

AGENDA

Commission for the Environment March 11, 2013 7:30 p.m.

Environment and Agricultural Center
306 Revere Road, Hillsborough

- | <u>Time</u> | <u>Item</u> | <u>Title</u> |
|-------------|-------------|--|
| 7:30 | I. | Call to Order |
| 7:32 | II. | Additions or Changes to Agenda |
| 7:35 | III. | Approval of Minutes – February 11 (Attachment 1) |
| 7:40 | IV. | Energy and Fuel Use at Orange County Facilities
Wayne Fenton (Orange Co. Asset Mgmt. Services) will provide overview of energy and fuel use trends and innovations at Orange County buildings and facilities. (Attachment 2) |
| 8:20 | V. | RENEW Group Proposal
The BOCC has requested a follow-up presentation of the CFE’s proposal for a Renewable Energy and Efficiency Work Group, tentatively set for May 14 work session. This provides time to refine the proposal and to identify initial topics for the work group. (Attachment 3) |
| 8:30 | VI. | Committee Meetings
The CFE will break out into its standing committees (<i>Air and Energy & Water and Biological</i>) to discuss ongoing business, including any follow-up to the Chapel Hill Sustainability Committee invitation (Feb CRC). A draft compilation of the priority tasks for the reformulated committees is provided for reference. (Attachment 4) |
| 9:00 | VII. | Updates and Information Items
Staff and/or CFE members will provide updates on the following items: <ul style="list-style-type: none">➤ CFE recruitment efforts (Attachment 5)➤ NC Fracking legislation update (Attachments 6-7)➤ OWASA newsletter (Attachment 8)➤ UNC Sustainability newsletter (Attachment 9)➤ Pete Street Home Energy-Savings Program (Attachment 10)➤ Hillsborough stormwater capture/reuse project (Attachment 11)➤ Bot. Garden Exhibit: Time Suspended - Moments in Nature (Attachment 12) |
| 9:15 | VIII. | Adjournment |

Next meeting: April 8 (Chapel Hill)

CFE Meeting Ground Rules

1. Keep to agenda topic under discussion
2. Share relevant information
3. One person speaks at a time after recognition by the Chair
4. Everyone is invited to participate in discussions / no one person should dominate discussions
5. Strive to reach consensus first before voting

**Orange County
Commission for the Environment**

DRAFT Meeting Summary

February 11, 2013

Southern Human Services Center, Chapel Hill

MEMBERS PRESENT: David Neal (Chair), Jan Sassaman (Vice Chair), Lucy Adams, May Becker, Terri Buckner, Peter Cada, Loren Hintz, Bill Kaiser, Tom O'Dwyer, Gary Saunders, David Welch

MEMBERS ABSENT: Sam Yellen

STAFF PRESENT: Rich Shaw, Tom Davis

GUESTS: Brian Wittmayer, Elizabeth Zander, Jae Furman, Jeanette O'Connor

- I. **Call to Order** – Neil called the meeting to order at 7:30 pm. Shaw reported he had heard from new CFE member Sam Yellen that he is out of the country until April.
- II. **Additions or Changes to Agenda** – Hintz asked to make an announcement during the Updates and Information items. Neal agreed.
- III. **Approval of Minutes** – Sassaman motioned to approve the January 14 meeting summary as written, seconded by O'Dwyer. The motion was approved unanimously.
- IV. **Chapel Hill Sustainability Committee** – Neal recognized Brian Wittmayer and Elizabeth Zander, members of Town of Chapel Hill's Sustainability Committee. Wittmayer provided an overview of the committee's mission and activities. He said the committee advises the town board on sustainability issues such as regional transportation, proposed changes to the Town's stream buffer rules, and solid waste management. They were also involved with Chapel Hill's 2020 comprehensive plan.

Wittmayer said the main reason for attending tonight's meeting was to discuss regional solid waste management issues and to see whether the CFE might be interested in collaborating with the Sustainability Committee and others on a solid waste public forum.

He said the Town produced a solid waste report in late 2012 that the committee determined was not regionally focused. He said the committee has prepared a draft proposal for a solid waste forum that would be for like-minded advisory boards, local government staff, and the general public. The purpose would be to find common ground rather than to rehash previous arguments centered on the siting of facilities.

Hintz questioned the benefits of such a forum when the politics of siting a new landfill or transfer station within the county is near zero and the elected officials have already decided to ship waste out of the county. Wittmayer responded that the County will prepare a new county solid waste plan and the writers of that plan could benefit from a community discussion. His committee would like to see better collaboration among local governments rather than each municipality planning for itself. Sassaman agreed with that assessment, adding that recycling is already managed regionally. He said Orange County is within two percentage points of reaching its goal of reducing its solid waste by 61% since 1990. Sassaman pointed out that Orange County will lose its ability to control

what kinds of waste enters the landfill once it leaves the county. He said any way to improve the public's understanding of solid waste issues would be beneficial.

Buckner said she was on a committee that developed waste reduction goals for Chapel Hill's 2020 plan, but those recommendations were not adopted with the plan; they were relegated to the appendices.

Neal asked about the format and timing of the proposed forum. Wittmayer said his committee would be seeking funds to hold the meeting and maybe hire a facilitator. He hopes the forum could be held within the next two or three months.

Sassaman recommended Wittmayer and his committee discuss these ideas with the Orange County solid waste staff and the Solid Waste Advisory Board.

Sassaman motioned that the CFE encourage the Chapel Hill Sustainability Committee to continue its efforts to convene a solid waste forum and to express its willingness to co-sponsor the forum. O'Dwyer seconded the motion and it carried unanimously.

Neal thanked Wittmayer and Zander for presenting that information.

- V. **Renewable Energy and Efficiency Work Group** – Neal reported on the BOCC's January 29 work session during which he answered questions about the CFE's 2013 work plan and presented the CFE's proposal for a Renewable Energy and Efficiency Work Group. He said the commissioners had not received the CFE's memo in advance so there were more questions than actual feedback. Neal said the BOCC did not authorize forming a new work group unless it was an extension of the CFE.

Buckner suggested the CFE Air and Energy Resources Committee proceed by choosing a specific problem or topic, bringing in experts, discussing the issues and formulating recommendations, and then presenting recommendations to the BOCC.

O'Dwyer reminded CFE members that the CFE made recommendations to the BOCC in late 2011 but they quickly hit a dead end. The Planning Board considered the recommendations and dismissed them because they were not part of its work plan. O'Dwyer said the CFE needs guidance on how to get the County to fully consider its recommendations. Becker suggested the CFE chair ask to meet with the BOCC chair and/or vice chair to discuss how to proceed. Neal said he is willing to do that.

Neal asked if the CFE wished to identify a specific problem to begin this discussion. Shaw offered to invite County staff to present data on energy and fuel used by County departments and facilities. He suggested that might be a starting point for identifying a topic for the proposed RENEW Work Group. CFE members agreed with that proposal.

- VI. **2014 State of the Environment Report** – Shaw reviewed the contents of the 2009 State of the Environment report and a proposed timetable for developing a 2014 report. He said he would like to hire a part-time employee to gather new data for the different environmental indicators. Staff would share the findings with CFE members who would serve as a steering committee and make recommendations for future action and policy.

Hintz said he liked the pages in the 2009 report containing information on "what you can do to protect the environment." He said that is the sort of information the Biological Resources Committee would like to see included in citizen tax bills.

Neal asked whether it would be good to incorporate an updated greenhouse gas inventory or keep that as a separate project. Adams said the 2006 inventory was incomplete because it did not include the school systems and the ICLEI methodology was difficult to follow. Hintz pointed out that the inventory is supposed to be replicable. Cada said it should be conducted whether or not comparable to the 2006 findings. Sassaman agreed, noting that we can make comparisons where possible and determine if the overall picture is getting better or worse.

Buckner asked why solid waste data was not included in the 2009 report. Shaw said the CFE considered including solid waste in each of the previous reports, but decided to keep the data aligned with the subject matter that was in the purview of the CFE. Sassaman pointed out that solid waste data is readily available to incorporate this time.

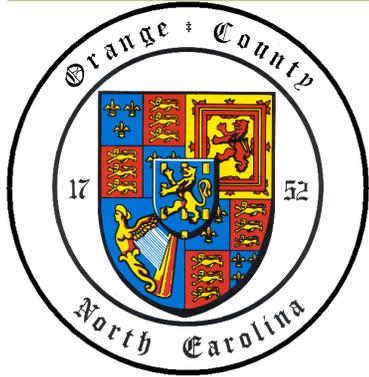
O'Dwyer recommended linking the report findings to the 2030 Comprehensive Plan where feasible. Sassaman recommended also linking to the updated solid waste plan.

