STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING

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May 13, 2013

The Honorable John Shimkus
Chairman, Subcommittee on Environment and the Economy
Committee on Energy and Commerce
2125 Rayburn House Office Building
Washington, D.C. 20515-6115

Dear Representative Shimkus:

Thank you for the opportunity to testify at the hearing before the Subcommittee on Environment and the Economy held on February 15, 2013, entitled "The Role of the States in Protecting the Environment."

Attached are my responses to the additional questions for the record submitted subsequent to the hearing.

I appreciate the opportunity to respond to these questions. If you have any more questions please contact met at 517-241-1548; fitchh@michigan.gov; or Department of Environmental Quality, Office of Oil, Gas, and Minerals, P.O. Box 30256, Lansing, Michigan 48909-7756.

Sincerely,

Harold R. Fitch
Assistant Supervisor of Wells
and Chief
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Michigan Department of Environmental Quality
517-241-1548

cc: The Honorable Paul Tonko, Ranking Member, Subcommittee on Environment and the Economy

The Role of the State in Protecting the Environment Under Current Law
Additional Questions with Responses

The Honorable John Shimkus

1. You mention 12,000 hydraulic fracturing wells in Michigan since 1952 without an environmental contamination related to the practice. Do other states have the same type of record?

Response: Yes. While there have been incidents of environmental contamination resulting from handling or disposal of fracture fluids at the surface and from other phases of oil and gas exploration and production, there are no known instances of groundwater contamination resulting directly from hydraulic fracturing.

2. What gives you confidence that the information reported on FracFocus is accurate and complete?

Response: Some states require submittal of information on FracFocus; other states require submittal directly to the state oil and gas agency, and that information can be cross-checked against FracFocus. In either case, states have penalties for submittal of false information. In Michigan it is a felony. In addition, the effects of adverse publicity are severe if falsification of records is discovered.

3. At the hearing you mentioned the Underground Injection Control Peer Review program.

a. Is this a new initiative?

Response: No. The peer Review program has been in existence for more than 24 years.

b. How does it help states evaluate their injection well programs?

Response: It helps a state to compare its program against consensus standards that have been designed to assess the adequacy of the state's UIC program to the environment and public health.

c. Who is involved in this process?

Response: It is sponsored by the Ground Water Protection Council (GWPC). The GWPC recruits reviewers from member state agencies that oversee Underground Injection.

d. What is the significance of this program compared other audit programs?

Response: The reviewers are UIC program staff from other states who have first-hand, extensive background and experience in underground injection and are familiar with the legal and technical challenges involved.

4. You mention in your testimony that you are a board member of the Groundwater Protection Council.

a. Is it typical that the IOGCC official and the Ground Water Protection Council member are different people or are they the same person wearing two different hats?

Response: There are many state agency personnel who are members of both organizations.

b. What are the respective roles of the two sets of officials?

Response: Members of the Interstate Oil and Gas Compact Commission (IOGCC) and the GWPC have the common objective of preventing damage to the environment, natural resources, and public health and safety. The IOGCC is focused on fostering the efficient development and conservation of our domestic oil and gas resources while preventing threats of associated damage whereas the GWPC is focused on broad issues of ground water use and protection, including potential impacts from underground injection and oil and gas operations in general.

5. Your testimony mentions the rapid changes occurring in the technologies used to hydraulically fracture wells.

a. How do States keep up with technology as it changes on the ground?

Response: State oil and gas agencies stay abreast of changes in technology through in-house research, communication with state, regional, and national industry and public interest groups, and through seminars and training provided by interstate organizations. That information is disseminated internally through training sessions and information exchange. I must note that my testimony reflects that hydraulic fracturing is not a new technology. The changes in recent years have been in the increased scale of the use of hydraulic fracturing, particularly in conjunction with horizontal drilling (which has been used since the 1980s).

State oil and gas agencies generally have decades of experience with both technologies.

b. Do you have training Centers to educate your regulators on new developments?

Response: The IOGCC and GWPC, as well as other interstate organizations, provide training and information exchange sessions for state regulators. State oil and gas regulators also organize state-based training sessions as needed, utilizing qualified legal and technical experts.

