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America's Oil & Gas Producers

Testimony

Of

The

Independent Petroleum Association of America

Before

Committee on Resources

And

Committee on Agriculture

U.S. House of Representatives

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Statement of The
Independent Petroleum Association of America

This testimony is submitted by the Independent Petroleum Association of America (IPAA). IPAA represents the thousands of independent natural gas and oil explorers and producers, as well as the service and supply industries that support their efforts. Independent producers drill about 95 percent of American oil and natural gas wells, produce over 56 percent of American oil, and more than 85 percent of American natural gas.

This hearing examines issues associated with the development of American oil and natural gas resources, principally with respect to access to federal lands. In part, the hearing addresses a proposed plan for the development of the George Washington National Forest. But, IPAA believes that this proposed plan presents a far larger issue – the reluctance of the current Administration to support the development of the full spectrum of American resources. More specifically, the issues that seem to represent the Administration's positions relate to its approach to technologies that are essential to develop these American resources – technologies that have been proven safe over years of operation but are now, without evidence, called into question. This tactic has been regularly used by various environmental groups that oppose the development of all fossil fuels as part of a strategy to create community anxiety over oil and natural gas development, demean the regulatory process and agencies that manage the environmental risk associated with these technologies, and demand a federalization of the regulatory process to inhibit resource development.

Most of this effort has been directed at the use of advanced hydraulic fracturing. In the George Washington National Forest proposal, the tactic has expanded to include the use of horizontal drilling. This testimony will address both technologies.

The Draft Environmental Impact Statement for the Revised Land and Resource Management Plan for the George Washington National Forest (DEIS) includes as its preferred alternative the prohibition of horizontal drilling for oil and natural gas. Astonishingly, it justifies this preference on the basis of limiting surface disruption and water demand. A fundamental benefit of horizontal drilling is it reduction of the surface footprint of oil and natural gas development. During the debates over the Arctic National Wildlife Refuge, it was the use of horizontal drilling to tap distant reservoirs that reduced the surface impact of oil development. Horizontal drilling technology allows the well bore to turn from its vertical orientation in order to develop resources that are inaccessible from the well's surface site or that are deposited in horizontal formations such as shale gas and shale oil. Horizontal drilling rapidly increased in the mid-1970s to become a mainstay of drilling options to access a variety of different resource plays. Highlighted in the Department of Energy 1999 document, "ENVIRONMENTAL BENEFITS of ADVANCED OIL and GAS EXPLORATION and PRODUCTION TECHNOLOGY", horizontal drilling provides both more efficient drilling and less surface disruption.

IPAA believes that the DEIS follows a common pattern of overstating implications of oil and natural gas development on water demand. This pattern builds on two perceptions – the demand for water in oil and natural gas development is high and the demand for its use in fracturing in the context of horizontal drilling is particularly large. Significantly, the DEIS use of the water demand issue demonstrates that the real issue relates to hydraulic fracturing. But, by examining the issue in context, the perceived impact is overstated. Numerous assessments of the demand for water in oil and natural gas development demonstrate that it falls well below other water demands. For example, the FracFocus website, developed by the Ground Water Protection

Council (GWPC) and the Interstate Oil and Gas Compact Commission (IOGCC), provides a breakdown of water demand demonstrating that oil and natural gas development falls in the mining category – approximately one percent of the total (http://fracfocus.org/water-protection/hydraulic-fracturing-usage). Certainly, specific areas will differ in the mix of demand, but clearly water use for oil and natural gas development is manageable. Similarly, the DEIS proposes to prohibit horizontal drilled wells while allowing vertical wells that would be hydraulically fractured. In part, it rationalizes this distinction by stating:

> Some level of hydrofracturing is used in nearly all gas well drilling. Conventional drilling has occurred on the Jefferson NF for many years without incident. It is the unconventional drilling technique of horizontal drilling and its unconventional use of hydrofracturing that has raised concerns. Horizontal drilling uses repeated hydrofracturing at intervals throughout the horizontal shaft over long distances, and so, requires very large amounts of water and has the potential for affecting water quality that goes far beyond hydrofracturing associated with conventional (vertical) drilling. Rather than restricting all hydrofracturing, the Forest decided to prohibit horizontal drilling and its associated hydrofracturing.

