



North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

Donald R. van der Vaart
Secretary

MEMORANDUM

TO: ENVIRONMENTAL REVIEW COMMISSION
The Honorable Brent Jackson, Chairman
The Honorable Mike Hager, Co-Chairman

JOINT LEGISLATIVE COMMISSION ON ENERGY POLICY
The Honorable Bob Rucho, Co-Chairman
The Honorable Mike Hager, Co-Chairman

FROM: Dr. Vikram Rao
Chairman of the North Carolina Mining and Energy Commission

Tracy Davis
Director of the Division of Energy, Mineral, and Land Resources

SUBJECT: Quarterly Report on Activities Conducted Pursuant to S.L. 2012-143

DATE: July 1, 2015

Pursuant to Session Law 2012-143, the North Carolina Mining and Energy Commission and the Division of Energy, Mineral, and Land Resources shall submit to the Environmental Review Commission and the Joint Legislative Commission on Energy Policy a report on activities conducted and progress made on a quarterly basis. Please consider the Quarterly Report on Activities Conducted Pursuant to S.L. 2012-143 attached as the formal submission of this report.

If you have any questions or need additional information, please contact me by phone at (919) 707-9201 or via e-mail at Tracy.Davis@ncdenr.gov.

cc: Tom Reeder, Assistant Secretary for the Environment
Matthew Dockham, Director of Legislative Affairs
Brad Knott, Deputy Director of Legislative Affairs
Tracy Davis, Director, Division of Energy, Mineral, and Land Resources
Brad Atkinson, Energy Section Chief, Division of Energy, Mineral, and Land Resources
Walt Haven, Oil and Gas Management Program Supervisor

N.C. Mining and Energy Commission
And Department of Environment and Natural Resources
Quarterly Report on Activities Conducted Pursuant to S.L. 2012-143
To the Joint Legislative Commission on Energy Policy
And the Environmental Review Commission
July 1, 2015

Session Law 2012-143, the Clean Energy and Economic Security Act, was ratified on July 2, 2012 and reconstituted the North Carolina Mining Commission as the North Carolina Mining and Energy Commission. The Act directs the Mining and Energy Commission (MEC) to establish a modern regulatory program for the management of oil and gas exploration and development in the State and the use of horizontal drilling and hydraulic fracturing treatments involved for that purpose. The Act directs the Commission to submit quarterly written reports on the Commission's operation, activities, programs, and progress to the Joint Legislative Commission on Energy Policy and the Environmental Review Commission (Section 1.(h)). The Department is also required to report on the progress in developing and adopting the rules required to be adopted by S.L. 2012-143. The quarterly reports shall include recommendations on changes required to existing rules and statutes and any other findings or recommendations necessary for the implementation of the Act (Section 2.(m)). This report satisfies both of these reporting requirements for the April through June 2015 timeframe.

Activities for each of the MEC Committees for this quarter are summarized below:

The **Administration of Oil and Gas Committee** did not meet during this quarter.

The **Water and Waste Management Committee** did not meet during this quarter.

The **Rules Committee** did not meet during this quarter.

The **Mining Committee** did not meet during this quarter.

The **Petition for Rulemaking Committee** did not meet during this quarter.

The **Environmental Standards Committee** met on April 23, 2015 and received presentations from DENR's Division of Air Quality (DAQ) regarding federal air quality regulations, current North Carolina air quality rules, and comparisons of equivalent rules from other states.

The Environmental Standards Committee met again on May 15, 2015 and evaluated all information it had received since January 2015, related to potential air quality impacts from oil and gas development activities. Committee members worked toward developing findings and recommendations for the MEC to consider.

The final meeting of the Environmental Standards Committee occurred on May 22, 2015, wherein Committee members developed the following recommendations for MEC consideration. Each task item that the Committee researched is underlined, with respective recommendations shown in italics:

- Applicability of federal law to air emissions in NC, with specific consideration of wildcatter exemptions and potential exploitation of "legal loopholes" related to such exemptions by operators.