6. How would you characterize EPA's technical experience as opposed to the expertise of State regulators regarding hydraulic fracturing regulation?

Response: The U.S. Environmental Protection Agency (USEPA) has some staff with technical background and experience in oil and gas operations within the organization. However, the level of experience and expertise is inconsistent across the agency; it is often not focused on the practical operational level; it is quite variable at the Region level; and it is typically not specific to the geology, legal structure, and special concerns of individual states.

7. In your testimony you state "a one-size-fits all federal approach would not be as effective or efficient" in addressing a state's individual geological topographical or societal sensitivities.

a. Can you please give examples where something is unique to the state of Michigan and the adaptability of state level regulations was able to address this?

Response: A good example is the common case where there are several Michigan statutory programs that apply to one operation—e.g., where a proposed oil and gas well involves statutory provisions that apply to wetlands, fish and wildlife, surface impacts, property rights, air quality, etc. The state application review can incorporate consideration of all of these program concerns in one comprehensive process.

b. What are some specific concerns of how a federal "one-size-fits all" federal approach would be detrimental to Michigan?

Response: Federal agency personnel are not always familiar with local geology or environmentally-sensitive features. I can cite several incidents I have been personally involved in: In one case, the federal agency permitted a disposal well that could have posed a threat to fresh water

because agency staff were not aware of unique local geologic conditions; our state agency, which has dual jurisdiction, denied the permit. In another case, the federal agency has delayed issuance of a disposal well permit for almost three years largely based in an objection by a local citizen that is irrelevant in light of our knowledge of the geology and subsurface conditions.

8. You all emphasize the importance of a risk-based approach to regulation and compliance enforcement. How important is local expertise to making the risk-based approach effective? In prioritizing which permittees need more attention, do you use metrics, personal knowledge of the neighborhood, both, or something else?

Response: Local expertise is essential in assessing risk. My agency prioritizes our inspection and enforcement activities based on the type and history of operation (e.g., commercial vs. non-commercial, wastewater sources, etc.), environmental setting (i.e., sensitive water, wildlife, and aquatic features), history of violations of any environmental laws or regulations (i.e., under our state air, water, wetland programs, etc.), and personal communications with local citizens and oilfield employees.

9. Do you know of any state that has hydraulic fracturing activities occurring in their state with zero regulations regarding these activities?

Response: No.

10. Please explain the types of communications that occur between State agencies or departments within your State or among the IOGCC members regarding the many facets of natural gas development and production.

Response: At the state level, staff communicate extensively—often on a daily basis—between program areas (such as oil and gas, water quality, air quality, and waste management) and between departments (such as environmental quality, conservation, state land management, public utility, and treasury departments) to coordinate actions and share information. State oil and gas agencies communicate with their counterparts in other states through the IOGCC and other inter-state organizations to share information and regulatory approaches, promote best practices, and provide a common voice for state interests.

The Honorable Robert E. Latta

1. **According to the American Petroleum Institute (API), nine million U.S. jobs are tied to the oil and natural gas industry, and in my state of Ohio, over 230,000 jobs are provided or supported by the industry. Furthermore, the industry contributes $227 billion to the Ohio economy and those who work in the industry (non-gas station employees) earn an average salary of $68,000 a year, nearly $30,000 more than the average Ohio salary. Advances in technology like hydraulic fracturing are making this possible. Can you discuss some of the positive economic impacts that the industry is having on your area?**

   Response: My agency does not track employment numbers, so I do not have direct knowledge of that aspect of the industry. We do, however, track production and revenues. Michigan produces about 22 percent of the natural gas we use in the state, and most of that gas production is from wells that required hydraulic fracturing to be productive. Michigan oil and gas production in 2012 was valued at more than $1 billion, and provided $48.5 million in state severance taxes and additional other revenues from payroll taxes, sales taxes, and personal property taxes.

   a. **As a follow up question, I mentioned how advances in technology are contributing to the success of hydraulic fracturing. What role do you see further advances in technology having on the continued success of this industry?**

      Response: Oil and gas technology is continually evolving, and technological advances will undoubtedly have a strong influence on future production trends. It is difficult to predict where the next advances may occur; however, it is important for our regulatory structures to maintain the flexibility and adaptability to accommodate new technology. State regulatory programs generally have greater capability for that than do federal programs simply because the state programs are more focused and changes are much less cumbersome.

