

AGENDA ITEM 2

Air Quality Committee Meeting Minutes

March 13, 2013

The Air Quality Committee (AQC) of the Environmental Management Commission (EMC) met on March 13, 2013, in the Ground Floor Hearing Room of the Archdale Building. The AQC members present: Mr. Christopher Ayers, Mr. Marvin Cavanaugh, Mr. Les Hall, Dr. Ernest Larkin, Mr. Jeff Morse, Ms. Amy Pickle, Dr. David Peden, and Mr. Stephen Smith. Ms. Yvonne Bailey substituted for Chairman Marion Deerhake at her request because she was not able to attend. The Director and staff members of the Division of Air Quality (DAQ), Mr. Frank Crawley of the North Carolina Attorney General's Office, and the general public were also in attendance.

Agenda Item #1, Call to Order and the State Government Ethics Act, N.C.G.S. §138-A-15(e)
Ms. Bailey called the meeting to order at approximately 3:00 p.m.

Ms. Bailey reminded the AQC members of the State Government Ethics Act regarding conflicts of interests or appearance of conflicts of interests. No members recused themselves from agenda items.

Agenda Item #2, Review and Approval of the January 2013 AQC Meeting Minutes

Dr. Larkin moved for approval of the minutes. Mr. Hall seconded the motion. The minutes were approved.

CONCEPTS

None

DRAFT RULES

None

MARCH EMC AGENDA ITEMS

Agenda Item #4, Hearing Officer's Report on Revision of Volatile Organic Compound (VOC) Reasonably Available Control Technology (RACT) Rules applicability (513) and Clarifications (511) (Joelle Burleson, DAQ)

Ms. Burleson reminded the AQC that had previously approved to move forward to public hearing with agenda item #4. She said that the DAQ has completed the hearing process and Mr. Benne Hutson served as the Hearing Officer and would be presenting his Hearing Officer Report and Hearing Record at the March EMC meeting the following day. Ms. Burleson noted that Chairman Deerhake asked the DAQ to remind the AQC that this agenda item is time-sensitive. The DAQ is trying to complete this rulemaking action in March by filing it, receiving approval at the state level as well as USEPA approval prior to the

AGENDA ITEM 2

anticipated revocation of the 1997 8-hour ozone standard and its replacement with the new standard in July 2013.

Agenda Item #5, Hearing Officer's Report on Revisions to New Source Review and Prevention of Significant Deterioration (PSD) Nitrogen Oxides (NO_x) Significance Level for PM_{2.5} (512) and PM_{2.5} Increment (516) (Joelle Burleson, DAQ)

Ms. Burleson said that this agenda item was also taken to public hearing in the January 2013 timeframe, and Mr. Hutson served as the Hearing Officer. She said that comments were received from the USEPA on this item. Relative to those comments, the DAQ provided to the AQC a suggested change that the DAQ plans to move forward with. She further explained that additional comments from the USEPA were received by the DAQ the day prior to the March AQC meeting, but the DAQ hadn't had adequate opportunity to review and resolve those comments. Therefore, the DAQ suggested that this item be deferred to a future meeting date. Mr. Hutson will make that request to the EMC at the March meeting.

Ms. Bailey asked whether there are any pending deadlines with this agenda item that would be significant. Ms. Burleson said that regarding this particular item, there is a conditional approval of the Infrastructure SIP (State Implementation Plan) related to the PM_{2.5} changes that need to be made. As part of that conditional approval, DAQ is required to make a submittal to the USEPA by October 16, 2013. The rulemaking needs to be finalized and effective by October 16, 2013. Ms. Burleson said that adoption in May or July 2013 with no objections from the Rules Review Commission would satisfy that requirement.

Agenda Item #6, Request to Proceed to Hearing on Revision of Arsenic Acceptable Ambient Level (AAL) (514) (Joelle Burleson, DAQ)

Ms. Burleson said that the AQC approved moving forward with the request to proceed to hearing at the January meeting. She said that Chairman Deerhake requested to open the floor for additional questions or comments. She said that the DAQ plans to make that request of the EMC at the March meeting.

Dr. Larkin commented that he had reviewed the report and that the report took new data and established a dose response curve and extrapolated it to arrive at the new numbers, which are less stringent than in the old report. Ms. Burleson advised that the DAQ staff who are working with the SAB (Science Advisory Board) were available to answer questions.

INFORMATION ITEMS

Agenda Item #7, Update on Hydraulic Fracturing (Mike Abraczinskas, DAQ)

1. Plan for Baseline Ambient Air Monitoring near Potential Hydraulic Fracturing Zones
2. Information on Air Quality Permitting of Hydraulic Fracturing Operations

Mr. Abraczinskas advised the AQC that Evan Kane of the DWQ (Division of Water Quality) had presented a broader presentation on shale gas development to the EMC in March 2012. Mr. Abraczinskas referred the AQC to Mr. Kane's presentation for a broader overview. He explained that the presentation he would make would concentrate on the air quality impacts related to shale gas development. He said he

AGENDA ITEM 2

would talk about the types of air emissions sources and pollutant profiles, the regulatory framework, air permitting and compliance, emissions inventories, and a baseline ambient air quality monitoring plan.

