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Written Testimony for “The Future of Hydraulic Fracturing on Federally Managed Lands”

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Introduction

This testimony addresses the Bureau of Land Management Final Rule entitled “Oil and Gas; Hydraulic Fracturing on Federal and Indian Lands” (described here as the “HF Rule”) issued on March 26, 2015.² After summarizing key provisions of the HF Rule, this testimony will describe the authority of the BLM to promulgate the rule, the lack of conflict between the HF Rule and other federal statutes, the environmental risks that the rule helps to address, and the ways in which the HF Rule and federal enforcement resources complement and improve upon state regulation of oil and gas development.

I. Rule summary: The HF Rule addresses certain aspects of the casing and cementing of hydraulically fractured wells, the storage of fracturing wastes, and the disclosure of fracturing chemicals.

The HF Rule primarily contains requirements for information collection and disclosure, mandating that well operators proposing to hydraulically fracture a well on federal or Indian lands submit data on the geology in the proposed area of the well;³ existing conditions such as old wells, natural faults and fractures, and usable water in the area;⁴ and proposed hydraulic fracturing design, water acquisition, waste management, and disposal practices.⁵ After fracturing, operators—entities that drill and hydraulically fracture wells—must disclose data on well depth and fractures; actual water acquisition, waste management, and disposal practices; and the chemicals used in fracturing.⁶ Operators can avoid public disclosure of certain chemicals used in the fracturing process by submitting an affidavit to the BLM with information indicating, *inter alia*, the importance of keeping the information confidential.⁷ Operators also must collect data on the quality of cementing operations to show that the protective casing and cementing of wells is adequate, and they must monitor the pressure in wells during hydraulic fracturing to ensure that pressures do not compromise the structure (“integrity”) of the well and its casing and cement.⁸ Substantive requirements include, *inter alia*, that operators take remedial action if it appears that well cementing was inadequate or that fracturing compromised well integrity⁹ and that operators use tanks to store flowback water from fracturing, with certain exceptions.¹⁰ Where state or tribal requirements achieve or exceed the goals of the HF Rule, the BLM may grant a regulation-specific variance from the BLM rule for all wells in the relevant jurisdiction or for individual wells;¹¹ as discussed below, however, these variances may be unnecessary because BLM rules are a floor, not a ceiling.

II. The BLM has clear statutory authority to regulate hydraulically fractured oil and gas wells on federal lands.

The BLM permits and oversees the use of federal lands for a variety of purposes, including grazing, recreation, and oil and gas development, among other purposes. In leasing federally-owned oil and gas,

¹ The author thanks Elizabeth Farrell, Mary McCormick, and other Florida State University College of Law Research Center Directors and Librarians, Shi-Ling Hsu, David Markell, Bruce Pendery, and Erin Ryan for suggested edits and sources.

² Oil and Gas; Hydraulic Fracturing on Federal and Indian Lands, 80 Fed. Reg. 16,128 (Mar. 26, 2015) (to be codified at 43 C.F.R. pt. 3160).

³ *Id.* at 16,218.

⁴ *Id.*

⁵ *Id.* at 16,218-16,219.

⁶ *Id.* at 16,220-16,221.

⁷ *Id.*

⁸ *Id.* at 16,219-16,220.

⁹ *Id.*

¹⁰ *Id.* at 16,220.

¹¹ *Id.* at 16,221.

the BLM—just like private owners of land and minerals—must protect the public’s interest in the minerals and land and ensure that fluid mineral development will not unduly interfere with other uses of land. Indeed, many private landowners include conditions in mineral leases in order to protect their property and natural resources.¹² However, in leasing federal oil and gas resources, the BLM represents broader public interests that diverge from those of most private mineral owners. Resources administered by the BLM are, by law, not managed solely, or even primarily, for pecuniary gain. The BLM’s core statutory mandate, contained within the Federal Land Policy and Management Act (FLPMA), is to manage public lands and resources in a manner that allows for multi-use development of lands, including “a combination of balanced and diverse resource uses,”¹³ by current and future generations of people.¹⁴ Congress has made clear that in managing public resources the BLM must give consideration to “the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output.”¹⁵ The BLM therefore must regulate oil and gas development at the surface and belowground to protect its mineral interests and the many other interests that the agency represents on federal lands, such as grazing and recreational interests. Notably, it is also the express policy of Congress to protect “water resource . . . values” on federal lands.¹⁶

FLPMA responsibilities for managing public lands are baseline responsibilities that apply when the BLM leases minerals on public lands. Beyond this baseline law, the BLM must follow the specific directives of the Mineral Leasing Act (MLA), as amended, when it allows mineral development on public lands. This Act provides, *inter alia*, that the Secretary of Interior (whose responsibilities the BLM carries out) must regulate surface-disturbing activities from oil and gas development and ensure “restoration of any lands or surface waters adversely affected by lease operations” by the operator.¹⁷ It also provides that the Secretary of the Interior shall regulate surface disturbing activities and determine reclamation and other actions required “in the interest of conservation of surface resources.”¹⁸ Under this Act, the BLM may suspend leases where oil and gas operators have failed to protect the environment.¹⁹ In addition to the BLM’s authority under FLPMA, the HF Rule falls clearly within the discretion granted to the BLM by the MLA.²⁰ Casing and cementing rules prevent oil and gas waste and protect surface (as well as underground) resources, as do rules for the use of flowback tanks.

Federal agencies have long regulated the casing and cementing of wells and other well development activities on public lands. On June 4, 1920, the Secretary of the Interior acting under MLA authority issued operating regulations for oil and gas wells requiring, *inter alia*, notification prior to well drilling, plugging, and abandonment; keeping of records relating to “kinds, length, and sizes of casings used in drilling the wells”; and operator correction of conditions causing damage to water-bearing or other formations or “dangerous to life or property.”²¹ The U.S. Geological Survey (USGS)—one of the BLM’s predecessors in managing wells on public lands—provided in a 1942 regulation that the Supervisor could

¹² See, e.g., Oil and Gas Lease Between James J. Franko & Nancy L. Franko and Rex Energy I, LLC, Apr. 22, 2008, available at http://www.nytimes.com/interactive/2011/12/02/us/oil-and-gas-leases.html?_r=0#document/221308-rex20080422fra (requiring testing of water supplies prior to drilling and replacement of water supplies if supplies are impacted and requiring the payment of damages for impacts to crops and timber). Many other leases in the *New York Times* database contain identical language.

¹³ 43 U.S.C. § 1702(c) (2012).

¹⁴ See 43 U.S.C. § 1732(a) (2012) (requiring BLM management of public lands “under principles of multiple use and sustained yield”); 43 U.S.C. § 1702(c) (2012) (defining “multiple use” as “the management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people”).

¹⁵ 43 U.S.C. § 1702(c) (2012).

¹⁶ 43 U.S.C. § 1701(a)(8) (2012).

¹⁷ 30 U.S.C. § 226(g) (2012).

¹⁸ *Id.*

¹⁹ See *Getty Oil v. Clark*, 614 F.Supp. 904, 916 (D. Wyo. 1985) (noting that the Secretary of the DOI may suspend a lease or condition a suspension as is “necessary to protect the environmental values of the leased property”).

