Florida Specifier / Florida Remediation Conference



Charity Golf Tournament

Wednesday, Oct. 12, 2011

Celebration Golf Club Celebration, FL



- 1:00 PM Shotgun start, four-man scramble
- Contests and prizes
- Sponsorships available (see below)
- Registration includes golf and lunch
- Club rental available
- Play one of the top courses in the country
- Support a great cause
- You do not have to attend FRC 2011 to play...
Everyone is invited!

Player Registration Information

Player (contact): _____

Company: _____

Address: _____

City, St, Zip: _____

E-mail: _____

Phone: _____

Additional players in foursome:

 Name Company

 Name Company

 Name Company

Single player registration is \$125 (checks payable to NTCC Inc.)
 Foursomes registering at the same time are \$400. (Save \$100.)

Payment type:

Check AmEx Visa Mastercard

Name on CC: _____

CC #: _____

Expiration: ____ / ____ Sec. Code: _____

- Sponsorships: \$200: Regular Hole
 \$250: Contest Holes:
 Closest to pin
 Longest drive
 Longest putt
 Play the pro (sold)
 \$50: Cart Logo (6 available)
 \$350: Trophy (1 available) (sold)
 \$350: Beverage Cart (3 available)
 \$350: Awards Buffet (4 available)
 Donation: Florida SIDS Alliance
 - Amt. \$ _____

Total _____

Mail to: FRC Golf Tournament
 PO Box 2175
 Goldenrod, FL 32733

Or fax to (407) 671-7757 (or e-mail to mreast@enviro-net.com).

Questions? Call Eric Brown at (727) 546-6193.

Calendar

September

SEPT. 6—Course: Asbestos Refresher: Project Design, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 6-8—Course: Activated Sludge Process Control & Troubleshooting, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 7—Course: Asbestos Refresher: Inspector, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 7—Course: Asbestos Refresher: Management Planner, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 7-10—Conference: 2011 APA Florida Annual Conference, Palm Beach, FL. Presented by the American Planning Association Florida. Call (850) 201-3272 or visit www.floridaplanning.org.

SEPT. 8—Expo: Southwest Florida Water & Wastewater Exposition, Ft. Myers, FL. Hosted by the Florida Section of the American Water Works Association, Florida Water & Pollution Control Operators Association and the Southwest Chapter of the Florida Water Environment Association. Contact Ivan Velez at (239) 533-8166 or Howard Wegis at (239) 533-8164.

SEPT. 8—Course: Asbestos Refresher: Contractor/Supervisor, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 9—Course: New Directions in Stormwater Permits and Programs, Orlando, FL. Presented by the Florida Stormwater Association. Call 1-888-221-3124 or visit www.florida-stormwater.org.

SEPT. 9-17—Course: Backflow Prevention Assembly Tester Training and Certification, Venice, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 10—Course: Backflow Prevention Recertification Review, Jacksonville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 10-13—Conference: AIPG/AIH National Conference, Bloomington, IL. Presented by the American Institute of Professional Geologists and the American Institute of Hydrology. Call (303) 412-6205 or visit www.aipg.org.

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

SEPT. 12-16—Course: Backflow Prevention Assembly Tester Training and Certification, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 14-15—Course: Biological and Chemical Nutrient Removal: A Study of Nitrogen and Phosphorus Removal, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 14—Course: Stormwater Management Design, Lake Mary, FL. Presented by the Florida Engineering Society. Call (850) 224-7121 or visit www.fleng.com.

SEPT. 16—Conference: American Water Resources Association, Florida Section Annual Conference, Palm Beach County Convention Center, West Palm Beach, FL. Contact Kristin Bennett at (772) 781-3414 or kristin.bennett@tetrattech.com.

SEPT. 16—Meeting: An Evening with the Florida Keys National Marine Sanctuary, Key Largo. Presented by the South Florida Association of Environmental Professionals. Contact Dr. Jeff Marcus at (305) 445-2900, ext. 2328 or visit www.sfaep.org.

SEPT. 16—Course: Understanding the System in Which You Function, Gainesville, FL. Presented by

the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

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

SEPT. 19-23—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.

SEPT. 20-22—Course: Train the Trainer: How to Design & Deliver Effective Training, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 22—Course: Health and Safety for Solid Waste Workers-8 Hours, Lecanto, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 23—Course: 4-Hour Refresher Course for Spotters at Landfills, C&D Sites and Transfer Stations, Ft. Lauderdale, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570.

SEPT. 23—Course: Spotter Training for Solid Waste Facilities, Ft. Lauderdale, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 23—Conference: FAEP Annual Conference: Sustainable Environment, Sustainable Economy, West Palm Beach. Presented by the Florida Association of Environmental Professionals. Call (813) 240-4298 or visit www.faepl.org.

SEPT. 25-28—Conference: Waste-to-Fuels Conference & Trade Show, San Diego, CA. Contact Executive Director Gene Jones at (850) 558-0609 or visit www.waste-to-fuels.org.

SEPT. 25-28—Conference: Waste-to-Fuels Conference & Trade Show, San Diego, CA. Contact Executive Director Gene Jones at (850) 558-0609 or visit www.waste-to-fuels.org.

