

**Meeting Minutes of the Water and Waste Management Committee of the
North Carolina Mining and Energy Commission
March 07, 2013**

1. Preliminary Matters

Committee Chairman Dr. Vik Rao called the meeting to order at 8:33 a.m. He read the ethics statement and asked Committee members whether or not they had conflicts of interest with respect to any action items on the agenda. None were expressed.

The following personnel were in attendance for all or part of the meeting:

Committee Members

Dr. Vik Rao (Chair)
Ivan "Tex" Gilmore
Charles Holbrook
Charlotte Mitchell
Dr. Kenneth Taylor
Amy Pickle (newly assigned to this Committee)

Attorney General's Office

Jennie Hauser

DENR Staff Members

Trina Ozer, Office of the Secretary
Tracy Davis, DEMLR
Mell Nevils, DEMLR
Walt Haven, Division of Energy, Mineral and Land Resources (DEMLR)
Katherine Marciniak, DEMLR
Ryan Channell, DEMLR
Don Rayno, Division of Water Resources

Others in Attendance

Refer to the meeting sign in sheets (attached to these minutes).

5. Approval of Minutes from Last Meeting

Dr. Taylor made a motion to adopt the minutes from the January 24, 2013 meeting. The motion was seconded by Ms. Mitchell and passed by unanimous vote.

6. Stakeholder Group Comments on the Draft Water Use Rule

Ms. Ozer reviewed the results from the February 21 Stakeholder Group meeting. She explained that stakeholder input had been requested from the Division of Water Quality (DWQ) to address draft rules related to storm water management and land application rules. Additionally, Chairman Rao had also asked for stakeholder review of draft rules concerning water withdrawal and use at oil and gas sites.

Ms. Ozer explained that much of the Stakeholder Group discussion focused on bonding requirements, which were not directly related to the rule topics that had been presented. However, the group did ask that the Mining and Energy Commission (MEC) be sensitive to ecological impacts which could still occur, even if 7Q10 standards for water withdrawal were implemented. Additional stakeholder discussion related to the distance between potential oil and gas sites relative to existing drought monitoring wells. Specifically, concerns were raised as to whether or not the current drought monitoring network was adequate to address groundwater impacts for sites using wells as water supply sources. The group opined that requiring the installation of a monitoring well closer to a given oil or gas site might be a better strategy to assess water table drawdown and local drought effects. Ms. Ozer pointed out that it might be difficult to tie data from new monitoring wells into the historical data that is provided by the existing drought monitoring well network.

Ms. Pickle asked about the use of soil moisture and rainfall data by the N.C. Drought Management Advisory Council, and whether or not this information could be used by DENR to address drought conditions related to oil or gas operations. Mr. Don Rayno, Division of Water Resources (DWR) explained that his office frequently reviews drought monitoring information. He also stated that drought assessments are most heavily influenced by surface water levels and flows, but that monitoring well information would provide better data to assess drought occurrences. Although Mr. Rayno agreed that monitoring wells local to oil and gas sites would provide helpful information, he also explained that droughts are regional, not local occurrences. As a result, the current monitoring well network is adequate to establish regional drought trends. Nevertheless, Mr. Rayno acknowledged that the installation of additional monitoring wells to the current drought measuring network would be helpful, but the implementation costs would be expensive.

7. Draft Water Use Rule Discussion

Chairman Rao said that the Committee had received written comments from stakeholders, generated after the Stakeholder Group meeting. Chairman Rao asked about how to best integrate stakeholder comments into the (draft) water use rule. Ms. Ozer explained that the Committee had the option as to which comments, if any, should be included into the rule writing process. Chairman Rao stated that each stakeholder comment would be seriously considered, whether or not a respective change to the rule was made.

Chairman Rao noted that he had received a set of written comments after the Stakeholders Group meeting, from a representative of the Environmental Defense Fund. These comments had included, among other items, recommendations to correct typographical errors and to re-word some of the terms in the “definitions” section of the draft rule. Ms. Marciniak stated that editing errors would be corrected, but that definitions should remain as written, due to the matching of defined terms with existing state rules and industry practice. MEC Chairman Womack offered that questions regarding the definitions of specific terms could also be addressed by the Rules Committee.

Chairman Rao asked for his Committee members to provide specific comments and amendments. He received the following remarks:

Aquifer Testing: Mr. Gilmore asked if a pre-determined or prescribed distance should be required for aquifer pumping test monitoring. Ms. Marciniak suggested that the rule stay as written, since regional drawdown effects would be determined by aquifer test results and modeling. Dr. Taylor mentioned that the aquifer testing portion of the rules might be difficult to apply in situations where an operator pumps water from Coastal Plain areas and then transports that water to a Triassic Basin oil or gas site. He also explained that certain areas within the Coastal Plain might not allow for equilibrium to be established during aquifer pumping tests (i.e. confined aquifer conditions). Nevertheless, he acknowledged that the water use rules should be written to avoid overly complex, prescriptive language, and instead should retain more general language or requirements. Mr. Nevils explained that basic aquifer testing and modeling would be done for water withdrawal wells related to oil and gas sites. The current procedure of aquifer testing and modeling that is used in the Mining Program would similarly be applied to the Energy Program. Mr. Nevils also mentioned that any DENR requests for the scales and detail of maps related to oil or gas operations could be addressed in the permitting section of the rules.