²⁰ See 30 U.S.C. § 189 (2012) (authorizing the BLM “to do any and all things necessary to carry out and accomplish the purposes of this chapter”).

²¹ See *Forbes v. United States*, 125 F.2d 404, 409 (9th Cir. 1942) (describing and quoting the regulations).

require the submittal of a well casing program and that drilling, well stimulation, and other well development activities could not occur “without first notifying the supervisor” of a plan.²²

Many of the BLM’s rules for managing mineral resources on federal lands are more than two decades old,²³ and these rules, like the older USGS rules, have long regulated the casing and cementing of oil and gas wells.²⁴ Yet oil and gas development has changed dramatically in the past decade. U.S. companies have used hydraulic fracturing for more than sixty years,²⁵ but the type of fracturing used on many wells changed in the late 1990s and early 2000s.²⁶ During this time George Mitchell perfected a technique called “slickwater” (also called slick water or slick-water) fracturing in Texas’s “tight” gas formations, which are densely packed formations, and combined this technique with the horizontal drilling of wells.²⁷ Several years later, slickwater fracturing and similar unconventional fracturing combined with horizontal drilling rapidly spread around the country to other tight sandstone and shale formations,²⁸ enabling the development of thousands of new wells drilled into these formations—wells that, without unconventional fracturing and horizontal drilling, would not have been productive and would not have been drilled.²⁹ Although some oil and gas operators also continue to use conventional fracturing techniques, unconventional fracturing combined with horizontal drilling is very common and has triggered much of the recent boom in U.S. oil and gas development.³⁰

The HF Rule, issued after the BLM proposed a draft rule and a revised draft rule³¹ and received extensive public comments, addresses certain aspects of modern (unconventional) fracturing on land managed by the BLM, lands under which the BLM controls the minerals, and certain Indian lands.³² This HF Rule does not exceed the BLM’s statutory authority; it has strong statutory support and helps the BLM to fulfill its statutory duties.³³

FLPMA, the BLM’s organic act,³⁴ declares that it is “the policy of the United States” that “public lands be managed in a manner that will protect the quality of scientific . . . ecological, environmental, air

²² 30 C.F.R. § 221.21 (1942); Regulations Applicable to Lands of the United States and All Restricted Tribal and Allotted Indian Lands (Except Osage Indian Reservation), 7 Fed. Reg. 4132, 4134-4135 (June 2, 1942).

²³ See Molly Feiden, Madeline Gottlieb, Alan Krupnick & Nathan Richardson, *Hydraulic Fracturing on Federal and Indian Lands: An Analysis of the Bureau of Land Management’s Revised Proposed Rule*, 29 J. LAND USE & ENVTL. L. 337, 339 (2013-2014) (noting that most of the BLM’s onshore oil and gas operations regulations “were last revised in the 1980s or early 1990s”).

²⁴ Prior to 2007, the BLM administered an eight-point rule for the casing and cementing of wells on BLM lands. It replaced this with a nine-point rule in 2007. Onshore Oil and Gas Operations; Federal and Indian Oil and Gas Leases; Onshore Oil and Gas Order No. 1, Approval of Operations, 72 Fed. Reg. 10,308, 10,310 (Mar. 7, 2007) (codified at 43 C.F.R. pt. 3160).

²⁵ See John M. Golden & Hannah J. Wiseman, *The Fracking Revolution: Shale Gas As A Case Study in Innovation Policy*, 64 EMORY L.J. 955, 968 (2015) (comparing sources that describe the first fracturing of wells as occurring in the late 1940s).

²⁶ See Hong Sun et al., *A Nondamaging Friction Reducer for Slickwater Frac Applications*, Soc’y of Petroleum Engineers, Conference Paper no. 139480 at 1 (2011).

²⁷ See *id.* at 975 (describing Mitchell’s involvement in helping to perfect horizontal drilling and slickwater fracturing). Techniques similar to the slickwater technique, characterized by large quantities of water and fewer gels and other chemicals, had been used in earlier decades but had not been applied to shales and typically had not been combined with horizontal drilling. Experts typically describe slickwater fracturing as a new, recent technology. See, e.g., Terrence Palisch, Michael Vincent & Patrick Handren, *Slickwater Fracturing: Food for Thought*, 25 SPE PRODUCTION AND OPERATIONS 327, 327 (2010).

²⁸ See Golden & Wiseman, *supra* note 25, at 966 (“In the past decade and a half, growth in shale gas production has been more than exponential.”).

²⁹ See, e.g., HALLIBURTON, U.S. SHALE GAS: AN UNCONVENTIONAL RESOURCE. UNCONVENTIONAL CHALLENGES at 1 (2008), available at <http://www.shaleenergyinsider.com/wp-content/uploads/sites/11/2014/01/H063771.pdf> (noting that the Barnett Shale, investigated “as early as 1981,” produced “gas at commercial rates” only when certain fracturing technologies became available).

³⁰ See U.S. Dept. of Energy, *Why Is Shale Gas Important?*, http://energy.gov/sites/prod/files/2013/04/f0/why_is_shale_gas_important.pdf (noting that “U.S. shale gas production has increased 12-fold over the last decade” and is projected to make up 49% of U.S. dry natural gas production by 2035). Experts estimated in 2004 that 30% of hydraulic fracturing jobs used slickwater fracturing. Palisch et al., *supra* note 27, at 327.

³¹ Oil and Gas; Well Stimulation Including Hydraulic Fracturing, 77 Fed. Reg. 27,691 (proposed May 11, 2012); Supplemental Notice of Proposed Rulemaking and Request for Comment, 78 Fed. Reg. 31,636 (May 24, 2013).

³² Oil and Gas; Hydraulic Fracturing on Federal and Indian Lands, *supra* note 2.

³³ See *infra* notes 35-36, 37, and accompanying text.

³⁴ See *New Mexico ex rel. Richardson v. Bureau of Land Management*, 565 F.3d 683, 688 n.1 (10th Cir. 2009).

and atmospheric, water resource, and archeological values.”³⁵ It also provides that in administering the Act, the BLM (acting for the Secretary of the Interior, or “Secretary”) must “establish *comprehensive* rules and regulations after considering the views of the general public.”³⁶ Congress has set out a specific process for the BLM’s leasing and management of federal oil and gas resources on behalf of the public. Congress directs the Secretary to “manage the public lands under principles of multiple use and sustained yield,”³⁷ meaning managing resources “so that they are utilized in the combination that will best meet the present and future needs of the American people” and in a manner “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 . . . scientific and historical value.”³⁸ The BLM must write comprehensive land use plans, also described as “resource management plans,”³⁹ and its leasing of oil and gas resources must conform to these plans.⁴⁰ If an operator obtains a lease, the operator may apply to the BLM to develop a specific well by submitting an application for a permit to drill (APD).⁴¹

The BLM has specific regulations that guide its issuance or denial of permits to drill for oil and gas. FLPMA provides: “The Secretary shall issue regulations necessary to implement the provisions of this Act with respect to the management, use, and protection of the public lands, including the property located thereon.”⁴² Congress also requires that the Secretary “by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands”⁴³ in managing public lands. It is the responsibility of the authorized BLM officer to regulate a host of issues associated with oil and gas drilling quite apart from the HF rule specifically. As provided by BLM regulations, these responsibilities and authorities include, *inter alia*, approving and monitoring operator proposals for drilling, development, or production and ensuring that operations are conducted in a manner that is environmentally responsible, that protects life and property, and that results in the maximum ultimate recovery of the resource with minimum waste.⁴⁴ Drilling plans must include “a description of the program, the surface and projected completion zone location, pertinent geologic data, expected hazards, and proposed mitigation measures to address such hazards.”⁴⁵

As discussed further below, the HF Rule’s requirements, which operate in addition to these other rules, will help to protect ground water, surface waters, and soils on public lands, thus supporting other current and future uses of BLM lands such as grazing and recreation. By preventing leakage from wells, the requirements will also help to prevent the waste of oil and gas, for which the federal government and states receive royalties.⁴⁶ Causing waste of oil and gas resources is prohibited by the MLA.⁴⁷

III. The HF Rule addresses known risks, prevents the waste of valuable federal oil and gas resources, and is not overly burdensome.

