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Executive Summary

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UMCES-AL Report recommendation 1-C, 1-G, 5-A, 5-A.1, 5-A.3, 5-F, 5-F.1, 6-A, 6-C, 6-D, 6-E, 6-F, 6-J, 7-A, 7-A.1, 7-D, 7-D.1, 8-A, 8-B, 8-E, 9-A, 9-A.2, 9-A.3, 9-E, 9-E.1, 9-G, 10-B

Comprehensive Gas Development Plans (CGDPs) provide an opportunity to address multiple aspects of shale gas development from a holistic, broad-scale planning perspective rather than on a piecemeal, site-by-site basis. By considering the entire project scope of a single company, or multiple companies simultaneously, many of the concerns associated with maintaining the rural character of western Maryland, protecting high value natural resources and resource-based economies and minimizing public use conflicts can be resolved or minimized while allowing for responsible energy development. Proactive, upfront planning at a landscape scale provides the framework for evaluating and minimizing cumulative impacts to the environmental, social and economic fabric of western Maryland. The Departments agree that a CGDP process will be beneficial and recommend that this be a mandatory prerequisite before any individual well permits would be issued. The associated recommendations, as listed as above, are generally accepted by the Departments for planning guidelines. The outline below provides a conceptual framework.

A. Application Criteria and Scope

1. Companies intending to develop natural gas resources are required to submit a CGDP for the entire area of the target formation for which the applicant holds gas rights and areas needed for additional supporting infrastructure (compressor stations, waste water treatment facilities, roads, pipelines, etc.).
2. The CGDP shall cover a period of at least ten years of development.
3. Companies whose geographic planning units overlap are encouraged to develop integrated plans to improve use of existing and new infrastructure and to minimize cumulative impacts.

4. A company is not obligated to develop all the pads or wells identified in the plan.

B. Procedure

1. Company prepares a preliminary CGDP that best avoids and then minimizes harm to natural, social, cultural, recreational and other resources, and mitigates unavoidable harm.
2. Requires a map and accompanying narrative showing the proposed location of all wells, well pads, gathering and transmission lines, compressor stations, separator facilities, access roads, and other supporting infrastructure.
3. Comprehensive planning GIS data will be provided through a Shale Gas Development Toolbox.

C. Planning principles:

1. Use multi-well, clustered drilling pads to minimize surface disturbance
2. Comply with location restrictions, setbacks and other environmental requirements of State and local law and regulations.
3. Avoid, minimize and mitigate impact on resources as discussed in Section IV.
4. Concentrate operations on disturbed, open lands or lands zoned for industrial activity
5. Co-locate linear infrastructure with existing roads, pipelines and power lines.
6. Reduce cumulative surface impacts that consider impacts from other gas development projects and land use conversion activities.
7. Avoid surface development beyond 2% of the watershed area in high value watersheds.
8. Minimize fragmentation of intact forest, with particular emphasis on interior forest habitat.
9. Additional planning elements include
10. Area wide transportation plan.
11. Water supply and waste management plans
12. Sequence of well drilling over the lifetime of the plan.
13. Identification of all federal, state and local permits.

D. Review and Approval Process

1. State agencies and local government agencies review the CDGP, evaluate opportunities for coordinated regulatory review and present comments to the applicant to direct any needed alternative analyses for review.
2. A stakeholders group that includes the company, local government, resource managers, non-governmental organizations, and surface owners is convened; in a facilitated process of pre-determined length, to discuss and improve the plan.
3. The plan is presented at a public meeting by the applicant.
4. Additional modifications to the plan are prepared based on alternatives analyses and public comment.
5. The State approves or disapproves the CGDP; upon approval, the applicant may file a permit application for one or more wells.
6. Significant modification to the original plan, such as a change in location of a drilling pad, or the addition of new drilling pads, will require the submission of a modified CGDP application; however a change in the sequence of execution shall not require a modified application.

E. Regulatory and non-regulatory benefits

1. An approved, high quality CGDP could result in numerous benefits for all parties. These benefits, particularly those related to expedited permit review, are still under discussion among the review agencies, but could include:
2. Wetland and waterway permit approvals for multiple individual impacts, such as those associated with pipeline networks and road construction, contingent on a comprehensive alternatives analysis scenario.
3. Preliminary approval for drill pad locations, allowing the applicant to initiate baseline monitoring and begin application for individual well permits.
4. Expedited consideration of other environmental approvals and permits, such as air quality, erosion and sediment control, stormwater management, water appropriation and use, etc.
5. Opportunities to implement mitigation actions prior to permit approval or in advance of project development.
6. Reduced expense and risk associated with leveraging existing infrastructure and centralizing various processing needs.
7. Reduced public use conflict and improved public good will.

