

**North Carolina Environmental Management Commission -
Water Allocation Committee
Meeting Summary**

512 N. Salisbury Street
Ground Floor Hearing Room, Archdale Building
Raleigh, NC

9:00-10:00 a.m.
Wednesday, May 9, 2012

Water Allocation Committee (WAC)

Commissioner Mayor Darryl D. Moss, Chair
Commissioner Stephen Smith, EMC Chair
Commissioner Donnie Brewer
Commissioner Marvin S. Cavanaugh, Sr.
Commissioner Steve Keen
Commissioner Jeffrey Morse
Commissioner Dickson Phillips, III
Commissioner Clyde E. Smith, Jr.
Commissioner Steve Tedder
Commissioner Amy Pickle

Item I. Preliminary Matters

1. Committee Chairman, **Commissioner Mayor Darryl D. Moss**, called the meeting to order. Pursuant to Executive Order Number One, the committee chairman called upon committee members to evaluate the matters to come before the committee and to identify any known conflict of interest or the appearance of a conflict of interest. There were no conflicts of interest.

2. Minutes and Agenda

The committee welcomed Amy Pickle to the group. The committee approved the minutes of the March meeting as a true and accurate summary of the proceedings. The agenda for the March meeting included a presentation on capacity use area designations. Mayor Moss recognized and thanked Dr. Moreau for his contributions to the committee.

Item II. Information Items

1. [Water Supply Issues in DENR's Shale Gas Report](#)

Don Rayno presented a summary of the water quantity issues related to the shale gas report. The drilling process starts vertical and then moves horizontal through the target formation that contains the gas. Fluid is pumped into the casing and cracks the rock in the formation to allow the gas to escape. They do this in a series of steps. The Triassic Basin in N.C. has geologic formations that allow for natural gas. It's in the Deep and Dan River basins from a hydrological perspective. There is a difference between geologic and hydrologic basins.

The Division of Water Resources collected data sets on several different scales. Data from local water supply plans, geologic units and smaller hydrologic units were all used. Some areas are not shaded on the map because we do not have enough data. We started by looking at the number of people in the Durham and Sanford sub-basins. Numbers are from the office of state planning to predict what the populations will be in the future. Currently, there are about a million and half people living in those counties. Many systems depend on surface water sources in these counties. A lot of systems depend on Falls Lake, reservoirs in Chapel Hill and Hillsborough, Cape Fear River and Jordan Lake. Water

systems are expected to grow in their service populations during the next couple of decades. Systems project the amount of water needed in the future. We receive fairly reliable information through the local water supply plans. The water use numbers come from a survey done by Dept. of Agriculture, which are fairly general.

How much water is available? There is a long record that captures many flow issues. The 7Q10 is a statistical value that looks at all the data and estimates the lowest seven day flow that could happen in a 10-year period. The SEPA or NEPA threshold is 20 percent, or below, of that value. Above that amount requires a more in depth analysis of potential impacts to the stream. The USGS model looked at low flow conditions across the state. Drainage areas are listed in square miles. In the Triassic Basin, they use a coefficient of .004. This is a way to approximate the low flow conditions at a particular point. They also define a minimum square miles needed to have a positive 7Q10 value. If your drainage area is less than 45 miles, you're most likely to have a 7Q10 of zero.

There are two current wells that show the potential for natural gas in Lee County in the Pocket Creek watershed. In this area, some streams have very low flows in certain dry times. More water is available in the Deep River than in Pocket Creek. The issue becomes how do you get it from the Deep River? There is very little groundwater data in terms of availability. Traditionally, the Triassic Basin does not yield a lot of groundwater. There are very few wells in this basin. The yields vary greatly.

How much water do the gas wells need? They need water for drilling and a larger amount for the hydraulic fracturing and it does not have to be fresh water. It can be recycled water, but they do need a certain volume going in. There is a need to store water onsite so they have the water when they need it. These operations run 24 hours a day and seven days a week once they begin. The majority of the fracturing fluid is water.

The current regulatory regime is reasonable use. Water withdrawal permits are not required state-wide. They are only required in the 15-county CCPCUA area. Riparian landowners have a right to water on or under their properties. Unless the project requires another permit, there isn't a review required for surface or groundwater withdraws. They may have to report what they use, but do not have to get a permit. Below 20 percent of the 7Q10 is an acceptable withdrawal amount in terms of water quantity. If the withdraw is above that amount, a more in depth analysis is required.

Generally, it takes 3-5 million gallons to develop a natural gas well. The assumption would be three weeks to pump and store water onsite and have it available when they need it. The assumption is there would be four development cycles per year. 785,000 acres could be used for this process. The assumption of this analysis is that the process would stretch over a 30-year period. Generally, there is enough water to support this process if the right regulatory framework is put in place. The disposal of the wastewater is a water quality issue that would need to be looked at as well. The division suggests that the withdrawal limit should be set at 20 percent of the 7Q10 and we would prohibit withdrawal during drought or low flow periods. We would also encourage the use of reclaimed water. There are a couple of surface water intakes in Lee County they could use, or they could use water from the city of Sanford. The entire DENR report is available at <http://portal.ncdenr.org/web/guest/shale-gas>.

Adjournment

There being no further business, **Chairman Mayor Darryl D. Moss**, dismissed the assembly at 10:15 a.m.