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House Committee on Natural Resources
Subcommittee on Energy and Mineral Resources

Energy in America: BLM's Red-Tape Run Around and its Impact on American Energy Production

TESTIMONY OF L. POE LEGGETTE
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Biographical Note:

L. Poe Leggette is the Partner-in-Charge of the Denver office of the Norton Rose Fulbright law firm. Mr. Leggette also serves as the firm's Regional Head for the Americas, Energy.

Mr. Leggette's practice is focused on natural resources litigation and environmental law, with special emphasis on the administration of federal public lands (including tribal lands) and energy production. The majority of Mr. Leggette's work is comprised of litigation and regulatory matters, as well as work involving corporate transactions between energy companies.

Mr. Leggette's work touches on most aspects of environmental and natural resources law-- particularly as that law is applied to commercial activity on public lands. Mr. Leggette is a leading national practitioner with extensive experience related to both onshore and deepwater oil and gas operations and regulation, including matters involving permitting delays and lease suspensions. He is counsel to both individual companies and national trade associations on issues concerning the regulation of hydraulic fracturing, including such matters as well safety requirements and the implications of government regulation on trade secrets.

Before entering private practice, Mr. Leggette served as Assistant Solicitor to the United States Department of the Interior. While Assistant Solicitor, Mr. Leggette's primary responsibilities included, among others: (i) advising the Bureau of Land Management on that agency's onshore energy programs; and (ii) advising the Minerals Management Service on questions related to the development of offshore minerals and royalty valuation and accounting.

Mr. Leggette is a *magna cum laude* graduate of Tufts University and earned his law degree from the University of Virginia. Mr. Leggette continues to be a nationally recognized energy attorney. He is a frequent author and speaker on topics concerning energy policy and natural resources development on public lands.

I. INTRODUCTION.

The United States is at a crossroads in terms of its energy policy, particularly as that policy relates to oil and gas development. For the better part of the last decade, oil and natural gas production from domestic wells has increased steadily. Technical advancements in identifying promising sources of oil and gas and extracting hydrocarbons from previously inaccessible formations have allowed domestic producers to expand operations to parts of the

country not traditionally associated with oil and gas development and to attain production levels once thought unreachable. As a result of this technical revolution, the American people may now realistically hope to achieve energy independence and enjoy the enhanced domestic security that achievement will afford.

Advocates across the political spectrum have recognized the benefits associated with this increased production. The economic benefits are impossible to ignore. There is little doubt that, since the 2008 financial crisis, the Energy sector has constituted one of the few bright spots in the domestic economy. The oil and gas industry's capital investment in domestic markets and the thousands of high-paying jobs related to domestic operations have played an essential role in the United States' ability to slowly recover from the most recent economic downturn.

Nor are the benefits solely financial. From a security standpoint, few will argue that domestic sources of energy are not preferable to energy purchased from international regimes which may be at best indifferent, and at worst overtly hostile, to the United States' interests. From an environmental standpoint, the abundance of clean burning natural gas represents a low-cost and preferable alternative to fuel America's power plants, automobiles, and commercial activity. Indeed, in the most recent State of the Union Address, President Barack Obama himself recognized the meaningful impact natural gas can have on the American environment, describing natural gas as "bridge fuel" critical to allowing the United States to transition away from carbon-heavy energy sources and to meet the enhanced mileage targets of the transportation industry.

Despite the general agreement on these points, the domestic energy picture is not entirely optimistic. Concerns both real and perceived threaten to undermine the significant advancements that have been made in recent years and to deny Americans the ability to realize the promise of future achievements. And the most significant challenge domestic energy producers faces is the unprecedented expansion of government regulation. At present, the Bureau of Land Management ("BLM") has undertaken efforts to extend its reach over more aspects of oil and gas operations, in more places, and on a more frequent basis.

The intent of this testimony is not to assert that BLM has no role to play as a custodian of federal resources and public lands. For many years, BLM, in conjunction with the States and local governments, have managed to regulate natural resources development in a manner sufficient to ensure public safety and promote economic development. Yet now BLM suggests that new rules are necessary to regulate this development. Among other actions, the Agency has proposed new rules to specifically govern a well-completion technique called hydraulic fracturing on federal and Indian lands and has indicated that it intends to revise and re-issue its entire series of onshore orders governing oil and gas development generally (as well as add at least one new onshore order). All this without any supportable explanation of why this new layer of regulations is necessary, or of how BLM intends to meet the administrative demands these regulations will impose on the agency's already over-taxed resources.

