

The Marcellus Shale Safe Drilling Initiative Draft Work Plan

January 20, 2012

The Marcellus Shale Safe Drilling Initiative study is to address the short-term, long-term and cumulative effects of natural gas exploration and production in the Marcellus shale, best practices, and appropriate changes, if any, to the laws and regulations concerning oil and gas. The Department of the Environment and the Department of Natural Resources have developed the following draft work plan to carry out the Marcellus Shale Safe Drilling Initiative through August 1, 2012. The Departments will consult with the Marcellus Shale Advisory Commission (MSAC) before finalizing the work plan.

Initial Task - Part I

The initial task investigated the desirability of enacting State legislation to establish sources of revenue to fund State activities, and standards of liability for damages. The Departments completed and submitted a report at the end of 2011.

The Study - Part II

A report addressing, at a minimum, best practices for all aspects of gas exploration and production in the Marcellus shale in Maryland is due August 1, 2012. The Departments' work plan for completion of Part II of the study has four principal components:

Continuing Research. DNR and MDE staff will continue to research and review new developments, studies and reports concerning Marcellus Shale.

Identifying Best Practices Appropriate for Maryland. MDE will contract with the University of Maryland Center for Environmental Studies – Appalachian Laboratory (UMCES) for a survey of Best Practices and a recommendation of a suite of Best Practices suitable for Maryland. A tentative scope of work for the contract is attached and will be discussed with the Advisory Commission. Under the tentative scope of work, UMCES will perform a systematic review of best practices advocated by industry, several states, and reports from governments, advisory commissions and other organizations. Following receipt of the recommendations, the Departments and the Advisory Commission will consult on the selection of Best Practices.

Mapping. The Department of Natural Resources is mapping the location of leased areas in relationship to resource areas, including intact forests; forest interior dwelling birds; rare, threatened and endangered species; and tier 2 streams. Best practices for drilling should be designed to avoid, minimize or mitigate impacts to resource areas.

Consultation with Experts. DNR and MDE will identify experts on aspects of Marcellus Shale drilling that are of particular interest and invite those experts to present information and answer questions from the Departments and the Advisory Commission.

Proposed schedule for completion of Part II of the Study:

Month	Tasks
January	Finalize work plan in consultation with MSAC; execute agreement with UMCES
February	DNR completion of preliminary mapping work on resource impacts and presentation to MSAC; ongoing work with UMCES
March	One or more presentations to MSAC; further development of mapping resource impacts based upon MSAC consultation; ongoing work with UMCES
April	Review and update of work plan and funding based upon any action the General Assembly may have taken in enacting a Marcellus Shale Study Fee; one or more presentations to MSAC
May	Ongoing work with UMCES; one or more presentations to MSAC
June	Review of UMCES findings and recommendations on best practices; consultation with MSAC.
July	Review of Departmental findings and recommendations on best practices; further consultation with MSAC. If the General Assembly has enacted study fee, execute contracts for regional groundwater and stream monitoring; collection of survey data; and an economic and resource impact study to assess, quantify, and identify ways to avoid or minimize adverse impacts on scenic landscapes, local land use patterns, the rural character of western Maryland and other natural values that provide the basis for the recreation and tourism sectors of the region's economy.
August	No MSAC meeting; submit report on Part II;

Future Meetings. For the March, April and May meetings of the MSAC, the agenda for each meeting will include at least one expert involved in the study of Marcellus Shale who can give a presentation on a specific topic and answer questions from the Departments and the Commissioners. Speakers could include Stronger; the Marcellus Shale Coalition; a gas or drilling company representative with in-depth, practical knowledge of the techniques and practices of horizontal drilling and fracking; representatives of New York and Pennsylvania state governments; a public health expert; the non-governmental organizations; and other State and federal agencies. The Commissioners will be consulted regarding the choice of topics and experts.

The Study - Part III

A report addressing the remainder of the Study topics is due August 1, 2014. At the MSAC September 2012 meeting, the Departments will present a draft work plan for completing Part III of the Study.

Attachment - Scope of Work for Best Practices Study

The Contractor will provide technical assistance for the development of Best Management Practices (BMPs) and regulations for shale gas development in Maryland. The Contractor will be required to provide information in three (3) separate submittals. The following summary represents the information being sought in this contract.

A. Research and Literature Search – This task must be completed by June 15, 2012.

The Contractor will be required to identify BMPs that offer the protection of public health, safety, the environment, and natural resources from the potential adverse effects of shale gas exploration and production.