Setting aside that neither horizontal drilling nor hydraulic fracturing is an unconventional technology, the statement fails to recognize that horizontal drilling allows for the development of the same amount of resource that would require far more vertical wells. The 2009 Department of Energy document, *Modern Shale Gas Development in the United States: A Primer*, sets out the impact well:

> Modern shale gas development is a technologically driven process for the production of natural gas resources. Currently, the drilling and completion of shale gas wells includes both vertical and horizontal wells. In both kinds of wells, casing and cement are installed to protect fresh and treatable water aquifers. The emerging shale gas basins are expected to follow a trend similar to the Barnett Shale play with increasing numbers of horizontal wells as the plays mature. Shale gas operators are increasingly relying on horizontal well completions to optimize recovery and well economics. Horizontal drilling provides more exposure to a formation than does a vertical well. This increase in reservoir exposure creates a number of advantages over vertical wells drilling. Six to eight horizontal wells drilled from only one well pad can access the same reservoir volume as sixteen vertical wells. Using multi-well pads can also significantly reduce the overall

> number of well pads, access roads, pipeline routes, and production facilities required, thus minimizing habitat disturbance, impacts to the public, and the overall environmental footprint.

The *Primer* explains the issue more precisely:

> Analysis performed in 2008 for the U.S. Department of the Interior estimated that a shallow vertical gas well completed in the Fayetteville Shale in Arkansas would have a 2.0-acre well pad, 0.10 miles of road and 0.55 miles of utility corridor, resulting in a total of 4.8 acres of disturbance per well. The same source identified a horizontal well pad in Arkansas as occupying approximately 3.5 acres plus roads and utilities, resulting in a total of 6.9 acres. If multiple horizontal wells are completed from a single well pad it may require the pad to be enlarged slightly. Estimating that this enlargement will result in a 0.5-acre increase, the 4-well horizontal pad with roads and utilities would disturb an estimated total of 7.4 acres, while the 16 vertical wells would disturb approximately 77 acres. In this example, 16 vertical wells would disturb more than 10 times the area of 4 horizontal wells to produce the same resource volume. This difference in development footprint when considered in terms of both rural and urban development scenarios highlights the desire for operators to move toward horizontal development of gas shale plays.

From an environmental standpoint, the advantages are obvious. The surface impact is one-tenth or less than its historic impact. The amount of land used to manage drilling fluids and produced water is dramatically reduced. The environmental risks are more directly and easily managed. Moreover, as the use of advanced techniques like horizontal drilling technology increases, fewer wells will be needed to generate the same amount of production. For example, prior to 2008, more than 31,000 annual new gas wells were required to sustain 58 BCF/d of gas production; now it is possible to produce almost 63 BCF/d with the drilling of only 19,000 new gas wells per year.

As described above, the DEIS justifications suggest that the underlying issue associated with the preferred alternative of no horizontal drilling is the use of hydraulic fracturing. Clearly, the development of shale gas and shale oil resources hinges on the use of horizontal drilling and hydraulic fracturing. The DEIS supporting documents demonstrate that there are no indications that hydraulic fracturing has caused any issues of environmental harm, that its regulated use

protects against its environmental risk. Consequently, it turns the other linchpin of shale gas development – horizontal drilling. In reality, these technologies and the attendant regulatory structures for their use are proven, effective controls. In reality, the environmental groups opposing the development of American fossil fuels are the driving force in creating anxieties about both technologies and the regulatory programs managing their use.

The history of the hydraulic fracturing issue is illustrative. Hydraulic fracturing is a technique used to allow natural gas and oil to move more freely from the rock pores where they are trapped to a producing well that can bring them to the surface. The technology was developed in the late 1940s and has been continuously improved and applied since that time. In a hydraulic fracturing job, the fluid pumped into the well contains a proppant (usually sand) to keep the fracture open. This proppant collects inside the created fracture, so when the fracture tries to close, it cannot. The proppant holds it open.

State ground water regulation was developed long before hydraulic fracturing began. These regulations established well construction standards including steel casing and cementing requirements. They were designed to protect ground water from contamination by oil and its produced water. The environmental risks from oil and produced water are far more significant than those from a hydraulic fracturing solution that is 99.5 percent water and sand. These regulations created a control system that has effectively prevented contamination of drinking water, effective in the more than a million times that hydraulic fracturing has been used.

Years after state regulations protecting ground water were implemented, Congress enacted the Safe Drinking Water Act (SDWA) in 1974. By then, hydraulic fracturing had been used for 25 years with no environmental problems. Under the SDWA, states developed extensive Underground Injection Control (UIC) programs to manage liquid wastes and the

reinjection of produced waters. These programs addressed liquids intended to be injected – and to remain – in underground geologic formations. By 1980 Congress – recognizing the need for further state flexibility – modified the SDWA to give states federal "primacy" based on comparable state oil and gas UIC programs.

