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The Honorable Doug Lamborn

Chair

Testimony Regarding

Natural Gas – America's New Energy Opportunity; Creating Jobs, Energy and Community Growth

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Chairman Lamborn, Ranking Member Holt and committee members of the House Committee on Natural Resources, Subcommittee on Energy and Mineral Resources, good morning and welcome to Ohio. I want to recognize Congressman Bill Johnson for his distinguished representation of the people who live within the 6th Ohio Congressional District who are hosting this field hearing today

I am Thomas E. Stewart, Executive Vice President of the Ohio Oil & Gas Association (OOGA), a state-based trade association representing the common interests of over 1,900 members who are engaged in the exploration and production of crude oil and natural gas resources within the State of Ohio. The Association has represented the Ohio industry since 1947. The Association also is an active cooperating association in alliance with the Independent Petroleum Association of America (IPAA), based in Washington D.C. Since 1929, IPAA has represented thousands of independent petroleum and natural gas producers throughout the nation. Independent producers drill 90 percent of wells within the United States

Today's hearing is focused on the development of America's reliable energy opportunities, particularly as they relate to new supplies of domestically produced natural gas, natural gas liquids and crude oil produced from the resource shale play. I will also comment on the regulatory approaches that will help govern development of the resource. My comments will focus on how these events are impacting Ohio; the relationship between federal and state-based regulatory policy; and the process that validates the long-standing principle that the states are best suited to regulate the industry in order to protect the public interest and ensure protection of human health, safety and the environment.

For over a century and a half Ohio has been blessed with production of plentiful oil and natural gas resources. At each critical point in our industry's history it has been changes wrought by technology that have provided to producers the ability to explore new horizons, expand the resource base, and establish new reserves. Significant events include the development of the rotary drill bit, wire line logging, seismic technology lending an eye to what's underground, and the development of hydraulic fracturing in 1947 that by 1953 revolutionized and rejuvenated the productive capacity of wells in Ohio and across the nation.

Today, the ability to horizontally drill a deep underground reservoir with exacting precision, exponentially exposing the face of the reservoir rock to the wellbore, has created massive efficiencies in our ability to produce oil and gas. Combined with the ability to hydraulically fracture the source rock at intervals along the horizontal lateral wellbore, America's producers are using advanced technologies to reset the clock on available domestic oil and natural gas resources.

Ohio is now beginning a new era of oil and gas exploration made possible by a triumph of technology that is the key to unlocking reservoirs that until now were not accessible. Along with horizontal drilling there has been a significant shift in our thinking about where to find oil and gas. For our entire history we explored for oil and gas in reservoirs where it had been "trapped" after migrating over the eons from "source" rocks where the oil and gas had been formed and cooked in nature's kitchen. Now, we are drilling into the actual source rocks where most geologists believe 95% of the oil and gas still remains in place even after feeding the traps that have produced all of the oil and gas that we have found to date. This is a radical departure for industry from the traditional approach to oil and gas exploration. It is a radical departure from America's understanding of recent years regarding energy dependency and the availability of reliable and efficient energy. For Ohio, the result will be the development of vast new supplies of dependable energy and the creation of a multitude of jobs in the oil and gas sector as well as other business sectors that are counting on this resource to expand authentic economic opportunity.

In Ohio the Upper Ordovician Utica/Point Pleasant Shale (Utica) is the source rock for much of the oil and gas that has been produced in various conventional reservoir traps. The Utica is the newest member of the resource shale play that is revolutionizing oil and gas production in the United States.

Economic Impact: Already production from the resource shales has fundamentally changed domestic energy markets. Generally it takes 6 Mcf (thousand cubic feet) of natural gas to equal the energy found in one barrel of oil. So, over time and absent disruptive events natural gas has traded at about a 6:1 ratio to crude oil. That is until now. Today crude oil is trading at $105.00 per barrel. The historic trend says that natural gas should be priced at about $17.50 per Mcf. However natural gas is trading at $2.60 per Mcf or nearly 40:1. The new and efficient development of natural gas from the resource shale plays is providing the American consumer an incredible energy bargain providing a fuel priced at 15 percent of its intrinsic energy value, a trend that the marketplace indicates will continue into the future. It is also enticing the chemical industry to reenter the United States and build new chemical manufacturing facilities because they will have access to a super-competitive and plentiful feedstock, jump starting the job growth potential downstream of the wellhead

What does this mean for Ohio? Since 1860, Ohio has produced over 8.5 trillion cubic feet of natural gas and 1.14 billion barrels of crude oil. During recent history, the state's proven reserves have fluctuated annually at 40-50 million barrels of oil and 800 Bcf to1 trillion cubic feet of natural gas. Each year those reserves have produced approximately 5 million barrels of crude oil and 85 billion cubic feet of natural gas, operated by a small but vibrant production industry that has supported approximately 12,900 direct and allied jobs.