SEPT. 26-27—Course: Florida Water Conservation Coordinator Training, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 26-28—Course: Lead: Inspector, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 28-29—Course: Microbiology of Activated Sludge, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 28-30—Course: Backflow Prevention Assembly Repair and Maintenance Training and Certification, Lake Buena Vista, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

SEPT. 28—Course: Engineering Sustainability: How to be a Green Champion, Lake Mary, FL. Presented by the Florida Engineering Society. Call (850) 224-7121 or visit www.fleng.com.

SEPT. 29-30—Course: Lead: Risk Assessor, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

October

OCT. 1—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.

OCT. 3-5—Conference: 2011 SESWA Annual Conference: New Water Quality Regulations – Change is in the Air, Asheville, NC. Presented by the Southeast Stormwater Association. Call 1-866-367-7379 or visit www.seswa.org.

OCT. 3-5—Course: Asbestos: Inspector, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

OCT. 5—Workshop: 7th Annual Environmental Excellence Day Workshop, Orlando. Sponsored by the Metropolitan Environmental Training Alliance. Contact Jose Garrido ay (407) 824-7195 or visit www.metra.org.

OCT. 6—Course: Backflow Prevention Recertification Review, Lake Buena Vista, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

OCT. 6-7—Course: Asbestos: Management Planner, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

Visit www.enviro-net.com for additional environmental industry calendar listings.

FRC 2011 Post-Conference Half-Day Workshop

Sustainable Remediation:

Developing Successful Implementation Strategies

This interactive workshop will provide a forum for discussing successful implementation strategies when using remediation technologies listed in the Florida Department of Environmental Protection's Innovative Technology Database.

Environmental industry presenters will explain how the U.S. Environmental Protection Agency, International Organization for Standardization and ASTM International guidelines for implementing a sustainable and green remediation and assessment plan can be applied to projects in Florida.

Regulatory agency presenters will discuss the information needed to obtain approval of a sustainable or risk-based remedial action plan.

A panel of vendors from the approved FITD will discuss how their technology will reach cleanup target levels using the same case study. Additional cost proposals from vendors not included on the panel will be made available in the workshop manual/CD.

Workshop attendees will be assigned to teams to select the most sustainable technology or technologies that will reach the cleanup targets levels. Each team will then justify their selection to the other attendees.

The goal of the workshop is to have others become familiar with how in-situ and risk base remedial action plans are developed and evaluated.

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Consulting/engineering firms will present how the validated data is being used in their firms. The Florida Department Environmental Protection is invited to present regulatory updates for the waste program and an overview of the ADaPT usage by the department.

ADaPT was developed to comply with the quality assurance requirements and provides many functions. The DEP Division of Waste Management advised of its intent to incorporate the use of ADaPT in its statewide quality assurance document. This will expand the use of ADaPT to include data submitted under programs administered by the state bureaus of Waste Cleanup and Petroleum and Storage Systems.

ADaPT performs an error check for correctness, and completeness of the data, checks blank contamination rules and checks accuracy and precision criteria for each method and sample matrix.

Workshop attendees are encouraged to bring in EDDs with any questions regarding EDD completion, data review or submittal.

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The registration fee for both workshops is \$125. Visit www.enviro-net.com.

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The views expressed in columns authored by industry professionals are their own.

TITUSVILLE

From Page 1

pumpage from Area II and III wells to Area IV," said Sean Stauffer, interim resources director for Titusville's public water system.

Titusville already supplements its drinking water supply with water from the city of Cocoa's system, a relatively expensive addition to serve some of Titusville's customers near the city's southern boundary.

Chicago-based Miami Corp. owns a large tract of land in northwest Brevard County that includes the Area IV Well-

fields that it plans to develop. Miami Corp. formed a subsidiary, Farmton Water Resources, to exercise its role in the partnership.

If and when development occurs on Miami Corp.'s land, drinking water supplies will be in place to meet concurrency requirements. The organization is currently encouraging commercial and industrial projects on its holdings near Interstate 95.

Titusville's water consumption currently averages about 4.1 million gallons per day, with 3.6 million gallons per day coming from the city's own wellfields.

The remainder, about 500,000 gallons per day, is supplied by the city of Cocoa's system.

The new project will change that mix as water sourcing moves to the Area IV wellfields. TIFA has Phase 2 plans in the works, expected to be finished in 2013, that include drilling additional wells.

Stauffer said that the two wellfields currently in use draw water from the surficial aquifer. Area IV, the new one, will draw from the Upper Floridan Aquifer.

"Wellfields age over time and our existing ones are nearing an end to their use," he said. The Upper Floridan will be a much more productive wellfield, expected to be productive for 30 years, and may eventually completely replace the city's existing wellfields.

The entire project cost is \$7.5 million. The pipeline from the Area IV Wellfield to Titusville's Mourning Dove Treatment Plant cost \$5.7 million. It was the costliest single component of the project.

A federal stimulus grant provided \$2.5 million in funding. In addition, the state revolving loan fund supplied a low interest loan to meet the balance of construction costs.