The HF Rule follows Congressional mandates by taking modest steps to address important environmental externalities of oil and gas development and hydraulic fracturing and preventing the waste of federal mineral resources. Slickwater and other unconventional fracturing techniques that have become

³⁵ 43 U.S.C. § 1701(a)(12) (2012).

³⁶ *Id.* at § 1701(a)(5) (2012) (emphasis added).

³⁷ *Id.* at § 1732(a) (2012).

³⁸ *Id.* at § 1702(c) (2012).

³⁹ *See Norton v. Southern Utah Wilderness Alliance*, 542 U.S. 55, 59 (2004); *Pennaco Energy, Inc. v. U.S. Dept. of the Interior*, 377 F.3d 1147, 1151 (10th Cir. 2004).

⁴⁰ 43 C.F.R. § 1610.5-3(a) (2013).

⁴¹ *Id.* at § 3162.3-1(c) (2013).

⁴² 43 U.S.C. § 1733 (2012).

⁴³ *Id.* at § 1732(b) (2012).

⁴⁴ 43 C.F.R. § 3161.2 (2013).

⁴⁵ *Id.* at § 3162.3-1(e).

⁴⁶ 30 U.S.C. § 223 (2012); 30 U.S.C. § 191 (2012).

⁴⁷ 30 U.S.C. § 225 (2012).

common in the past decade, thus necessitating updated BLM rules, use larger volumes of water⁴⁸ and in some cases different types of chemicals⁴⁹ than other fracturing techniques, and they introduce certain new environmental risks to the oil and gas development process. Beyond causing more wells to be drilled and fractured, sometimes in sensitive environments or more populous areas,⁵⁰ slickwater fracturing produces large volumes of liquid “flowback” waste that must be stored on the well site surface and disposed of⁵¹ and requires large volumes of water to be trucked or piped to well sites.⁵²

The techniques of hydraulic fracturing (including slickwater fracturing) and horizontal drilling have produced very important economic benefits but also substantial costs—costs that could be reduced through careful management of the drilling and fracturing process. Hydraulic fracturing chemicals, and chemicals mixed with water, have spilled on well sites.⁵³ Wells have blown out during hydraulic fracturing, causing fracturing fluids to be discharged into surface waters.⁵⁴ In its draft assessment of the impacts of hydraulic fracturing on water quality, the Environmental Protection Agency observes that “[s]pills of hydraulic fracturing fluids have occurred across the country and have affected the quality of drinking water resources,”⁵⁵ and it estimates that spill rates of chemicals and hydraulic fracturing fluid

⁴⁸ See, e.g., GOVERNOR’S MARCELLUS SHALE ADVISORY COMMISSION (PENNSYLVANIA) REPORT at 73 (2011), <http://www.marcellus.psu.edu/resources/PDFs/MSACFinalReport.pdf> (“While hydraulic fracturing is not new to the Commonwealth—it has been standard practice for decades—the size of the natural gas play and the quantity of water used to stimulate a Marcellus Shale or other unconventional natural gas well is new.”).

⁴⁹ See Hannah J. Wiseman, *Risk and Response in Fracturing Policy*, 84 U. COLO. L. REV. 729,744 n. 64 (2013).

⁵⁰ See, e.g., City of Fort Worth, Gas Well Drilling, FORTWORTHTEXAS.GOV, <http://fortworthtexas.gov/gaswells/> (last visited July 12, 2015) (showing 1,976 producing gas wells in the City of Fort Worth).

⁵¹ ENVTL. PROTECTION AGENCY, ASSESSMENT OF THE POTENTIAL IMPACTS, *supra* note 55, at 6-3.

⁵² Natl. Park Service, U.S. Dep’t of the Interior, Potential Development of the Natural Gas Resources in the Marcellus Shale at 9 (2008), http://www.nps.gov/frhi/learn/management/upload/GRD-M-Shale_12-11-2008_high_res.pdf. Unconventional fracturing techniques can also reduce certain impacts compared to conventional oil and gas production because horizontal drilling makes surface locations more flexible. U.S. Dept. of Energy, Office of Fossil Energy, Environmental Benefits of Advances Oil and Gas Exploration and Production Technology at 5 (1999), <http://www.netl.doe.gov/kmd/cds/disk25/oilandgas.pdf>.

⁵³ See, e.g., Dunn Cty., N.D., Well Name FORT BERTHOLD 148-94-22A-27-1H, Incident 20130430182213 (Apr. 30, 2013), http://www.ndhealth.gov/EHS/FOIA/Spills/Summary_Reports/20130430182213_Summary_Report.pdf (spill of 250 barrels of “fracturing solids and liquids”; report indicates 250 barrels were recovered but “[a]dditional soil cleanup on and offsite to continue”); Billings Cty., N.D., Well Name STATE HECKER 1-2-11H-142-98, Incident 20120614171333 (June 13, 2012), http://www.ndhealth.gov/EHS/FOIA/Spills/Summary_Reports/20120614171333_Summary_Report.pdf (18 barrels of “[f]resh water with fracing chemicals” spilled; 17 barrels cleaned up (recovered); potential environmental impacts to “[s]urface soil only”); Dunn Cty., N.D., Well Name FULLER 1-2H, Incident 20110810153048 (July 20, 2011), http://www.ndhealth.gov/EHS/FOIA/Spills/Summary_Reports/20110810153048_Summary_Report.pdf (release of 8 barrels of “[f]rac water” to a field; “remedial activities” conducted); Lea Cty., N.M., API Permit 30-025-41627, Incident nSAD1413436037 (Apr. 28, 2014), <https://www.wapps.emnrd.state.nm.us/ocd/ocdpermitting/Data/Incidents/SpillSearchResultsExcel.aspx?Api=30-025-41627> (describing a 7-gallon spill of “hydraulic frac fluid,” 6.75 barrels of which were recovered); Eddy Cty., N.M., API Permit 30-015-26415, Incident nMLB1403537703 (Jan. 30, 2014), <https://www.wapps.emnrd.state.nm.us/ocd/ocdpermitting/Data/Incidents/SpillSearchResultsExcel.aspx?Api=30-015-26415>