During 2009 through 2010, intense interest in the Utica Shale began to ramp up. This has led to a state-wide lease play and exploratory drilling. The State's Geologist recently provided a volumetric calculation to estimate the recoverable reserve potential of the Utica Shale/Point Pleasant interval.[1] He reported that should producers, using new technologies, extract 5 percent of the oil and gas in place, leaving 95 percent of the resource in the rock, the Utica would generate 15.7 trillion cubic feet of natural gas and 5.5 billion barrels of crude oil. That is an astonishing number and an enormous, perhaps "once in a lifetime", opportunity for Ohio.

On September 20, 2011 the Ohio Oil and Gas Energy Education Program released a study they had commissioned describing the economic impact of the existing Ohio exploration and production industry and the impact the resource shale play will have on Ohio.[2] The study was based on similar development in the neighboring Marcellus Shale play. In regard to Utica Shale development the study concluded the following:

- Ohio's natural gas and crude oil industry's will reinvest approximately $246 million on new exploration and development in 2011, and is estimated to ramp up to $14 billion by 2015. Over the next five years, oil and gas producers are projected to reinvest over $34 billion in exploration and development, midstream, royalty and lease expenditures.

[1] *Shale Formations and Their Potential*; Larry Wickstrom, R. A. Riley, M. T. Baranoski, C.J. Perry, and M.S. Erenpreiss; Ohio Department of Natural Resources, Division of Geological Survey; October 2011, www.OhioGeology.com

[2] *Ohio's Natural Gas and Crude Oil Exploration and Production Industry and the Emerging Utica Gas Formation, Economic Impact Study*; Kleinhenz & Associates, Ohio Oil and Gas Energy Education Program; September 2011 www.oogeep.org

- Ohio's natural gas and crude oil industry, via its expenditures, could generate approximately $12.3 billion to the gross state product and have a statewide output or sales of $23 billion.

- Ohio's natural gas and crude oil operators (producers) could distribute more than $1.6 billion in royalty payments to local landowners, schools, businesses and communities based on an estimate of 2,837 new Utica wells drilled and completed (in production) between 2011 and 2015. This could exceed the total amount of royalties paid for all geological formations between 2000 and 2010.

- Between 2011 and 2015, Ohio's natural gas and crude oil industry will help create and support more than **204,520 jobs** due to the leasing, royalties, exploration, drilling, production and pipeline construction activities for the Utica Shale within Ohio. Industry wages are projected to grow to more than $12 billion in annual salaries and personal income to Ohioans by 2015.

Coupled with the readily available and affordable energy resource, the expansion of job growth suggests that development of the Utica Shale may be the most significant positive economic event to take place in Ohio for decades to come.

Regulatory Policy: The principal regulatory authorities managing the environmental risks associated with oil and natural gas production are state agencies acting under state law or as the delegated regulator under federal law. To put the regulatory process in context, it is useful to understand some key elements of developing a well and generating production.

Except on federally owned resources, the regulatory responsibility rests with the state oil and natural gas agencies for permitting well construction and completion. These agencies set the standards that must be met in drilling a well such as location limits, construction standards (including steel casing and cementing requirements) and surface management requirements. Well construction requirements are particularly significant because they are the principal methods of protecting against ground water contamination. By creating a barrier between ground water and the wellbore, oil and other chemicals from the well cannot move into water formations – and water cannot move into the wellbore. This technological approach has been used effectively for 75 years and is continually improved. Well completion regulations determine the management of technologies to stimulate production from oil and natural gas containing formations. Hydraulic fracturing is a well stimulation technology. Consequently, since its invention in the late 1940's, its use has been regulated by state oil and natural gas agencies. Throughout the past six decades this regulatory structure has effectively protected against the environmental risks of fracturing without the involvement or intervention of the federal government. Proposals that the federal government needs to insert itself into well construction and completion regulation fail to show that any justification exists suggesting a failure of the current state based regulatory system or that the federal government has either the expertise or the capacity to regulate the 35,000 or more wells drilled annually in the United States.