O'Dwyer motioned to recommend staff find the resources to hire a part-time employee to work on the 2014 State of the Environment report and to include solid waste and energy use data where available. Sassaman seconded the motion and it carried unanimously.

- VII. **Updates and Information Items** – Staff provided updates and information (and responded to questions) on the following issues: a) CFE recruitment efforts, b) County budget outlook for 2013-14, c) the NC Mining & Energy Commission's consideration of hydraulic fracturing (fracking), d) carbon emissions down at Duke, and e) OWASA's annual update to the BOCC. Hintz announced tomorrow is Charles Darwin's birthday.

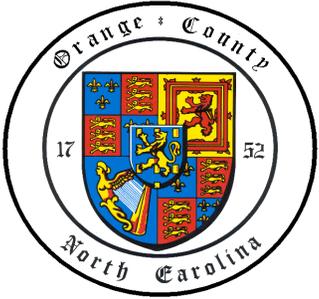
Kaiser pointed out that OWASA has decided to delay action on its forest management plan for lands around the Cane Creek Reservoir. Buckner pointed out that forest management is being carried out at OWASA's mitigation tract. She offered to arrange a tour of the property for interested CFE members. Cada and Kaiser expressed interest.

- VIII. **Committee Meetings** – Neal asked CFE members to break out into their respective committees—the Air and Energy Resources Committee and the Water and Biological Resources Committee.
- IX. **Adjournment** – Neal adjourned the meeting at approximately 9:15 pm. The two committees met for another 30 minutes until approximately 9:45 pm.



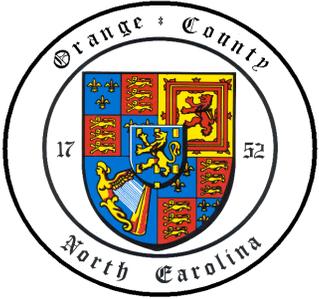
AMS Utility and Fuel Conservation Annual Report

Annual Update
Board of County Commissioners
October 16, 2012



Department Objectives

- Monitoring utility use
- Continuously managing efficiency
- Communicating results
- FY 12-13 Initiatives; 5 year horizon



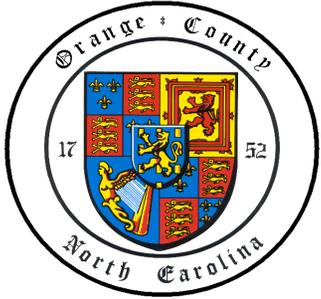
Commissioner Requests

- Reduction Goals Comparison
 - State vs. other local governments
- Utility and Fuel Policy Updates
 - “Instant On” Devices
 - Outside Lighting
- Minimize Waste Stream Impact/ Recycled Products
- Green Products
- Dollar Value of Savings – Avoided Costs



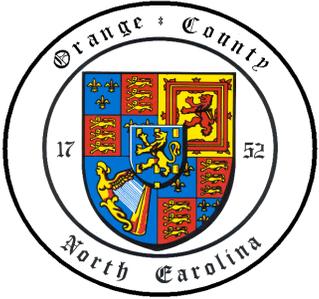
Goals of Local Communities

- Town of Chapel Hill
 - Carbon reduction program – goal 60% by 2050 with interval milestones
 - LEED-Based Energy Ordinance (adopted 2004)
 - Energy bank
 - Green Fleets policy
- Town of Carrboro
 - Carbon reduction program –
 - Energy Bank – revolving loan program



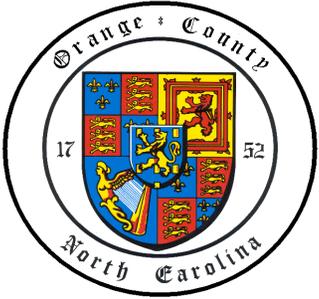
Goals of Local Communities- cont'd

- Durham City/County
 - Greenhouse Gas Emissions Reduction Plan – goal 50% by 2030
 - Idle reduction policies
 - County green building policy
 - City preferred purchasing policy
 - Fuel-efficient vehicles policy



Policy Updates

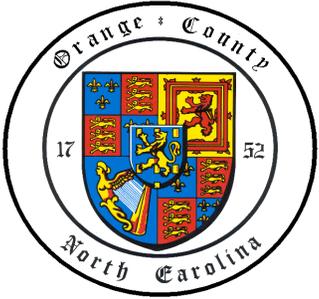
- Policies adopted by BOCC December 2005
- Changes needed due to reorganization
- Changes recommended for improved focus and outcomes



Avoided Energy Costs

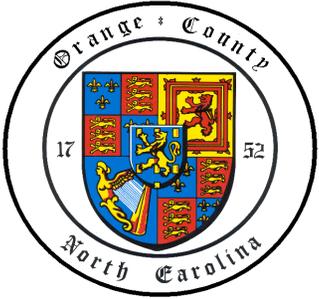
- Reduction in energy used per occupied sq. ft.
- Based on current unit costs for energy.
- Current unit costs higher than prior years due to rate increases

	FY 10	FY 11	FY 12
Cost Per Occupied Sq. FT.	\$1.55	\$1.46	\$1.49
Estimated Cost Avoided		\$51,712	\$34,148



AMS Reduction Goals

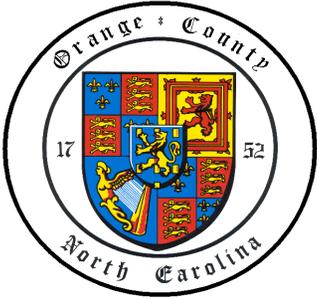
- In line with North Carolina conservation objectives
 - Energy use:
 - **20% cumulative through FY15;**
 - **additional 10% cumulative through FY17**
 - Water use:
 - **5% cumulative through FY17**
 - Fuel use:
 - **10% cumulative through FY15;**
 - **additional 5% cumulative through FY17**
- Success will be dependent on available funds



Energy Scorecard

Energy Use (MMBTU/ 1,000 Sq. FT of Occupied Space)				
	Goals		Actuals	
	MMBTU/ 1,000 Sq. Ft.	% Change from Baseline	MMBTU/ 1,000 Sq. Ft.	% Change from Baseline
FY 10 (Baseline)	96.2		96.2	
FY 11	92.4	4%	91.4	5.0%
FY 12	88.5	8%	83.5	13.2%
FY 13	84.7	12%		
FY 14	80.8	16%		
FY 15	77.0	20%		
FY 16	72.2	25%		
FY 17	67.3	30%		

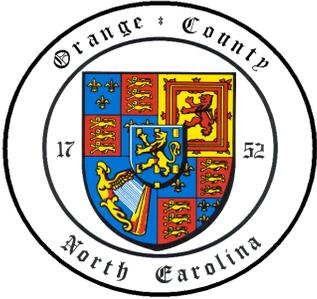
- Reduction attributable to geothermal installations



Fuel Scorecard

	Fuel Consumption (Total Gallons)				Fuel Efficiency (MPG)			
	Goals		Actuals		Goals		Actuals	
	Gallons	% Change From Baseline	Gallons	% Change From Baseline	MPG	% Change From Baseline	MPG	% Change From Baseline
FY 10 (Baseline)	240,813		240,813		12.82		12.82	
FY 11	235,997	2%	251,382	-4.4%	13.07	2%	12.83	0.1%
FY 12	231,180	4%	252,708	-4.9%	13.33	4%	12.14	-5.3%
FY 13	226,364	6%			13.59	6%		
FY 14	221,548	8%			13.84	8%		
FY 15	216,732	10%			14.10	10%		
FY 16	210,711	12%			14.42	12%		
FY 17	204,691	15%			14.74	15%		

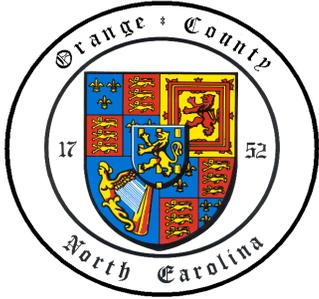
- Increased fuel use: attributed to increased law enforcement miles
- Slightly less efficient MPG: Aging fleet
- ***Solution: Active vehicle replacement program; higher fuel efficiency standards***