Mr. Abraczinskas used a chart to explain what the source profile consists of. The chart showed emission sources, pollutants and regulations. In the well development phase, internal combustion engine emission sources includes a variety of engines used for drilling such as generators and compressors. These are natural gas-fired or diesel-fired engines. He said the good news is that these are familiar emission sources. He explained that the hydraulic fracturing phase of the well development process uses a lot of the same equipment as does the well completion phase. Those phases along with the production phase all happen at the well site. The types of pollutants that derive from those activities include a variety of criteria pollutants, hazardous air pollutants, Volatile Organic Compounds (VOCs), and some Greenhouse gases (GHGs). He said that there are a variety of regulations, mostly at the federal level, that apply. The engines, for example, are covered by the New Source Performance Standards (NSPS) and potentially the Maximum Achievable Control Technology standards (MACTs) or Generally Available Control Technology standards (GACTs). In some cases, there are state-level rules that may apply.

He explained that the compression and transmission phase may or may not occur at the well site. The compressors get the product from the well to the processing facility. Depending on the characteristics of the well, the compressor may be on the well site or it may be offsite and service a number of wells. The compression and transmission phase would also include all of the gathering lines from the wells to the processing facilities. The emissions profile for this phase includes familiar sources as well and there are regulations that apply to those types of units.

Mr. Abraczinskas talked about the processing phase where the product is taken from the wells and readied for use and into a transmission line or pipeline.

Mr. Abraczinskas explained that a regulatory framework is in place covering air emission sources and the permitting process at shale gas development and production facilities. He said that the DAQ envisions minor tweaks to existing rules may be necessary. He also said that in reaching out to other colleagues, DAQ has learned that in West Virginia, Pennsylvania, Kentucky, Wyoming, Oklahoma, Texas, Arizona, and Louisiana, no new state air quality rules were required for shale gas development. Mr. Abraczinskas said that the DAQ is gathering information from a permitting perspective. He said the DAQ is learning from other states (Arkansas, Colorado, Pennsylvania, West Virginia, Texas, Wyoming, Oklahoma, Louisiana, Kansas, Utah, and Ohio) who have already been through or are about to go through this type of activity. The DAQ has learned that none of those states cover the drilling/fracturing/completion stage of the process in air quality permits. That is primarily because the drilling/fracturing activities are not considered stationary sources. Even if those sources were considered stationary sources, they would not necessarily trigger the emissions threshold that would trigger them into permitting. Mr. Abraczinskas said that several states have developed general permits for the production stage. Those permits are mainly small air permits for storage vessels and generators. He said the compression and transmission phase usually requires a permit because at that phase, they are typically over the emission threshold and they are a stationary source. The processing facilities have the potential to be Title V major sources. The information attained from other states will help shape DAQ's permitting approach.

AGENDA ITEM 2

Mr. Abraczinskas explained that the DAQ is also learning from others regarding emissions inventories in gathering emission factors per pollutant to enable estimates of emissions per well developed. A lot of work has been done, especially in the Pennsylvania and West Virginia area, which includes truck trips and idling, land clearing and unpaved roads, drilling and drilling mud, fracturing, and completion. Once the DAQ has estimates on the number of wells in a particular area, emissions estimates can be generated that will allow air quality impacts to be assessed. That would allow the DAQ to perform additional assessments of potential downwind air quality impacts in a modeling exercise.

Mr. Abraczinskas talked about a project plan for baseline ambient air monitoring near potential hydraulic fracturing zones in Lee County, NC. He provided background describing why the DAQ is considering baseline monitoring and he reminded the AQC of the 2012 DENR Study that recommended collection of baseline air quality. Mr. Abraczinskas advised that there is language in Session Law 2012-143 that requires rules to be developed related to the collection of baseline data in areas where oil and gas exploration and development activities are proposed. The DAQ has the authority and expertise to accomplish baseline monitoring objectives without additional rulemaking.