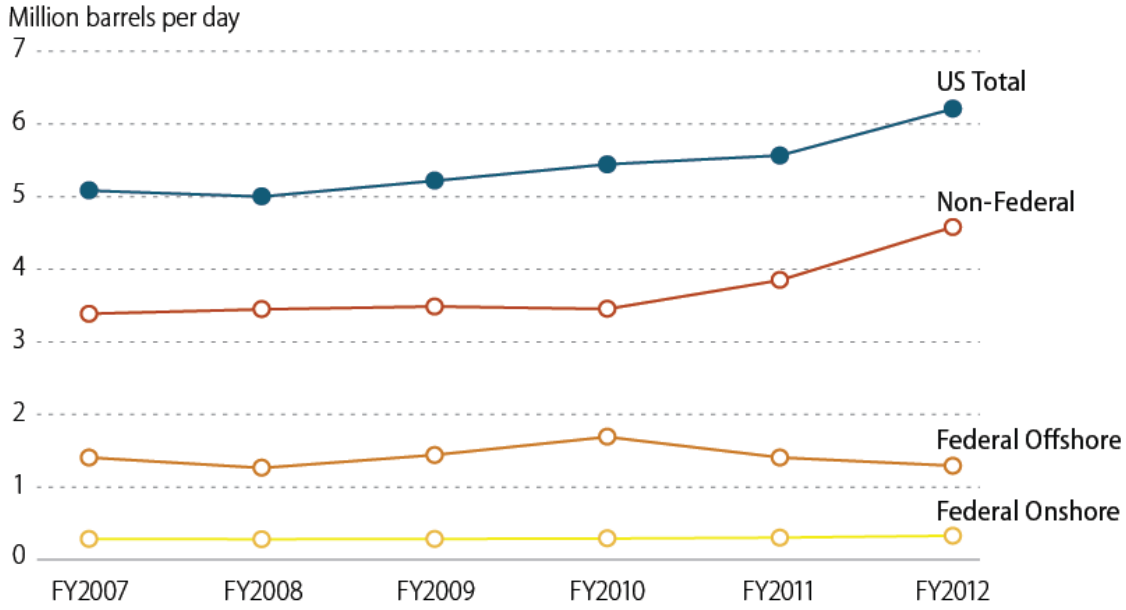
BLM's current approach to management of the public lands is misguided. The Agency has failed to demonstrate any supportable need for the policies it is currently promoting. BLM continues to add operational complexity without identifying any commensurate environmental, social, or financial benefit to offset that complexity. The results threaten to derail the promise of

America's energy future and represent an impermissible attempt to exercise powers beyond the carefully circumscribed authority Congress has granted BLM over the federal public lands.

II. BACKGROUND.

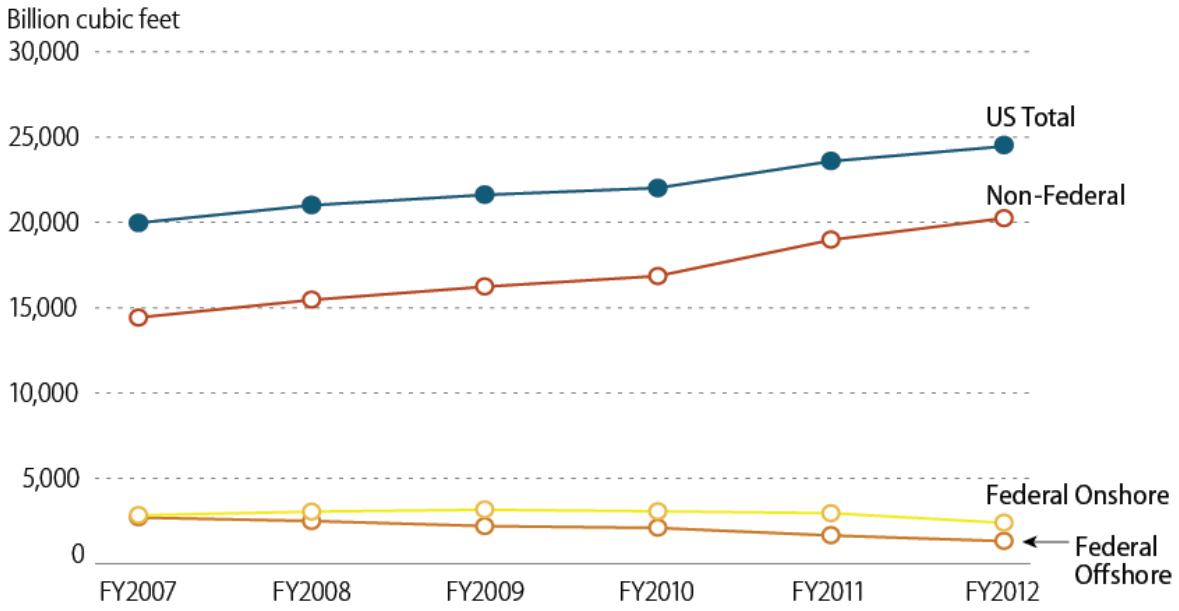
While domestic oil and gas production has grown in recent years, the percentage of that production that is extracted from federal lands has declined in the same period.

Figure 1. U.S. Oil & Lease Condensate Production: Federal and Non-Federal Areas, FY 2007-2012[1]



[1] Congressional Research Serv., U.S. Crude Oil & Natural Gas Prod. in Fed. & Non-Fed. Areas, Fig. 1, at 3 (Mar. 7, 2013).

Figure 2. U.S. Natural Gas Production:
Federal and Non-Federal Areas, FY 2007-2012[2]



The reasons for this divergence are not difficult to understand. A complex network of regulatory requirements -- both existing and proposed -- as well as logistical inefficiencies inherent in the federal government's management of the nation's public lands represent an enormous incentive for operators to focus their efforts on state and private lands.