Wellfield development along with the additional pipeline cost \$1.8 million, which was shared between Farmton Water Resources and the city of Titusville. A second project phase, expected to cost \$3.5 million, envisions drilling nine more water production wells and laying the necessary pipelines to deliver water to Titusville's water treatment plant.

Stauffer said that the TIFA partnership is a good deal for Titusville. "Per gallon, this is a much more cost-effective source," he said.

In the spring of 2012, water produced and delivered by TIFA will be flowing through Titusville's public water supply system. Overall, residents will see water at stable prices and without concerns for shortages.

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TRI-STATE
From Page 1

level what politics and legal action have not.

The stakeholders agree that hydrologic modeling, data-driven analysis and an in-stream flow assessment are essential in order to put forth a sustainable water resource management plan for the entire ACF Basin.

They have developed a proposal for those and other needs, and are currently seeking funding.

When asked about the additional data collection needed, a spokesperson for the Florida Department of Environmental Protection said that "...additional hydrologi-

cal modeling demonstrating that a more naturalized flow regime can be successfully implemented is required."

With Florida encompassing the lower end of the ACF basin, greater reductions in freshwater flow into the Apalachicola River and Bay system is certain to cause devastation well beyond the oyster industry.

"It will kill the ecology, jobs and culture," said Tonsmeire. "If the river and bay crash, then our economy will go down with them."

The coming year will be a crucial one for the three states and all their residents regardless of what actions are advanced by any party.

NOTES
From Page 3

nated leachate from the landfill could filter into the drinking water aquifer and the nearby Green Swamp.

Angelo's Aggregate Materials, which appealed that decision, cut the size of the proposed landfill by two-thirds and said further study of nearby sinkholes shows a low risk to the environment.

Even if the company secures an environmental permit, it still faces an uphill battle to build its landfill. It will need to persuade county commissioners to change the property's zoning classification from agricultural/residential to public or semi-public.

Expert conservation panel. The Volusia County Council has appointed a panel of experts from across Florida to oversee writing a management plan for proposed conservation lands owned by the Miami Corp. in southern Volusia County.

The company has been given the go-ahead to change the land use plans on the 59,000 acres it owns in Volusia and

Brevard counties to allow for the construction of up to 25,000 homes and a million square feet of commercial space on 19,000 acres.

Business news. Lee Taylor, PE, has formed Taylor Environmental Consulting LLC, an environmental consulting and engineering firm in Saint Cloud. Taylor brings 17 years of experience in the environmental industry in Florida, primarily working in subsurface assessment and remediation of petroleum, chlorinated solvents and other hazardous wastes, to the newly formed company.

Pace Analytical Services Inc. purchased the assets of XENCO's Boca Raton laboratory and Miami Lakes Service Center. Pace now operates facilities in Ormond Beach, Boca Raton, Miami Lakes and Tampa with a broad range of environmental testing capabilities and specialty services. The laboratories will operate as a Florida business unit under the direction of General Manager Bob Dempsey at the Ormond Beach lab and Senior General Manager/Southeast Jeff Graham.




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SEMINOLE

From Page 1

ter from the St. Johns River for potable use, but we have not built any facilities to produce potable water," said McCue.

The new reclaimed water plant is permitted to withdraw 5.5 mgd. But McCue said he doesn't expect it to handle more than one mgd.

"On days when there is sufficient re-

WATCH

From Page 5

metals and nutrients, and officials were concerned about the excess pressure on the plant's support walls.

The water flowed into Bishop Harbor and lower Tampa Bay which raised concern about adverse effects on water quality and marine life.

David McDonald, Port Manatee's executive director, said the dredging project is still on track to be completed by Oct. 1.

The port deepening is an effort by Port Manatee to be a candidate for more business in anticipation of the Panama Canal expansion now underway.

Bay County drainage systems. The Bay County Commission will take an \$849,000 step to repair drainage systems along Scotts Ferry and Resota Beach roads.

The problem in one location is long standing. The Scotts Ferry Road project calls for repairing sedimentation issues cited by the Department of Environmental Protection 15 years ago. The commission awarded a \$537,477 contract to Triangle Construction for the repairs.

The Resota Beach Road project calls for repairing damage to the stormwater system that occurred during a heavy storm in 2010. That \$254,369 contract went to GAC Contractors.

Both projects will require extended road closures.

The DEP first issued a notice of violation for Scotts Ferry Road after a county road survey revealed 60 locations where stormwater erosion carried soil from dirt roads into streams, bayous and adjacent wetlands.

The order was issued in 1994 and it required the county to devote \$145,000 each fiscal year to eliminate the violations.

Stormwater Engineer Josee Cyr said the county has been knocking projects off the list since 1997. She said they did the least expensive ones first and now they are dealing with the more costly jobs.

Lake Hamilton water plant funds. The Lake Hamilton Town Council will get a \$696,000 boost in funding for a major part of their new water treatment plant.

This summer, the council learned that the Florida Department of Environmental Protection will provide funds to cover 65 percent of the cost for installing a hydrogen sulfide removal system at the new water plant planned on North Church Street.

The town will have to cover the remaining cost of the system, estimated to be \$240,000.

The U.S. Department of Agriculture already awarded the town a \$923,800 grant and a \$2.4 million low interest loan to build the plant.