Water Scorecard

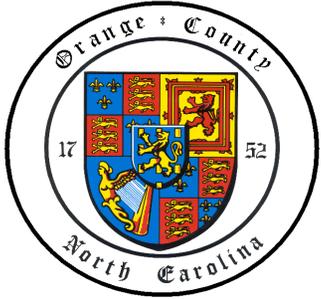
Water Consumption (Total Gallons)				
	Goals		Actuals	
	Gallons/ Sq. FT.	% Change From Baseline	Gallons/ Sq. FT.	% Change From Baseline
FY 10 (Baseline)	15.93		15.93	
FY 11	15.82	0.7%	13.03	18.2%
FY 12	15.71	1.4%	15.19	4.6%
FY 13	15.59	2.1%		
FY 14	15.48	2.9%		
FY 15	15.36	3.8%		
FY 16	15.25	4.3%		
FY 17	15.13	5.0%		

- Water Usage is highly variable



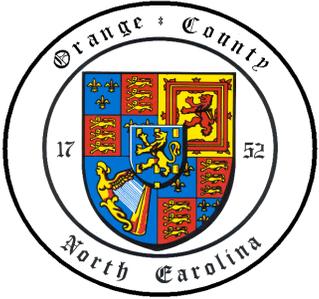
Current Year Initiatives – complete or planned

- Next phase of community geo-thermal system (Jail, Historic Courthouse, DA building, Court Street Annex)
 - Battle Courtroom added to Justice geo-thermal system
 - Digital control improvements at Seymour & Central Orange Senior Centers, Hillsborough Commons and Gateway building
 - Solar film evaluations
-



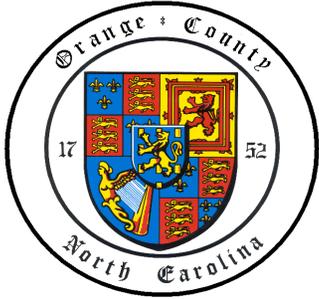
Current Year Initiatives

- Vending miser additions
- Continued lighting improvements
- Exterior door replacement at Whitted
- Improved roof insulation at select locations
- Reductions at Northern
- Older facilities removed from portfolio – 112, 118 N Churton Street
- Improvements at Sportsplex (geothermal study, pool HVAC improvements)



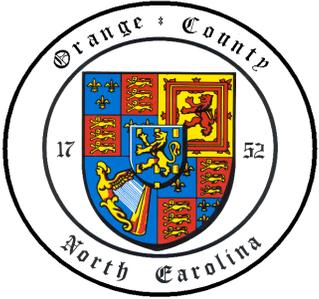
Current Year Initiatives

- “Know Your Building” Program
- Energy Bank projects
- Vehicle Replacement Program
- Electric Vehicle Charging Stations



Future (Five year) Initiatives

- Additional geothermal locations
 - Southern Campus
- Roof insulation upgrades with roof replacements
- Examination of solar technologies
- Examination of alternative vehicle fuel initiatives
- Monitor other industry options and trends



For More Information:

Orange County Utility and Fuel Use and Conservation Initiatives -Inaugural Report

located at:

http://orangecountync.gov/AssetMgmt/documents/AttachmentA-Conservation_Report-final.pdf

**ORANGE COUNTY
COMMISSION FOR THE ENVIRONMENT**

MEMORANDUM

To: Board of County Commissioners

From: David Neal, Chair, Orange County Commission for the Environment

Date: January 22, 2013

Re: Proposal for a Renewable Energy and Efficiency Work Group Convened by the CFE

Goal #1 of the 2030 Orange County Comprehensive Plan, Natural and Cultural Resources Element: *Energy conservation, sustainable use of non-polluting renewable energy resources, efficient use of non-renewable energy resources, and clean air* (Page 6-9).

The BOCC requested that the Orange County Commission for the Environment (CFE) propose a response to the August 8, 2012 letter from Jim Warren of NC WARN. The CFE recommends convening a standing work group that would support energy efficiency, renewable energy, and related sustainable development strategies in Orange County. This Renewable Energy and Efficiency Work Group (RENEW Group) would be charged with bringing public and private stakeholders together to develop policies and initiatives that promote sustainable economic development, energy efficiency, and renewable energy in Orange County. The CFE would, in turn, bring vetted proposals from the RENEW Group to the BOCC for consideration.

As it presently operates, the CFE has an Air and Energy Committee. The present committee would act as a host and liaison with the CFE for the work group and would convene meetings, workshops, and other activities of the RENEW Group. The work group would consist of CFE members, representatives of municipal and county planning boards and staff, municipal and county sustainability staff or committee members, and any BOCC who might wish to participate. The RENEW Group would host individual public workshops and forums with emphasis on specific topics such as:

- Reducing energy use in existing buildings and new construction
- Maximizing the production and use of renewable and clean energy
- Reducing carbon emissions in transportation
- Promoting strategies for offsetting carbon emissions
- Eliminating or altering existing policies or code provisions that hinder any of the above at the county level

Reducing our collective carbon emissions should be a high priority for Orange County. Global climate change is accelerating at a rate exceeding scientific projections, exacerbating drought, storms, and flooding with devastating effects. Climate scientists agree that society must make dramatic changes in the way we source and use energy in the next several years. The consequences of inaction threaten to be drastic.

The RENEW Group would provide an opportunity for Orange County to promote forward-thinking local policies with the cooperation of local government representatives, private businesses, and environmental groups. With collaboration and input from a variety of experts, municipal and county staff, elected officials, and other stakeholders, we can find creative ways to lower our carbon footprint while also giving a boost to our local economy. By coming together at a central point to share information and coordinating action, we can avoid the pitfalls of working in isolation. Finally, the RENEW Group would enhance information sharing and communication with the deployment of an Orange County Green webpage.

The CFE unanimously approved this proposal and requests the BOCC's consideration and endorsement of CFE's convening a Renewable Energy and Efficiency Work Group.

CFE Committee Priorities

(Updated March 2013)

Air and Energy Resources Committee

(David Neal, Jan Sassaman, May Becker, Tom O'Dwyer, Gary Saunders, Lucy Adams)

1. Recommend a variety of strategies to the BOCC that would encourage energy efficiency in new construction and existing buildings, and recommend requirements for preserving Renewable Energy sights on new land development.
2. Create a countywide composting initiative that would help reduce solid waste disposal.
3. Examine solid waste issues and collaborate with the Solid Waste Advisory Board (SWAB) on charting a course for the future with a focus on conservation and energy reduction.
4. Research and recommend appropriate use of biofuels and look into UNC's planned use of wood to replace coal at its cogeneration plant.
5. Assist in evaluating the County's carbon footprint as follow-up to the 2005 GHG inventory.
6. Help implement the County's goal of Environmental Responsibility in County Government.
7. Monitor upcoming statewide air quality standards (O_3 75 ppb in 8-hour period; Hg 85%-90% control; $PM < 2.5 \mu m$), which could require additional controls on emissions from private and public sources.

Water and Biological Resources Committee

(Peter Cada, Loren Hintz, David Welch, Bill Kaiser, Sam Yelton)

1. Develop and implement a monitoring plan and associated Quality Assurance Protection Plan (QAPP) for more frequent monitoring at existing State sampling locations; identify and initiate monitoring at other locations to support State water quality objectives under the Clean Water Act. Collaborate with other entities that may support these efforts (e.g., Eno River Association).
2. Explore and pursue funding sources to increase funding for the County's groundwater observation well network program (Orange Well Net).
3. Initiate efforts to create a detailed Water Budget for Orange County.
4. Revitalize the effort to eliminate herbicides to manage vegetation in utility right of ways.
5. Help implement the development of a comprehensive conservation plan.
6. Educate the public about ways to promote biodiversity.