(“Reported release of 230 bbls fresh water w/2% KCL and gel (for slick water frac job) Released fluids ran down a draw (approx 1/4 mile) and entered the Pecos River.”); Chaves Cty., N.M., API Permit 30-005-29061, Incident nGRL1010539051 (Feb. 5, 2010), <https://www.wapps.emnrd.state.nm.us/ocd/ocdpermitting/Data/Incidents/SpillSearchResultsExcel.aspx?Api=30-005-29061> (noting 80 barrels of frac fluid spilled, five of which were recovered)

⁵⁴ See, e.g., Md. Att’y Gen., AG Gansler Secures Funding to Safeguard Susquehanna Water Quality (June 14, 2012), <http://www.oag.state.md.us/press/2012/061412.html> (last visited July 12, 2015) (noting the release of fracturing fluids into Towanda Creek due to a well blowout); Governor’s Marcellus Shale Advisory Commission, *supra* note 48, at 75 (noting that “over 10,000 gallons of fracturing flow back fluid escaped the well pad and all containment” in the Towanda Creek incident and describing another blowout that released fracturing fluids for 16 hours); McKenzie Cty., N.D., Well Name CHERRY STATE 31-16H, Incident 20140214142744, (Feb. 13, 2014), http://www.ndhealth.gov/EHS/FOIA/Spills/Summary_Reports/20140214142744_Summary_Report.pdf (describing a blowout at a North Dakota well and noting “[r]egaining well control still in progress); NICHOLAS P. CHEREMISNOFF & ANTON R. DAVLETSHIN, HYDRAULIC FRACTURING OPERATIONS: HANDBOOK OF ENVIRONMENTAL MANAGEMENT PRACTICES 460 (2015) (indicating that the well in McKenzie County leaked fracturing fluid and oil).

⁵⁵ U.S. ENVTL. PROT. AGENCY, EXTERNAL REVIEW DRAFT, ASSESSMENT OF THE POTENTIAL IMPACTS OF HYDRAULIC FRACTURING FOR OIL AND GAS ON DRINKING WATER RESOURCES at 5-42 (June 2015), *available at* <http://cfpub.epa.gov/ncea/hfstudy/recordisplay.cfm?deid=244651>.

range from 0.4 and 12.2 spills for every 100 wells.”⁵⁶ Flowback from wells has also leaked, polluting soil, surface water, and other resources,⁵⁷ and, in one incident identified by the EPA, flowback and produced water have polluted ground water.⁵⁸ Some fractured wells also have deficient or defective underground casing and cement,⁵⁹ and inspectors have detected methane coming out of these wells at the surface.⁶⁰

The HF Rule addresses these and other externalities of oil and gas drilling and fracturing. By requiring data such as the geology where wells will be drilled and fractured, existing natural faults and fractures, old wellbores near the proposed well, nearby sources of usable water, and the proposed depth of the well and fractures,⁶¹ the BLM will better understand (and be able to manage) how the drilling and fracturing of a well could potentially cause the leakage of methane or other substances into nearby faults or old wells—leakage that could potentially allow substances to migrate to the surface and impact surface water and soil in addition to underground resources.⁶² By requiring monitoring of cementing operations, the preparation of cement evaluation logs where cement does not reach the surface of the well, and remedial action where it appears that cement is inadequate,⁶³ the HF Rule helps to ensure that wells—which will be subjected to high pressures as a result of hydraulic fracturing—will not leak, again helping to prevent the possible contamination of underground and surface resources. The portions of the HF Rule addressing the casing and cementing of wells also help to ensure that gas and oil will not escape wells and that water will not mix with oil and gas,⁶⁴ thus preventing the waste of valuable federal resources and

⁵⁶ *Id.* at 5-48.

⁵⁷ *See, e.g.*, Williams Cty., N.D., Well Name DAVE ARNSON 8-5 1-H, Incident 20110613213356 (May 31, 2011), http://www.ndhealth.gov/EHS/FOIA/Spills/Summary_Reports/20110613213356_Summary_Report.pdf (“2 bbls of flowback fluid ran off the edge of wellsite for approximately 100 ft.”; berm constructed, contaminants vacuumed; potential environmental risk of soil contamination but no water body affected); Mountrail Cty., N.D., Well Name CROWFOOT 35-3031H, Incident 20110112143928 (Jan. 11, 2011), http://www.ndhealth.gov/EHS/FOIA/Spills/Summary_Reports/20110112143928_Summary_Report.pdf (release of 120 barrels of flowback from a truck to a well site; 50 barrels recovered); Greene Cty., Pa., API Permit 059-25160, Enforcement ID 250351 (Sept. 23, 2009), http://www.depreportingservices.state.pa.us/ReportServer/Pages/ReportViewer.aspx?/Oil_Gas/OG_Compliance (flowback released into field from pit; haul trucks responded); San Juan Cty., N.M., API 30-045-29969, Incident nJK1217341013 (May 17, 2000), <https://www.wapps.emnrd.state.nm.us/ocd/ocdpermitting/Data/Incidents/SpillSearchResultsExcel.aspx?Api=30-045-29969> (noting 100 barrels of flowback that spilled; no barrels recovered).

⁵⁸ ENVTL. PROT. AGENCY, ASSESSMENT OF THE POTENTIAL IMPACTS, *supra* note 55, at 7-36 to 7-37.

⁵⁹ *See, e.g.*, Bradford Cty., Pa., API Permit 015-21704, Violation ID 645597 (Aug. 2, 2012), http://www.depreportingservices.state.pa.us/ReportServer/Pages/ReportViewer.aspx?/Oil_Gas/OG_Compliance (noting that “[w]ell has been fraced” and indicating a “[f]ailure to report defective, insufficient, or improperly cemented casing”).

⁶⁰ All of the following examples of incidents are from Pennsylvania records of unconventional wells at which inspectors from the Commonwealth took enforcement action. *See* Pa. Dept. of Env'tl. Prot., Oil and Gas Compliance Report, http://www.depreportingservices.state.pa.us/ReportServer/Pages/ReportViewer.aspx?/Oil_Gas/OG_Compliance (select “Inspections With Violations Only” and “Unconventional Only”). Unconventional wells are those that “generally cannot be produced except by horizontal or vertical well bores stimulated by hydraulic fracturing.” Pa. Dept. of Env'tl. Prot., Report Instructions for the Oil and Gas Compliance Report at 5, http://files.dep.state.pa.us/OilGas/BOGM/BOGMPortalFiles/OilGasReports/HelpDocs/OG_Compliance_Help.pdf. All violations are from http://www.depreportingservices.state.pa.us/ReportServer/Pages/ReportViewer.aspx?/Oil_Gas/OG_Compliance. Lycoming Cty., Pa., API Permit 081-20238, Enforcement ID 268004, Feb. 18, 2011 (“02/14/11 gas bubbling in the cellar found to be in the annular space of the 9 5/8 x 13 3/8 casing”); Bradford Cty., Pa., API Permit 015-20932, Enforcement ID 288538, Sept. 11, 2012 (“initial complaint water well shows methane levels increased from non-detect to 82.7 mg/L”; “Chesapeake caused or allowed gas from lower formations to enter fresh groundwater”); Clearfield Cty., Pa., API Permit 033-26855, Enforcement ID 265809, Dec. 6, 2010 (“Methane migrated to surface through cement in 9 5/8” annulus.”). Peer-reviewed sources have estimated rates of well failure for all Marcellus wells to be 2.58%, 3.4%, or 6.2%. *See* Richard J. Davies, Sam Almond, Robert S. Ward, Robert B. Jackson, Charlotte Adams, Fred Worrall, Liam G. Herringshaw, Jon G. Gluyas & Mark A. Whitehead, *Oil and Gas Wells and Their Integrity: Implications for Shale and Unconventional Resource Exploitation*, 16 MARINE AND PETROLEUM GEOLOGY 239, 243 (2014) (comparing the estimates from peer-reviewed publications).