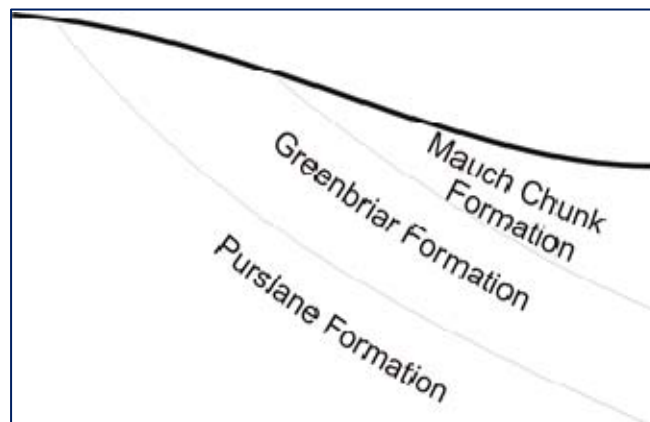
IV. Location Restrictions, Setbacks and Siting Best Practices

A. Location Restrictions and Setbacks

UMCES-AL Report recommendations 1-E, 1-F, 1-H, 1-I, 1-J, 1-M, 4-A, 5-C, 5-C.1, 5-C.2, 5-C.3, 6-B, 8-F, 8-G, 9-A.1, 9-C

The Departments generally accept the proposed location restrictions and setbacks with the following modifications and additions.

1. Well pads shall not be constructed on land with a slope $> 15\%$. This was recommended in the report, but not included as a key recommendation.
2. Modify restrictions for setbacks from limestone outcrops to the borehole; setback areas for mapped limestone outcrops apply only to 500 feet on the downdip side of the formation.
3. There is no need to adhere to setbacks on the updip side because the limestone formation will not be encountered (figure x). This setback recommendation was established to avoid karst features. However, MGS states that most limestone in Garrett County is not karst, but when these features do occur, they rarely penetrate below 100 – 200 feet from the surface. In Garrett County, these formations generally dip at 20 degrees, while the beds in Allegany County dip at steeper angles. Using a 200 foot depth for potential karst development as a conservative estimate, a 500 foot setback on the downdip side of the limestone outcrop would be sufficiently protective.



4. Setbacks for known and discovered caves should remain at 1000 feet because of the biological resource sensitivity and the potential for groundwater contamination.

5. Modify restrictions for setbacks from mapped underground coal mines to the borehole.

MDE's mining program notes that Maryland's deep coal mines may cover thousands of acres, are only several hundred feet deep, and be safely cased through, particularly if pilot holes are drilled to identify these features and modify drilling processes to address the known hazards. A setback of 1000 feet is unnecessarily restrictive. [Modify how?]

6. Replace the recommended 500 foot setback from private groundwater wells to the borehole with a 1,000 foot setback.

Current regulations, COMAR 26.19.01.19G, are more protective and state that an oil and gas well cannot be closer than 1,000 feet to a drinking water supply. Private groundwater wells are considered a drinking water supply.

7. Expand drill pad location restrictions and setbacks listed in Table 1-1 to all gas development activities resulting in surface disturbance.

This includes roads, pipelines, compressor stations, separator facilities and other infrastructure needs. This expansion specifically applies to aquatic habitat, special conservation areas, cultural and historical sites, State and federal parks and forests, trails, wildlife management areas, scenic and wild rivers and scenic byways.

8. MDNR will develop new maps of public outdoor recreational use areas to establish additional recreational setbacks and mitigation measures for minimizing public use conflicts.