The Southwest Florida Water Management district had ordered Lake Hamilton to shut down their 1940s vintage Lake Gordon water plant because it was impacting a local lake's level.

Found money for South Daytona. The city of South Daytona may soon be the envy of every city and county in Florida. They just received a check for \$263,393 from the St. Johns River Water Management District that they weren't expecting.

A financial audit last fall showed the city failed to collect all the funds they were eligible for as reimbursement for a stormwater improvement project.

South Daytona petitioned the district for the remaining funds and the district's governing board approved the payment in early July.

claimed water, we don't expect to withdraw water from the St. Johns," he said.

Not everyone is thrilled with plans to withdraw river water to augment supplies. Officials from at least one environmental organization, St. Johns Riverkeeper, said Seminole County's project is a waste of taxpayer dollars.

They believe the county should double its efforts on water conservation

The project involved was an eight-acre stormwater retention area at a former mobile home park location.

Ocklawaha Basin wetlands restoration slows. A long-time effort to restore 4,200 acres of Ocklawaha River Basin wetlands to their predevelopment status is no longer a realistic goal for the cash strapped St. Johns River Water Management District.

District officials said the water movement through the restored wetlands system is about as good as it will get. The district acknowledges that the water movement falls far short of how the area functioned before it was drained and before construction of Moss Bluff Lock and Spillway Dam to the north.

Up until now, the district has spent millions in the Sunnyhill Restoration Area to restore the former farmlands and man-made canals and levees. The wetlands help control flooding and cleanse the water before it enters the Ocklawaha River.

Robert Christianson, the district's director of operations and land resources, told the governing board that the lack of resources will curtail any new restoration work there.

Salt Springs bottler zoning change challenged. A Marion County Commission approval of a zoning change permitting the withdrawal of water near Lake George for an Ocala bottling operation has initiated a lawsuit by a Salt Springs resident.

George Hill filed the action asking the judge to reverse the commission action because it violates the county's land development code.

The Moody Family of Ocala wants to withdraw water from their 12-acre site along the shores of Lake George. Their plan calls for extracting 100,000 gallons a day from an artesian well and transporting it to a facility in Ocala for bottling.

It was approved unanimously in May and was cited as an economic boost by creating 120 new jobs and generating \$36 million in investment.

The water would be transported by 20 trucks daily to the Ocala plant.

Hill's attorney, Don Holmes, argued that the commission acted improperly by establishing an industrial operation in an agricultural area.

The county staff equated the transport of water as the same as the transport of pulp wood, citrus or sod when they recommended approval.

WMD closes Stuart office. The South Florida Water Management District will close the Martin-St. Lucie County service center due to budget cuts.

Director Jane Bergstrom said most of the people working at the 780 Indian Street center will be reassigned within the district, though there could be some layoffs.

The Stuart office issued water use permits and regulated compliance with those permits. With the closing, permits will have to be secured from the water management district's West Palm Beach office.

TBEP recognized. The Tampa Bay Estuary Program has received an award for its Nitrogen Management Consortium program.

The prestigious award is part of the Gulf of Mexico partnership awards program that recognizes public and private alliances.

TBEP was cited for its work in reducing nitrogen pollution from wastewater, stormwater, air emissions and industrial discharges.

and say the withdrawals will cause algae blooms to increase and threaten the health of the river's plants and wildlife downstream.

In 2008, the group filed an appeal because it was worried the river and its ecosystem could be seriously harmed if too much water is withdrawn. The appeal challenged the decision by the St. Johns River Water Management District to approve the permit for the project.

The 20-year permit allows the county to withdraw 5.5 million gallons a day.

St. Johns district officials say 155 million gallons can be removed between the headwaters and State Road 44 without damaging the river down stream.

Other governments are already al-

lowed to tap the river. These include Melbourne which is permitted to withdraw 13 million gallons a day, Cocoa which can pump about 9 million a day and Sanford which can withdrawn up to 7.3 million.

District spokesman Hank Largin said the county needs the alternative water source because population is expected to rise in the region.

Hal Wilkening, director of the department of resource management at the district, said St. Johns officials issued Seminole County a permit in 2009 to withdraw up to five million gallons of water per day from the St. Johns River as an important part of their long-term plan to establish a sustainable water supply source for their customers in the service area.

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FEDFILE

From Page 2

same site where hazardous wastes are produced, or at different sites owned by the same company producing wastes.

The EPA proposes to retain those reduced regulatory requirements, but on-site recyclers will be required to enhance storage and record keeping. Companies that send their wastes off-site for recycling

may be subject to "tailored storage standards" and will be required to send recycled materials to permitted hazardous waste recycling facilities.

The proposed new rule includes across-the-board requirements to ensure materials are legitimately recycled and not simply disposed of illegally.

The rulemaking process is in its early stages. The EPA has opened 60-day public

comment period.

More information is available at <http://epa.gov/waste/hazard/dsw/rulemaking.htm>.

Stormwater contract awarded. The U.S. Army Corps of Engineers awarded Phillips & Jordan of Knoxville, TN, a contract to begin construction of the C-44 reservoir and stormwater treatment area. The contract totaled approximately \$32.5 million.