Mr. Abraczinskas said NC has very limited information and experience with shale gas development and has relied on the experiences of Arkansas, Colorado, Pennsylvania, Texas, Wyoming and the USEPA who have helped identify target air pollutants. Those target air pollutants are:

Air Pollutant Category	Typically Monitored Pollutants
Speciated volatile organic compounds (VOCs)	benzene, toluene, ethyl benzene, xylenes, hexanes, 2,2,4-trimethylbenzene, styrene
Aldehydes	formaldehyde, acetaldehyde
Criteria Air Pollutants	sulfur dioxide, nitrogen dioxide, ozone, particulate matter (PM 2.5)

Mr. Abraczinskas said that the objective is to collect data on targeted air pollutants to establish ambient air quality prior to startup of possible emission sources from shale gas exploration. A minimum of one year of data is recommended to account for any seasonal, weekly and daily variations. The objective is to use standard monitoring protocols and methods established by the USEPA to ensure consistent, high quality data that is comparable to the monitoring sites across the state.

He explained that a detailed assessment of the DAQ's existing monitoring network relative to shale gas deposits helps to identify where to monitor. That assessment identified existing, well-placed upwind and downwind multi-pollutant air monitoring locations in Montgomery and Wake counties. These upwind and downwind sites are near the Triassic Basin, but not within the Sanford sub-basin in the Lee County area that may be considered the most promising for shale gas production. There is no existing air monitoring in Lee County. The recommendation of the assessment is to establish a multi-pollutant air monitoring site in Lee County similar to the upwind and downwind sites in Montgomery and Wake counties.

Mr. Abraczinskas referred to the "NC Air Quality Monitoring Network" map in his presentation illustrating the bottom line of DAQ's plan. The map reflects a relative lack of monitoring sites within the Deep River basin and the Sanford sub-basin in Lee County. The map indicates where the DAQ is

AGENDA ITEM 2

recommending that an air monitoring site be established. A more zoomed in map shows the area where the DAQ believes would be the best location for the air monitoring site.

In summary, the DAQ is expanding its knowledge base about shale gas development by gaining understanding of emission sources, becoming familiar with federal rules that apply, establishing a permitting team and an emissions inventory team. The baseline monitoring plan is in place and the DAQ will begin the process of looking for an appropriate monitoring site in March 2013. Mr. Abraczinskas said the DAQ will continue gathering information from other state air agencies where shale gas development activities are happening and that information will help shape DAQ's approach.

Dr. Peden asked whether it is known if there is enough VOC production occurring in the summer ozone season by shale gas development sites to trigger modification of the ozone level. He asked if there is a potential for establishing particular times of day when operations would have to shutdown comparable to asking citizens to refrain from certain activities during certain times of day during the ozone season.

Mr. Abraczinskas said that part of the answer relates to the role of anthropogenic VOCs in ozone formation in NC and the southeast. Experience tells us that over 90% of the total VOCs in the air derive from biogenic sources. The remaining 10% comes from man-made sources and it is questionable whether alteration to activity has any impact on ozone levels in NC. Prior modeling experience shows that if all man-made VOC sources in NC were eliminated, ozone levels would not be affected much. He further explained that the impact it will have locally depends on the magnitude of the emissions locally and he added that if the sources are complying with the framework in place, the impact should not be substantial.

Dr. Peden asked Mr. Abraczinskas what his estimation is on how much impact shale gas development will have on NC's air quality overall. Mr. Abraczinskas said that DAQ may not be able to answer the question at this point in time. He referred back to the emission inventories slide of his presentation that indicates that the DAQ does not yet have a good estimate of how many wells will potentially exist in NC or where those wells might be located. He added that the DAQ is carefully examining studies that have occurred in other states, but the DAQ is not sure whether the scale and the magnitude in those states are comparable to what it might be in NC. Director Holman asked Mr. Abraczinskas to address DAQ's plans to perform some "what if" scenarios once the DAQ has better estimates on the number of wells and the emissions from those wells and the capability of using air quality models to predict the impacts on downwind areas. Mr. Abraczinskas explained that the DAQ is collecting emission factor data compiled from emissions per well per pollutant and this information will help the DAQ run various scenarios, but all the information is not available at this time. He said that some of the emissions factor data is becoming available and the DAQ is getting a sense of how much NO_x (Nitrogen Oxides) emissions can be expected per well during the development stage.

Mr. Morse asked what experiences other states have with regards to impacts on air quality. Mr. Abraczinskas answered that there was a variety of results. He said that defining and identifying source receptor relationships based on ambient air quality data collected is often difficult. In some cases, monitors showed that there was a relative increase or spike in a particular pollutant, but identifying the impact of those spikes are questions that are still being explored. He said there are data available and a lot of that data falls in line with what is observed in other areas of the state where there are deviations that require further analysis.

AGENDA ITEM 2

Mr. Ayers asked whether the DAQ is in a position yet to forecast which rules might be impacted by shale gas development or does the DAQ believe that generally there will be no major changes. Mr. Abraczinskas said that the DAQ is closely considering whether having a number of wells in close proximity of one another is considered one site or multiple sites. The DAQ is making sure that they understand how the rules would apply to those types of situations and what is possible. For instance, you might have adjacent sites that are owned by different entities. The DAQ is still exploring those scenarios and figuring out whether the current rules adequately address those scenarios. He said the DAQ is not sure at this point whether rulemaking will be required.