In fact, where the federal government does have regulatory authority related to oil and natural gas production, it relies on the state regulators to conduct the daily regulation efforts. Federal environmental laws apply to oil and natural gas production activities when waste is generated. Most specifically with regard to the development of emerging shale gas and shale oil formations, the applicable federal laws address the disposal of produced water (including hydraulic fracturing flowback water) – the Safe Drinking Water Act and the Clean Water Act (CWA). The applicability of the law depends on the disposition of the produced water. Produced water injected underground is regulated under the SDWA; produced water discharged to the surface is regulated under the CWA. The SDWA and the CWA operate similarly. The federal government

creates a national framework but the laws rely on state regulators to bear the larger permitting burden through the delegation of that role from the Environmental Protection Agency (U.S. EPA).

With respect to the SDWA, regulation of underground injection is defined by the Underground Injection Control (UIC) program. The UIC program creates a series of Classes for different types of injection wells; Class II applies to oil and natural gas production. In 1980, Congress modified the SDWA to allow for primacy under the law to be granted to states for Class II programs based on equivalent effectiveness rather than adoption of the specific EPA regulations. Most oil and natural gas producing states with active underground injection operations have primacy based on equivalency with or more stringent than the federal program. Class II wells can either be used for disposition of water or for reinjection into formations as a type of secondary recovery to increase production. Only water produced from oil and gas wells can be injected into a Class II well. Nothing else. And, if something was, that would be a violation of the federal SDWA and Resource Conservation and Recovery Act (RCRA).

According to EPA, the use of injection wells was documented as early as 300 A.D. and large-scale commercial use of injection wells in the U.S. began in the 1930s. The oil and gas industry isn't the only industry that has used injection wells as a safe and well-regulated disposal means. Other industrial sectors that rely on injection wells include: chemicals, manufacturing, food and agriculture, plastics and metal/steel. Ohio is home to 10 so-called Class I wells (industrial wastes) that accept concentrated high-toxicity wastes generated by industrial processes. Ohio hosts 58 Class III disposal wells that accept fluids used to dissolve and extract minerals such as uranium, salt, copper, and sulfur.

Today, there over 144,000 Class II UIC wells operating within the United States. On average, those wells accept more than 2 billion gallons of water per day that is associated with oil and natural gas development. Clearly, without the delegation of this program to the state regulatory bodies, the federal law would be virtually incapable of implementation.

In 1983, U.S. EPA delegated primacy authority to Ohio to run the UIC program. As the host of the oil and gas regulatory program, the Ohio Department of Natural Resources received the authority to manage the Class II program. Under the primacy agreement the ODNR issues UIC permits for Class II wells, but U.S. EPA set the standards for construction, maintenance and continuous monitoring of the Class II wells. [3] The Ohio UIC program is regularly audited by U.S. EPA and has undergone peer reviews conducted by the Ground Water Protection Council.

Except for a minor amount used by local governments for dust and ice control, it is the law of the State of Ohio that oil and gas related produced water must be disposed of using a Class II UIC well constructed to the federal standards. Industry has constructed a network of Class II wells along the breadth of eastern Ohio to service the needs of oil and gas producers who must comply with Ohio law. Currently there are 181 Class II injections wells operating in Ohio or 0.12 percent of nation's total population of such wells. The Ohio wells accept about 1.03 million gallons of produced water per day, or less than 0.05 percent of the total nationwide volume

Opponents of oil and gas development have stated that the industry is exempt from federal regulation. Again, this is an attempt to politicize the process. In regard to this, recall that the Safe Drinking Water Act sets standards for public water supplies including establishment of the Underground Injection Control Program, a process that has the specific purpose to permanently dispose by impoundment of a waste in an appropriate underground reservoir.

[3] *Technical Program Overview: Underground Injection Control Program*; United States Environmental Protection Agency; Office of Water 4606 EPA 816-R-02-025; revised July 2001

Hydraulic fracturing is a well completion procedure designed to induce permeability in a low-perm oil and gas reservoir by creating a fracture – a pathway – through the targeted reservoir rock to more readily allow the oil and gas to move through the reservoir and into the wellbore to then be lifted to the surface. With few exceptions, it is a one-time procedure. It is never an ongoing procedure (like Class I or II injection). It is not the disposal of a waste stream. In fact, it is done to make a well capable of production in order to efficiently withdraw in commercial quantities product from the rock, including the water that was used during the frac job.

There have been anti-oil and gas organizations that have attempted to construct an argument that fracturing is the same thing as Class II injection of produced waters and should be regulated as such under SDWA. That argument is an attempt to fit a square peg in a round hole and it fails by virtue of the various definitions of the processes being discussed.