2. **Over the past few years, Ohio has put in place some of the nation's toughest regulatory measures to ensure hydraulic fracturing and oil and gas exploration technologies are conducted in an environmentally safe and transparent manner. In fact, I think we're talking about 50 regulations. These measures ensure collaboration among stakeholders, proper well construction, chemical disclosure requirements, protection of groundwater, and sound environmental quality testing methods. These high standards of environmental protections allow for a thriving oil and**

natural gas sector in Ohio. In turn, it creates over 230,000 jobs for Ohioans and greater U.S. energy independence and less reliance on foreign oil. Can you discuss some measures your state has taken to ensure hydraulic fracturing is done in an environmentally safe manner?

Response: Michigan has had strict and comprehensive oil and gas regulations dating back many decades that address concerns with hydraulic fracturing. These regulations cover well construction to assure containment of fluids and gasses within the wellbore and protect fresh water supplies; spill containment and cleanup requirements; and containment and disposal of waste fluids from oil and gas operations. Due to recent concern over high-volume hydraulic fracturing operations, the Michigan Department of Environmental Quality (MDEQ) implemented a new permitting instruction in May, 2011, that covers evaluation of impacts of large water withdrawals for hydraulic fracturing, protection of nearby water wells, reporting of fluid volumes and pressures, and disclosure of chemical additives.

The Honorable Paul Tonko

1. The impact of one or two hydraulic fracturing wells in an area may be minimal, but the pace of expansion of gas production has been rapid in some states and the cumulative impacts of this expansion results in additional challenges for local communities, regions and states. For example, there are estimates that each well requires additional heavy equipment traffic on roads leading to and from the well site to transport the construction, operation, and maintenance of the well of as many as 1500 trips while the well is being constructed and is producing gas.

The water and chemicals required for hydrofracking and the produced water resulting from gas production, the resources required for treating, storing, or disposing of these liquids safely are considerable when the needs of each well are multiplied by the number of wells in a given area. A similar argument can be made regarding fugitive emissions from each production well.

a. How are these cumulative impacts of oil and gas production handled within your state's regulatory program?

Response: Regulation of truck traffic and routes is generally under the purview of local governmental authorities, who can make adjustments according to local needs. The MDEQ requires evaluation of the effects of water withdrawals at each site; as new sites are proposed, past withdrawals are factored in to the model to address cumulative effects.

Treatment and storage of spent fracturing fluids and produced water is done at each individual site and is temporary. Michigan has excess capacity for disposal of waste fluids with existing deep disposal wells and volumes of spent hydraulic fracturing fluids are not expected to increase significantly. Michigan limits fugitive emissions to levels that will not be an air quality concern either at an individual site or when aggregated over a field. Michigan also establishes a standard drilling unit—a tract of land of specified size on which one well can be located. One purpose of that is to limit the density of development so as to reduce site-specific as well as cumulative impacts.

b. What provisions does your state have (e.g. taxes, fees) to ensure that the costs of impacts to public resources and for additional infrastructure to support oil and gas production are covered by the oil and gas industry?

Response: Michigan imposes an oil and gas severance tax on the gross market value of oil and gas produced. The tax rate is 4 percent on marginal oil, 6.6 percent on regular oil, and 5 percent on natural gas. The revenue goes into the state general fund for multiple purposes, and some of it is passed on to local jurisdictions through revenue sharing. The state also levies a surveillance fee to support the MDEQ's monitoring and enforcement program. The fee is adjusted each year to match the appropriation for the program, and is capped at 1 percent of the gross value of production.

2. There are also cumulative impacts on the economics of gas production as we are already seeing. States and resource owners certainly receive lucrative gross receipts from the produced gas, directly, and economic benefits from the increased indirect economic activity associated with the increase in workers and demand for all inputs required for production activities. However, as gas production continues to expand nationally, the market's ability to absorb all the gas produced is being saturated and the price per unit has dropped. Certainly individual gas production companies realize this and may decide to cap existing wells or to forgo drilling a play they have leased to allow supply to be more in line with demand.

a. Does your state consider the market price of gas in your permitting process - permitting fewer wells when the price is lower and increasing them when the price improves to ensure the state maximizes its return from hosting the expanding gas production?