Maryland has a number of well-developed and nationally-recognized networks of scenic and historic byways and hiking and water trails that provide opportunities for the public to experience nature, cultural and historical features and the outdoors through unique vistas and long-distance travel routes. The location and features that make these routes unique (e.g. vistas, through-trail hikes, canopy cover) should be considered during setback discussions. The proposed recreational setback from Marcellus shale gas infrastructure is a minimum of 300 feet with additional setback considerations for noise, visual impacts and public safety. Additional factors will include hunting and fishing activities, light, odor and other issues that would affect public use and enjoyment of these resources. MDNR will launch a formal process for developing new maps of use areas that would include participatory GIS workshops conducted with facility managers, friends groups, frequent visitors, and other stakeholders. The maps generated from these discussions and workshops could then be used to inform comprehensive gas development plans, setback considerations, mitigation measures and timing of shale gas development activities. This recommendation

could be incorporated as an element of the public comment period of a CGDP process, or be developed independently of the CGDP and included in the Shale Gas Development Toolbox.

B. Siting Best Practices

UMCES-AL Report recommendations 3-B, 4-D, 5-A.2, 5-D, 5-F. 5-F.1, 6-J, 6-J.2, 6-J.4, 8-C, 8-D, 8-E, 8-H, 8-I, 9-H, 10-A, 10-B, 10-C, 10-D

This also includes best practices recommended for siting pipelines, access roads and other supporting infrastructure.

The Departments generally accept the proposed siting best practices and with the following modifications and additions.

1. Determine if no-net-loss of forest should apply to temporary or permanent losses and define how the acreage should be determined.
2. Mitigation options for forest replacement should also allow for forest conservation.
3. MDNR will provide additional GIS conservation planning data layers and guidance for avoiding, minimizing and mitigating impact to aquatic and terrestrial high priority conservation areas.
4. Develop siting policies to guide pipeline planning and direct where hydraulic directional drilling and additional specific best management practices are necessary for protecting sensitive aquatic resources when streams must be crossed.
5. Stream crossings will avoid impact to brook trout spawning beds (mentioned in report, but not listed in key recommendations).
6. Operations, water withdrawals and infrastructure siting should avoid thermal impacts to cold water streams.

Section V – Plan for Each Well

UMCES-AL Report recommendations

3-A

For each well, the applicant for a drilling permit shall prepare and submit to MDE, as part of the application, a plan for construction and operation that meets or exceeds the standards for Engineering, Design and Environmental Controls set forth in Section VI. In preparing the plan, the applicant shall consider API Standards and Guidance Documents, and if the plan fails to follow a normative element of a relevant API standard, the plan must explain why and demonstrate that the plan is adequate. The plan must address, at a minimum,

1. updating the Environmental Assessment
2. evaluation of potential flow zones
3. identification and evaluation of shallow and deep hazards
4. pore pressure/fracture gradient/drilling fluid weight
5. monitoring and maintaining wellbore stability
6. addressing lost circulation
7. casing
8. cementing
9. drilling fluids
10. wellbore hydraulics
11. barrier design
12. blow out protection
13. contingency planning
14. communications plan, including communication with contractors and subcontractors
15. site security
16. storage of water, wastewater, fuel and chemicals
17. transportation
18. spill prevention, control and countermeasures, and emergency response
19. invasive species
20. monitoring the well during production to detect well problems and failure of casing or cement
21. reclamation

VI. ENGINEERING, DESIGN AND ENVIRONMENTAL CONTROLS

2-B, 3-C, 3-D, 3-E, 3-F, 3-G, 4-E, 4-F, 4-H, 4-I, 4-J, 5-B, 5-D, 5-E, 5-F, 5-G, 6-G, 6-H, 6-I, 6-J, 7-B, 7-C, 7-D, 8-C, 9-A, 9-B, 9-D, 9-G, 9-H, 10-F

A. Site Construction and Sediment and Erosion Control

1. The pad
 - a) The pad shall be constructed to prevent any discharge (a “zero-discharge” facility) and shall be maintained as a zero-discharge facility during all times that mobile equipment or potential pollutants such as fuel or chemicals are present.
 - b) Stormwater that collects on the pad or within containment areas shall be collected and stored in tanks or containers until used or disposed of in accordance with the requirements of law.

c) The collection of stormwater and other liquids may cease only when all potential pollutants have been removed from the pad and appropriate, approved stormwater management can be implemented.

2. Tanks and containers

a) Tanks shall be aboveground, constructed of metal, and lined if necessary to protect the metal from the contents.

b) Except for tanks used in a closed loop system for managing drilling fluid and cuttings, tanks shall be closed and equipped with air pollution control equipment specified in other sections of this report.

c) All tanks and containers shall be surrounded with a continuous dike or wall capable of effectively holding the total volume of the largest storage container or tank located within the area enclosed by the dike or wall. The construction and composition of this emergency holding area shall prevent movement of any liquid from this area into the waters of the State.