The federal government's own statistics reveal that, under the current rules governing oil and gas development on federal lands, lengthy delays should be expected between the time an operator submits an Application for Permit to Drill (an "APD") to BLM and BLM's approval of the APD: an average of 162 days in Farmington, New Mexico; 181 days in Dickinson, North Dakota; 211 days in Canon City, Colorado; 215 days in Price, Utah; 226 days in Meeker, Colorado; 233 days in Lander, Wyoming; 271 days in Rawlings, Wyoming; 359 days in Milwaukee, Wisconsin; 518 days in Kemmerer, Wyoming; 635 days in Moab, Utah; 952 days in Buffalo, Wyoming.[3]

It is likely that delays in the future will be even longer-- on May 24, 2013, BLM published in the Federal Register proposed rules to govern hydraulic fracturing on federal and Indian lands.[4] Among other provisions, the proposed rules would require operators to publicly disclose significant amounts of operational information before an APD could be approved and would add expensive cementing requirements that must be met before well stimulation activities

[2] *Id.*, Fig. 2, at 4.
[3] L.P. Leggette & S. Zimmerman, W. Lands & Energy Newsletter (June 26, 2013), available at: http://www.nortonrosefulbright.com/knowledge/publications/100086/western-lands-and-energy-newsletter.
[4] *See* 78 Fed. Reg. 31,636 (May 24, 2013). The proposed rules published in May 2013 replaced a previous rulemaking proposal that BLM published on May 11, 2012. *See* 77 Fed. Reg. 27,691, 27,696 (May 11, 2012).

may commence. The Secretary of the Interior has announced that BLM expects to finalize and implement the proposed hydraulic fracturing rules sometime in 2014.[5]

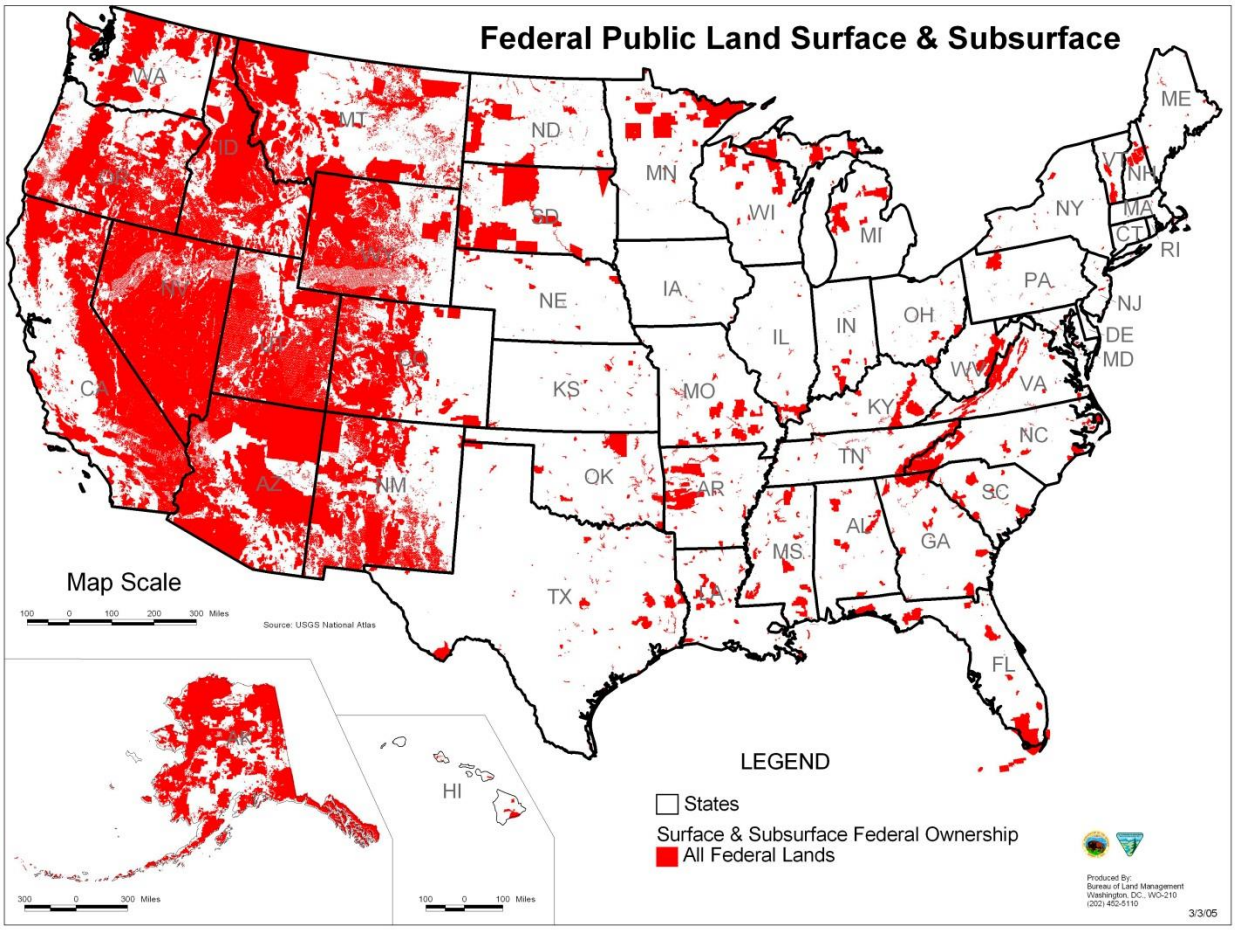
Nor are the challenges attendant to development on federal lands limited to regulatory compliance. Working on federal lands also brings with it the very real possibility of legal disputes and litigation either against or involving the United States. While the prospect of litigation is a burden often attendant to oil and gas development, that prospect is even more probable when working on federal lands. Because the United States wears several hats in oil and gas exploration -- administrator, regulator, and market participant -- there are numerous possible situations in which operators may find themselves at odds with the federal government. And because of the public interest in federal lands, third parties may attempt to use the courts to block or delay land use decisions of which those third parties disapprove.

