

Section I – Organization of the Report

The Maryland Departments of the Environment and Natural resources acknowledge the excellent work of the University of Maryland Center for Environmental Science – Appalachian Laboratory (UMCES-AL), and in particular Keith N. Eshleman, Ph.D. and Andrew Elmore, Ph.D., for their work in preparing *Recommended Best Management Practices for Marcellus Shale Gas Development in Maryland*. The UMCES-AL Report is organized into ten chapters, each devoted to protecting one aspect of the environment, natural resources, public health and safety. In order to facilitate the incorporation the recommendations into a regulatory and permitting program, however, we have chosen to organize this report differently. Within each section, the relevant UMCES-AL recommendations are listed by their alphanumeric designation as it appears in the UMCES-AL report. The same UMCES-AL recommendations may be referenced in multiple sections. The remainder of the section reflects the Departments evaluation.

Section II provides background information and an overview of activities in Maryland related to the Marcellus Shale. In addition, it summarizes the work of the Advisory Commission.

Section III focuses on comprehensive planning, particularly the concept of planning for the extraction of gas in a large area in order to avoid adverse impacts and minimize those that cannot be avoided. This comprehensive planning would occur before the issuance of a permit to drill any well.

Section IV addresses restrictions on the locations of well pads, pipelines, access roads, compressor stations, and other ancillary facilities. Some ecologically important areas, recreational areas and sources of drinking water may be fully protected only if certain activities are precluded there. In other cases, set back requirements may be sufficient. This section also describes siting best practices.

Section V establishes requirements for planning documents for individual wells.

Section VI deals with engineering, design, and environmental controls and standards. This includes, among other things, pad and access road design, the use of tanks rather than ponds for storing wastewater, air pollution controls, casing and cementing standards, integrity testing, emergency plans, waste disposal, and closure.

Section VII describes best practices for monitoring, recordkeeping and reporting. Pre-application monitoring and monitoring during drilling, well completion, and production are addressed. The response to monitoring results that suggest impacts is also discussed. Inspections and enforcement are included in this section.

Section VIII includes miscellaneous recommendations.

Section IX discusses modifications to the permitting process.

Section X is a roadmap for implementing the recommendations.

Included as Appendices are: the names of the Advisory Commission members, comments of the Advisory Commission, the response to public comments, a constraint analysis, a discussion of Marcellus shale and recreational and aesthetic resources in western

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Maryland, the UMCES-AL report, and a comparison of the UMCES-AL recommendations with those of the Departments.