Response: No. Determination of the levels of drilling and production are viewed as the proper realm of the free market. However, the state will not issue a permit if there is no reasonable assurance that the prospective product could be marketed— e.g., if there is no potential for a pipeline connection for a gas well.

The Honorable Henry A. Waxman

Drilling mud and other wastes from the exploration and production of oil and gas have been exempt from the requirements of the Resource Conservation and Recovery Act since July 1988, but now include recovered hydraulic fracturing fluid with potentially dangerous constituents. Democratic members of the Energy and Commerce Committee released a report in April, 2011 finding that the top hydraulic fracturing companies had injected fluid containing 29 chemicals that are known or possible human carcinogens, as well as other contaminants regulated under the Clean Air Act-and the Safe' Drinking Water Act

Despite this, according to the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration, shippers and transporters of these materials do not have to comply with any Federal hazardous materials safety regulations. And, as mentioned above, such mud and other wastes are also exempt from requirements under the Resource Conservation and Recovery Act. This means that these hazardous materials are not required to be labeled as hazardous, contained and transported in accordance with Federal hazardous materials regulations or included in shipping manifests to track the material, prevent diversion, and ensure proper handling by emergency response personnel in accidents and incidents.

The risks of this approach are illustrated by a recent event in Youngstown, Ohio, where authorities were alerted to illegal dumping of drilling fluid into the Mahoning River on January 31, 2013, by an anonymous tip. According to Federal investigators, the dumping went on for several months before the tip was received. Even after the dumping was discovered, state officials failed to inform the public and drinking water facilities drawing water downstream of the dumping site. Public health and environmental impacts are still being assessed.

1. What, if any, requirements does your Department impose through regulation to ensure that drilling mud and associated wastes from the exploration and production of oil and gas are properly disposed?

Response: The MDEQ requires drilling mud to be contained in steel tanks or lined pits at drilling sites. The mud must be dewatered and the solid and dissolved salt in the mud must be removed. The residual solids may be either

encapsulated on site if they meet criteria for chemical composition or disposed of at a licensed landfill. Hydraulic fracturing waste fluids and produced water must be contained in tanks and transported for disposal in licensed deep disposal wells, although limited volumes of produced water may be spread on roads for dust control if the water meets chemical criteria. Liquid wastes must be transported by licensed liquid industrial waste haulers, and the wastes must be manifested so the source and disposal site are documented. Michigan has strict penalties for illegal transport or disposal of wastes.

2. What, if any, authority or ability does your Department have to address the interstate movement of drilling mud and other associated wastes and to track such wastes entering or leaving the state?

Response: Michigan cannot restrict the interstate transport of exploration and production wastes because such transportation is deemed interstate commerce and thus under the jurisdiction of the federal government. However, Michigan does have authority to regulate the characteristics of such wastes and the means of subsequent containment and disposal.

3. How many investigators are employed by your Department to identify and investigate illegal dumping of these wastes within the state, and ameliorate the potential risks posed by any such dumping?

Response: The MDEQ has 23 field inspectors who are responsible for monitoring virtually all aspects of oil and gas exploration and production, including disposal of wastes. The MDEQ also has a significant number of employees in other program areas that are responsible for monitoring and investigating liquid waste transport and spill cleanup (I am unable to identify the exact number of such employees because they are employed by other divisions or offices of the MDEQ and typically have other responsibilities in addition to liquid waste monitoring).

The Honorable Henry A. Waxman and The Honorable Diana DeGette

1. Does the IOGCC provide technical assistance to reporting companies who have questions about how to complete the FracFocus form or what to disclose on the form?

Response: Technical assistance to companies is provided by the Ground Water Protection Council (GWPC) and the GWPC contractor. With respect to what to disclose on the form most of these questions are referred to the individual states because each state may have a different disclosure requirement and it would not be proper for FracFocus to provide regulatory guidance to users regarding individual state laws and regulations.