The difficulties associated with government leasing and operations raise the question why an operator would ever choose to develop minerals on federal lands. Given the option, operators now typically prefer to invest in lands under private lease, where state permitting is quicker, regulation is more predictable, and legal challenges are less frequent. So recognizing that preference, one might question the extent to which BLM's choices matter. Can't operators simply choose to remain on private lands?

The answer is not so simple. BLM's choices do matter. The reality is that, for most operators, the sheer scope of the government's landholdings make at least some involvement on federal lands unavoidable. The federal government controls approximately 650 million surface acres -- approximately one-third of the nation's surface area -- and over 700 million acres of federal mineral estate.

[5] A. Restuccia, *Jewell: Fracking regs coming next year*, POLITICO PRO (Oct. 31, 2013).

Figure 3. Federal Public Lands



As the red coloring on the map in Figure 3 emphasizes, particularly for those operators who explore for and develop oil and gas in the western United States, avoiding federal lands entirely is essentially impossible.[6] Because of this dominance, BLM's actions have meaningful and significant repercussions throughout all aspects of domestic energy policy.

III. POLICY CONCERNS.

BLM does not regulate in a vacuum. Contrary to the inference the public might draw from the approach the Agency has adopted in the last several years, BLM's authority over the public lands is statutorily circumscribed. BLM is not entitled to issue regulations promoting any policy it chooses, but, under the Federal Land Policy & Management Act, is instead obligated to

[6] The federal government controls more than 54% of the land in the eleven contiguous states west of the 100th Meridian: Arizona, 48.06%; California, 45.3%; Colorado, 36.63%; Idaho, 50.19%; Montana, 29.92%, Nevada, 84.48%, New Mexico, 41.77%; Oregon, 53.11%, Utah, 57.45%; Washington, 30.33%; and Wyoming, 42.33%. *See* U.S. Gen. Servs. Admin., *Fed. Real Property Profile* at 18 & Table 16 (Sept. 30, 2004). The federal government also controls more than 69% of the surface acreage in Alaska. *See id.*

"manage the public lands under principles of multiple use and sustained yield."[7] To meet this obligation, BLM must consider "a combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific and historical values."[8] The result of this statutory scheme is that, while BLM has a limited right to regulate activities on the public lands, accounting for the productivity of the federal mineral estate is a statutory imperative in the agency's management practices.

A. BLM HAS NOT IDENTIFIED ANY REGULATORY GAP.

The quintessential example of BLM's failure to adhere to the Agency's statutory mandate is the proposed rule to govern hydraulic fracturing. Almost two years into the rulemaking process, BLM remains unable to provide a supportable reason to impose its additional layer of regulations on top of those laws States already enforce. BLM has not identified any benefit the public will receive in return for the high costs the proposed rule will impose on the industry; an industry that has been this country's premier job creator over the last decade. BLM has not identified any source of financial support to compensate taxpayers, state governments, and tribes for the reductions in leasing and royalty revenue the application of the rule will cause. The only imperative to adopt the proposed rule is an arbitrary political desire "to do something."

According to the *Public Lands Statistics* for Fiscal Year 2012, BLM approved 4,256 APDs on public lands in 17 states.[9] Of that number, over ninety-eight percent of the wells approved were in just seven states: California, Colorado, Montana, North Dakota, New Mexico, Utah, and Wyoming. Since the beginning of 2010, all seven of these states have revised their regulations specifically to address public concerns over hydraulic fracturing.

State	**Citation**	**Eff. Date**
Montana	Mont. Admin. R. 36.22.608, 36.22.1015, 36.22.1016, 36.22.1106, 36.22,1010 (2013).	8/26/11
North Dakota	N.D. Admin. Code 43-02-03-27.1 (2012).	4/1/12
Colorado	Colo. Code Regs. §§ 404-205, 404-205A, 404-305.e(1)(A), 404-316C, 404-317, 404-341, 404-903, 404-904 (2013).	7/1/09
New Mexico	N.M. Code R. 19.15.16.19 (2013).	2/15/12
Utah	Utah Admin. Code r.649-3-39 (2013).	11/1/12
Wyoming	55-3 Wyo. Code R. §§ 45(d)(iv), 45(d)(vi), 45(f), 45(g)	6/8/10

[7] 43 U.S.C. § 1732(a).
[8] 43 U.S.C. § 1702(c).
[9] *See* Bureau of Land Mgmt., *Pub. Land Statistics* (2012) at 118, Table 3-16, available at: http://www.blm.gov/public_land_statistics/.

State	Citation	Eff. Date
	(2012).	
California	Cal. Dep't of Conservation, Div. of Oil, Gas, and Geothermal Res., Cal. Code Regs. tit. 14, §§ 1780-88	01/01/2014

Of the ten states that accounted for less than two percent of the APDs approved, nearly all have amended their regulations to address public concerns regarding hydraulic fracturing.