This is the first of three contracts planned for the Phase 1 construction of the C-44 RSTA. It includes construction of an intake canal, a drainage canal and outlet for C-133 and C-133A and access roads; the removal of a C-133 Canal culvert under Citrus Boulevard; and construction of a new bridge on Citrus Boulevard over the intake canal and Citrus Boulevard turning lanes.

This project is expected to create 30-40 local jobs out of a total workforce of 490 jobs during the first year of the contract, and 310 jobs during the second year. The entire Phase I construction effort is expected to last seven years.

The C-44 RSTA located in western Martin County is a component of the Indian River Lagoon-South Everglades Restoration Project. The RSTA will retain local runoff from the C-44 basin. It will be approximately 12,000 acres, including a 3400-acre reservoir with a maximum storage capacity of approximately 51,000 acre-feet. It will also have a pump station capable of moving up to 1,100 cubic feet of water per second.

When completed, the RSTA will reduce average annual total nutrient loading in the St. Lucie Estuary and reduce wide salinity fluctuations in the southern segment of the Indian River Lagoon.

Lead sampling requirements. EPA announced in July that it will not impose any new lead dust sampling and laboratory analysis requirements for residential remodeling.

In its final clearance rule, EPA noted that it had made only minor adjustments to its Lead Renovation, Repair and Painting Rule. Those amendments relate to training requirements and some additional requirements for renovation firms.

The agency said that it did not implement any other proposals released last summer because existing work practices and protocols "effectively reduce lead dust hazards."

Additional details of the clearance rule are available on-line at <http://www.epa.gov/lead/pubs/renovation.htm#related>.

Clean economy industries report. In June, the Brookings Institution released a new report that attempted to define the "clean economy industry" in the U.S.

As a first step, the report defines

"green" and "clean" with reference to a low carbon economy. With that as a foundation, nuclear energy becomes a contributor to a clean economy. It also includes public transit, wave and ocean power, and conservation work.

Even with such broad boundaries to the definition, report writers still characterized the field as an enigma that is hard to assess. Working with staff members at Battelle's Technology Partnership Practice, the Metropolitan Policy Program at the Brookings Institution worked to create and analyze a database of clean economy industries in the U.S. The database includes a specific focus on U.S. metropolitan areas.

Brookings and its research partners found that 2.7 million workers are employed by clean economy industries. To put this in context, these are more jobs than in either the fossil fuel or bioscience industries.

The report noted that this sector grew much more slowly during the 2003-2010 period, but that some clean tech job sectors have grown "explosively" during the past couple of years.

The South has the largest number of clean economy jobs but the West has the largest proportion relative to population. Among southern states, Florida, with about 103,000 jobs in this sector, is second only to Texas.

In the nation as a whole, the report noted that clean industries that are concentrated in the largest metropolitan areas and those industries that form "clusters" of related industries in metropolitan areas have the highest growth rates compared to businesses and industrial facilities isolated outside of metropolitan clusters.

Regardless of where they are located, clean economy jobs offer a greater variety of opportunities and better income prospects for low- and middle-skilled workers than is the rule for the national job market.

The report includes a substantial discussion of the employment and economic prospects of clean industries no doubt to tie in with the current political focus on jobs.

The report states that the private sector will play the lead role in clean industry growth. It notes that government policies that produce uncertainties and gaps that weaken market demand, reduce financing ability and raise questions about the clean innovation pipeline need to be reformed. The report calls for "engagements by all levels of the nation's federal system to ensure the existence of well-structured markets, a favorable investment climate, and a rich stock of cutting-edge technology—as well as a strong regional cast to all efforts."

The report is available at www.brookings.edu.

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immediate vicinity. This was the traditional methodology when one downgradient monitor well indicated concentrations that were above Chapter 62-777, FAC NADC criteria. After site access delays, an additional monitor well was installed downgradient that also indicated concentrations that were above criteria. It was at this point that a more aggressive assessment approach was utilized that included grab groundwater sampling, mobile laboratory analysis and nested monitor wells. During the course of assessment activities, numerous challenges were encountered in determining the driving forces in groundwater movement and the appropriate scope of work. One factor appears to be the preferential flow within the surficial groundwater around the stormwater system that leads away from the effected properties. Additionally, while the nearest water body is over 1,500 feet away, it appears to have a significant effect on the flow path and depth at which dissolved petroleum hydrocarbons are encountered. Finally, upon migration of the dissolved petroleum hydrocarbon plume towards the water body, the influence of another water body is encountered and has led to movement to the north towards the lake. The various hydraulic features have provided unique challenges during the assessment. The data collected will be utilized to develop a targeted remedial approach for this dissolved petroleum hydrocarbon plume.