- *Committee Recommendation: Amend the 15A NCAC 05H rules to include definitions of “wildcat” and “delineation well” and also amend the rules to clarify that these wells would not carry such classification once they become operational.*
- Overlap of federal and state authority in other states regarding air emissions and monitoring.
 - *Committee Recommendation: The MEC should establish an Air Quality Committee as a standing committee, which would have responsibility for air quality issues pertaining to the oil and gas industry in NC.*
 - *Committee Recommendation: DAQ should provide updates to the Air Quality Committee on an as-needed basis, but no less frequently than yearly with regard to the evolving air quality standards at the federal level and within other state government levels.*
- Review of NC’s existing air quality regulatory framework for a more detailed analysis as to how the framework applies to oil and gas operations.
 - *Committee Recommendation: The MEC establish an Air Quality Committee as a standing committee, which would have responsibility for air quality issues pertaining to the oil and gas industry in NC.*
- Review of NC’s regulatory framework for addressing both cumulative and episodic impacts to air quality resulting from oil or gas industry activities.
 - *Committee Recommendation: The Air Quality Committee should develop a strategy to address regulatory and enforcement issues associated with negative short term and cumulative air quality events associated with oil and gas operations are captured and adequately addressed.*
- Assessment of air monitoring procedures to determine at what point in the development process monitoring should occur (i.e. before, during, or after oil and gas activities).
 - *Committee Recommendation: The Air Quality Committee should focus on loss detection and reduction (LDAR) of fugitive emissions, including the development of a robust leak detection program that would be beneficial to air quality and would be cost effective for operators. The Environmental Standards Committee acknowledges that EPA is in the process of promulgating a rule to be proposed later this year, which should be considered when developing any leak detection program in NC.*
- Innovative technologies to reduce air emissions.
 - *Committee Recommendation: The Air Quality Committee should investigate measures to mitigate NOx and PM 2.5 emissions through regulatory incentives or directions to the appropriate legal authority.*

- DAQ's ambient air monitoring program and the sufficiency of the program
 - *The Environmental Standards Committee recognizes that DAQ's current program is comprehensive. No recommendation was developed.*
- Best practices for emission monitoring and control across the country, especially as related to fence line monitoring
 - *Committee Recommendation: The Air Quality Committee should have a point of emphasis on fence line monitoring and enabling technological advances. The Committee recognizes that no state is presently requiring fence line monitoring.*
- Incentive opportunities (i.e. shorter permit application process) for using Best Available Control Technologies and other procedures to reduce emissions
 - *Committee Recommendation: The Committee did not learn of viable examples of this. This topic should continue to be monitored for potential opportunities.*
- Potential impacts of air emissions based on the source(s) of the emissions
 - *Committee Recommendation: DAQ should continue its efforts with updated data and improved knowledge as such data and knowledge become available and are applicable to NC.*
- Current MEC rules and the impact of 15A NCAC 05H rule implementation on air emissions (i.e. piping water to reduce truck trips and respective emissions)
 - *Committee Recommendation: The Air Quality Committee should be apprised of developing knowledge regarding the use of pits versus tanks and the emissions impact of each and initiate action as indicated.*
- Determination of rulemaking or other recommendations that should be provided to the EMC through the MEC
 - *Committee Recommendation: the Air Quality Committee should regularly assess the appropriateness of MEC guidance to the EMC.*
 - *Committee Recommendation: The Air Quality Committee should conduct an on-going review of data on the public health impacts associated with the air emissions from the oil and gas industry to inform the Committee's actions.*

Mining and Energy Commission activities for this quarter are summarized below:

The Mining and Energy Commission held three meetings during this quarter. During the April 23, 2015 meeting, the Commission met in closed session to discuss attorney-client privileged information related to the legal matter in Haw River Assembly v. Rao et al., 15 CVS 000127.

The Mining and Energy Commission met again on May 22, 2015, wherein the MEC voted to accept the recommendations presented by the Environmental Standards Committee and to

pass them to the succeeding Oil and Gas Commission (OGC). Commissioners also received a presentation from DEMLR Oil and Gas Program staff on the functional use and regulatory requirements of storage pits and tanks in oil and gas producing states. MEC members agreed that the succeeding OGC should continue to evaluate best management practices for pits and tanks and develop respective rule modifications as needed.

The Mining and Energy Commission held its final meeting on June 26, 2015. Commissioners agreed to pass along the recommendations from the Environmental Standards Committee regarding air quality matters. Additionally, the MEC developed the following suggestions for OGC consideration:

- Suggest that the OGC review information regarding pits and tanks that had been previously provided by DEMLR to the MEC;
- Suggest that the OGC continue to research setbacks and to modify respective rules as needed;
- Suggest that the OGC consider operational procedures for managing drilling unit requests and pooling orders, including associated forms and checklists, as developed by staff;
- Suggest that the OGC consider monitoring for seismic activity in the potential resource areas to establish baseline conditions prior to oil and gas well development;
- Suggest that the OGC consider sanctioning a pre-drilling baseline study of public health in areas potentially affected by oil and gas operations;
- Suggest that the OGC take the lead in developing standards and procedures to ensure that local emergency officials have the training and capacity to respond to emergencies related to oil and gas industry activity; and
- Suggest that the OGC refer to the MEC's Compulsory Pooling Study Group Report and the Landman Study Group Report to ensure that respective OGC rules are protective of the public.