The subjects of the literature research will include methods of protecting:

1. Air Quality
2. Drinking Water Supplies
3. Water Quality (surface water and groundwater)
4. Habitat (e.g., forest fragmentation, stream sedimentation, and introduction of invasive species)
5. Public Health
6. Public Safety
7. Public Recreational Opportunities
8. Grazing and Agriculture
9. Cultural/Historic Values
10. Quality of Life (e.g., noise, dust, traffic)
11. Visual Aesthetics
12. Wildlife (aquatic and terrestrial)

The Contractor will, at a minimum, research BMPs adopted and proposed in at least four (4) states: Pennsylvania, New York, Ohio and West Virginia. In addition, the Contractor will be required to research American Petroleum Institute standards, governmental and advisory commission reports and other relevant sources suggested by the Contractor and approved by the Department. The work product must be presented in a format acceptable to the Department (an electronic spreadsheet which MDE can use, manipulate and edit using MDE's computer system would be acceptable) that will allow an easy comparison of equivalent BMPs as well as easy identification of the array of BMPs from each state or other source. The final product must be delivered as 5 hard copies and also electronically submitted.

In connection with this task, the Contractor will be required to meet with the Marcellus Shale Advisory Commission early in the work to consult with the Advisory Commission about the scope of the inquiry and again when this task is completed to describe the BMPs.

B. Identification of Suite of BMPs – This task may overlap with Task A, but Task B must be completed by July 2, 2012.

Based upon the research and literature search, consultation with experts in relevant fields, and meetings with the Department, the Contractor will identify a suite of BMPs that

offers the maximum protection of public health, safety, the environment, and natural resources for the items listed under Task A. The suite must be appropriate for the geology and natural resources of Maryland . . . In addition, this task will also require the Contractor to provide a narrative explanation of the rationale that was used to select the suite of BMPs. The Contractor may be required to meet with the Departments and the Advisory Commission to provide a presentation of the data, respond to comments and answer questions.

It is anticipated that the BMPs will address such things as:

1. Pre-operational environmental assessment
2. Overall development plan
3. Setback requirements
4. Special protection for high value assets (e.g., high quality streams and lakes, natural trout streams)
5. Well spacing
6. Site preparation
7. Construction of pad, roads, pits
8. Hours of Operation
9. Noise control
10. Erosion and sediment control
11. Chemical transfer and storage
12. Spill containment and Emergency Response Plan
13. Drilling
14. Use of closed-loop, closed container handling
15. Identification of fresh water aquifer
16. Casing and cementing
17. Logging
18. Integrity testing the casing and cement
19. Pressure testing
20. Blowout prevention
21. Air emissions from operations (including compressors and diesel engines)
22. Identification of chemicals (including proppants and chemicals in hydraulic fracturing fluid and drilling muds)
23. Acquisition, transport and storage of water for hydraulic fracturing
24. Use of non-potable water for hydraulic fracturing
25. Use of well development techniques other than hydraulic fracturing
26. Determining the extent of induced fractures (e.g., microseismic survey or tracer substances)
27. Clean completion of well
28. Radiation
29. Recycling/treatment of wastes
30. Handling and disposal of cuttings
31. Handling and disposal of liners and other wastes
32. Testing, recordkeeping, handling, manifesting and disposal of flowback
33. Testing, recordkeeping, handling, manifesting and disposal of produced water

34. Testing, recordkeeping, handling, manifesting and disposal of contaminated stormwater
35. Appropriate disposal facilities
36. Site security
37. Coordination with local Emergency Responders (including training, equipment, notification)
38. On-site and off-site monitoring
39. Gathering lines and pipelines

C. Development of a Guidance Document and Regulations – This task must be completed by December 3, 2012.

The Contractor will be required to develop a guidance document in a format acceptable to the Department that fully describes the suite of BMPs that were identified in Task B. The guidance document must provide sufficient detail so that it can be used to inform the development of state regulations that would mandate the use of these practices unless the applicant for a permit proposes alternative measures and demonstrates to the satisfaction of the Maryland Department of the Environment that the alternative measures are at least as protective. The Contractor may have to meet with the Department up to three (3) times during the development of the guidance document, and is encouraged to supply drafts for consideration well in advance of the deadline.

Schedule

Task A must be completed by June 15, 2012.

Task B must be completed by July 2, 2012.

Task C must be completed by December 3, 2012.