August 22, 2013

Director (630)
U.S. Department of the Interior
Bureau of Land Management
Mail Stop 2134 LM
1849 C St., NW
Washington, DC 20240

Attn: 1004-AE26

Re: Comments on BLM's Proposed Rule to Regulate Hydraulic Fracturing on Federal and Indian Lands

Dear Sir or Madam:

The Environmental Working Group (EWG) respectfully submits the following comments on the U.S. Bureau of Land Management's (BLM) proposed rule to regulate hydraulic fracturing on federal and Indian lands. EWG is a non-partisan, non-profit organization dedicated to using the power of information to protect public health and the environment. As part of that mission, EWG conducts original research and publishes reports on oil and natural gas drilling in the United States. In particular, EWG has focused on the consequences of using a method known as hydraulic fracturing to exploit this country's energy reserves. Over the past year, EWG has also advocated greater oversight of matrix acidizing and deep acid injection, other well stimulation techniques used to increase production from oil and gas wells in unconventional geological formations.

By drilling companies' own admission, oil and gas production and drilling operations are inherently risky activities that can cause significant damage to the environment and human health.[1] As a 2011 EWG investigation revealed, drilling companies regularly disclose risks such as spills, leaks, explosions, fires, and blowouts to their shareholders in annual reports filed with the U.S. Securities and Exchange Commission.[2] These risks, and many others, are not speculative. The surge in gas wells drilled in the United States over the past decade — most of which use the extraction method known as hydraulic fracturing — has been accompanied by numerous reports of water, air, and soil pollution, explosions at drilling sites and nearby homes, damaged roads, illegal dumping of toxic wastewater, spills of hazardous chemicals, threats to public health, and many other destructive impacts.

BLM oversees approximately 700 million subsurface acres of federal mineral estate and 56 million subsurface acres of Indian mineral estate and is responsible for managing hydraulic fracturing and other well stimulation operations on these lands. As former Secretary of the Interior Ken Salazar stated to Congress in 2011, "BLM's current regulations specific to hydraulic fracturing—or stimulation operations—are in many ways outdated; they were written in 1982; and they reflect neither the significant technological advances in hydraulic fracturing nor the tremendous growth in its use that has

[1] Dusty Horwitt, Envtl. Working Group, Drilling Doublespeak (2011), http://static.ewg.org/pdf/Drilling_Doublespeak.pdf.
[2] Id.

occurred in the last 30 years."[3] With almost 36 million acres of federal land already under lease for potential oil and gas development[4] and impacts from hydraulic fracturing operations evident at national parks and other public lands in several areas of the country,[5] it is imperative that BLM update its regulations to ensure that public mineral resources are developed safely and responsibly.

The Federal Land Policy and Management Act directs BLM to protect the quality of the environmental, ecological, and other resources of our public lands[6] and to adopt strong regulations that "prevent unnecessary or undue degradation" of those lands.[7] In their current form, BLM's proposed regulations do not fulfill these statutory obligations. Furthermore, the revisions made to the rule first proposed by BLM in 2012 dramatically weakened the proposed regulations, prioritizing industry's interests over those of the American public. These revisions raise serious questions as to whether BLM is committed to ensuring that public lands and resources are protected from the hazards of irresponsible oil and gas drilling and development.

Major shortcomings of the proposed rule include, but are not limited to, the following issues, discussed in greater detail below:

- **The proposed rule excludes acidizing and other well stimulation techniques that pose numerous risks to the environment and public health;**

- **The proposed rule's provisions for the disclosure of hydraulic fracturing fluids fail to ensure meaningful public disclosure of dangerous chemicals;**

- **The proposed rule's requirements for evaluating wellbore integrity fail to adequately protect groundwater resources;**

- **The proposed rule fails to ensure that the toxic wastewater associated with hydraulic fracturing will be stored safely and responsibly.**

EWG urges BLM to stand up to the oil and gas industry and significantly strengthen its proposed rule. The mineral resources entrusted to BLM underlie both private and public lands, including areas managed by the U.S. Forest Service, the U.S. Fish and Wildlife Service, and the National Park Service.[8] The American public expects and deserves comprehensive regulations that will prevent degradation of these lands, preserve water and other natural resources, and protect public health. The current proposed rule does not ensure these protections.