Congress never had the intention of regulating a well stimulation process under the SDWA as a waste disposal process. In 2005 Congress clarified that view by stating very simply in the 2005 Energy Policy Act that hydraulic fracturing – or storage gas injection for that matter - is not underground injection. Congress did not exempt the industry from the SDWA as others claim. In fact, industry's produced waters waste streams are specifically regulated as Class II injection and fully covered under SDWA federal regulation. There is no "loophole". The language is definitional and straight forward. Nowhere does it say that the oil and gas industry and its activities that are relevant to the Act are exempted from SDWA regulation.

Corroboration of State-Based Regulation: The operation of oil and natural gas wells has been regulated since the 1920's with an increasing emphasis on environmental controls since the 1960's. This regulation has been and continues to be done effectively by the states – a reality that has been recognized by the Congress and by the EPA. Because of the diversity of conditions associated with oil and natural gas production, the regulatory process must be flexible and reflect the unique conditions in a state or areas within a state. It requires the technical expertise that has been developed in each state and which does not exist within the EPA. For this reason federal law has generally deferred to the states for the regulation of this industry.

GWPC: The Ground Water Protection Council (GWPC) is an organization of state ground water regulatory agencies which come together to mutually work toward the protection of the nation's ground water supplies. The purpose of the GWPC is to promote and ensure the use of best management practices and fair but effective laws regarding comprehensive ground water protection.

During August 2011, the GWPC issued a report that investigated the regulatory history of Texas and Ohio as it relates to oil and gas production and protection of groundwater resources.[4] The report conclusively demonstrates that the state regulatory agencies within these states, both significant oil and gas producing states, have prioritized regulatory reforms and strategically applied resources to improve standards that reduce risk associated with state-specific compliance issues. Over time, both Ohio and Texas have strategically enhanced regulatory standards for state-specific oil and gas E&P activities that have been found to cause groundwater contamination incidents. In other words, the states have made consistent ongoing improvements to protect the environment and the public interest that is tailored to each individual state's characteristics and needs.

[4] *"State Oil and Gas Agency Groundwater Investigations and Their Role in Advancing Regulatory Reforms, A Two-State Review: Ohio and Texas", Scott Kell, Groundwater Protection Council, August 2011, www.gwpc.org*

STRONGER: Over time the states have engaged in a process that corroborates their regulatory abilities, identifies regulatory gaps and provides a process to close those gaps and improve their respective regulatory programs. The State Review of Oil and Natural Gas Environmental Regulation, Inc. (STRONGER) is an independent stakeholder governing body that manages the state review process.

The overall objective of the State Review Process is to help state oil and gas regulatory programs improve. The key innovative aspects of the State Review Process are the teams made up of equal representation from the environmental community, state regulators, and industry that come together to conduct an authentic peer review critique of a state's regulatory program, benchmarking the program against a national set of guidelines that itemize the critical elements necessary to protect the public interest and environment.

This process represents a stakeholder-driven collaborative effort working together to develop a regulatory framework at the state level that effectively protects the environment while recognizing the unique historic, geologic, and topographic characteristics of oil and gas development among the states.

STRONGER recently updated the review guidelines to include a specific section focusing on hydraulic fracturing. Over the past year STRONGER has done frac-specific review in six states. In Ohio, following implementation of new law (Senate Bill 165), STRONGER conducted a state review specific to hydraulic fracturing. The review concluded that the Ohio program was overall well managed, professional and meeting its program objectives.

The Secretary of Energy (USDOE), Advisory Board (SEAB), Shale Gas Production Subcommittee interim reports[5] and the recent National Petroleum Report on Shale Gas[6] have specifically commended the State Review Process.

The State Review Process demonstrates that the states are the best and most efficient point to regulate the industry's waste streams. The process provides for a system of constant improvement and an opportunity to share and promote new or unique regulatory concepts among the states, while maintaining the flexibility needed to meet individual states' needs.

Department of Interior and Federal Lands: The Department of Interior has recently indicated it is in the process of developing regulations for the use of hydraulic fracturing on federal lands and tribal lands in trust. Historically and effectively, states have been the primary regulator for well construction and stimulation techniques like hydraulic fracturing, and for good reason which I've outlined in detail. While the proposed regulations have not been formally noticed, I understand a draft proposal was sent to the Office of Management and Budget for initial review and separately a draft was released to the press providing a first glance at what the Department is considering. Upon review, it is apparent these draft regulations will add significant costs and burdens to companies operating on federal lands without any appreciable improvement in environmental protection.