3. Pits and ponds

a) Pits and ponds shall be used only to collect or store freshwater.

b) Pits and ponds shall be constructed to meet current regulations, COMAR 26.19.01.10 J and K.

4. Pipelines

c) The locations of pipelines will be established in a Comprehensive Drilling Plan, and co-location will be encouraged. Pipelines must, to the extent possible, avoid environmentally sensitive areas.

d) Onshore natural gas gathering lines are classified by the federal government based upon the number of buildings intended for human occupancy that lie within 220 yards on either side of the centerline of any continuous one mile length of pipeline. If there are fewer than 10 such buildings, the gathering lines are not “regulated pipelines.” In Maryland, the Pipeline Safety Division of the Maryland Public Service Commission regulates and inspects intrastate gas pipelines.

e) Except for those oil and/or natural gas pipelines covered by the Hazardous Materials Transportation Act (49 U.S.C. sections 1802 et seq.) or the Natural Gas Pipeline Safety Act (49 U.S.C. sections 1671, et seq.), all pipelines utilized in the actual drilling or operation of oil and/or natural gas wells, the producing of oil and/or natural gas wells, and the

transportation of oil and gas, shall follow comply with standards for material and construction.

(1) The owner and operator of any pipeline shall participate as an “owner-member” as that term is defined in the Maryland Public Utilities Code, Section 12-101, in a one-call system.

(2) All pipelines and fittings appurtenant thereto used in the drilling, operating or producing of oil and/or natural gas well(s) shall be designed for at least the greatest anticipated operating pressure or the maximum regulated relief pressure in accordance with the current recognized design practices of the industry.

5. Roads

a) The Departments solicit comments on whether the recommendations of the Pennsylvania Department of Conservation and Natural Resources are appropriate for western Maryland and adequately protective.

B. Water

1. Storage

a) Ponds and impoundments may be used to store only freshwater and uncontaminated stormwater. Uncontaminated stormwater does not include stormwater collected from the pad or areas exposed to stormwater where materials, equipment or wastes are handled, loaded or unloaded, used or stored.

2. Withdrawal

a) Maryland has a robust program for regulating the appropriation and use of water that prevents unreasonable interference with other persons’ rights to make reasonable use the water and that protects aquatic habitat.

b) Maryland will entertain any reasonable proposal for using acid mine drainage water or recycled water for use in fracking fluid.

c) Temporary pipelines should be used to transport water to the drill site if feasible and if the pipelines are designed and constructed to avoid damage to the environment.

d) The topic of the possible spread of invasive species will be addressed in an invasive species plan.

3. Reuse

- a) Flowback and produced water should be recycled to the maximum extent practicable.

C. Chemical disclosure

1. The constituents of all additives to drilling fluid and fracking fluid shall be identified in the permit application by chemical name and Chemical Abstract Service number.
2. With the exceptions noted below, the provisions regarding claims of trade secret and disclosure of confidential information applied to drilling and fracking chemicals shall be the same as those of the OSHA Hazard Communication Standard, 29 CFR 1910.1200
 - a) No claim that the identity of any constituent is a trade secret shall be recognized by MDE until the applicant provides information demonstrating, to the satisfaction of MDE, that the claim is legitimate
 - b) The trade secret information must be provided to MDE with the permit application; MDE will release it only to exposed persons or health care professions in accordance with the provisions of the OSHA Hazard Communication Standard governing disclosure by the chemical manufacturer, importer, or employer.
 - c) A health care professional's need for the trade secret information need not relate to occupational exposure or employees.

D. Drilling

1. Equipment powered by electricity from the grid will be required wherever it is available or it is feasible to make it available.
2. Propane or natural gas should be used to power motors and pumps if electricity from the grid is not available. The Departments solicit comments or suggestions on criteria for making a determination whether it is feasible to make electricity from the grid available.
 - a. Pilot hole
 1. Before the first well intended for production is drilled at any pad, a pilot hole shall be drilled vertically through the target formation and logged. If the well is not to be re-drilled as a gas well, it shall be properly plugged and abandoned within ___ days of completion. If the well is to be re-drilled as a gas well, the hole shall be plugged to the level of the kick-off point.
 - b. Drilling fluids and cuttings
 1. All intervals drilled prior to reaching the depth 100 feet below the deepest known stratum bearing fresh water, or the deepest known workable coal,

whichever is deeper, shall be drilled with air, fresh water, a freshwater based drilling fluid, or a combination of the above. Only additives suitable for drilling through potable water supplies may be used while drilling these intervals. Below the cemented surface casing that isolates the deepest stratum bearing fresh water, additives other than those suitable for drilling through potable water can be used if approved by the Department.