⁶¹ Oil and Gas; Hydraulic Fracturing on Federal and Indian Lands, *supra* note 2, at 16,218-16,219.

⁶² *See* Davies, *supra* note 60, at 240.

⁶³ Oil and Gas; Hydraulic Fracturing on Federal and Indian Lands, *supra* note 2, at 16,219-16,220.

⁶⁴ *See* GROUND WATER PROTECTION COUNCIL, STATE OIL AND NATURAL GAS REGULATIONS DESIGNED TO PROTECT WATER RESOURCES at 12, 19 (2009),

money earned from those resources. Further, by requiring the disclosure of chemicals used in fracturing,⁶⁵ the BLM helps to inform the public, including other users of public lands, of the chemicals that are stored on site and contained in the flowback. And the BLM achieves multiple environmental goals, including operator compliance with the Migratory Bird Treaty Act,⁶⁶ Bald and Golden Eagle Protection Act,⁶⁷ Clean Water Act (CWA),⁶⁸ and Resource Conservation and Recovery Act (RCRA),⁶⁹ by requiring tank storage of flowback.⁷⁰

Furthermore, in balancing the importance of oil and gas development with other values on federal lands, including environmental protection, the rule is not overly onerous. As discussed in Part V, some states already require cementing tests that are more stringent than BLM rules. Further, many oil and gas operators already report a range of well data including fracturing chemicals used through FracFocus,⁷¹ and some oil and gas operators already use tanks. For example, Encana reports: “In most of our operations, we use closed-loop fluid handling systems. . . . Because drilling and fracturing fluids do not come into contact with the ground surface, there is less likelihood of groundwater contamination.”⁷²

IV. No federal environmental statutes preclude or displace the HF Rule.

In addition to having strong support in FLPMA and the MLA, the HF Rule is not precluded or displaced by other federal statutes that apply to, or exempt, some oil and gas activities from certain federal environmental regulations. The BLM has long regulated the casing and cementing of wells on federal lands,⁷³ among other regulations, and other federal statutes have not precluded these regulations—nor do these statutes now preclude the updated regulations. The relevant federal environmental statutes that apply to certain aspects of oil and gas development and fracturing are, *inter alia*, the Safe Drinking Water Act (SDWA), RCRA, the CWA, and the Emergency Planning and Community Right-to-Know Act (EPCRA). The SDWA applies to certain entities that inject substances underground and requires those entities to obtain a permit that ensures that injection will not endanger underground sources of drinking water.⁷⁴ The Act exempts from the definition of “injection” any hydraulic fracturing that is done without the use of diesel.⁷⁵ The EPA also exempts most oil and gas exploration and production (E&P) wastes from Subtitle C of RCRA—a subtitle that requires cradle-to-grave tracking of the generation, transport, and disposal of hazardous wastes and sets standards for transport and disposal.⁷⁶ Under the CWA, the EPA prohibits certain discharges of oil and gas wastes into surface waters⁷⁷ and has proposed to prohibit discharge of flowback from unconventional wells to certain wastewater treatment plants.⁷⁸ Finally, the

http://www.gwpc.org/sites/default/files/state_oil_and_gas_regulations_designed_to_protect_water_resources_0.pdf (prepared for the U.S. Dept. of Energy) (noting early state well casing regulations that prevented water incursion into the well).

⁶⁵ Oil and Gas; Hydraulic Fracturing on Federal and Indian Lands, *supra* note 2, at 16,220-16,221.

⁶⁶ 16 U.S.C. §§ 703, 707 (2012).

⁶⁷ *Id.* at § 668.

⁶⁸ 40 C.F.R. §§ 435.50, 435.52 (2013).

⁶⁹ 42 U.S.C. § 6945 (2012).

⁷⁰ Oil and Gas; Hydraulic Fracturing on Federal and Indian Lands, *supra* note 2, at 16,220.

⁷¹ FracFocus Chemical Disclosure Registry, <http://fracfocus.org/> (showing 99,734 sites registered as of July 12, 2015); Keith B. Hall, *Hydraulic Fracturing: Trade Secrets and the Mandatory Disclosure of Fracturing Water Composition*, 49 IDAHO L REV. 399 (2013) (describing state disclosure requirements).

⁷² Encana®, Fluid storage, disposal and reuse, <https://www.encana.com/sustainability/environment/water/fracturing/fluid-storage.html> (last visited July 10, 2015).

⁷³ See Onshore Oil and Gas Order No.1, *supra* note 24, at § III.D.3 (requiring, *inter alia*, drilling plans including plans for protecting useable water and minerals, blowout prevention plans, and cementing plans); *id.* at § III.F.3 (showing that in approving APDs BLM must attach “conditions of approval” that reflect necessary mitigation, allowing mitigation measures to minimize adverse impacts, and allowing the BLM to require Best Management Practices).

⁷⁴ 42 U.S.C. § 300h(b)(1) (2012).

⁷⁵ *Id.* at § 300h(d)(1).

⁷⁶ Regulatory Determination for Oil and Gas and Geothermal Exploration, Development and Production Wastes, 53 Fed. Reg. 25,446-01 (July 6, 1988).

⁷⁷ 40 C.F.R. §§ 435.30, 435.32, 435.50, 435.52 (2013).

⁷⁸ Effluent Limitations Guidelines and Standards for the Oil and Gas Extraction Point Source Category, 80 Fed. Reg. 18557 (proposed Apr. 7, 2015).

EPCRA requires hydraulic fracturing operators to keep records of hazardous substances that are stored on site⁷⁹ but does not require these operators to annually report releases of these substances.⁸⁰

The HF Rule does not conflict with any of these federal rules or exemptions. The rule is not precluded by other federal statutes and exemptions for three reasons. First, Congress includes limited, individual oil and gas exemptions in statutes that address different types of pollution and that are administered by different agencies. In providing these exemptions, Congress has not indicated an intent to preclude regulation by different agencies under different statutes. Second, environmental statutes are commonly structured to include discrete exemptions: Congress often exempts an activity from a statute knowing that the activity is or might be regulated under a different statute. Third, the purpose of the environmental statutes in question is primarily to limit the environmental externalities of certain private entity and local government activities without unduly limiting the productive use of private property; it is not to limit a federal agency's authority to manage *federally-owned and federally-managed* land in a manner consistent with its statutory mandate.