State	Citation	Eff. Date
Alabama	Ala. Admin. Code r. 400-3-8-.03; Ala. Admin. Code r. 400-1-9-.04.	9/9/2013
Alaska	Alaska Admin. Code tit. 20, §§ 25.005, 25.280, 25.283, 25.990 (2013).	Changes Proposed 11/1/2013
Arizona	Ariz. Admin. Code §§ 12-7-108, 12-7-122,12-7-140 (2013).	1/19/94, 1/2/96, 7/15/02
Louisiana	La. Admin. Code tit. 43:XIX § 118 (2013).	10/20/11
Mississippi	26-2 Miss. Code R. § 1.26 (2013).	3/4/13
Nevada	S.B. 390, 77th Sess. (Nev. 2013).	10/1/13
Ohio	Ohio Admin. Code 1509.01–1509.99 (2013). S.B. 315, 129th Gen. Assemb. (Ohio 2012).	8/1/12 9/12/12
Oklahoma	Okla. Admin. Code §§ 165:10-3-4, 165:10-3-10, 165:10-7-16, 165:10-21-22 (2013).	7/1/13
South Dakota	S.D. Admin. R. 74:12:02:19 (2013).	4/22/13
Texas	16 Tex. Admin. Code §§ 3.13, 3.29, 3.99, 3.100 (2013); .	1/2/12 1/1/2014

Other important states with significant oil and gas development activity, but with two or fewer approved APDs on public lands in FY 2012 -- Pennsylvania and West Virginia -- both have robust regulations governing hydraulic fracturing. In short, there is no gap in the regulation of hydraulic fracturing justifying BLM's proposed rule.

It is highly significant what BLM's administrative record compiled in support of the proposed rulemaking on hydraulic fracturing lacks. BLM cannot point to a single instance where there was an environmental problem related to hydraulic fracturing that BLM's proposed rule

would have prevented where state regulation did not adequately address the issue. So the problem with BLM's position is not simply that states have hydraulic fracturing rules on the books, but rather that the proposed rule does not provide any benefit commensurate with the costs it will impose. BLM has no evidence that its costly proposed rule will be any more effective in practice than existing state regulations protecting water and other environmental values.

B. BLM HAS NOT SUBSTANTIATED ALLEGED CONCERNS THAT WOULD WARRANT FURTHER REGULATION.

The chief concern BLM has identified in support of adopting new regulations to govern hydraulic fracturing is a public "concern about whether fracturing can lead to or cause the contamination of underground water sources[.]"[10] This concern has been the subject of frequent technical reports, finding not only that hydraulically stimulated fractures in deeper formations have not penetrated drinking water aquifers, but also that principles of petrophysics indicate it is highly unlikely that such fractures could ever reach aquifers. These are facts that BLM must take into account in its rulemaking to avoid an unlawfully arbitrary rule.

Preliminary results from the most recent study were reported on July 19, 2013. In this study, the National Energy Technology Laboratory is monitoring a group of Marcellus Shale wells in Greene County, Pennsylvania. The Associated Press reported that "[d]rilling fluids tagged with unique markers were injected more than 8,000 feet below the surface at the gas well bore but weren't detected in a monitoring zone at a depth of 5,000 feet. The researchers also tracked the maximum extent of the man-made fractures, and all were at least 6,000 feet below the surface."[11]

Other studies and statements of public officials are well-known to BLM and are summarized here.

[10] 78 Fed. Reg. 31,636, 31,636 (May 24, 2013).
[11] K. Begos, "DOE Study: Fracking Chemicals Didn't Taint Water" (July 19, 2013), available at http://bigstory.ap.org/article/ap-study-finds-fracking-chemicals-didnt-spread.

Author	Statement	Citation
Sally Jewell, Secretary of the Dep't of Interior	"I know there are those who say fracking is dangerous and should be curtailed, full stop. That ignores the reality that it has been done safely for decades and has the potential for developing significant domestic resources and strengthening our economy and will be done for decades to come."	Real Clear Energy website, *The Daily Bulletin* (May 20, 2013)
Lisa Jackson, former U.S. Environmental Protection Agency ("EPA") Administrator	"In no case have we made a definitive determination that [hydraulic fracturing] has caused chemicals to enter groundwater."	You Tube: Fox News Channel Clip (Apr. 30, 2012)
Lisa Jackson, former EPA Administrator	"I'm not aware of any proven case where [hydraulic fracturing] itself has affected water."	You Tube: Fox News Channel Clip (May 24, 2011)
Ken Salazar, former Secretary of the Dep't of Interior	"There's a lot of hysteria that takes place now with respect to hydraulic fracking, and you see that happening in many of the states… My point of view, based on my own study of hydraulic fracking, is that it can be done safely and has been done safely hundreds of thousands of times."	Energy in Depth recording of Ken Salazar speaking in front of the U. S. House of Representatives (Feb. 15, 2012)
Dr. Stephen Holditch, Dep't of Petroleum Engineering, Texas A&M University; member of DOE's SEAB Shale Gas Production Subcommittee	"I have been working in hydraulic fracturing for 40+ years and there is absolutely no evidence hydraulic fractures can grow from miles below the surface to the fresh water aquifers."	Written Testimony before U.S. Senate Committee on Energy & Natural Resources (Oct. 4, 2011)
Dr. Mark Zoback, Professor of Geophysics, Stanford University; member of DOE's SEAB Shale Gas Production	"Fracturing fluids have not contaminated any water supply and with that much distance to an aquifer, it is very unlikely they could."	"Extracting natural gas from shale can be done in an environmentally responsible way, says Stanford researcher on government panel," Louis Bergeron, *Stanford Report*