2. Returning drilling fluid and cuttings shall be contained in a closed system of tanks and containers at the pad site
3. Cuttings shall be tested for radioactivity and disposed of in accordance with law
4. With the permission of MDE, cuttings may be disposed onsite.

E. Casing and cement

1. Requirements for casing and cement

All casing installed in a well shall be steel alloy casing that has been manufactured and tested consistent with standards established by the American Petroleum Institute (API) in “5 CT Specification for Casing and Tubing” or ASTM international (ASTM) in “A500/A500M Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes” and has a minimum internal yield pressure rating designed to withstand at least 1.2 times the maximum pressure to which the casing may be subjected during drilling, production or stimulation operations.

The minimum internal yield pressure rating shall be based upon engineering calculations listed in API “TR 5C-3 Technical Report on Equations and Calculations for Casing, Tubing and Line Pipe used as Casing and Tubing, and Performance Properties Tables for Casing and Tubing.”

Reconditioned casing may be permanently set in a well only if it has passed a hydrostatic pressure test with an applied pressure at least 1.2 times the maximum internal pressure to which the casing may be subjected, based upon known or anticipated subsurface pressure, or pressure that may be applied during stimulation, whichever is greater, and assuming no external pressure. The casing shall be marked to verify the test status. All hydrostatic pressure tests shall be conducted pursuant to API “5 CT Specification for Casing and Tubing” or other method(s) approved by the Department. The owner shall provide a copy of the test results to the inspector before the casing is installed in the well.

2. Isolation

The surface casing shall be run and permanently cemented to a depth at least 100 feet below the deepest known stratum bearing fresh water, or the deepest known workable coal, whichever is deeper. All flow zones shall be fully protected through the use of cemented intermediate well casings, isolating the well and all drilling and produced fluids to preserve the geological seal that

separates fracture network development from aquifers, and prevent vertical movement of fluids in the annulus.

3. Integrity testing and Pressure testing

3-D, 3-E

Mechanical integrity tests shall be performed when refracturing an existing well.

F. Well logging

G. Blowout prevention

H. Fracking

1. Diesel fuel shall not be used in fracking fluids
2. A tilt meter or seismic survey shall be performed by the permittee for the first well fracked on each pad to provide information on the extent, geometry and location of fracturing; the information shall be provided to MDE.

I. Flowback and produced water

1. Flowback and produced water shall be handled in a closed loop system of tanks and containers at the pad site.
2. Flowback and produced water shall be recycled to the maximum extent practicable, which shall not be less than 90%, and on the pad site of generation to the extent feasible.

J. Air emissions

1. Reduced emissions completion (REC)
 - a) Except as provided below, during well completion and re-completion, all pipeline-quality gas shall be transferred to a pipeline for sale.
 - b) For the first well drilled on a pad, if it is not feasible to transfer the gas from well completion or re-completion to a pipeline, the gas may be flared
 - c) Well permittees shall comply with the EPA's new source performance standards and national emissions standards for hazardous air pollutants for oil and natural gas hydraulic fracturing operations, issued in 2012, without regard for the effective date.

2. Flaring. When flaring is permitted during well completion, re-completions or workovers of any well, Operators must adhere to the following requirements:

- a) Operators must either use raised/elevated flares or an engineered combustion device with a reliable continuous ignition source, which have at least a 98% destruction efficiency of methane. No pit flaring is permitted.
- b) Flaring may not be used for more than 30-days on any exploratory or extension wells (for the life of the well), including initial or recompletion production tests, unless operation requires an extension
- c) Flares shall be designed for and operated with no visible emissions, except for periods not to exceed a total of five minutes during any two consecutive hours.