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[3] *The Future of U.S. Oil and Natural Gas Development on Federal Lands and Waters: Hearing Before the H. Comm. on Natural Res*, 112th Cong. (2011) (statement of Ken Salazar, former Secretary, U.S. Dep't of the Interior).
[4] Oil and Gas; Hydraulic Fracturing on Federal and Indian Lands, 78 Fed. Reg. 31,636, 31,637 (proposed May 24, 2013) (to be codified at 43 C.F.R. pt. 3160) [hereinafter "BLM Revised Proposed Rule"].
[5] See, e.g., Ctr. for Park Research, Nat'l Parks Conservation Ass'n., National Parks and Hydraulic Fracturing: Balancing Energy Needs, Nature, and America's National Heritage (2013), http://www.npca.org/assets/pdf/Fracking_Report.pdf.
[6] 43 U.S.C. § 1701(a)(8).
[7] Id. § 1732(b).
[8] Mineral and Subsurface Acreage Managed by the BLM, Bureau of Land Mgmt., http://www.blm.gov/wo/st/en/info/About_BLM/subsurface.html (last updated Oct. 13, 2011).

1. **The proposed rule excludes acidizing and other well stimulation techniques that pose numerous risks to the environment and public health.**

The revised proposed rule narrows the applicability of the rule to "hydraulic fracturing operations" and changes the definition of "hydraulic fracturing" to specifically exclude "other types of well stimulation operations such as acidizing."[9] BLM justifies excluding acidizing and other well stimulation techniques from the scope of the rule by stating that it agrees with certain commenters that these activities are "routine maintenance operations" that should not be subject to burdensome regulatory requirements.[10] This explanation seriously mischaracterizes acidizing, a controversial and insufficiently studied well stimulation technique that already may be in widespread use in California in particular. The proposed revision would allow oil and gas drillers to use acidizing and other potentially dangerous well stimulation techniques to develop public mineral resources without proper oversight, creating undue risks for public health and the environment.

Unlike activities such as wellbore cleanouts, acidizing is not a routine maintenance operation. Acidizing is a technique that involves injecting highly corrosive hydrochloric and hydrofluoric acid into wells to dissolve rock, sediments, and mud solids, thereby opening up channels in reservoir rocks that enable oil and gas to reach the wellbore.[11] Even though acidizing occurs at below fracture pressure, many of the environmental and human health concerns that have been raised in the context of hydraulic fracturing are also associated with acidizing. Acidizing also poses unique risks, such as a greater potential for damage resulting from chemical spills and leaks due to the greater volumes of acids involved. Despite the many serious environmental and public health impacts associated with acidizing, the process is subject to little regulatory oversight at the state and federal levels.

The impacts of acidizing are of particular concern in California, where the BLM administers 47 million acres of public land. Most oil and gas leases on public lands in California are located in the San Joaquin Valley, the southern half of which sits atop the largest shale oil reserve in the United States, the Monterey Shale.[12] The Monterey Shale is much younger and thicker than shale plays found in other areas of the country,[13] and alternatives to hydraulic fracturing, such as matrix acid stimulation, are commonly used by the oil and gas industry to develop the resources in this formation. In fact, representatives from drilling companies have repeatedly suggested that acidizing is a far more important well stimulation technique than hydraulic fracturing in this region.[14]

The existing BLM regulations governing well stimulation operations date back to 1982 and have not been updated since 1988. These regulations are woefully inadequate to responsibly manage acidizing and other well stimulation operations that do not meet BLM's precise definition of hydraulic fracturing