Water Impoundments: Dr. Taylor stated a question asked by Mr. David Kelley, from the Environmental Defense Fund, in his written comments to the Committee. The inquiry was related to the use of ponds being used to retain surface water for oil or gas well use. Dr. Taylor and Mr. Nevils explained that the North Carolina Dam Safety Act might be applicable for surface water storage. Respective dam rules would apply in situations where an operator constructs impoundments using a dam height of at least 25 feet, or if a “high hazard” dam were to be built.

Permit Information Sharing: Dr. Taylor mentioned that the N.C. Wildlife Resources Commission expressed concern in its written comments about the oil and gas permitting process. He explained that the permit would consist of one entire package which would include a drilling plan, a water use plan, and other essential information. Dr. Taylor further stated that permit application packages would be shared with all relevant DENR regulatory agencies.

7Q10 Withdrawal: Mr. Rayno explained that he was drafting rule language to better implement the 20 percent of 7Q10 withdrawal limits. He also stated his preference for defining a “stream reach” to address potential impacts from multiple cumulative stream withdrawals. He suggested rewriting the definition of a stream reach as follows: “the area that could possibly be impacted by a proposed withdrawal, given by the impact of current withdrawals from nearby areas.” Mr. Rayno further explained his plans for additional rule guidelines so that an applicant would have a clear understanding of how to best define the affected stream reach. The Committee discussed whether or not the current draft rules could be approved pending Mr. Rayno’s edits, but preferred to provide approval of an updated draft at its next meeting instead.

Dr. Taylor asked about the restrictions 7Q10 limits would put on industry, as well as the risks of cumulative impacts from multiple withdrawals occurring simultaneously. Mr. Tom Reeder (Director of the Division of Water Resources) explained that the 20 percent of 7Q10 limit is used throughout the state and that current industry demands already withdraw more than oil and gas operators would ever use. Mr. Reeder further stated that the 20 percent of 7Q10 requirement is a highly conservative standard. Additionally, he offered that DWR already considers collective impacts of multiple withdrawal activities to maintain cumulative 20 percent 7Q10. As a result, Mr. Reeder suggested that oil or gas operations be regulated similarly to currently existing industries. He also reminded the Committee that 20 percent of 7Q10 constituted a small amount of water and that having this requirement would encourage withdrawal from large rivers (i.e. Deep River), which would help to protect smaller water bodies.

Water Use Permitting: Ms. Pickle asked if an expiration date for a water use plan or permit should be applied. Ms. Marciniak stated that an annual report of water use was already required in the rules and was similar to requirements in other states. She offered that the annual reports should provide information as to cumulative water uses as well as the need for further water use regulation, on a site-by-site basis. Mr. Nevils reminded the Committee that DENR preferred to have one permit to address an entire oil or gas operation at a given location. He explained that having one part of the permit expire would not be practical to implement. Chairman Rao explained that setting an expiration date on a water use permit may not be practical, as doing so might prohibit an operator from performing re-fracturing operations. In other words, establishing an expiration date would assume that an operator would only need water for a specified “one-time” hydraulic fracturing use and that fracturing events would occur immediately after well construction. Dr. Rao further explained that a given shale gas site might require multiple fracturing events at different time periods. He also mentioned the possibility of gas wells being installed, without immediate fracturing operations being conducted. In such cases, needed water might be stored on site in pits so that it would be available for fracturing use at some future date. However, he also stated that operators could use water obtained elsewhere which would be transported to the site and held in storage tanks until needed. Finally, Chairman Rao offered that once wells were constructed, the vast majority of the water would have already been used. As a result, he recommended that expiration dates should not apply to water use permits.

Water Re-Use and Transport: Ms. Mitchell stated that water re-use requirements had not been adequately addressed in these rules. Chairman Rao responded that re-use requirements would be detailed in the “disposal and waste” related rules. Dr. Taylor mentioned that the rules related to the “Transport and Storage of Water” would be largely addressed by the “Administration of Oil and Gas Committee.”

The Committee asked DEMLR to revise the draft water use rules. Specifically, Chairman Rao asked Ms. Marciniak to revise rule requirements and to send revisions to him for approval.

8. Wastewater Management Presentation

Ms. Marciniak provided an information presentation concerning wastewater generation and management (see attached presentation). She addressed the following items:

- a. Surface pit construction for holding of fluids;
- b. Synthetic lining of pits;
- c. Existing former clay mining pits in Lee County, lined with natural clays;
- d. Concrete lined pits;

- e. Pit bottoms with respect to the local water table (typically 10 foot minimum vertical distance in other states).