3. Stationary engines and vehicles

- a) All engines must meet EPA Heavy Duty Truck Engine Standards for 2004 to 2006 engine model years, which include a combined NOx +NMCH emission standard of 2.5 g/bhp-hr
- b) All engines using diesel fuel shall use only ultra-low sulfur diesel fuel
- c) Except for engines necessarily kept in ready reserve, a diesel nonroad engine may not idle for more than 5 consecutive minutes. A ready-reserve state means an engine may not be performing work at all times, but must be ready to take over powering all or part of an operation at any time to ensure safe operation of a process.

K. Wastewater treatment

L. Wastewater disposal

M. Leak Detection

UMCES-AL Report recommendations 2-A

The Departments accept the proposed recommendations (summarized below) and include additional comments.

A methane leak detection and repair program must be established from wellhead to transmission line.

Require consideration of all feasible recommended strategies identified in EPA's Natural Gas STAR program as an element of leak detection and repair program.

A statement must be submitted listing all equipment available for the detection, prevention, and containment of gas leaks and oil spills: COMAR 26.19.01.06C(17).

MDE may not issue a drilling and operating permit if drilling or operations would result in physical and preventable loss of oil and gas...: COMAR 26.19.01.09J.

On site air pollution monitoring as discussed in the monitoring section is included as an element of the leak detection program.

N. Light

UMCES-AL Report recommendations 5-E, 5-E.1, 8-G, 8-H

The Departments accept the proposed recommendations for lighting at drill pad sites with the following modifications.

Light restrictions and management protocols must also minimize conflicts with recreational activities, in addition to minimizing stress and disturbance to sensitive aquatic and terrestrial communities.

O. Noise

1. Applicants for permits shall submit a plan for compliance with the applicable noise regulations
2. Unless a local jurisdiction adopts more stringent limits, the maximum allowable noise levels (dBA) for receiving land use categories are:

Day/Night	Industrial	Commercial	Residential
Day (7 a.m. to 10 p.m., local time)	75	67	65
Night (10 p.m. to 7 a.m., local time)	75	62	55

Noise limits apply at the boundary of: (a) a property; or (b) a land use category, as determined by the responsible political subdivision. Md. Env. Code, Title 3. The measurement of noise levels shall be conducted at points on or within the property line of the receiving property or the boundary of a zoning district, and may be conducted at any point for the determination of identity in multiple source situations. COMAR 26.02.03.02D(2).The noise regulations also address vibrations: “A person may not cause or permit, beyond the property line of a source, vibration of sufficient intensity to cause another person to be aware of the

vibration by such direct means as sensation of touch or visual observation of moving objects. The observer shall be located at or within the property line of the receiving property when vibration determinations are made.” COMAR 26.02.03.02B.

P. Invasive species

1. Applicants for permits shall submit an invasive species plan for preventing the introduction and spread of invasive species that shall cover, at a minimum:
2. Flora and fauna inventory surveys of sites prior to operations, including water intake sites;
3. Washing of vehicles and equipment
4. Interim reclamation following construction and drilling to reduce opportunities for invasion;
5. Annual monitoring and treatment of new invasive plant populations as long as the lease is active;
6. Post-activity restoration to pre-treatment community structure and composition using seed that is certified free of noxious weeds.

Q. Site Security

UMCES-AL Report recommendations 7-C, 7-C.1. 7-C.2. 7-C.3

1. The Departments accept the proposed site security recommendations intended to avoid emergencies and would include practices such as: Perimeter fencing, gates, locks and duplicate keys available to emergency responders and regulatory personnel
2. Appropriate warning signs
3. Guarded access points, particularly during times of active operations

R. Spill Prevention, Control and Countermeasures, and Emergency Response

Operators shall prior to commencement of drilling, develop and implement an emergency response plan, ensure local responders have appropriate training in the event of an emergency, and work with the local governing body, in which the well is located, to verify that local responders have appropriate equipment to respond to an emergency at a well.

S. Closure and Reclamation

The goal of reclamation should be to return the developed area to native vegetation (or pre-disturbance vegetation in the case of agricultural land returning to production) and restore the original hydrologic conditions to the maximum extent possible. The reclamation plan shall address (1) interim reclamation following construction and drilling to reduce opportunities for invasion and (2) postactivity restoration using species native to the geographic range and seed that is certified free of noxious weeds.

Reclamation shall address all disturbed land, including the pad, access roads, ponds, pipelines and ancillary equipment

VII. Monitoring, Recordkeeping and Reporting

UMCES-AL Report recommendations 1-A, 1-B, 2-A, 2-C, 2-D, 2-E, 3-G, 4-C, 5.G-1, 7-A.3

The Departments accept the proposed monitoring, recordkeeping and reporting recommendations with the following modifications, additions and comments.