Author	Statement	Citation
Subcommittee		(Aug. 30, 2011)
Warner, *et al.*	"The integration of multiple geochemical and isotopic proxies shows no direct evidence of contamination in shallow drinking-water aquifers associated with natural gas extraction from the Fayetteville shale."	"Geochemical and isotopic variations in shallow groundwater in areas of the Fayetteville shale development, north-central Arkansas, accepted for publication in Applied Geochemistry (Apr. 25, 2013)
Warner, *et al.*	"The lack of geospatial association with shale-gas wells and the occurrence of this type of saline water prior to shale gas development in the study area…suggests that **it is unlikely that hydraulic fracturing for shale gas caused this salinization and that it is instead a naturally occurring phenomenon that occurs over longer timescales**."	"Geochemical evidence for possible natural migration of Marcellus Formation brine to shallow aquifers in Pennsylvania" at 11963 (May 10, 2012), available at: www.pnas.org/cgi/doi/10.1073/pnas.1121181109
Duke University	"The study found elevated levels of salinity with similar geochemistry to deep Marcellus brine in drinking water samples from three groundwater aquifers, but no direct links between the salinity and shale gas exploration in the region."	"Marcellus Brine Migration Likely Natural, Not Man-Made", *Duke Today* (July 9, 2012)
Boyer, *et al.*	"In this study, statistical analyses of post-drilling versus pre-drilling water chemistry **did not suggest major influences from gas well drilling or hydrofracturing** (fracking) on nearby water wells, when considering changes in potential pollutants that are most prominent in drilling waste fluids."	"The Impact of Marcellus Gas Drilling on Rural Drinking Water Supplies" at 4, *The Center for Rural Pennsylvania* (Oct. 2011)
New York State Dep't of Environmental Conservation	"A supporting study for this dSGEIS concludes that it is highly unlikely that groundwater contamination would occur by fluids escaping from the wellbore for hydraulic fracturing. The 2009 dSGEIS further observes that regulatory officials from 15 states recently testified that groundwater contamination as a result of the hydraulic fracturing process in the tight	"Revised Draft Supplemental Generic Environmental Impact Statement On The Oil, Gas and Solution Mining Regulatory Program" (dSGEIS), Executive Summary at 11 (Sept. 7,

Author	Statement	Citation
	formation itself has not occurred."	2011)
Ohio Dep't of Natural Resources, Mineral Resources Management	"Although an estimated 80,000 wells have been fractured in Ohio, state agencies have **not identified a single instance where groundwater has been contaminated** by hydraulic fracturing operations."	"State Review of Oil and Natural Gas Environmental Regulations, Inc. (STRONGER)," *Ohio Hydraulic Fracturing State Review* (Jan. 2011)
MIT Energy Initiative	"In the studies surveyed, **no incidents are reported which conclusively demonstrate contamination** of shallow water zones with fracture fluids."	"The Future of Natural Gas" at 40, MIT Study (2010)
U.S. Department of Energy, Office of Fossil Energy, National Energy Technology Laboratory	"[B]ased on over sixty years of practical application and a lack of evidence to the contrary, there is nothing to indicate that when coupled with appropriate well construction[,] the practice of hydraulic fracturing in deep formations endangers ground water. There is also a **lack of demonstrated evidence that hydraulic fracturing conducted in many shallower formations presents a substantial risk of endangerment to ground water**."	"State Oil and Natural Gas Regulations Designed to Protect Water Resources" at 39 (May 2009), available at: http://www.gwpc.org/sites/default/files/state_oil_and_gas_regulations_designed_to_protect_water_resources_0.pdf.
U.S. EPA	"Although thousands of CBM wells are fractured annually, **EPA did not find confirmed evidence** that drinking water wells have been contaminated by hydraulic fracturing fluid injection into CBM wells."	"Evaluation of Impacts to Underground Sources of Drinking Water by Hydraulic Fracturing of Coalbed Methane Reservoirs Study," Office of Water, Office of Ground Water and Drinking Water (4606M), EPA 816-R-04-003, Executive Summary at 1 (June 2004)
U.S. Geological Survey	"Comparative analyses demonstrated that **maximum and median chloride concentrations for data from this study were below that of historical (prior to gas production) chloride concentrations,** and, more importantly, that **chloride concentrations**	"Shallow Groundwater Quality and Geochemistry in the Fayetteville Shale Gas-Production Area, North-Central Arkansas, 2011" U.S. Geological

Author	Statement	Citation
	for wells less than 2 miles from gas-production wells were not significantly different from chloride concentrations more than 2 miles from gas-production wells. Additionally, groundwater-quality data collected for this study indicated that groundwater chemistry in the shallow aquifer system in the study area is a result of natural processes, controlled by geochemical rock-water interaction and microbially mediated redox reactions."	Survey, Scientific Investigations Report 2012–5273 (January 2013)
U.S. Geological Survey	"A study that examined the water quality of 127 shallow domestic wells in the Fayetteville Shale natural gas production area of Arkansas found **no groundwater contamination associated with gas production**, according to a report released today by the U.S. Geological Survey."	"No Contamination from Fayetteville Shale Exploration Found in Sampled Wells" U.S. Geological Survey Release (January 9, 2013)
CardnoEntrix	"Groundwater beneath the Inglewood Oil Field is not a source of drinking water, although the water quality must meet the standards for such a source. Groundwater beneath the Baldwin Hills is geologically isolated from the surrounding Los Angeles Basin and any water supply wells. Routine tests by the water purveyor show the community's water supply meets drinking water standards, including the period of high-rate gravel packs and conventional hydraulic fracturing, as well as the first high-volume hydraulic fracture in September 2011. In addition, the Inglewood Oil Field has an array of groundwater monitoring wells to measure water quality. Apart from arsenic, which is naturally high in groundwater of the Los Angeles Basin, the analyzed constituents meet drinking water standards. **Before-and-after monitoring of groundwater quality in monitor wells did not show impacts from high-volume hydraulic fracturing** and high-rate gravel packing."	"Hydraulic Fracturing Study: PXP Inglewood Oil Field" at 2-3 (Oct. 10, 2012)
U.S. Government Accountability Office	"**Fractures created during the hydraulic fracturing process are generally unable to span the distance between the targeted shale formation and freshwater bearing zones** … When a fracture grows, it conforms to a general	"Information on Shale Resources, Development, and Environmental and Public Health Risks" at 46-49, GAO-12-732 (Sept.