It was also agreed that staff would compile the following key applicable documents into an orientation and reference binder for the new OGC members, with the ability for staff to supplement these documents with additional documents as an appendix:

- Statutes
- Rules
- Bylaws
- Public Hearing Officers' Report on Initial Rule Bundle
- White Paper on Pits and Tanks
- Environmental Standards Committee's Recommendations on Air Quality Matters
- All Study Group Reports
- MEC Chairman Suggestions to OGC

Commissioners continued to participate in local and regional education and outreach programs, in addition to providing information briefings to the Legislature. Specific activities for this quarter included:

- April 12, 2015: Dr. Kenneth Taylor provided the presentation, "Understanding the Process of Fracking," as part of the Rothemel Lecture program in New Bern, NC;
- April 17, 2015: Dr. Vikram Rao presented "Innovating in a Low Price Environment" at the Coastal Carolina University's Natural Gas Symposium in Conway, SC;

- April 22, 2015: Dr. Kenneth Taylor presented a summary of the Bureau of Ocean Energy Management's (BOEM) 2011 Atlantic Outer Continental Shelf Assessment (OCS) and the 2014 Update to the Atlantic OCS Assessment during the 2015 State Energy Conference in Raleigh, NC;
- May 1, 2015: Dr. Ray Covington provided a presentation titled, "NC and Natural Gas Exploration.... What Does It Mean for Surveyors?" as part of a continuing education program for registered land surveyors in Asheboro, NC;
- May 16, 2015: Ms. Charlotte Mitchell provided a presentation on NC oil and gas legislation, rule development, and regulatory oversight during the Environmental, Energy and Natural Resources Lawyers Annual Meeting in Atlantic Beach, NC;
- May 16, 2015: Dr. Kenneth Taylor provided a presentation titled, "Shale Gas 101: Natural Gas Exploration & Development: A North Carolina Perspective" during the Environmental, Energy and Natural Resources Lawyers Annual Meeting in Atlantic Beach, NC;
- May 26 – June 3, 2015: Dr. Kenneth Taylor oversaw core drilling, core logging, and core sampling activities to assess the geophysical anomaly known as the "Cumberland-Marlboro Basin" in Scotland, Cumberland, and Hoke Counties. He subsequently provided an information presentation to DENR management regarding the drilling project;
- June 11, 2015: Dr. Vikram Rao presented "Shale Oil and Gas: Current Realities" to the Greensboro Bar Association, Greensboro, NC;
- June 9 – 12, 2015: Dr. Kenneth Taylor reviewed, analyzed, and presented recommendations to DENR management on the Eastern North American Margin (ENAM) Project request for a geophysical permit to shoot a series of nine active source explosions to obtain seismic reflection data from a deep crustal structure beneath the surface of North Carolina and Virginia (not related to hydrocarbon resource evaluation); and
- June 22 and 29, 2015: Dr. Kenneth Taylor served as seismic agent for the State, in accordance with 15A NCAC 05C and observed the ENAM active seismic source explosions (not related to hydrocarbon resource evaluation).

DEMLR's Energy Section staff also participated in local and regional education and outreach programs. On April 22, 2015, DEMLR's Energy Section Chief provided a presentation on Midstream Gas Processing during the 2015 State Energy Conference in Raleigh, NC. Additionally, on May 1, 2015, staff provided presentations on North Carolina geology and onshore and offshore hydrocarbon resource potential to environmental health specialists throughout the state via the North Carolina State of Practice Training Program, in Morehead City. Staff also provided similar presentations to the North Carolina Energy Emergency Working Group and to the E4 Carolinas Emerging Leaders Program on May 5 and June 18, respectively.

DEMLR's Oil and Gas Program continues to assist the North Carolina Geological Survey (NCGS) in assessing hydrocarbon resource potential and has helped with rock sample processing, data compilation and plotting, and the technical review of professional conference posters. Additionally, staff teamed with the NCGS to assist with rock core drilling throughout the month of June 2015, to geologically assess an underground geophysical anomaly known as the "Cumberland Marlboro Basin." Oil and Gas Program personnel also assisted the NCGS with

core drilling through hydrocarbon-bearing shale, as well as through other strata in the Dan River geologic basin. Additionally, staff supported the NCGS by serving as “seismic monitors,” in accordance with 15A NCAC 05C, for the ENAM seismic testing (not related to hydrocarbon resource evaluation). Finally, Oil and Gas Program personnel have been assisting DEMLR’s Land Quality Section with sedimentation and erosion site inspections and plan reviews. Experience gained by working with these other DEMLR entities is directly relevant to the Oil and Gas Program and its implementation of NC’s 15A NCAC 05H rule set.