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Friday, October 14, 2011

Session 5: A Grab Bag of Innovative Projects

8:00 Remedial Design of a Multi-Component Hydraulic Control and Treatment System for Addressing VOCs, 1,4-Dioxane and Pesticides

Jeffrey Ahrens, PE, Project Engineer, Geosyntec Consultants, Boca Raton
The confidential cleanup site has operated as a light industrial facility. Several volatile organic compounds as well as 1,4-dioxane and chlorinated pesticides—collectively referred to as contaminants of concern—have been detected at the site. A hydraulic control and treatment system approach utilizing an air stripper, bag filtration, an advanced oxidation plug flow reactor, and liquid- and vapor-phase carbon treatment was selected as the remedial approach in order to utilize existing groundwater treatment equipment already at the site, capture affected groundwater in proximity to higher concentration areas and to holistically address the various site COCs, which are collectively challenging to many other candidate remedial technologies. Remedial design challenges at the site included: retrofitting an existing treatment system that was incapable of treating off-gassing, 1,4-dioxane, and pesticides; flowrate selection to help optimize the client's objectives vs. system capital and operational costs; and positioning of remedial equipment in the treatment train for effective treatment at a reduced operational cost. This presentation will focus on the remedial feasibility study evaluation for technology selection as well as an evaluation of the design considerations that factored into the remediation system design and component selection. Additionally, we will embark on a virtual tour of the constructed remediation system, which was recently completed, and evaluate the system operation performance.

8:30 Cutter Soil Mixing at the Brunswick Wood Preserving Superfund Site

George Onorato, PE, Senior Construction Engineer, Golder Associates Inc., Tampa
Golder Associates recently completed the first CSM hydraulic barrier wall system ever constructed at a U.S. Environmental Protection Agency-funded Superfund site in the U.S. at the Brunswick Wood Preserving Site in Brunswick, GA. The CSM technology, along with Golder's technical approach, brought innovation and elevated levels of precision and quality control compared to what is typically expected in barrier wall construction. The Brunswick site had been used for wood treatment operations since 1958 using chemical agents, such as creosote and pentachlorophenol, causing extensive contamination to soil, groundwater and also the nearby creek. Most of the remedial activities were performed between 1996 and 2009, but the EPA discovered additional groundwater contamination that extended off-site which crossed through an extensive network of overhead and underground utilities. Despite these obstructions, the EPA had determined that the most appropriate approach was to construct an outer barrier wall. Golder was contracted to design and construct the barrier wall using the specialized soil mixing technique, CSM, in order to contain the migration of impacted groundwater. Soil mixing for barrier wall construction involves blending the native soil with a variety of admixture binder types, such as cement and bentonite, to create a barrier wall with low permeability properties. One of the advantages of CSM over conventional soil mixing systems is that it creates rectangular columns of soil-cement-bentonite that can be effectively and efficiently interlinked to create a continuous subterranean barrier wall. A performance criteria of 1 x 10⁻⁶ cm/sec or lower was established for the site. Golder was able to meet this criteria using the CSM. The project involved extensive coordination with utility companies. Interfering utilities produced project challenges, however due to the skill of the crew and maneuverability of the equipment, the project was completed on time, on budget and without any safety incidents.

9:00 Horizontal Well Design, Installation and Performance for Biosparging a PAH Plume

Cal Butler, PG, Geologist VI, and Ernest Mott-Smith, PE, Remedial Technology Practice Leader
Black & Veatch Special Projects Corp., Tampa
The site is an abandoned wood preserving facility located in Pensacola, FL, that released PAH compounds to groundwater with much of the contaminant plume residing at and above 100 feet below ground surface. Impacted groundwater flows east under a railroad switching yard thereby limiting access and treatment options. In-situ enhanced bioremediation with injection of oxygen to stimulate indigenous bacteria and form a biological treatment zone was selected for dissolved-phase remediation. Horizontal directional drilling beneath the railroad switching yard was proposed for initial pilot testing of the biosparge remedy. A bundle of three wells comprised of different construction materials and slot configurations was installed in the double-ended HDD bore. Well screen materials included stainless steel with longitudinal slots and air diffusion system HDPE with microslots that open and close depending on pressure of the injection medium. Specialized HDD well installation techniques included a steel carrier casing, grouting pipes and biopolymer drilling fluid. The final well construction was 1,450 feet long set at 100 feet bgs. A limited number of downgradient monitoring wells were installed to gauge the performance of the HDD well bundle during two oxygen injection pilot tests. Overall, the pilot tests indicated that the HDD well screens provided excellent biosparging capabilities. Concerns for full-scale treatment include potential occlusion of the well slots.

9:30 Which Way is Up? Evaluating Contaminant Mass Flux and Vapor Migration during SVE Operation

Aaron Cohen, Project Manager, DEP, Tallahassee; Rachel Klinger, EI, Engineer, Geosyntec Consultants and David Riotte, PE, Associate, Geosyntec Consultants, Jacksonville
Asymptotic low-level tetrachloroethene (PCE) detections are observed in soil vapor extraction system effluent following a year or more of active remediation at many active drycleaner sites in Florida. To evaluate if the low-level PCE detection in the SVE system effluent are associated with active drycleaning operations, the Florida Department of Environmental Protection and Geosyntec Consultants conducted a two-week vapor migration study at an active drycleaner in Tallahassee, FL. The study encompassed three types of vapor monitoring equipment at three different locations and was designed to capture the normal facility operation cycles, drycleaner machine operation, business hours, production rates and SVE system operation. Distinct cyclical trends in PCE concentrations were observed at each of the three locations suggesting the migration of indoor air PCE concentrations into the vadose zone, via preferential pathways and the applied SVE vacuum beneath the drycleaners foundation.