Orange County
COMMISSION FOR THE ENVIRONMENT
(updated December 2012)

NAME OF MEMBER HOME ADDRESS/TELEPHONE	POS #	DATE OF APPOINTMENT COMMITTEE (Representation)	TERM ENDS	BUSINESS TELEPHONE E-MAIL	TOWNSHIP OF RESIDENCE
Lucy Adams 5128 Green Meadow Rd. Hillsborough, NC 27278 (919) 942-8925	#2	3/21/06 Air Resources (Air Quality)	12/31/13	(919) 316-3916 lhadams1@mindspring.com	Chapel Hill
May Becker 511 Cotton Street Chapel Hill, NC 27516 (919) 969-7439	#1	9/21/10 Energy Resources (At Large)	12/31/14	(919) 969-7439 tomatocutter@yahoo.com	Chapel Hill
Terri Buckner 306 Yorktown Drive Chapel Hill, NC 27516 (919) 942-9055	#6	11/8/12 Energy Resources (At Large)	12/31/13	919-672-8271 tbuckner@ibiblio.org	Chapel Hill
Peter Cada 420 Coach House Lane Hillsborough, NC 27278 (919)599-9866	#10	9/21/10 Water Resources (At Large)	12/31/14	(919) 485-8278 peter.cada@tetrattech.com	Hillsborough
Michele Drestin VACANT	#5	(Water Resources)	12/31/12		
Loren Hintz 804 Kings Mill Rd. Chapel Hill, NC 27517 (919) 993-8987	#4	1/27/09 Biological Resources (Biological Resources)	12/31/13	(919) 929-2106 x41157 ldhintz@bellsouth.net	Chapel Hill
William R. Kaiser 2112 Markham Dr. Chapel Hill, NC 27514 (919) 933-9794	#14	11/09/05 Air Resources (At Large)	12/31/12	w_mckaiser@hotmail.com	Chapel Hill
David Neal (Chair) 323 West Queen Street Hillsborough, NC 27278 (919) 824-1814	#13	9/21/10 Energy Resources (At Large)	12/31/15	(919) 732-2156 David.L.Neal@gmail.com	Hillsborough
Tom O'Dwyer 105 Boulder Lane Chapel Hill, NC 27514	#15	8/28/06 Energy Resources (At Large)	12/31/12	(919) 906-0581 greenbuilder4us@aol.com	Chapel Hill
Renee Price (Chair) VACANT	#8	(At Large)	12/31/13		
Gary Saunders 103 Woodshire Lane Chapel Hill, NC 27514 (919) 942-0045	#9	1/27/09 Air Resources (At Large)	12/31/14	(919) 707-8413 gary.saunders@ncdenr.gov	Chapel Hill
Jan Sassaman (Vice Chair) 201 Bolinwood Drive Chapel Hill, NC 27514	#7	12/13/11 Energy Resources (At Large)	12/31/13	(919) 933-1609 jan.sassaman@gmail.com	Chapel Hill
Samuel Yellen 121 Hanna Street Carrboro, NC 27510 (919) 368-1611	#3	11/8/12 TBD (Land Resources)	12/31/14	(919) 843-2025 samuel.yellen@gmail.com	Chapel Hill
David Welch 20 East Drive Chapel Hill, NC 27516 (919) 929-8391	#11	9/21/10 Biological Resources (At Large)	12/31/14	(919) 406-2101 davwelch@hotmail.com	Chapel Hill
Michael Hughes (Vice Chair) VACANT	#12	(Engineering)	12/31/12		
David Stancil Rich Shaw Tom Davis Beverly Shuford	245-2522 245-2514 245-2513 245-2510	Director, Dept. of Environment, Agriculture, Parks & Rec. Land Conservation Manager Water Resources Coordinator Administrative Assistant		dstancil@co.orange.nc.us rshaw@co.orange.nc.us tdavis@co.orange.nc.us bshuford@co.orange.nc.us	

Senate panel passes energy bill

Feb 14, 2013

Measure would lift moratorium on fracking quickly

By JOHN MURAWSKI
jmurawski@newsobserver.com

RALEIGH A bill lifting the state's moratorium on fracking and requiring regulators to promote business opportunities for energy developers easily passed a state Senate committee Wednesday.

The legislation would provide a menu of sweeteners for energy companies to encourage developers to pick North Carolina for shale

gas exploration over other states that have a history of energy exploration and known energy reserves.

"The purpose of this bill is to make very certain what the industry can expect when they come here," said bill co-sponsor Sen. E.S. "Buck" Newton, a Republican who represents Johnston, Nash and Wilson counties. "We want them to come here, explore and invest. We want the jobs."

The legislation passed the Senate Finance Committee without opposition and now heads to the Senate Commerce Committee, where it could be heard as early as next

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week. The Senate Finance Committee reviewed only the financial aspects of the legislation; the next hearing will address the substance of the bill.

Elizabeth Ouzts, director of Environment North Carolina, predicted the bill will be subject to a thorough debate as it moves through the state Senate and to the House, where Speaker Thom Tillis, R-Cornelius, has expressed reservations about

the legislation.

Wednesday's public hearing lasted barely a half hour, as several senators asked technical questions and Ouzts questioned the wisdom of advancing the bill without sufficient knowledge about its consequences.

But Newton stressed the urgency of attracting energy exploration, noting it can take several years of lead time to develop a shale gas drilling operation. North Carolina has several disadvantages, which Newton's bill is intended to remedy with favorable conditions for the industry.

Among North Carolina's draw-
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backs are the uncertainty of the quantity of natural gas here and the state's lack of experience in energy exploration. Additionally, the depressed global price of natural gas has resulted in a dramatic falloff of drilling activity nationwide, from a high of 1,606 wells in September 2008 to 428 wells on Feb. 1, according to a legislative staff memo prepared for Wednesday's hearing.

Newton's bill seeks to compensate for those shortcomings by taxing shale gas developers at a lower rate than other states. The bill suggests a severance tax on a sliding scale that is indexed to the fluctuating market price of natural gas at the wellhead. The severance tax would pay for regulatory staff and enforcement activities.

Fracking refers to hydraulic fracturing, a controversial technique used to release natural gas trapped in shale rock formations by drilling into the rock and shattering it with water and chemicals. Critics say the practice will lead to chemical spills and other environmental accidents, while supporters say it will produce a clean domestic fuel to offset dirty coal and imported oil.

The bill makes a number of changes to last year's law, which passed by a single vote and created the N.C. Mining & Energy Commission. It would end the state's fracking moratorium, allowing developers to apply for permits as of March 1, 2015. The indefinite moratorium was put in place last summer to give the Mining & Energy Commission time to write regulations to safely govern shale gas exploration.

The bill would eliminate two positions on the 15-member commission, including that of the state geologist, and create an Energy Jobs Council to promote business opportunities for the oil and gas industry and other energy companies. The council would be part of the N.C. Department of Environment and Natural Resources, the agency that would regulate the same energy companies it is aiding.

The bill also would repeal a landman registry created last year. It is the only such registry of its type in the nation and is designed to let property owners check the legitimacy of industry representatives who offer drill leases to residents for access to their land and the natural gas below.

The measure would prohibit local governments from imposing local taxes, other than property taxes, on energy developers.

The bill would allow the deep injection of fracking wastewater for permanent disposal underground, which is considered a more feasible alternative to removing the wastewater to municipal treatment plants or to underground sites in other states.

However, underground sequestration of wastewater is discouraged by the N.C. Department of Environment and Natural Resources "due to North Carolina's unsuitable geology and seismic risks," according to the agency's comprehensive 2012 study of fracking.

Murawski: 919-829-8932

Coastal counties could get fracking waste if ban lifted



MLADEN ANTONOV - AFP/GETTY

Wastewater tank trucks like this one in Waynesburg, Pa., last year could become a common sight in coastal cities if legislators repeal a 40-year-old ban on deep well injection, which is used to dispose of wastewater produced by hydraulic fracturing, or fracking.

LEGISLATORS RECONSIDER 40-YEAR-OLD LAW IN EFFORT TO DRAW INDUSTRY

By JOHN MURAWSKI
jmurawski@newsobserver.com

Forty years ago, when North Carolina banned using deep wells to permanently dump industrial waste, some thought the issue had been decided for good. Now state lawmakers who want to turn North Carolina into the nation's next fracking hotspot are reopening the case for injecting brines and toxins deep underground.

This time, the proposal is shifting the fracking debate from the center of the state, where the energy exploration and economic benefits would occur, to tourism-dependent coastal communities where the disposal wells would have to be drilled.

"That's where it would be – no doubt about it," said Rep. Rick Catlin, a Republican from Wilmington who is a hydrogeologist and environmental engineer. "It's going to be very controversial."

North Carolina shale basins and fracking waste

The legislative proposal to permit deep well injection of industrial wastes is intended to encourage fracking in Lee County, but the recipients of the toxic waste would likely be communities in eastern N.C. because the geology of central N.C. is unsuitable for deep well injections.