Author	Statement	Citation
	direction set by the stresses in the rock, following what is called fracture direction or orientation. The fractures are most commonly vertical and may extend laterally several hundred feet away from the well, usually growing upward until they intersect with a rock of different structure, texture, or strength. These are referred to as seals or barriers and stop the fracture's upward or downward growth… In addition, regulatory officials we met with from eight states – Arkansas, Colorado, Louisiana, North Dakota, Ohio, Oklahoma, Pennsylvania, and Texas – told us that, based on state investigations**, the hydraulic fracturing process has not been identified as a cause of groundwater contamination** within their states."	2012)

The vast majority of wells completed by hydraulic fracturing involve geological formations thousands of feet below drinking water aquifers. But even when operating in shallower formations, improvements in fracturing technology have allowed a similar record of safety over the last decade.

Pioneer Natural Resources USA, Inc., for example, operates 2,400 wells in the Colorado portion of the Raton Basin. These wells are predominantly coal bed methane wells, producing gas from up to 20 coal seams at depths ranging from 3,500 feet to as shallow as 450 feet from the surface. EPA has reported the results of Pioneer's fracturing program. "Analysis of data from 2,273 Pioneer [hydraulic fracturing] jobs since late 2001 shows that more than 12,000 individual hydraulic fracture stages were executed. . . . To date, with more than 12,000 stages pumped, there have been no instances where Pioneer's hydraulic fracture fluids or pressures impacted underground sources of drinking water."[12]

Furthermore, at the depths at which most hydraulic fracturing is conducted, petrophysics dictates that the energy hydraulic fracturing disperses into a rock formation tends to spread more horizontally than vertically. "A number of factors control the height growth of a fracture, but the relative difference between the stresses in and around the fracture is the most important factor. Fractures tend to remain in low stress vertical regions that effectively 'lock in' or 'trap' the

[12] H. Macartney, "Hydraulic Fracturing in Coal Bed Methane Development, Raton Basin, Southern Colorado, USA," U.S. Environmental Protection Agency, PROCEEDINGS OF THE TECHNICAL WORKSHOPS FOR THE HYDRAULIC FRACTURING STUDY: WELL CONSTRUCTION AND OPERATION at 70, EPA 600/R-11/046 (May 2011).

fracture and keep it from breaking into higher stress rock."[13] In other words, how a fracture spreads is "dictated by the in situ stress that exists at the hydraulic fracture location . . . . Fractures will propagate in the same direction all across a field."[14]

When this fact is coupled with the fact that rock formations underground are "layered," this combination "makes vertical fracture height growth difficult, thus generally promoting the growth of length over height."[15] An analysis of microseismic studies of fracturing operations in the Barnett Shale has shown that "fracturing does not intrude on the aquifers. There is a limit to how much a fracture can grow vertically, even in the most advantageous conditions."[16]

The most recent analysis of this issue reaches similar conclusions. Hydraulic fracturing operations are brief. Their purpose is to create a zone of lower pressure around the wellbore so that gas and liquids flow toward the well, not up and away from the well. "After an HF stimulation, hydrocarbon extraction creates a low pressure zone that draws fluids toward the target formation, thereby eliminating any potential for upward flow."[17] For that reason, "widespread and rapid upward migration of [hydraulic fracturing] fluid and brine through bedrock is not physically plausible."[18]

There is, in sum, no evidence that regulation through existing state regimes has been inadequate to protect groundwater, the goal BLM expressly seeks in its rulemaking documents related to hydraulic fracturing. Yet BLM continues to pursue a timely, costly, and burdensome rulemaking process. Even if a hydraulic fracturing rule is never enacted, a possibility the Secretary of the Interior has already refuted publicly, BLM's stated intentions have already added a degree of uncertainty to projects on public lands, driving private investment off of the public lands, imposing unnecessary costs on American job creators, and depriving States and taxpayers of the benefits of their interests in the federal mineral estate.

C. BLM CANNOT MEET ITS ADMINISTRATIVE OBLIGATIONS UNDER CURRENTLY-EXISTING REGULATIONS.

As referenced earlier in this testimony,[19] crude oil and natural gas production from federal leases is in decline. It cannot be disputed that this decline is attributable, at least in part, to the effect of delays in federal leasing and permitting. By contrast, operators *are* investing in lands under private lease, where state permitting is quicker and regulation is more predictable. In Colorado, for example, development of the Niobrara shale thrives in Weld County, but is

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[13] T. Beard, "Fracture Design in Horizontal Shale Wells – Data Gathering to Implementation," U.S. Environmental Protection Agency, PROCEEDINGS OF THE TECHNICAL WORKSHOPS FOR THE HYDRAULIC FRACTURING STUDY: WELL CONSTRUCTION AND OPERATION at 65, EPA 600/R-11/046 (May 2011).

[14] *Id.* at 81.