10:00 Morning Break

Session 6: Petroleum Program and Oil Spill Identification and Cleanup

10:30 Florida DEP Petroleum Program/Waste Cleanup Panel

Moderator: Glenn MacGraw, PG, Principal, The FGS Group, Tallahassee
Robert C. Brown, PE, Chief, Bureau of Petroleum Storage Systems, FL Dept. of Environmental Protection, Tallahassee
This panel discussion will allow conference participants to hear from two new appointees to key management positions with the Florida Department of Environmental Protection. They will share their thoughts on where they would like to see their programs enhanced and streamlined, where possible, and how they plan to go about increasing the number of site closures in the state.

11:30 Case Study of Dual Tanker Spill Events onto a Roadway Embankment with Assessment of Multiple Remediation Strategy Effectiveness and Carbon Footprint Analysis

Timothy Harman, PE, General Manager, Handex Consulting & Remediation - Southeast LLC, Delray Beach
HCR responded to an initial call of a fuel tanker rollover as an emergency response. The spill involved fuel impacts to the travel lanes, the embankment supporting the on ramp and the retention pond at the toe of the embankment. HCR conducted a number of subsequent interim source removal activities including soil excavation, free product recovery, multi-phase extraction events and a series of chemical oxidation injection events, performed as a remediation pilot study. As remediation progress ensued and a remedial action plan was being considered for the site, a second spill event occurred at the same location. The second event underwent additional assessment and two parties moved forward with a shared remediation design and implementation. The recent remediation plan implementation consisted of two chemical injection events into the shallow portion of impacted groundwater, with the first injection event consisting of a chemical oxidation reagent and the second injection event consisting of a mixture of chemical oxidation and biostimulation reagents. The third injection event is comprised of a deeper injection interval with a biostimulation reagent only. This case study will chronicle the implementation of multiple assessments and remediation implementations for multiple spill events for a similar location, for a site with multiple stakeholders and multiple constraints including work alongside an active roadway and in advance of the proposed roadway construction project corridor. Analysis of the carbon footprint for each stage of the remediation sequencing will also be presented.

12:00 Fingerprinting of Crude Oil Spill Sources

Kesavalu Bagawandoss, PhD, JD, Technical Director, Accutest Laboratories, Houston, TX
Environmental characterization of oil spills in coastal areas requires fingerprinting analysis. All oil spill characterization efforts require sound sampling techniques to obtain representative samples and these samples must be processed by strictly following approved laboratory protocol. Fingerprinting analysis provides essential information required to identify the source of an oil spill and facilitate the evaluation of environmental risks, natural resources damage assessments and litigation. Fingerprinting is complex in nature. Standard materials are not available for all the oil constituents of concern in the source, therefore parent versus alkyl response factors have to be developed to quantify the constituents present. Several analytes and methods are employed to identify and compare two sources of oil to each other to determine if they are related or unrelated. This presentation will outline the laboratory methods involved in

fingerprinting natural and anthropogenic sources of oil. Complex gas chromatography mass spectrometric single ion monitoring techniques are employed to determine if the sources are petrogenic, pyrogenic, diagenic or biogenic in nature. Key indicators and diagnostics will be outlined for each of the processes. Diagnostic ratios, histograms and ion chromatographic patterns for the various hydrocarbons, isoprenoids, parent polycyclic aromatic hydrocarbons, alkyl substituted polycyclic aromatic hydrocarbons and biomarkers for the identifications will be presented. Comparisons will be presented for each of the classifications and groups.

FRC 2011 adjourns



For general questions about participating in the 2011 Florida Remediation Conference or attending one of the half-day workshops on the afternoon of Day Two, call (407) 671-7777, toll-free 1-800-881-6822 or e-mail mreast@enviro-net.com. Check our website at www.enviro-net.com for conference updates, technical agenda, current list of exhibitors and booth availability, speaker updates and more.

Continuing Education Credits: PE and LEP

National Technical Communications Co. Inc., producer of the Florida Remediation Conference, is an approved Continuing Education Provider (CEP 0004002) for the Florida Board of Professional Engineers. As a provider, NTCC offers Professional Development Hours for FRC 2011 to professional engineers who are licensed in Florida (and other states) as follows: Attend both days, earn 11 PDHs; attend Day One only and earn 7 PDHs; Day Two only, 4 PDHs. **Sign-in is mandatory for PEs and your PE license number is required.**

In addition, FRC has again qualified for continuing education credits through the International Society of Technical and Environmental Professionals Inc., INSTEP. Credits apply to those currently registered by this association. Participants will receive 1 CE credit for every actual hour of instruction. LEP's may enter their credits on the LEP Center Section of the INSTEP website.

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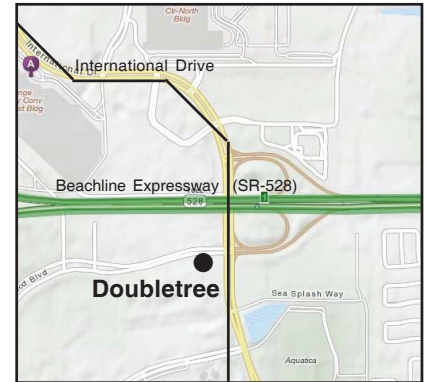
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Directions

The Doubletree hotel is located at 10100 International Drive, Orlando, FL 32821. Visit www.doubletree orlandodrive.com for directions.