■ Shale basins

Possible storage areas



Source: Geology.com

The News & Observer

Fracking removes natural gas trapped in prehistoric shale rock formations by pumping in water and chemicals to smash the rock – a process that creates tons of waste.

The proposal's impact on the coast is not widely known because the bill in the state legislature doesn't specify where the fracking waste would be injected. Many lawmakers assume the injection

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Fracking: Find more state and local business news at nando.com/business.

wells, which can accept waste for years from multiple fracking operations, would be located near the fracking sites.

Now it's becoming clear that coastal residents and businesses could also be affected if fracking gets under way several hundred miles inland. The legislation, which is a signal to the oil-and-gas industry that North Carolina is eager to host shale gas exploration activities, would also lift the state's fracking moratorium in March 2015.

The bill has sailed through the state Senate and is now before the House, where it is likely to be assigned to the Public Utilities Committee. The chairman of the committee, Rep. Mike Hager, said the SEE WASTE, PAGE 6A

WASTE

OF THE... FROM PAGE 7A

implications of putting the waste disposal ban are so far-reaching they raise serious doubts and will require further study.

“What does it do to the community that doesn’t get the revenue from the natural gas production?” asked Hager, a Republican from western Burke and Rutherford counties. “We will have to look at how these communities are compensated.”

Bill sponsor Sen. E.S. “Buck” Newton said the concerns may be premature. He said such injections are an accepted method of disposal and have been successfully done hundreds of thousands of times in the United States.

“I really don’t see it as an issue,” said Newton, a Republican representing Johnston, Nash and Wilson counties. “We’re talking about putting water into a deep area that already has that kind of water.

“All my information is that the best way to deal with these runs that come up is to reinject it,” he said. “If it went from County A to County B, I’m not sure why County B would have a major objection to that.”

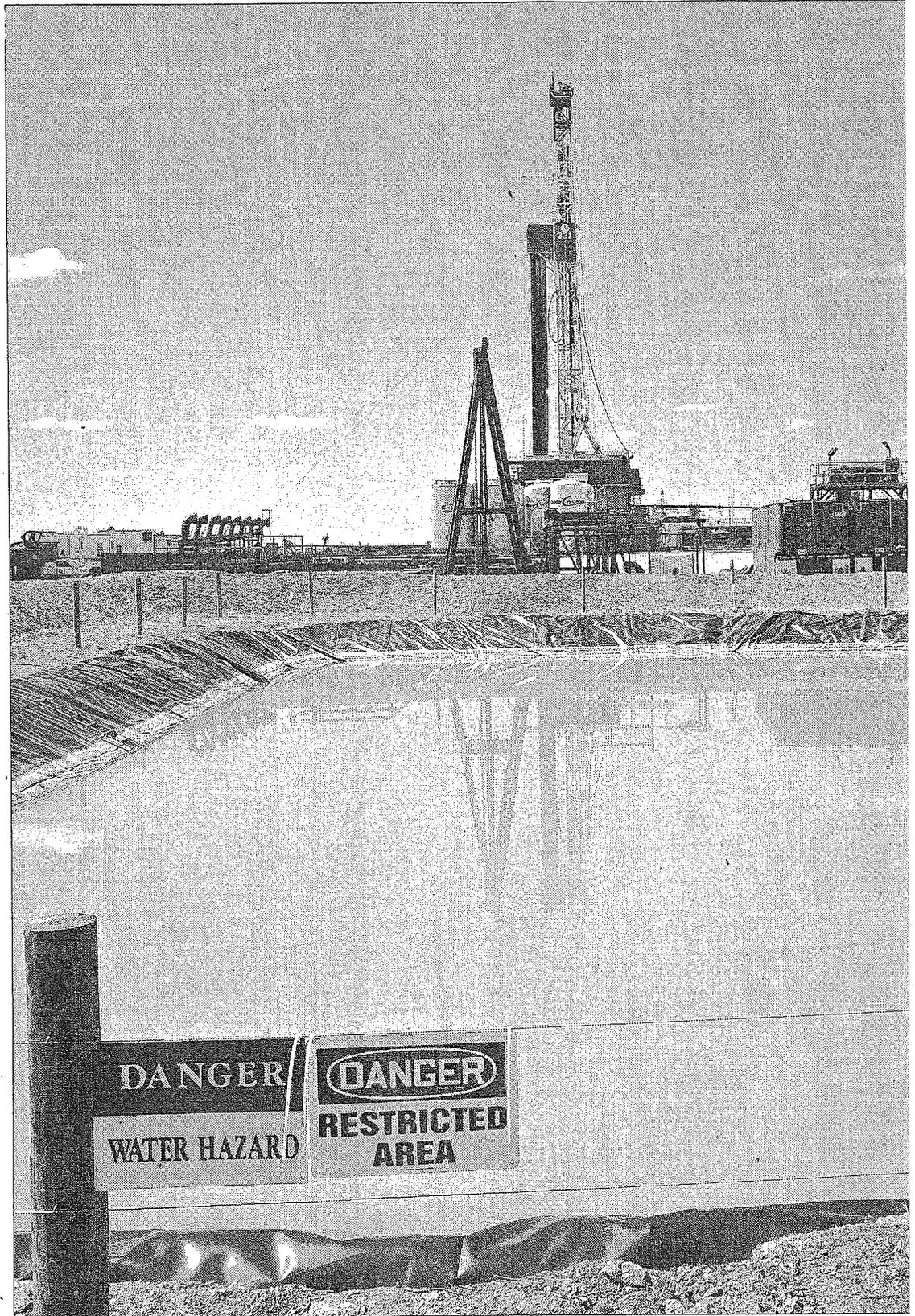
Other options complicated

Deep injection into wells is the industry’s preferred method of getting rid of fracking waste and is approved by the federal Environmental Protection Agency. The other options are much more expensive and logistically complicated. They include trucking the fluids to municipal water treatment plants, which are increasingly rejecting fracking residues, or using open-air evaporation in large impoundments.

Injection wells are not immune from spills and accidents, but they may be best known for their linkage to earth tremors where fluid is stored and pressurized underground near faults. The concerns in this state include aquifer damage below, as well as potential property damage on the surface.

“You’re basically contaminating an aquifer forever,” Catlin said. “Please don’t inject any down here.”

The state’s environmental agency, in a 484-page report published last year on the risks and benefits of shale gas exploration, urged against legalizing deep disposal of fracking wastes.



MLADEN ANTONOV - AFP/GETTY

Rigs like this one, which explored the Marcellus Shale outside Waynesburg, Pa., in 2012, would operate in the center of North Carolina. But their waste could only be disposed of in coastal areas.

The report by the N.C. Department of Environment and Natural Resources focused on the risks to deep storage in Lee, Moore and Chatham counties, where the energy exploration is most likely to take place.

The underground geology west of Raleigh is not porous enough to absorb fluids, forcing the pressurized injections to seek fissures and faults, said Tyler Clark, the N.C. state geologist from 2002 to 2006.

What's more, the rock is blasted throughout with magma sheets called diabase dikes, which serve as the region's natural plumbing system and lead water to freshwater aquifers.

"One you put it in the ground, it's not going to stay there, it's going to go somewhere," Clark said. "It would be hard to predict where it could travel."

Hundreds of these magma sheets break up the rock, often protruding on the surface. Geological maps show that some dikes run for several miles, and parts of Lee County have as many as 10 dike intrusions per mile.

Eastern N.C. geology

DENR concluded that the dikes permeating the state's midsection make fracking itself problematic because the dikes could transmit fracking fluids – a mixture of water and chemicals – to underground drinking sources.

The geology in Eastern North Carolina, however, is unlike the rest of the state. It contains saline aquifers separated by layers of clay, a layer cake formation in some areas reaching 10,000 feet deep to the bedrock. The saline aquifers could potentially accept the waste injections because they are highly absorbent, said retired UNC-Wilmington geology professor Paul Thayer, who has worked for BP, Amoco, Chevron and Mobil.

But Thayer added that it would require comprehensive studies and analysis to prove the area could accept the waste without spreading.

What would be put into the ground?

Each fracked well requires 3 million to 5 million gallons of water, chemicals and sand to break up the shale rock and release the natural gas.

The chemicals include those used in food additives and household cleansers, as well as toxins and carcinogens that have been blamed for fish kills and livestock deaths in states that have experienced surface spills, well blowouts and other fracking-related accidents.