A. *Existing federal environmental statutes indicate no Congressional intent to exempt hydraulic fracturing, casing and cementing, or waste storage from BLM rules. Exemptions under various generally applicable environmental statutes do not exempt hydraulic fracturing activities from all federal regulation of federally-managed land.*

The question of whether one federal statute precludes the application of another (such as whether the SDWA precludes BLM regulation of oil and gas development and fracturing under FLPMA and the MLA) is one of congressional intent,⁸¹ to be ascertained through statutory interpretation.⁸² It is certainly within Congress's power to exempt hydraulic fracturing from all federal regulation; to date, however, it has (wisely) not chosen to do so,⁸³ and such a blanket exemption cannot be manufactured from the limited exemptions already in place. An exemption of an industrial activity from one federal environmental statute does not immunize that activity from other federal environmental statutes unless the statutory language clearly shows Congressional intent for such immunity.⁸⁴ Indeed, an exemption or partial exemption from one statute may promote effective regulation under another statute, thus making the laws complements.⁸⁵ The federal laws that partially apply to the subject matter of the BLM hydraulic fracturing rules, or that exempt hydraulic fracturing from certain aspects of federal law, do not show any intent to block federal agencies like BLM from regulating to accomplish their specific statutory mission.

In exempting hydraulic fracturing from the definition of "injection" under the SDWA, the Energy Policy Act of 2005 amends the SDWA to read as follows: "*For purposes of this part:* (1) Underground injection . . . (B) excludes-- . . . (ii) the underground injection of fluids or propping agents (other than diesel fuels) pursuant to hydraulic fracturing operations related to oil, gas, or geothermal production activities."⁸⁶ The Act simply makes clear that under the SDWA hydraulic fracturing is not an injection

⁷⁹ 42 U.S.C. §§ 11021–11022 (2012).

⁸⁰ 42 U.S.C. § 11023(b) (2012); 40 C.F.R. § 372.23 (2013).

⁸¹ *Felt v. Atchison, Topeka, and Santa Fe Railroad Co.*, 60 F.3d 1416, 1419 (9th Cir. 1995).

⁸² *POM Wonderful LLC v. The Coca-Cola Company*, 134 S.Ct. 2228, 2236 (2014).

⁸³ In their briefs opposing the BLM rule, petitioners quote one of my statements out of context. *See* Motion for Preliminary Injunction (Wyoming and Colorado) at 10, *Wyoming v. U.S. Dept. of the Interior*, No. 15-CV-00043-SWS (D. Wyo. May 29, 2015); Hannah Wiseman, *Untested Waters: The Rise of Hydraulic Fracturing in Oil and Gas Production and the Need to Revisit Regulation*, 20 *FORDHAM ENVTL. L. REV.* 115, 145 (2009)) (noting that "the Act conclusively withdrew fracturing from the realm of federal regulation" to indicate that Congress exempted hydraulic fracturing from the SDWA, but not to suggest that many other well development stages associated with fracturing, such as flowback disposal and discharge, are exempt from federal laws). Notably, my article also does not address the separate authority of the BLM to regulate fracturing on federal lands.

⁸⁴ *Cf. POM Wonderful*, 134 S.Ct. at 2236-2237 (in a case interpreting two federal food labeling statutes, refusing to adopt either a test that would require that full effect be given to each statute and only bar the application of one statute if there is irreconcilable conflict, or a test that would "reconcile" the laws by finding that one law narrows the other, but finding that even under the "reconciliation" test, the best result in the case was not to bar the application of a portion of one statute).

⁸⁵ *Cf. POM Wonderful*, 134 S.Ct. at 2238 ("When two statutes complement each other, it would show disregard for the congressional design to hold that Congress nonetheless intended one federal statute to preclude the operation of the other.").

⁸⁶ 42 U.S.C. § 300h(d)(1) (2012) (emphasis added).

activity that must be permitted by the EPA or states. It does not address how fracturing may or should be regulated under other acts or by other agencies. Furthermore, the SDWA's legislative history shows that Congress did not "intend any of the provisions of this bill to repeal or limit any authority," of the U.S. Geological Survey (USGS), one of the BLM's predecessors in regulating federal oil and gas wells.⁸⁷

The SDWA is inapplicable to both drilling and fracturing of oil and gas production wells; it does not apply to the injection of substances like drilling muds and fluids and fracturing fluids underground, as these activities do not count as injection pursuant to the provision in the Energy Policy Act of 2005 and other provisions.⁸⁸ But states and federal agencies regulating oil and gas drilling and fracturing have other ways to ensure the safety of these practices. Therefore, many other acts, which I introduce above, address drilling, casing, and cementing of wells to ensure that substances do not leak underground and pollute surface and underground water. Many states regulate the casing and cementing of both fractured and conventional oil and gas wells—not under delegated SDWA authority, but rather under their independent regulatory authority to protect the public health, safety, and welfare.⁸⁹ Similarly, the BLM may regulate the casing of fractured and conventional wells to fulfill its MLA and FLPMA responsibilities, and, as indicated above, it has long regulated the casing of conventional wells and well stimulation.⁹⁰

Additionally, the SDWA applies to the protection of drinking water and potentially usable water.⁹¹ The Act indicates no intent to regulate fracturing and the cementing and casing of oil and gas wells for the purpose of preventing oil and gas waste and protecting soil and other surface resources, or wildlife. The BLM's rules for the casing and cementing of wells help to achieve all of these results.

Similarly, in exempting certain oil and gas E&P wastes from RCRA in 1988, the EPA indicated no intent to preclude regulation of these wastes under other acts, such as BLM's requirement under the HF Rule that flowback be stored in tanks. Indeed, the EPA indicated that it would rely on other acts like the SDWA (which applies to the disposal of liquid wastes from oil and gas wells, including fractured wells), the CWA, and subtitle D of RCRA, to help improve waste management.⁹² Nor did the EPA in the RCRA exemption indicate an intent to prevent other entities from regulating these wastes under other Acts.⁹³

With respect to the CWA, the EPA regulates oil and gas waste rather than exempting it, and the HF Rule and other BLM rules help operators comply with CWA rules, such as limits on flowback and produced water discharges.⁹⁴ Finally, with respect to chemical disclosure, the EPCRA already requires the maintenance of material safety data sheets for fracturing chemicals at oil and gas sites (with certain trade secret exemptions)⁹⁵ and does not indicate an intent to preclude other disclosure regulations implemented by other federal agencies.

B. Federal environmental statutes are structured in a manner that anticipates that activities will be regulated under certain statutes and exempted from others.

The argument that an exemption of an activity from one environmental statute exempts it from similar protections under other statutes administered by other agencies cuts against the very purpose of having

⁸⁷ H.R. REP. NO. 93-1185 at 32 (1974), as reprinted in 1974 U.S.C.C.A.N. 6454, 6494.

⁸⁸ States have argued that the SDWA is the only Act under which the injection of substances may be regulated based on one line from a federal case. That case states, "[I]t is clear that Congress dictated that *all* underground injection be regulated under the [SDWA]." *Legal Envtl. Assistance Found., Inc. v. U.S. Envtl. Protection Agency*, 118 F.3d 1467, 1474 (11th Cir. 1997). This statement does not indicate that *only* the SDWA may regulate underground injection. Rather, it indicates that all underground injection activities are subject to the SDWA. The case does not address whether underground injection activities might also be subject to other federal acts, particularly when injection occurs on federal lands.

⁸⁹ See Ground Water Protection Council, *supra* note 64; Wiseman, *Risk and Response*, *supra* note 49 (describing state casing and cementing regulations).