Registration

Registration for the full 2011 Florida Remediation Conference (a day and a half) is \$365. Day One only is \$265 and Day Two only is \$145. The fee includes registration for the conference, conference manual or flash drive, continental breakfasts, beverage breaks, and luncheon and reception for Day One registrants only.

To register for the conference, complete and return the form on the next page with payment in full (Purchase order numbers are accepted for government employees) to: NTCC, Inc., P.O. Box 2175, Goldenrod, FL 32733, or fax your completed registration form with credit card information to (407) 671-7757. This is a secure fax number.

We encourage you to register early. Conference registration is limited to avoid overcrowding. Please note: Payment in full is required to confirm your registration. Cancellations received before Sept. 13, 2011, will be refunded, less a \$75 service charge. No refunds will be made for cancellations received after that 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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Waste incinerator treats 50 tons per day, produces valuable end products

By ROY LAUGHLIN

Waste has been described as a misplaced resource. For those wishing to exploit the resource potential of organic waste, the Wastech WTS 2500 incinerator may be worth a look.

This incinerator can treat up to 50 tons per day of organic material. Its end products can include a range of materials including charcoal, carbon black, gas, hydrocarbon distillates similar to diesel or furnace oil, and other elements that can be washed, filtered or precipitated from the combustion stream.

Use of the incinerator as a chemical reactor to transform organic wastes into valuable products is a distinctive concept of the Wastech 2500. Ed Faraone, president of Eco Energy Management LLC, the distributor of the Wastech 2500 in the eastern U.S., describes the advantages of the Wastech 2500 in just a few words—"multi-purpose and self-contained."

The WTS 2500 exploits three sequential processes to transform organics. The first is a two-stage oxidation of organic materials. The second recycles combustible gas from the treatment stream back to the oxidation chamber, providing fuel to maintain heat production. The third

stage is performed by a trapping-scrubbing module that can be customized to remove particulates and gases.

The dual oxidation step allows fine tuning of the oxidation process' output. During the first step, which also includes injection of steam, both natural gas and hydrocarbon liquids are produced. This occurs at temperatures from 300° to 400°C.

In the second oxidation step, temperatures between 500° and 800° C can be selected. As temperatures are increased, the ratio of gas to liquid products decreases and less methane or carbon monoxide is produced in a shift towards a liquid distillate.

By adjusting the highest temperatures, the liquid distillate can be modified to resemble diesel fuel oil, or at higher temperatures, heavier furnace oils. Production of carbon black and charcoal is also a possibility. The choice of material oxidized is equal in influence to the oxidation temperature profiles in controlling what end products are formed.

Products from the first oxidation chamber are trapped in the second stage of the process. Combustible gases are typically recycled to maintain temperatures in the oxidation chambers. The final treatment stage includes a scrubbing and filtration module to trap emission com-

ponents such as fly ash and other combustion gases.

Processes used in each stage of the system, which include thermal decomposition and steam injection, are similar to those being developed for renewable energy systems that will produce hydrogen and other biofuels from renewable organic compounds.

The system does not require highly trained operators. An operation team of less than six people ideally would include a supervisor as well as feedstock inputters. The Wastech is designed for continuous operation, and in that mode is capable of combusting up to 50 tons per day.

USGS conducts water resources study

Staff report

In July, the U.S. Geological Survey conducted a week long effort to document stream flows and groundwater levels in southwestern Georgia, and adjacent areas in Florida and Alabama.

The study focused on 200 stream sites in the Apalachicola-Chattahoochee-Flint and the Aucilla-Suwanee-Ochlockonee river basins. The study included water table elevations in 400 private and public supply wells.

Wastech is a New Zealand-based manufacturing company. It has fabricated and sold several of these machines to clients in Asia. So far, the most successful installation has been at a used tire recycling plant.

Faraone is currently running the gamut of permitting requirements and working with potential clients whose waste streams are more diverse than used tires.

While the U.S. market for the Wastech remains nascent, it is a new technology that may prove attractive to the right customer who has waste that can be converted to a useful material by high temperature pyrolysis or volatilization.

The idea was to get a broad based snapshot of what's happening with stream flow, groundwater and water quality. Wells and groundwater are at or below historical lows and a number of streams we are dry.

A continuing drought is the primary reason for the lack of stream flow and lowering of the water table. Even though the summer's weather has produced the usual scattered showers and thunderstorms, overall conditions are abnormally dry in this part of the South, including parts of Florida's Panhandle.

In addition to documenting the effects of drought conditions, the study provides data to validate models used in other studies. The USGS has monitored low groundwater levels in prior droughts, but usually in November, typically Georgia's driest month. But this is the first time the USGS has documented such low water levels during the summertime.

The USGS drought assessment has two components planned. The first was the groundwater level assessment and stream water flow measurements, which involved roughly 20 people over a six-day interval. That effort is completed.

The second component, to be conducted later in the summer, involves revisiting streams to do biological assessments of fish and mussels.

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