Ms. Pickle suggested an amendment to the overall presentation of what has been done by other states particular to venting and flaring during the completion phase. She advised that the USEPA has new regulations related to green completion where, rather than venting or flaring the gas at the end of completion, the gas is captured through a mobile machine. She indicated it is estimated that will have a significant impact on the overall air emissions for that particular phase. She added that many but not all states who have natural gas production currently have rules related specifically to venting and flaring, which appears to be the only aspect of the overall process that air emissions are regulated beyond the usual regulations with respect to air emissions. Mr. Abraczinskas agreed and acknowledged that the reduced emissions completions that are required starting January 2015 by the federal rule will apply and would significantly reduce a variety of air emissions by those emissions not being vented or flared directly into the atmosphere.

Agenda Item #8, Director's Remarks (Sheila Holman, DAQ)

Director Holman thanked Ms. Bailey for substituting for Chairman Deerhake. She also thanked Mr. Hutson for his role as Hearing Officer related to the rules going before the EMC.

Director Holman provided an update on the DAQ air toxics rule revisions. At the January AQC meeting, the DAQ presented as a concept, several items that the DAQ believes are appropriate changes to the air toxics rules. The DAQ has circulated a draft of those rules internally to division staff and will post the draft version later today in preparation for a stakeholder meeting scheduled for March 20, 2013 to be held in the Training Room in the DENR Green Square building. The stakeholder meeting notice is posted on the DAQ website and has been sent to a stakeholder distribution list. The economic assessment is under development and the DAQ anticipates bringing the draft rule and economic assessment back to the AQC in July 2013.

Director Holman talked about the SO₂ (Sulfur Dioxide) designation process. She said she circulated to the AQC the letter that Governor McCrory received from the USEPA indicating that all monitors in NC are attaining the SO₂ standard. She said there are five monitors scattered across the state and they are all in attainment. Because all monitors are in compliance with the SO₂ standard, the USEPA is electing to defer the designations for NC and put forward an implementation strategy for the 1-hour SO₂ standard, which will involve rulemaking by the agency. A proposed rule is expected by the end of 2013 and a final rule in 2014. The proposed strategy is to allow state agencies to decide whether to use monitoring for the unmonitored areas in the state or to perform modeling or some combination of both. Once the DAQ sees the draft rule, they can begin to formulate the best approach for NC.

AGENDA ITEM 2

Director Holman said that NC, along with thirty-five other states, recently was identified in an USEPA proposed rule called the “Startup, Shutdown, and Malfunction Rule”. The USEPA identified thirty-six states that have deficiencies in their provisions addressing emissions occurring during industrial operations where startup, shut-down, and malfunction rules are involved. She said there was a public hearing yesterday in DC and the comment period closes on April 11, 2013. Because of the complexity of this rulemaking, Director Holman has requested an extension on the comment period. She said the DAQ is still in the process of evaluating its rules. In the USEPA’s proposed rulemaking, they exempted three states from the findings and the DAQ is studying those rules to understand the differences in those states’ approaches regarding startups, shutdowns and malfunctions. If DAQ’s SIP is deficient, they will be coming back to the AQC to address the deficiency. She explained that the DAQ is in the evaluation phase at this point.

The final item Director Holman talked about is the Cross-State Air Pollution Rule (CSAPR). She reminded the AQC that the DC Circuit Court of Appeals vacated the CSAPR in August 2012. On January 24, 2013, the DC Circuit Court of Appeals denied the USEPA’s request for a hearing of the full panel. Following that denial, the USEPA has reached out to state agencies to begin a dialog on how to move forward. The USEPA has not yet made a decision whether they will appeal to the Supreme Court. They are talking with states about how states will collectively address pollution transports from one state to another in the event they do not appeal or were to lose the appeal. A meeting is scheduled on April 8, 2013 at the Research Triangle Park and Director Holman will participate in that meeting on behalf of the DAQ. She said the DAQ will continue to keep the AQC posted on this item.

Mr. Morse asked how long NC’s Startups, Shutdowns and Malfunction rule has been in place. Director Holman said that the original preamble and adoption was adopted in the 1970’s. He asked why the USEPA has now come up with a review that those rules aren’t stringent enough or are not compliant. Director Holman explained that a petition was filed with the USEPA by an environmental group alleging that the startups, shutdowns and malfunction procedures in a variety of states didn’t meet the Clean Air Act (CAA) requirements. Mr. Morse asked if the state is appealing that decision. Director Holman said that the DAQ is evaluating all the options and preparing comments at this point and trying to understand why the USEPA thinks NC’s rules are deficient.

Ms. Bailey adjourned the meeting.