Over the last several years, new rules, policies and administrative actions have made it more difficult for oil and natural gas producers to operate on federal and tribal lands. In fact, the

[5] *Secretary of Energy Advisory Board, Shale Gas Production Subcommittee, 90-Day Report*; SEAB, August 18, 2011, http://www.shalegas.energy.gov/

[6] *Prudent Development: Realizing the Potential of Abundant North American Natural Gas and Oil Resources,* National Petroleum Council, September 15, 2011, http://www.npc.org/

American Petroleum Institute (API) recently issued a report that for Bureau of Land Management (BLM) lands new oil and natural gas leases were down 44 percent in 2009/2010 compared with the previous year. In addition, the study also found that permits and new wells drilled on federal lands were also down by roughly 39 percent over the previous year. This loss of production not only impacts the federal treasury, but it also hurts businesses and local communities throughout the region that rely on "multiple use" of federal lands as the backbone of their economy. The Wayne National Forest located in southeastern Ohio is a good example of this.

The draft BLM regulations proposed for hydraulic fracturing are more burdensome than those any western state has already implemented. By requiring a 30 day pre-job approval and forcing operators to submit a separate application for their hydraulic fracturing operations, the BLM has established a system that is doomed to fail. The 30 day clock is also unrealistic and does not recognize the realities of a hydraulic fracturing job as it is being completed. In addition, the draft regulations raise a host of questions regarding what will be required for operators to remain in compliance with the regulations.

The proposed regulations to govern hydraulic fracturing on federal lands are redundant to what states are already doing to manage any environmental risk, and doing well according to EPA Administrator Lisa Jackson, and will only further delay an already slow approval process for oil and gas operations. At a time when our nation is looking for ways to increase job creation and economic activity, the proposed regulations will take us further from that goal and will instead create further hardship for oil and gas producers and the mineral owners – American taxpayers - who desire those revenues and economic activity.

Respectfully submitted,

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Tom Stewart serves as the executive vice president of the Ohio Oil and Gas Association (OOGA), having been elected to that position in September 1991. At OOGA, Stewart is director of staff; editor of the Association's publications; an industry spokesman to media outlets and other forums; and, on behalf of OOGA members' interests, serves as public policy advocate in Columbus and Washington D.C.

Stewart serves as the Ohio associate representative to the Interstate Oil and Natural Gas Compact Commission (IOGCC), having been appointed to that position by Governor George Voinovich in 1997. IOGCC (http://www.iogcc.state.ok.us/) is an organization of governors of the oil and natural gas producing states established to promote the conservation and efficient recovery of domestic oil and natural gas resources while protecting health, safety and the environment.

Stewart is an active participant with the Independent Petroleum Association of America (IPAA)(www.ipaa.org) and serves on the IPAA Environment and Safety Committee, the Communications Steering Committee, the Gas Pipeline Safety Sub-Committee and is an original member of the management team organizing the national BRIEF Project. http://www.energyindepth.org/

In December 2001, Stewart was elected to the Board of the State Review of Oil and Natural Gas Environmental Regulations, Inc. (STRONGER) as one of three representatives for the U.S. oil and gas exploration and production industry. During 2003, Stewart served as chairman of the STRONGER Board. He currently serves as vice-chair of the organization. STRONGER is a non-profit organization created to administer and advance the state review process of the States' oil and gas exploration and production waste management regulatory programs. STRONGER is a stakeholder-driven process with equal representation from government, industry and the environmental community. STRONGER's objective is to foster constant improvements in state oil and gas regulatory programs in order to protect human health, safety and the environment. http://www.strongerinc.org/

From August 2002 to November 2005, Stewart served as the secretary treasurer of the Liaison Committee of Cooperating Oil and Gas Associations. The Liaison is a national network organization of state and regional trade associations that represent the independent oil and gas exploration and production industry in the United States. Stewart was responsible for coordinating the organization's efforts.

Prior to joining OOGA, Mr. Stewart has fifteen years of formal experience in the oil and gas industry as an oil and gas producer and provider of contract drilling services. He is the third generation of his family to engage in exploration, development and production of crude oil and natural gas.

The Ohio Oil & Gas Association is a statewide trade association with over 1,900 members who are actively involved in the exploration, development and production of crude oil and natural gas within the State of Ohio. Since 1947, the Association's mission is to protect, promote, foster and advance the common interests of those engaged in all aspects of the Ohio crude oil and natural gas exploration and production industry.