- A. MDNR emphasizes that a minimum of 2 years of pre-development baseline data is necessary to evaluate the condition and characteristics of aquatic resources, particularly the living resources, since statewide monitoring experience demonstrates there is great variability on a seasonal and annual basis.
- B. State agencies will develop standard protocols for baseline and environmental assessment monitoring, recordkeeping and reporting.
- C. All information collected at the site and within the study area must be reported according to the State developed guidelines. This is to include monitoring and assessment data for air and water quality, terrestrial and aquatic living resources, invasive species, well logs, other geophysical assessments, such shale fracturing characteristics and additional information as required by the State.
- D. State agencies will require more extensive testing of surface water and ground water parameters both randomly and in instances where elevated levels have been detected.
- E. Cuttings, flowback, residue from treatment of flowback and produced water, and any equipment where scaling or sludge is likely to occur shall be tested for radioactivity and disposed of in accordance with law.
- F. Personnel and time needed for inspections and compliance activities cannot be determined until we have a better sense of what the regulations will require. Nevertheless, the Department can assess fees adequate to cover the expenses of the program, including inspections.

Env. Code section 14-105 provides:

b) Fees. -- The Department shall establish and collect fees for:

- (1) The issuance of a permit to drill a well under § 14-104 of this subtitle;
- (2) The renewal of a permit to drill a well under § 14-104 of this subtitle; and
- (3) The production of oil and gas wells installed after October 1, 2010.

(c) Fees -- Rate. -- The fees imposed under subsection (b) of this section shall be set by the Department at the rate necessary to implement the purposes set forth in § 14-123 of this subtitle.

§ 14-123. Use of money

The Department shall use money in the Fund solely to administer and implement programs to oversee the drilling, development, production, and storage of oil and gas wells, and other requirements related to the drilling of oil and gas wells, including all costs incurred by the State to:

- (1) Review, inspect, and evaluate monitoring data, applications, licenses, permits, analyses, and reports;
- (2) Perform and oversee assessments, investigations, and research;
- (3) Conduct permitting, inspection, and compliance activities; and
- (4) Develop, adopt, and implement regulations, programs, or initiatives to address risks to public safety, human health, and the environment related to the drilling and development of oil and gas wells, including the method of hydrofracturing.

VIII. MISCELLANEOUS RECOMMENDATIONS

A. Transportation Planning

UMCES-AL Report recommendations 7-A, 7-D, 7-D.1, 7-D.2, 8-E, 9-A.4, 9-E, 9-E.1

The Departments accept the proposed transportation planning recommendations with the following modifications and additions.

1. Ensure that local governments are adequately equipped for responsive and adequate transportation planning. This may require State agency technical and financial assistance.
2. Encourage maximum movement of heavy equipment by rail to protect road systems and prevent accidents.
3. Require that all transportation trucks, tankers and dump trucks be fitted with GPS tracking systems to help adjust transportation plans and identify responsible parties in the case of accidents/spills.

B. Zoning

UMCES-AL Report recommendations 1-M

Zoning is a local matter over which the State has no control.

C. Financial Assurance

UMCES-AL Report recommendations 1-N

This recommendation has been satisfied with the 2013 legislative passage of SB854, sponsored by Senator Edwards, providing financial assurance for gas and oil drilling.

D. Avoiding times of peak outdoor recreational periods or during sensitive migratory or mating seasons

UMCES-AL Report recommendations 5-D.1, 8-I, 9-D.2

The Departments accept the proposed timing recommendations with the following modification.

The state realizes that this would only apply to the initiation of a drilling or fracturing operation or other activities that could be planned in advance or temporarily suspended. Once drilling and fracturing operations have begun, it is generally not safe to halt activities except under emergency situations.

E. Forced pooling

UMCES-AL Report recommendations 1-D

The Departments offer the following comments regarding the forced pooling recommendation.

At this point of time, consideration of this recommendation is premature. Once the requirements of the Executive Order have been fulfilled, this recommendation could receive additional consideration which would require further study, legal analysis and considerable public/private review.

IX. MODIFICATIONS TO PERMITTING PROCEDURES

X. IMPLEMENTING THE RECOMMENDATIONS