2. Does the IOGCC offer or provide trainings to reporting companies on how to submit data to FracFocus, besides the webinar available on the FracFocus website? If so, please explain.

Response: The GWPC has held numerous webinars and live training events for companies, states, and state oil and gas associations. These sessions have been designed to provide users with the training needed to access and utilize the FracFocus system to submit disclosures. To date the GWPC has held at least seven live training events in Texas, Colorado, and Oklahoma. Additional events are scheduled for Pennsylvania.

3. Does the IOGCC consider itself to be a "public agency" and therefore subject to the disclosure requirements of the federal Freedom of Information Act (FOIA)? Does the IOGCC consider itself subject to the disclosure requirements of the Oklahoma Open Records Act? Please explain why or why not.

Response: This question calls for a legal interpretation that I am not qualified to answer.

4. Colorado's regulations state that if the chemical disclosure registry (FracFocus) (a) "does not allow the Commission staff and the public to search and sort the registry for Colorado information by geographic area, ingredient, chemical abstract service number, time period, and operator" and (b) there is "no reasonable assurance that the registry will allow for such searches by a date certain acceptable to the Commission," then operators disclosing to FracFocus also must submit the disclosure forms to the Commission for appropriate disclosure.

a. What is FracFocus doing to ensure that FracFocus meets the "search and sort" requirements of Colorado's regulations?

Response: FracFocus has already met the search and sort requirements of the Colorado regulations. The current search forms available on FracFocus allow for the searches provided for in the Colorado regulations.

b. Has IOGCC or FracFocus staff met with the Colorado Oil and Gas Commission to discuss this "search and sort" requirement? Please explain.

Response: The GWPC has met with representatives of the COGCC and discussed the search and sort requirements. Based on these discussions

a date certain for the availability of these elements was defined and has been met.

5. A number of states direct companies to disclose directly to FracFocus or provide companies with the option of disclosing to FracFocus.

a. For those states that require companies to disclose directly to FracFocus, such as North Dakota and Utah, does FracFocus provide the state agencies with the chemical disclosure forms once received? If no, please explain.

Response: The FracFocus system makes the disclosure forms available to everyone, including state agencies.

b. For those states that provide companies with the option of disclosing to FracFocus, such as Montana, does FracFocus provide the state agencies with the chemical disclosure forms once received? If no, please explain.

Response: The FracFocus system makes the disclosure forms available to everyone, including state agencies.

c. Does FracFocus notify the relevant state agency when a company has submitted a disclosure form for a well?

Response: The system provides periodic reports of disclosures reported to FracFocus to the states. This includes all disclosures reported but is not done on a well by well basis at the request of the states.

d. Does FracFocus tailor its disclosure form template for each state? If no, please explain why. If yes, please describe how FracFocus tailors the form.

Response: The FracFocus template is designed to be flexible enough to meet the needs of all states. There is no need to tailor the form differently for each state as it can capture a wide range of information based on individual state requirements.

e. Some states require operators to disclose to FracFocus all chemical components in a fracturing fluid, not just chemicals subject to 29 CFR 1910. 1200(i) and Appendix D. How has FracFocus modified its template disclosure form to facilitate operator compliance with

requirements to disclose chemicals that do not appear on Material Safety Data Sheets?

Response: The FracFocus template has always been capable of capturing MSDS and Non-MSDS chemicals. However, in the new xml schema of FracFocus 2.0 these chemicals are divided in the data entry form to make it easier for the data entry operator to split them. They are also split on the final disclosure pdf.

f. Some states require a well operator or service company to report the type of base fluid used in a fracturing job if it does not use water. In Texas, for example, the regulations state that an operator has to disclose "the total volume of water used in the hydraulic fracturing treatment(s) of the well or the type and total volume of the base fluid used in the hydraulic fracturing treatment(s), if something other than water." How has FracFocus modified its template disclosure form to facilitate operator compliance with requirements to disclose the type and volume of any non-water base fluid used?