After a well is fracked, up to a third of the fluid is regurgitated back to the surface in a mixture that includes brine, minerals, metals and dissolved solids. This slurry is called "produced water" and is recycled for other fracking operations. Eventually it is injected into deep wells for permanent disposal.

ACCIDENTS DO HAPPEN

Deep injection wells, known as Class II wells, are regulated by the EPA under the Safe Drinking Water Act. They are not immune from accidents. Last year, the EPA fined Exco Resources of Texas \$159,624 after the company discovered one of its injection wells was leaking and continued pumping fracking wastes for four months.

STAFF WRITER JOHN MURAWSKI

N.C. Senate Bill 76

The primary sponsors of the bill are Republican state Sens. Andrew Brock of Mocksville, Bob Rucho of Matthews and E.S. "Buck" Newton of Wilson.

Among the bill's provisions:

- Lifts the state's fracking moratorium.
- Allows fracking waste to be injected into wells deep in the ground.
- Bans out-of-state waste from being brought to North Carolina for disposal.
- Prohibits local governments from taxing energy exploration and drilling.
- Requires state royalties from offshore energy development to go into a \$50 million emergency fund for cleanup of oil spills.

The coastal aquifers have been used just once for chemical injection in the only such deep injection site permitted in the state's history.

Those wells, about four miles from Wilmington, were created by Hercules, a company that manufactured the raw materials used in the production of polyester fabrics. Hercules began injecting acids in 1968 at a rate of 300,000 gallons a day and continued pumping through 1972.

The wells, set between 850 and 1,050 feet deep, clogged and leached chemicals into a sand, gravel and limestone aquifer. Monitoring wells in upper aquifers later showed that the chemicals traveled past a clay

containment zone and contaminated upper aquifers.

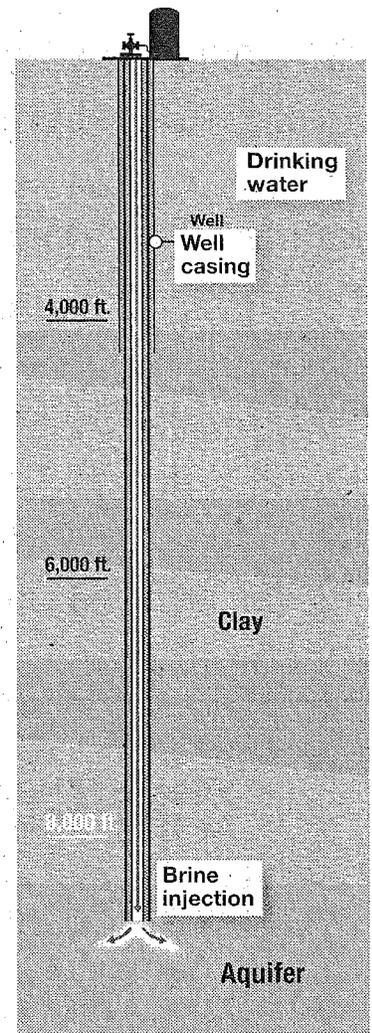
That underwater leakage led to the state's ban on deep injection wells. Modern well construction standards and other advances would make such an accident less likely today, but many will not want to take the risk.

Rep. Catlin said some of the coastal aquifers have low salinity and could potentially be tapped as drinking water sources if desalination plants are built. Furthermore, he said the barriers between the aquifers are not watertight, as the Hercules accident exposed.

A deep subject

Disposal wells inject brine and fracking fluid for permanent underground storage. The fluid and brine flow out of wells used in shale gas drilling and are injected in separate wells drilled for permanent disposal.

Brine/fracking fluid well



SOURCE: ProPublica, N.C. Department of Environment and Natural Resources The News & Observer

Murawski: 919-829-8932

OWASA invests \$10 million to save energy, enhance water quality and enhance odor control at the Mason Farm Wastewater Treatment Plant

This winter, a contractor will begin work on **\$10 million** of improvements at our Mason Farm Wastewater Treatment Plant (WWTP) near Finley Golf Course in southeast Chapel Hill. The project will:

- Reduce electricity use at the plant by about **20%** through use of more efficient equipment for biological treatment. The energy efficiencies are conservatively expected to save about **\$125,000** annually.
- Help meet pending State standards further limiting nitrogen levels in treated wastewater.
- Enhance odor control at the plant. Ten of the sixteen biological treatment tanks at the WWTP will be covered, and foul air from the tanks will go through carbon filters to remove odor. The odor control improvements are the latest phase of work based on our goal of eliminating off-site odor from the WWTP. Operating costs of the odor control improvements will offset some of the energy savings noted above.



"This is one of our largest capital investment projects, and it will bring multiple benefits in future decades in terms of cost and greenhouse gas reductions, excellent quality of the treated water that we recycle at Morgan Creek, and being a good neighbor," said **John Kiviniemi**, our Wastewater Treatment and Biosolids Recycling Manager (at left in the photo above with **Todd Norman**, Operations Supervisor).

You may notice chlorine taste and odor in our water in March and early April due to annual change in disinfection

In March, we will use chlorine instead of chloramines to disinfect our drinking water.

Chloramines are a compound of chlorine and ammonia which OWASA has used since 2002 for disinfection in months other than March. Disinfection with chloramines has improved the overall quality of our water and its taste and odor. However, the State requires us to use only chlorine for disinfection one month per year to ensure a high level of disinfection in our water system.

To remove chlorine from our water, you can:

- Filter the water with activated carbon. Water pitchers with activated carbon filters are sold locally.
- Let water sit for a day or so. (We suggest keeping the water in an open container stored in a refrigerator.)
- Boil the water for one minute to evaporate the chlorine.
- Add a few lemon slices to a pitcher of water. The lemon has ascorbic acid, which neutralizes the chlorine. *(continued on back)*

CONTACT US

Orange Water and Sewer Authority
400 Jones Ferry Road
Carrboro, NC 27510

Customer Service phone and email:
919.537.4343
customerservice@owasa.org

Office Hours:
8 AM to 5 PM, Mon-Fri

Emergencies and Main Office phone:
919.968.4421
www.owasa.org

You may notice chlorine...*(continued from cover)*

OWASA crews will release water from various fire hydrants on March 1st. The purpose of this “flushing” of water pipes is to ensure that water with chlorine goes through the entire water system.

The flushing of water mains may cause some discoloration of our water because non-toxic sediment in our water pipes may be stirred up. To clear up the water, please run cold water through a bathtub faucet, etc. for 5 to 10 minutes. If the discoloration does not clear up, please contact us at **919.968.4421**.

Stephen Dear, Michael Hughes appointed to OWASA Board

Stephen Dear took the oath of office as a member of the OWASA Board in July, 2012 as a Carrboro appointee.

Mr. Dear has been the Executive Director of People of Faith Against the Death Penalty, a national organization based in Carrboro, since August, 1997. From 1990 to 1995, he was the Executive Director of the NC Rural Communities Assistance Project, which provides technical assistance and organizing services to small communities across North Carolina on water and wastewater issues.

Stephen has also worked as a writer, served in the Peace Corps and interned in Ralph Nader’s office at the Center for the Study of Responsive Law. He received a Bachelor’s degree in political science in 1985 from the University of Richmond, and a Master’s degree in international studies from Claremont (California) Graduate University in 1989.

Michael Hughes, P.E., began serving on the OWASA Board in August, 2012 as an Orange County appointee.

Michael is employed as Assistant Engineering Manager with the City of Durham. Mr. Hughes has served as the Design Group Supervisor with the Durham Public Works Department; the Managing Partner for his engineering and land surveying firm; Senior Project Manager for two large engineering firms; and as officer, director and shareholder in land development companies. He has successfully managed complex projects and budgets and a staff of as many as 25 personnel as well as subconsultants.

He has bachelor’s and master’s degrees in civil engineering. Mr. Hughes has lived in Orange County since 1989.

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To choose paperless billing, please go to our website, www.owasa.org, click on MANAGE MY ACCOUNT, register (if you have not already) or sign-in, and select E-Billing under the **Preferences** tab.

The first time you visit **Manage My Account**, you will need to register with your 6-digit customer number, which is printed on OWASA bills.

Each month, you will receive an e-mail notice from owasa@owasa.org that your bill is ready to view on our website. (You may need to adjust your spam filter to receive electronic bill notices from owasa@owasa.org.)