At no time during these debates was there any suggestion of including hydraulic fracturing in the UIC waste management requirements. In the mid-1990s the Legal Environmental Assistance Foundation (LEAF), after years of failing to make an environmental case against coalbed methane development, petitioned the Environmental Protection Agency (EPA) to require Alabama to regulate hydraulic fracturing under the UIC program. EPA rejected LEAF, arguing that Congress never intended UIC to cover hydraulic fracturing. LEAF appealed to the 11th Circuit Court of Appeals.

In 1997, the 11th Circuit Court decided the *LEAF v EPA* case. The Court never addressed the environmental risks of hydraulic fracturing; it merely decided that the plain language of the statute included hydraulic fracturing as underground injection.

Not an issue at the time the SDWA passed, Congress did not specifically exclude hydraulic fracturing. Two decades later, a court ignored the facts of the issue and changed the scope of the law on a technicality.

However, in response to public concerns, EPA initiated a study of coalbed methane hydraulic fracturing environmental risks because these formations are situated closest to ground water. EPA released the completed study in June 2004. No environmental risks of proper hydraulic fracturing were identified.

Analysis of the environmental risks of the technology showed it to be safe, but the nation's ability to develop its critical oil and natural gas was at risk because of the *LEAF* cases. Recognizing the need to provide legislative clarity and that the existing state regulatory system provided effective environmental protection, Congress addressed the issue of hydraulic fracturing under the SDWA in the Energy Policy Act of 2005.

The Energy Policy Act preserved the state regulatory system that has worked so effectively for the past half century. It clarified that the SDWA was not the appropriate regulatory law for hydraulic fracturing with one exception. During the analysis of environmental risk from hydraulic fracturing, EPA hypothesized that the use of diesel fuel as a solvent in the fracturing process of coalbeds might pose a risk. While no incidents of damage have occurred, Congress preserved the option for the application of the SDWA for regulation if diesel fuel was utilized. For five years following the 2005 SDWA amendments, EPA took no action under this new authority. Then, in 2010, without notice and comment, EPA posted on its website an interpretation that wells fractured using diesel fuel would be considered as Class II UIC wells – a position it had argued against in the *LEAF* cases. IPAA and others have challenged EPA's website rulemaking and court action is pending.

Meanwhile, in 2009, the Ground Water Protection Council reviewed state regulations designed to protect water resources. It again concluded that these regulations were adequately designed to protect water resources. Yet, later that year, Congress requested another EPA study of hydraulic fracturing; it is underway.

Emerging from the 2005 debate, a number of environmental groups initiated efforts throughout the country to create opposition to the use of hydraulic fracturing. Since no incidents of drinking water contamination have occurred from the use of hydraulic fracturing, these efforts

could not credibly raise arguments of unmanaged environmental risk. Instead, the focus became an aggressive three pronged strategy. First, communities were inundated with allegations about the chemicals in the fracturing solutions – not that exposure had occurred, just that chemicals were used. Second, the existing regulatory process and the regulators were demeaned. Third, federalization is presented as the only acceptable solution.

The most visible aspect of this strategy is the recurring focus on disclosure of the chemicals used in the fracturing process. Natural gas and oil producers do not oppose the disclosure of the chemicals used in fracturing. However, because the chemical mixtures involve confidential business information, the execution of disclosure is not straightforward. Several states have initiated disclosure requirements. Recently, the GWPC and IOGCC started FracFocus – a website that will provide detailed information on the chemicals used in the fracturing process on a well by well basis. IPAA and other national oil and natural gas production trade associations have strongly endorsed FracFocus as the best approach to deal with a national registry on fracturing chemical disclosure. The primary issue, however, continues to be whether the regulatory process protects ground water resources since chemicals will always be a part of the production of oil and natural gas. With about one million operating oil and natural gas wells in the United States, tens of thousands of wells being drilled annually and only a small number of problem incidents, it is clear that the process is sound and effective.

Equally clear, the drumbeat of opposition to developing American oil and natural gas is taking a toll. Faced with a history of effective regulation, the opposition's principal strategy remains distorting the risks, demeaning the regulators and demanding federalization. Despite a record of supporting the development of both horizontal drilling and hydraulic fracturing through the Department of Energy over the past several decades, the current Administration now sends

mixed and uncertain signals regarding the development of these American resources. Having primarily supported green energy paths that cannot grow fast enough to meet America's energy demand, it cannot now decide if it is willing to embrace the opportunities presented by American natural gas as a clean, abundant and affordable resource and the potential of expanding American oil production for the first time in decades. The George Washington National Forest Draft Environmental Impact Statement for the Revised Land and Resource Management Plan reflects this underlying Administration indecision.