Oil and Gas Program personnel continue to work with the NC Geological Survey, the American Association of Petroleum Geologists, the American Petroleum Institute, and other professional organizations to receive cost-effective, in-house continuing education. These instructional sessions have helped staff to become more technically proficient and have covered topics such as hydrocarbon source and reservoir rocks, well site safety, well site construction practices, and geo-statistics.

DEMLR’s Oil and Gas Program promoted Ms. Katherine Marciniak, P.G. from the position of Environmental Senior Specialist into the position of Geologist/Hydrogeologist during June 2015. Ms. Marciniak has extensive experience developing oil and gas rules, leading environmental investigation and remediation projects, and has previously served as a sedimentation and erosion control inspector. Finally, the Oil and Gas Program is hosting three interns and has tasked them with researching regulatory standards in hydrocarbon-producing states and is also providing them with opportunities for professional education.

Additional information about the MEC, including agendas, meeting minutes and audio recordings of meetings, can be found at the Commission’s website: <http://portal.ncdenr.org/web/mining-and-energy-commission/>. The Department continues to manage this website and share information about the activities of the MEC with the public. The website lists meeting agendas, meeting minutes, PowerPoint presentations from meetings, contact information for MEC members, and other information. A listserv is also available for individuals who would like to receive updates on the MEC and changes to the website. To sign up for the listserv, visit <http://lists.ncmail.net/mailman/listinfo/denr.shale.gas>.

Figure 1 reflects current committee and study group members, as well as primary staff contacts for each committee and study group.

Committee	Chair/Vice Chair	Other Members	Primary DENR Staff
Mining	Tex Gilmore	George Howard, Amy Pickle, Dr. Marva Price, E.O. Ferrell, Dr. Robert Mensah-Biney, Dr. Ray Covington	Janet Boyer
Civil Penalty Remissions	Charlotte Mitchell	Jane Lewis-Raymond, Jim Womack, Charles Taylor, Dr. Robert Mensah-Biney	Walt Haven
Environmental Standards	E.O. Ferrell	George Howard, Dr. Matt Matthews, Charlotte Mitchell, Amy Pickle	Chandler Warner (Walt Haven)
Water & Waste Management	Dr. Vikram Rao, Charlotte Mitchell	Dr. Kenneth Taylor Amy Pickle Ivan "Tex" Gilmore	Katherine Marciniak
Administration of Oil & Gas	Jane Lewis-Raymond	Dr. Vikram Rao, E.O. Ferrell, Dr. Ray Covington, Dr. Kenneth Taylor, Ivan "Tex" Gilmore	Ryan Channell (Walt Haven)
Rules	Amy Pickle	Charlotte Mitchell, George Howard, Dr. Vikram Rao, Jane Lewis-Raymond	Robert Josey (Walt Haven)
Petition	Amy Pickle	Jane Lewis-Raymond E.O. Ferrell	Robert Josey (Walt Haven)
Study Group	Director	Other Members	Primary DENR Staff
Funding Levels & Potential Funding Sources	Jane Lewis-Raymond	Jim Womack, Dr. Vikram Rao, George Howard	Walt Haven (Katherine Marciniak)
Local Government Regulation	Charles Taylor, Dr. Marva Price	Jim Womack	Walt Haven
Compulsory Pooling	Dr. Ray Covington	Jim Womack, Charlotte Mitchell	Walt Haven
Coordinated Permitting	Dr. Kenneth Taylor	Jim Womack, Dr. Vikram Rao, Dr. Ray Covington, George Howard,	Walt Haven
Protection of Trade Secrets & Proprietary Information	Jim Womack	Amy Pickle, Jane Lewis-Raymond	Ryan Channell
Midstream Infrastructure	Jim Womack, Jane Lewis-Raymond	Dr. Kenneth Taylor, Dr. Matt Matthews Dr. Ray Covington	Chandler Warner
Landman Registry	Dr. Ray Covington	James Womack, George Howard, Charlotte Mitchell, Charles Taylor Dr. Karen Glaser	Katherine Marciniak

Figure 1. Commissioner responsibility and primary staff assignments.