⁹⁰ See *supra* note 24.

⁹¹ See, e.g., H.R. REP. NO. 93-1185, *supra* note 87, at 1 ("The purpose of the legislation is to assure that water supply systems serving the public meet minimum national standards for protection of public health.")

⁹² Regulatory Determination, *supra* note 76, at 25,456.

⁹³ The EPA indicated that it would help the states improve their oil and gas waste regulations. Regulatory Determination, *supra* note 76, at 25,456. As discussed in Part IV of this testimony, state oil and gas regulations still vary and might leave gaps.

⁹⁴ 40 C.F.R. §§ 435.50, 435.52 (2013).

⁹⁵ 2 U.S.C. §§ 11021–11022 (2012); 29 C.F.R. § 1910.1200(i) (2013).

varied federal statutes that address discrete issues, as implemented by various agencies with various missions. For example, some discharges of waste do not count as “solid waste” under RCRA, which regulates the generation, transport, and disposal of waste, because these discharges are instead regulated under the CWA.⁹⁶ Indeed, certain environmental statutes contain an explicit “anti-duplication” provision; in one case a federal district court noted that the “the pollution discharges at issue in this case are exempted from the coverage of the Recovery Act because they are instead regulated by the Clean Water Act.”⁹⁷ In the oil and gas context, despite the RCRA subtitle C exemption for oil and gas E&P wastes,⁹⁸ an oil and gas operator that causes contamination of land with certain oil and gas E&P wastes is liable for the costs of clean-up under the Comprehensive Environmental Response, Compensation, and Liability Act.⁹⁹ And if the BLM is concerned that management of these wastes would contaminate these public lands and prevent their future productive use for grazing or other purposes (and generate CERCLA liability), it may regulate the management of these wastes under its FLPMA and MLA responsibilities.

C. Federal environmental statutes aim primarily at private actors and do not comprehensively address the unique responsibilities of federal agencies to protect public natural resources.

The CWA, SDWA, Clean Air Act, and other federal environmental statutes primarily address the many corporations and other entities that engage in profitable activity while also producing externalities in the form of pollution. These acts were not designed with the primary intent of addressing additional responsibilities of federal agencies managing activities that occur on *public* lands—lands that the agencies must manage for multiple uses for current and future generations. There are, as a result, numerous examples of activities that are exempt from at least one federal environmental statute but are regulated by the BLM. For example, the CWA exempts soil runoff from certain agricultural and timber harvesting operations from certain CWA requirements administered by the Environmental Protection Agency and states.¹⁰⁰ However, the BLM regulates soil runoff from farming, ranching, or certain timber harvesting to protect waters and federally-protected endangered species in those waters.¹⁰¹ Indeed, a failure of the BLM to regulate the environmental impacts of these activities might violate Congressional directives for the agency, which require, *inter alia*, regulation of land use to protect environmental resources.¹⁰² Similarly, a failure of the BLM to regulate the environmental impacts of oil and gas extraction on public lands, simply because certain aspects of oil and gas extraction are exempt from the SDWA, RCRA, and other federal acts, would be an abdication of the BLM’s statutorily-defined responsibilities on public lands.

V. The HF Rule does not duplicate state regulations and will augment state regulation and enforcement in useful ways.

In addition to providing important environmental protection and following statutorily-defined duties to enable multi-use development of public lands, the HF Rule beneficially augments state regulation of oil and gas development, including fracturing. The rule provides an important overlay above various (and

⁹⁶ 42 U.S.C. § 6903(27) (2012); *see also* Sheldon M. Novick & Donald W. Stever, ENVTL. L. INST., 2 LAW OF ENVIRONMENTAL PROTECTION § 14:32 (2015) (discussing this exemption and noting that “[t]he boundaries between RCRA and other statutes are marked by a series of exclusions from the definition of ‘hazardous waste.’”).

⁹⁷ *Jones v. E.R. Snell Contractor, Inc.*, 333 F.Supp.2d 1344, 1350 (N.D. Ga. 2004).

⁹⁸ *Regulatory Determination*, *supra* note 92.

⁹⁹ 42 U.S.C. § 9607(a) (2012).

¹⁰⁰ *See* 33 U.S.C. § 1342(l) (2012) (exempting from the Clean Water Act National Pollutant Discharge Elimination System permitting requirement “silviculture activities,” including “harvesting operations,” and “agricultural return flows”); 33 U.S.C. § 1362(14) (2012) (exempting from the definition of a “point source” of pollution “agricultural stormwater discharges and return flows from irrigated agriculture”). These sources are regulated as nonpoint sources, particularly where a total maximum daily load has been established for a water into which the sources discharge.

¹⁰¹ *See, e.g.*, Bureau of Land Mgmt., U.S. Dep’t. of the Interior, Draft Resource Management Plan/Environmental Impact Statement: Western Oregon at 3-908 (2015), *available at*, http://www.blm.gov/or/plans/rmpswesternoregon/files/draft/RMP_EIS_Volume3.pdf (in management directions for forested lands and timber harvesting, prohibiting mechanical treatments on “steep slopes” or “sensitive soils” to protect “[p]erennial and fish-bearing streams”).

¹⁰² *See supra* Part II of this testimony.

variable) state requirements. The portions of the HF Rule that are not more stringent than existing state and tribal regulations will likely not require variances¹⁰³ because BLM rules already serve as a floor, not a ceiling, to state rules.¹⁰⁴ And the HF Rule portions that are more stringent than state regulations protect important federal values without imposing a one-size-fits all approach. For example, if the BLM determines that well integrity was compromised during fracturing or that cement in the well was inadequate, a remediation strategy will be formed on a case-by-case basis.¹⁰⁵

Several portions of the BLM rule demonstrate how the rule is more stringent than certain state requirements and less stringent than others, thus revealing the variability of state regulations that currently apply to oil and gas operations. For example, Colorado requires operators to run a cement bond log—a specific type of cement evaluation log—when operators use certain types of casing,¹⁰⁶ and New Mexico requires these logs in some counties.¹⁰⁷ Other states do not require these logs.¹⁰⁸ But in states where evaluation logs have been required, oil and gas development does not appear to have been inhibited.¹⁰⁹ Thus, the HF Rule provides a consistent requirement for fracturing on federal lands without imposing an unduly burdensome requirement.

In another example of a portion of the HF Rule that is equally as stringent as certain state regulations and more stringent than others, the rule (as discussed above) generally requires the use of tanks for the storage of flowback,¹¹⁰ subject to certain exceptions. Colorado requires operators to use tanks for drilling and/or fracturing within a certain number of feet of a public water system,¹¹¹ and New Mexico allows pits but requires operators using pits to obtain a permit and to follow specific siting, construction, and operational guidelines for pits or tanks.¹¹² Although Utah does not appear to require tanks for flowback, the state requires oil and gas operators to “[m]aintain [flowback] tanks in a workmanlike manner that will preclude leakage and provide for all applicable safety measures”¹¹³

To the extent that portions of the HF Rule duplicate state or tribal requirements, operators have several options. A variance may be granted (or may be unnecessary) if the state or tribal rule meets or exceeds the objectives of BLM regulation. Further, because most of the HF Rule requirements are informational—requiring information about geology, fracturing chemicals used, and cement evaluation logs prepared, for example—operators can meet any duplicative state requirements by submitting the same information to the BLM and to the state or tribe.¹¹⁴ Indeed, the HF Rule requires much of the information to be submitted through the website FracFocus, just as many states do. By inputting information into FracFocus, the operator will comply simultaneously with certain state, tribal, and federal requirements.