Please call OWASA Customer Service at **919.537.4343** or send an e-mail to customerservice@owasa.org if you have any questions or need help.

Our on-line account information includes:

- current balance,
- the due date for the next payment,
- current and past bills viewable in the format of our paper bills,
- water/sewer use and billing history,
- e-mail confirmation of payments and
- bills for OWASA service at past addresses.

OWASA begins use of Twitter



OWASA has begun to use the social medium Twitter as an additional way to provide information to citizens. To follow OWASA, click on the Twitter logo at the bottom right of our homepage, www.owasa.org.

Español

Este boletín informativo contiene información sobre los servicios de agua y alcantarillado de **OWASA**. Para obtener una traducción, por favor llame al **919.537.4221** o mande un correo electrónico a: info@owasa.org. ¡Muchas gracias!

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Sustainability Update

Upcoming Events & Workshops

UNC and Local Events

Carolina Dining Services: Sustainability Table

Date: Wednesday, Mar 6
Time: 11:45 AM - 2:00 PM
Location: Lenoir Main Street, UNC, Chapel Hill, NC
Local and organic bread sampling.
Cost: Free
[Read More »](#)

Webinar: Embedding Sustainability in an Organizational Structure

Date: Thursday, Mar 7
Time: 12:30 PM - 1:30 PM
Location: Online
Cost: Free
[Read More »](#)

Lecture: "Rebuilding the Foodshed: How to Create Local, Sustainable, and Secure Food Systems" - Philip Ackerman-Leist

Date: Thursday, Mar 7
Time: 4:30 PM - 6:00 PM
Location: Anne Queen Faculty Lounge, Campus Y, UNC, Chapel Hill, NC
Cost: Free
[Read More »](#)

Lecture: "Water to Live by and Die for" - Jamie Bartram

Date: Thursday, Mar 7
Time: 6:00 PM - 7:00 PM
Location: Top of the Hill's "Back Bar," 100 E Franklin St., Chapel Hill, NC
Cost: Free
[Read More »](#)

Wild Food and Herb Market

Date: Sunday, Mar 10
Time: 1:00 PM - 4:00 PM
Location: Carrboro Town Commons, 301 West Main St., Carrboro, NC
Cost: Free
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State and Regional Events

Oaks and Spokes Bicycle Festival

Date: Friday, Mar 1 - Sunday, Mar 10
Location: Downtown Raleigh, NC
Cost: Free
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Meeting: NC Plug-in Electric Vehicles Taskforce

Date: Wednesday, Mar 13
Time: 11:00 AM - 3:30 PM
Location: The Sheraton Hotel, 421 S Salisbury St., Raleigh, NC
Cost: \$15
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Haw River Clean-Up-a-Thon

Date: Saturday, Mar 16 - Sunday, Mar 17
Location: TBD based on assignment
Cost: Free
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Conference: Water Resources Research Institute and North Carolina Water Resources Association

Date: Wednesday, Mar 20 - Thursday, Mar 21
Location: Jane S. McKimmon Center, NC State University, 1101 Gorman Street, Raleigh, NC
Cost: Registration by 3/15/13, Regular- \$125, Student- \$25; Late Registration- \$160
[Read More »](#)

Redress Eco-Fashion and Textiles Conference

Date: Friday, Mar 22 - Sunday, Mar 24
Location: Raleigh Marriott City Center, 500 Fayetteville Street, Raleigh, NC
Cost: Student- \$150, Non-Student- \$250
[Read More »](#)

Symposium and Expo:

National Events

Symposium: Ethics and the Environment

Date: Thursday, Apr 11 - Saturday, Apr 13
Location: Janet Prindle Institute for Ethics, DePauw University, Greencastle, IN
Cost: Free, registration required.
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Conference: Smart and Sustainable Campuses

Date: Monday, Apr 15 - Tuesday, Apr 16
Location: The DoubleTree by Hilton, 8120 Wisconsin Avenue, Bethesda, MD
Cost: Registration by 3/1/13- Speaker- \$399, Attendee- \$439, Student- \$159; After 3/1/13- Speaker- \$489, Attendee- \$529, Student- \$249
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Conference: Brownfields 2013

Date: Wednesday, May 15 - Friday, May 17
Location: Georgia World Congress Center, 285 International Blvd NW, Atlanta, GA
Cost: Student/Academia- \$50, Community/Non-Profit- \$125, Government- \$200, Private Sector- \$300
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Conference: Innovations in Technical Education to Advance Sustainability- Student Leadership

Date: Thursday, Jun 6 - Sunday, Jun 9
Location: Alfred State, SUNY College of Technology, 10 Upper College Drive, Alfred, NY
Cost: \$180
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Expo: Work Well, Live Well

Date: Wednesday, Mar 13
 Time: 11:00 AM - 2:00 PM
 Location: Rams Head Recreation Center, UNC, Chapel Hill, NC
 Cost: Free
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Lecture: "Use of Community-University Partnership to Study and Address Environmental Injustice and Health Disparities in Charleston, SC" - Dr. Sacoby Wilson

Date: Monday, Mar 18
 Time: 12:00 PM - 1:00 PM
 Location: G10 Bondurant Hall, UNC, Chapel Hill, NC
 Cost: Free

Lecture: "Water as a Medium, Idea and Concept for Art" - Bright Ugochukwu Eke

Date: Tuesday, Mar 19
 Time: 6:00 PM - 7:00 PM
 Location: Hanes Art Center, UNC, Chapel Hill, NC
 Cost: Free
[Read More »](#)

Green Events Training

Date: Wednesday, Mar 20
 Time: 6:30 PM - 7:30 PM
 Location: Dey Hall, Room 210, UNC, Chapel Hill, NC
 Cost: Free. RSVP required.
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Lecture: "Robert Frost- Full Day of Spring" - Peter White

Date: Wednesday, Mar 20
 Time: 7:00 PM - 8:00 PM
 Location: NC Botanical Garden Education Center, 100 Old Mason Farm Road, Chapel Hill, NC
 Cost: Free, registration required.
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Exhibit Opening: "The Water of Life: Artistic Expressions"

Date: Thursday, Mar 21
 Time: 6:00 PM - 9:00 PM
 Location: FedEx Global Education Center, UNC, Chapel Hill, NC
 Artist's reception for Caroline Orr starts at 6pm. From 7 p.m. to 9 p.m., Allen Anderson and Brooks de Wetter-Smith will present Iceblink, a meditation on Antarctica.
 Cost: Free
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Energy and Environment Lunch: "Woody Biomass as an Energy Source" - Chris Hopkins

Date: Tuesday, Mar 26
 Time: 12:30 PM - 1:30 PM
 Location: Toy Lounge, Dey Hall, UNC, Chapel Hill, NC
 Cost: Free, registration required.
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Sustainability and the Future of Energy and Water

Date: Friday, Mar 22
 Time: 8:00 AM - 3:00 PM
 Location: Brunswick Community College, Leland Center for Economic and Workforce Development, 2050 Enterprise Drive, Leland, NC
 Cost: \$35, Student- \$20
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2013 UNC-Duke China Leadership Summit

Date: Friday, Apr 5 - Sunday, Apr 7
 Location: UNC, Chapel Hill, NC, and Duke University, Durham, NC
 Cost: Free, application required.
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Workshop: Erosion and Sedimentation Control Planning and Design

Date: Friday, Apr 5 - Saturday, Apr 6
 Location: The Wake County Commons Building, 4011 Cary Drive, Raleigh, NC
 Cost: \$90
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NC Sustainable Energy Conference

Date: Monday, Apr 15 - Wednesday, Apr 17
 Time: 1:00 PM on Monday, Apr 15 - 6:00 PM on Wednesday, Apr 17
 Location: McKimmon Conference & Training Center, NC State University, 1101 Gorman Street Raleigh, NC
 Cost: Private sector, industry, commercial business- \$109 by March 20, \$159 after March 20; Public sector, universities, students- \$59 by March 20, \$89 after March 20
[Read More »](#)

Lecture: "Promoting Walking and Cycling for Healthy and Sustainable Cities: Lessons from Europe and North America" - Dr. John Pucher

Date: Tuesday, Mar 26
Time: 4:00 PM - 5:00 PM
Location: G200, Genome Sciences Building, UNC, Chapel Hill, NC
Cost: Free
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Symposium: "Working Toward Water Justice in North Carolina"

Date: Tuesday, Mar 26
Time: 6:00 PM - 8:00 PM
Location: Hyde Hall, UNC, Chapel Hill, NC
Cost: Free, registration required.
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Workshop: Composting

Date: Wednesday, Mar 27
Time: 3:00 PM - 4:15 PM
Location: Carolina Campus Community Garden, Wilson St, Chapel Hill, NC
Cost: Free
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Film Screening and Discussion: Chasing Ice

Date: Tuesday, Apr 2
Time: 5:30 PM - 8:00 PM
Location: FedEx Global Education Center, Nelson Mandela Auditorium, UNC, Chapel Hill, NC
Film screening of "Chasing Ice," followed by discussion with Jeff Orlowski, Director/Producer, and Jose Rial, Department of Geological Sciences. Cost: Free.