Ms. Marciniak explained that other states typically require pits to be maintained with a two foot minimum freeboard and be of a capacity to handle rainfall from a 10-year 24-hour storm. She also explained that the “Administration of Oil and Gas Committee” would be responsible for addressing pit construction requirements.

Ms. Marciniak explained that the following types of wastewater or other fluids could be produced at oil and gas sites:

- a. “Produced water”, which refers to water in the subsurface formation that comes to the surface once the well is in production.
- b. “Encountered water”, which refers to water in the subsurface or otherwise expelled from the well during the drilling process.
- c. “Spills or Releases”, which refer to unintended discharges to the environment. All spills should be reported to DEMLR, regardless of size. However, immediate reporting of Resource Conservation and Recovery Act (RCRA) “reportable quantities” will still be required.

Ms. Marciniak stated that if operators planned to recycle and re-use generated fluids or other materials, that respective material type and intended use of the recycled product should be specified. She also addressed the following options and considerations related to the on-site handling or treatment of oil and gas wastes:

- a. Membrane filtration
- b. Reverse osmosis
- c. Thermal distillation
- d. Treatment and disposal: Includes strategies for fluid and solid remediation (i.e. drying and distribution of bentonite particulate matter.)

The Division of Waste Management (DWM) and the Division of Water Quality (DWQ) already have processes in place to address disposal and treatment options. Ms. Marciniak suggested that speakers from these organizations provide respective information to the Committee. She also explained that additional research was needed to further address solid waste disposal, site characterization requirements, notification requirements for pit closures, burial of inert materials on site, and spill reporting.

Chairman Rao tasked DENR with the following assignments:

- a. Development of recommendations (with his help) regarding waste re-use and disposal (refer to the North Carolina Oil and Gas Study under Session Law 2011-276);
- b. Determine if North Carolina has areas where the subsurface geology would allow for the deep disposal of wastewater (refer to DWQ's Underground Injection Control Program);
- c. Research on-site (i.e. treat and re-use) and non-municipal off-site treatment methods, which are already being used in other states;
- d. Notify Chairman Rao as to which of the above tasks could reasonably be accomplished.

Ms. Marciniak and Mr. Nevils asked for Committee input regarding a time line for pit closures and explained that other states did not seem to address lags in the use of pits, which would require the closure and subsequent reconstruction of a pit, as would be the case with re-fracking a well, in their rules. Chairman Rao stated that longer timelines may be required in the event an operator would need to repeat hydraulic fracturing activities. However, he acknowledged that tanks, as opposed to pits, could be used to support re-fracturing operations. Chairman Rao suggested that the permitting process require an operator to indicate whether or not re-fracturing activities are to occur. Mr. Womack offered that a permit should allow for an update process to address the need for re-fracturing.

Ms Marciniak offered that rules in other states are varied with respect to pit closures and that some states require pit closure plans. Additionally, Ohio requires pit closure within 14 days of well construction completion in urban areas and within 60 days in rural settings. Mr. Gilmore asked if any states required the installation of monitoring wells to allow for a hydrogeological assessment of leaking pits. Ms. Marciniak explained that she had not found such requirements in other states.

Mr. Nevils asked the Committee for input related to spills of "reportable quantities" (RQs). Chairman Rao suggested using Colorado's rules as an example to address RQs, while Dr. Taylor explained that any release of five gallons or more of a hazardous material had to be reported. However, he also acknowledged that petroleum-based products were exempt from consideration as being "hazardous" under RCRA.

Finally, Ms. Pickle asked DENR to provide information to define the seasonal high water table in the Triassic Basin, as well as the amount of rainfall produced in a 10-year, 24-hour storm.

9. Public Speaker Comment

One member of the public signed up to speak to the Committee. Although DEMLR staff asked her to provide her name at the beginning of her remarks, she did not do so. However, she seemed to have written her name as “Lib Hutchby ” on the sign-up sheet. Ms Hutchby expressed her concerns as follows:

- a. The injection of wastewater is already illegal in North Carolina and should not be considered;
- b. The storage of poisonous chemicals in pits should not be allowed;
- c. Treated wastewater from an oil or gas site would be poisonous water;
- d. Impoundment ponds were life-long wastes of water and the Committee should consider not allowing them.

10. Concluding Remarks

Chairman Rao stated that the Committee was charged with considering the appropriate use and disposal of water and waste. As a result, the Committee was working to draft rules that would discourage use of new water and encourage using sources of water other than surface water or groundwater. Chairman Rao also reminded everyone that the use of water for oil and gas operations is small compared to that of other industries.

Chairman Rao asked about any other business that the Committee needed to address. No other items were raised.

The Water and Waste Management Committee adjourned at 10:20 am.

DENR Staff Contact for this Committee: Trina Ozer, Policy Analyst, Secretary’s Office