Just as the HF Rule provides consistent requirements for drilling and fracturing on federal lands above varied state requirements, the BLM’s enforcement resources can help complement what are often limited state enforcement resources. In a number of states, inspectors have done an admirable job of

¹⁰³ Oil and Gas; Hydraulic Fracturing on Federal and Indian Lands, *supra* note 2, at 16,221.

¹⁰⁴ Second Declaration of Steven Wells ¶ 22, Wyoming v. U.S. Dept. of the Interior, No. 2:15-CV-43-SWS (D. Wyo. June 12, 2015).

¹⁰⁵ Oil and Gas; Hydraulic Fracturing on Federal and Indian Lands, *supra* note 2, at 16,219-16,220.

¹⁰⁶ 2 COLO. CODE REGS. § 404-1:317(p) (2015).

¹⁰⁷ N.M. ADMIN. CODE R. §§19.15.39.8, 19.15.39.9 (2015).

¹⁰⁸ For example, Utah requires well completion or recompletion reports but does not appear to require a specific cement evaluation log. UTAH ADMIN CODE R. § 649-3-21 (2015). It appears that Wyoming only requires a description of the cementing program. WYO. RULES AND REGS., OIL GEN. CH. 3 § 8(c)(8).

¹⁰⁹ For natural gas wells alone, in 2014 Colorado had 32,371 producing gas wells, and New Mexico had 27,957 producing gas wells. Energy Info. Admin., Number of Producing Gas Wells, http://www.eia.gov/dnav/ng/ng_prod_wells_s1_a.htm (last visited July 5, 2015).

¹¹⁰ Oil and Gas; Hydraulic Fracturing on Federal and Indian Lands, *supra* note 2, at 16,220.

¹¹¹ 2 COLO. CODE REGS. § 404-1:317B (2015).

¹¹² N.M. ADMIN. CODE R. § 19.15.17.9 (2015).

¹¹³ UTAH ADMIN CODE R. § 649-3.1.2.4 (2015).

¹¹⁴ For example, Wyoming (like the BLM in its HF Rule) requires information on the geologic formation into which well stimulation fluids will be injected, well stimulation design including anticipated pressures, the base fluid for fracturing, and chemicals used in fracturing. WYO. RULES AND REGS., OIL GEN. CH. 3 § 45(c)-(e) (2015).

visiting more well sites and noting potential violations of state laws at these sites in the midst of a drilling and fracturing boom. But state resources are limited, in part due to funding limitations. For example, in 2012 Colorado had approximately 36 oil and gas inspectors and 49,062 active conventional and unconventional oil and gas wells, whereas New Mexico had approximately 12 inspectors for 56,366 active conventional and unconventional wells.¹¹⁵ The most important inspections occur during the drilling, completion, and fracturing of the well, and a far smaller number of wells are drilled, fractured, and completed each day than the total number of active wells listed. But active, producing wells, too, can cause environmental problems, such as leaking oil, condensate, or produced water from tanks¹¹⁶ or from on-site equipment that does minimal processing.¹¹⁷ Thus, inspectors' time must be split between wells being drilled, completed, and fractured and those under production, and enforcement resources are often thin. States often fund oil and gas enforcement programs through permitting fees and other fees, and where these fees are statutorily prescribed, they have in some cases not been adjusted for inflation for many years.¹¹⁸ As a result of these and other state deficiencies, "[e]nforcement rates for spills and other shale gas waste pollution incidents are low, and the punishment may not be deterring risky behavior."¹¹⁹

While the BLM, too, has limited enforcement resources,¹²⁰ combining the expertise and resources of the BLM with states can help to ensure that wells on federal lands are regularly inspected and that violations—which can sometimes result from vandalism, weather, or other issues beyond the direct control of the operator—are quickly and effectively addressed. Between Fiscal Year 2007 and 2012, the BLM increased the number of environmental inspections of wells “by approximately 63 percent” and conducted a total of 17,866 environmental inspections in Fiscal Year 2012.¹²¹

Conclusion

The BLM's HF Rule provides a needed update to federal oil and gas rules that have not kept up with rapid changes in U.S. oil and gas development. The BLM has long regulated the casing and cementing of wells, storage of oil and gas wastes, and provision of data to federal authorities to follow its statutory requirements—namely, to ensure that oil and gas development is compatible with other uses of federal lands for current and future generations and to protect water and environmental resource values, among other values. The HF Rule further achieves these goals. Primarily through informational requirements, the rule informs BLM officials about potential problems with wells, such as wells drilled in areas with old wells—which could pose a risk if fracturing intercepted other wells—and wells that have inadequate cement to secure casing and prevent leakage of substances from and into the well. The rule augments rather than conflicts with other federal requirements, fulfilling agency-specific mandates that are not contained within other federal environmental statutes. The HF Rule also complements and improves upon state requirements and provides a variance provision in the event that duplicative informational rules—which could simply require an operator to submit the same report to a state and federal official—are deemed onerous and unnecessary.

¹¹⁵ Hannah Wiseman, *Regulatory Risks in Tight Oil and Gas Development*, 29 NAT. GAS & ELECTRICITY 6 (2012).

¹¹⁶ ENVTL. PROTECTION AGENCY, ASSESSMENT OF THE POTENTIAL IMPACTS, *supra* note 55, at 7-31 through 7-36.

¹¹⁷ See, e.g., Bradford Cty., Pa., API Permit 015-20425, Violation ID 600818, Dec. 2, 2010 (“Orange liquid seeping [*sic*] out from underneath separator [*sic*] and heater treater.”); Washington Cty., Pa., API Permit 125-22688, Violation ID 619012, June 28, 2011 (noting brine/condensate leak from separator).

¹¹⁸ See Hannah J. Wiseman, *The Capacity of States to Govern Shale Gas Development Risks*, 48 ENVTL. SCI. & TECH. 8376, 8384 (2014).

¹¹⁹ Katherine E. Konschnick & Mark K. Boling, *Shale Gas Development: A Smart Regulation Framework*, 48 ENVTL. SCI. & TECH. 8404, 8409 (2014). See also Terrence J. Centner & Laura Kathryn O'Connell, *Unfinished Business in the Regulation of Shale Gas Production in the United States*, 476-477 SCI. TOTAL ENV'T 359, 364 (2014) (noting that “some governments are placed in an uncomfortable position of having laws and regulations to protect people but an inadequate infrastructure for the enforcement of the requirements”).

¹²⁰ U.S. GOVT. ACCOUNTABILITY OFFICE, OIL AND GAS DEVELOPMENT, GAO-13-572, BLM NEEDS BETTER DATA TO TRACK PERMIT PROCESSING TIMES AND PRIORITIZE INSPECTIONS (2013), available at <http://www.gao.gov/assets/660/657176.pdf>.

¹²¹ *Id.* at 30.