Reading: "Stand Up That Mountain" - Jay Leutze

Date: Tuesday, Apr 9
Time: 5:30 PM - 6:30 PM
Location: TBA
Cost: Free
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Webinar: Make People Do Good Things (Sometimes Via Social Media)

Date: Thursday, Apr 11
Time: 11:00 AM - 12:00 PM
Location: Online
Cost: Free
[Read More »](#)

UNC Science Expo at the NC Science Festival

Date: Saturday, Apr 13
Time: 10:00 AM - 3:00 PM
Location: 250 E. Franklin St., Chapel Hill, NC
Cost: Free
[Read More »](#)

Workshop: Traditional Food Preservation Series- Koji Fermentations

Date: Sunday, Apr 14

Time: 1:00 PM - 4:00 PM
Location: Vimala's Curryblossom
Cafe, 431 West Franklin Street,
Chapel Hill, NC
Suggested Donation: \$35-40
[Read More »](#)

**North Carolina Farmworker
Institute Summit and
Networking Event**

Date: Wednesday, Apr 17
Time: 8:30 AM - 4:00 PM
Location: United Church of Chapel
Hill, 1321 Martin Luther King Jr.
Blvd., Chapel Hill, NC
Cost: \$25
[Read More »](#)

**Lecture: Celebrating Earth
Day - Tom Earnhardt**

Date: Sunday, Apr 21
Time: 2:30 PM - 3:30 PM
Location: NC Botanical Garden
Education Center, 100 Old Mason
Farm Rd., Chapel Hill, NC
Cost: Free, registration required.
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reductions,” said Randy Dodd, Environmental Planner for Carrboro.

About Pete Street™

Pete Street is a powerful community-based program that creates volunteer neighborhood networks and raises money. It includes everything needed for a community to fund, organize, implement and evaluate energy-saving programs, energy audits, weatherstripping, energy-savings program. Pete Street was developed by Clean Energy Durham, a nonprofit organization that supports organizations of neighbors helping neighbors save energy. To learn more about the program, visit www.petestreet.org, or contact info@petestreet.org.

About WISE

The WISE home energy retrofit programs in Chapel Hill and Carrboro provide incentives toward energy-saving improvements designed to save energy and reduce utility bills. For further information, visit www.wiseprogram.org.

For more information, contact John Richardson: (919) 969-5075

CW Stanford Stormwater Treatment and Reuse Project

The C.W. Stanford Stormwater Treatment and Reuse Project was developed to reduce stormwater runoff impacts from the C.W. Stanford Middle and Orange High school campuses. The idea stemmed from C.W. Stanford's Eco-Classroom project. By installing stormwater treatment, the Eco-Classroom project team believed water quality not only could be improved but also countless environmental education opportunities could be provided to students from both schools and ultimately the school district could save money.

The Eco-Classroom project team partnered with Piedmont Conservation Council to obtain an N.C. Clean Water Management Trust Fund grant to design and construct the stormwater project. The grant was awarded in October 2011, and construction was completed in May 2012. Kimley-Horn and Associates designed the project, and Fluvial Solutions Inc. constructed it. The project includes the following components:

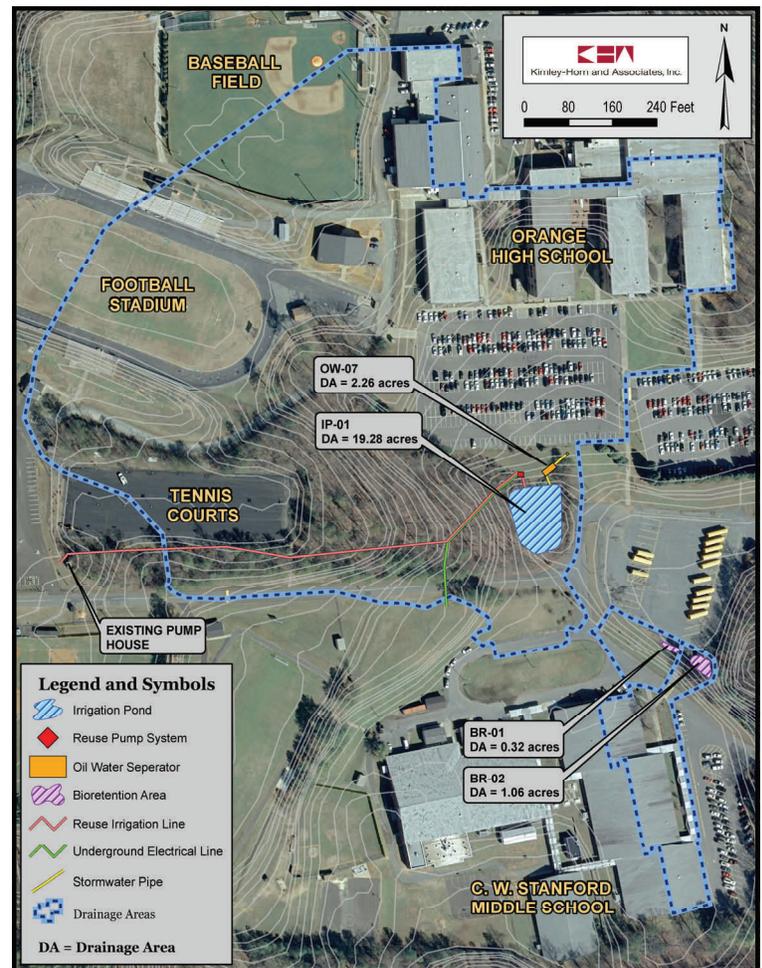
Bioretention Cells—"engineered rain gardens" that filter stormwater runoff from portions of the middle school by utilizing plants and microbes within the special soil media to remove pollutants.

Stormwater Retention Pond and Irrigation Pump—to collect stormwater runoff from approximately 19 acres of the school campuses. Pollutants are reduced by chemical and microbial processes occurring in the pond. Collected stormwater further is filtered through a sand filter built into the irrigation pump. The stormwater then is used to irrigate athletic fields on both campuses.

Oil/Water Separator—to remove oil and grease carried by stormwater runoff from Orange High's student parking lot before the runoff enters the stormwater pond.

Trash, sediment, and hydrocarbons from the student parking lot that previously discharged from the high school campus now are being treated by the oil/water separator and stormwater retention pond. Sediment, fertilizers, high-velocity flow, and hot runoff from the two campuses' more than 19 acres now are treated by settling in the retention pond. Roof and parking lot water from the middle school is being treated by the bioretention areas before discharging to the ephemeral stream overlooked by the outdoor classroom.

According to engineering models, the pond will reduce nitrogen runoff from the school by 48 to 72 pounds and phosphorous runoff by 5 to 10 pounds annually. These reductions can be used to help offset reductions required by the state's Falls Lake stormwater rules. The engineering models also project that use of the pond will replace more than 3 million gallons of irrigation water per year, reducing the need for potable water and saving the school district approximately \$15,000 per year. Because the fields drain back to the pond, it is expected that less fertilizer will need to be applied to the fields, which may result in further cost savings. Thanks to the educational opportunities, projected cost savings and reduced impacts to the environment, this project is truly a benefit to our community.



For more information, contact:

Stormwater Program Manager Terry Hackett
PO Box 429, 101 E. Orange St.
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Phone: 919-732-1270 Ext. 77
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ART AT THE GARDEN



Rufous Hummingbird, Santa Fe

Time Suspended—Moments in Nature

*Photographs by
Jean Anne Leuchtenburg*

March 2–April 28

The DeBerry Gallery
North Carolina Botanical Garden
University of North Carolina Chapel Hill

Artist's Reception
Sunday, March 10
2–4 pm