[15] N. Warpinski, "Measurements and Observations of Fracture Height Growth," U.S. Environmental Protection Agency, Proceedings of the Technical Workshops for the Hydraulic Fracturing Study: Well Construction and Operation at 81, EPA 600/R-11/046 (May 2011).

[16] *Id.* at 85.

[17] S. Flwelling and M. Sharma, "Constraints on Upward Migration of Hydraulic Fracturing Fluid and Brine," [2013] GROUNDWATER at 2 (accepted for publication June 2013), available at www.NGWA.org.

[18] *Id.*

[19] *See* Part II *supra*.

stymied in Routt County. The chief difference is that the bulk of the leases in Weld County are private, the bulk in Routt County are federal.

Under current law, there are already regulatory compliance costs and operational delays at every phase of oil and gas development on federal and tribal lands. Indeed, before any leases are contemplated, BLM must first prepare a Resource Management Plan ("RMP"); RMPs are high-level documents that govern industrial, recreational and other uses under the jurisdiction of a particular BLM field office. Part of the RMP process is to determine which sites within a particular area are suitable for, and will be open to, energy development.

A typical RMP can remain in place for as long as fifteen to twenty years.[20] But during that period, many factors may require BLM to revise all or part of an RMP. Reasons for amendments may include changes in laws and regulations, changes in resource management issues, demands on public lands, changes in population size and location, new technologies and new data and information indicating that parts of a plan might be out of date. In recent years, significant attention has been paid to the fact that many RMPs may require revision to account for advancements in modern drilling technology and the increased level of development activity resulting from those developments.[21]

As a result, many BLM offices are already overwhelmed with efforts to revise their resource management plans, a process that takes years, costs millions of dollars, and which, more often than not, involves intense public scrutiny. Not surprisingly, many field offices lack the necessary resources to complete the revisions. Cutbacks in federal budgets have stretched the resources of land management agencies, and revising an RMP represents a tremendous additional workload. Yet until these revisions are complete, BLM's leasing decisions may vulnerable to third-party challenges.

Even where updates to RMPs are not preventing leasing, BLM is currently unable to meet the administrative demands its lease management obligations require. On October 25, 2013, for example, BLM's New Mexico Field Office, which includes Oklahoma, Kansas, and Texas, announced that it was adopting a rotational schedule for oil and gas lease sales within the District.[22] The New Mexico Field Office has historically offered federal minerals for lease four times a year in each of the Field Office's districts. The announced change to the lease offering schedule means that BLM New Mexico will still hold four sales per year, but only offer for sale federal minerals within a certain geographic area once per year. The first rotational sale is scheduled to occur in April 2014, with parcels being offered exclusively from Oklahoma.

BLM has stated that this rotational process will allow for "a process to ensure orderly, effective, timely, and environmentally-responsible leasing of oil and gas resources on Federal minerals in New Mexico."[23] But what the strategy actually does is ensure that parcels in New

[20] Bureau of Land Management (N.M.), *NEPA Frequently Asked Questions*, available at: http://www.blm.gov/nm/st/en/prog/planning/nepa_faqs.print.html#RMP Revision (last visited Feb. 2, 2014).
[21] *See* T. Welti, "CBD v. BLM, BLM's Revised Proposed Regulations, and the Thorny Way Forward for Fracking, 43 Envtl. L. Rep. 10550, 10552 (July 2013).
[22] Bureau of Land Management (N.M.), BLM to Hold Rotational Federal Oil & Gas Lease Sales, available at: http://www.blm.gov/nm/st/en/info/news_releases0/2013/october/blm_to_hold_rotational.html.
[23] *Id.*

Mexico -- the state with second largest amount of productive federal acres under lease as of FY 2012[24] -- become eligible for leasing no more than once a year.

BLM's new policy in New Mexico is hardly surprising; given the delays attendant to federal permitting described above, [25] efforts to reduce the Agency's workload are a rational, if disappointing, response to the administrative and budgetary reality BLM faces. But what *is* surprising is that BLM continues to propose an array of new regulations that will *add* operational complexity to oil and gas operations and which will require BLM to shoulder an even greater administrative burden in areas where state regulators have been shown to oversee operations admirably well. BLM already fails to meet statutory mandates for processing operational applications and issuing drilling permits. There is no reason to believe that the addition of more requirements will not make this problem worse.

In fact, BLM itself admits that it has more questions than answers. In the administrative record related to its proposed hydraulic fracturing rule, BLM concedes that processing the new disclosures and operational documents the proposed rule would require will pose an additional burden to the Agency. More important, BLM acknowledges that "it is unclear the extent to which the BLM can meet the additional burden with existing capacity."[26] BLM continues to act for the sake of acting, without a plan, and without consideration for the impact on its existing activities.

IV. SUMMATION.

BLM advances a regulatory agenda that cannot be reconciled with the parameters of the Agency's statutory mission nor the operational and administrative realities its agents currently face in the field. Rather than focus the Agency's resources on meeting current administrative responsibilities, BLM proposes rules and invokes policies that would compel the Agency to take on additional regulatory responsibility, duplicating authority the states already exercise. All to address operational concerns that state regulations adequately address. Because BLM has exceeded both its legal mandate and its operational capabilities, Congress should consider action to require the Agency to reform its policies and conduct.

[24] Bureau of Land Management, *Oil & Gas Statistics*, Table 7, available at: http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/statistics.html.
[25] *See* Part II *supra*.
[26] 78 Fed. Reg. 31,636, 31,666 (May 24, 2013).