Response: The FracFocus 2.0 System (now in use) includes fields for non-water base material types and volumes.

g. If a state requires an operator to disclose an aspect of the fracturing fluid or process that is not on the FracFocus disclosure form, such as the length of a fracture, how does the operator include that required information on the disclosure form?

Response: FracFocus is a chemical disclosure system. Aspects of hydraulic fracturing such as fracture length, zones fractured, depths of fracturing, pressures used, etc. that are required to be reported to the state must still be reported on each state's well completion forms. FracFocus was never intended to capture "all" aspects of a hydraulic fracturing job.

6. Does the FracFocus disclosure form allow an operator to enter Chemical Abstract Service (CAS) numbers that do not exist or are inaccurate?

Response: Yes. While the system will warn the user that a CAS number does not appear to be in the standard format, it does not prevent the user from entering an inaccurate or non- existent CAS number. NOTE: Operators cannot change the CAS number reported to them by their service-company or chemical provider. To do otherwise might result in the reporting of an incorrect chemical, and could expose the company to legal ramifications. Therefore, if an erroneous

number is reported to the operator by the service company or chemical provider, the operator is obligated to report it in the exact manner it is reported to them without alteration.

7. What is IOGCC or FracFocus doing to improve the (a) accuracy and (b) completeness of the data it receives from operators?

Response: The current FracFocus 2.0 system utilizes a number of data validation algorithms to evaluate the entries made in fields and to notify the user of errors and warnings for inaccurate or incomplete information. These include such items as dates, coordinate locations, volumes, state and county auto-fills from API field, and other checks.

8. What does IOGCC or FracFocus do to substantiate an operator's claim that a chemical component constitutes a trade secret or confidential business information?

Response: Because each state has different laws concerning what is acceptable as a trade secret or confidential business information, and such laws are subject to change or modification, it would not be technically feasible for FracFocus to evaluate the validity of such claims. Further it would not be appropriate for FracFocus to make a judgment call as to what is and is not confidential under individual state laws. This authority rests with the state, not with FracFocus. Consequently, FracFocus simply reports the claim and leaves the determination of whether or not a claim of confidentiality is appropriate or valid to the regulatory authority.

9. The FracFocus "terms of use" states the following (see http://fracfocus.org/terms-of-use): "You are only permitted to use the content as expressly authorized by us or the specific content provider. Except for a single copy made for personal use only, you may not copy, reproduce, modify, republish, upload, post, transmit, or distribute any documents or information from this site in any form or by any means without prior written permission from us or the specific content provider, and you are solely responsible for obtaining permission before reusing any copyrighted material that is available on this site. Any unauthorized use of the materials appearing on this site may violate copyright, trademark, and other applicable laws and could result in criminal or civil penalties."

a. If EPA downloaded and analyzed chemical disclosure data posted on FracFocus, without obtaining permission from GWPC, IOGCC, or FracFocus, is it your position that EPA would be violating the "terms of use"?

Response: With respect to the contents of the “informational” section of the site and the data provided on a strictly voluntary basis the answer is technically yes. However, with respect to the data provided for those states that require or allow the use of FracFocus as the means of regulatory reporting, all data is considered public data and for this information the answer would be no. Regardless, it is the policy of FracFocus to allow for downloads of all disclosures, whether voluntary or required. The only restriction we place on such downloads is that they must not be conducted by automated programs (commonly referred to as bots) because these programs can cause system resource issues which could affect access to the system by other users. (Note: To this effect we have facilitated the download of disclosure data for the USEPA).

b. If a state agency downloaded and analyzed chemical disclosure data posted on FracFocus, without obtaining permission from GWPC, IOGCC, or FracFocus, is it your position that the state agency would be violating the "terms of use"?

Response: The response to this question is the same as that provided for item a. above with the exception to a state accessing the disclosures from that state; that would not be a technical violation of the “terms of use” regardless of whether or not the state used the FracFocus system for its regulatory reporting.

c. If a non-profit organization downloaded and analyzed 'chemical disclosure data posted on FracFocus, without obtaining permission from GWPC, IOGCC, or FracFocus, is it your position that the non-profit organization would be violating the “terms of use"?

Response: The response to this question is the same as that provided for item a. above.