[9] Proposed 43 C.F.R. pts. 3160.0-5, 3162.3-3.
[10] BLM Revised Proposed Rule, supra note 4, at 31,645.
[11] Ca. Senate Natural Res. & Water Comm., Background Paper: Well Stimulation in the Oil and Gas Fields of California 2 (2013), http://sntr.senate.ca.gov/sites/sntr.senate.ca.gov/files/6%2018%20background.PDF.
[12] The geographic extent of the Monterey Shale formation has been underreported. For example, please refer to the work of Professor Rick Behl at California State University, Long Beach, who has shown that these hydrocarbon-bearing shales range from near the Oregon border to the Santa Barbara Channel to the Great Basin side of the Sierra Nevada. See, e.g., Richard J. Behl, Since Bramlette (1946): The Miocene Monterey Formation of California Revisited, Geological Soc'y of America Special Paper 338 (1999), http://geology.campus.ad.csulb.edu/people/behl/MARS/files/Behl_1999_Monterey_Overview.pdf.
[13] See U.S. Energy Info. Admin., Review of Emerging Resources: U.S. Shale Gas and Shale Oil Plays (2011), http://www.eia.gov/analysis/studies/usshalegas/pdf/usshaleplays.pdf.
[14] See Ca. Senate Natural Res. & Water Comm., supra note 11, at 1-3.

but may pose similar risks. Like hydraulic fracturing, acidizing and other processes used to stimulate production from oil and gas wells are not routine maintenance operations and should not be managed as such. EWG urges BLM to expand the proposed rule to include acidizing and any other well stimulation technique designed to increase the permeability of geological formations to ensure that all practices used to stimulate the production of hydrocarbons from the public mineral estate are developed and used responsibly.

2. The proposed rule's provisions for the disclosure of hydraulic fracturing fluids fail to ensure meaningful public disclosure of dangerous chemicals.

The provisions proposed by BLM to regulate the disclosure of the chemicals used in hydraulic fracturing operations fail to establish a system that will ensure meaningful public disclosure of these chemicals. The provisions also leave far too much leeway for companies to hide important information behind "trade secret" claims. The sections of the rule related to chemical disclosure must be dramatically improved to adequately protect public health and the environment from the dangerous substances used in hydraulic fracturing fluids.

EWG believes that the proposed rule places public health at risk by failing to require companies to disclose information about hydraulic fracturing chemicals before drilling operations begin. The fluids injected into the ground during hydraulic fracturing operations can contain highly toxic chemicals, such as benzene, toluene, ethylbenzene, and xylene.[15] Exposures to these chemicals can cause serious adverse health effects, including temporary nervous system disorders, liver and kidney damage, and cancer.[16] The public has a right to know about the hazards posed by hydraulic fracturing chemicals, especially when oil and gas companies are expanding operations into more populated areas. The BLM must meaningfully bolster that right by requiring companies to publicly disclose the chemicals used in hydraulic fracturing fluid prior to the commencement of hydraulic fracturing operations. Such disclosure will give citizens the opportunity to perform baseline environmental tests, develop emergency plans for spills and accidents, and take other precautions to protect their health and their communities.

EWG is also concerned that the framework created by the proposed rule for the disclosure of chemicals fails to ensure that the information reported by industry will be accurate, complete, and available to the public in a clear and useful format. Section 3162.3-3(i) would allow companies to disclose chemical information directly to the BLM, or through FracFocus or another BLM-designated database.[17] Numerous concerns have been raised about the management and structure of FracFocus, many of which BLM acknowledges in the revised rule proposal. These concerns include, but are not limited to, the following: FracFocus is not managed by a government entity or entities responsible for ensuring compliance with state and federal laws, does not present data in an easily searchable format, does not allow for the aggregation of data across well sites or states, and has been found to contain inaccurate and incomplete data.[18] BLM provides no assurances that these problems will be fixed, stating only that it

[15] See Dusty Horwitt, Envtl. Working Group, Drilling Around the Law 11 (2010), http://static.ewg.org/files/EWG-2009drillingaroundthelaw.pdf.
[16] Id.
[17] Proposed 43 C.F.R. pt. 3162.3-3(i).
[18] BLM Revised Proposed Rule, supra note 4, at 31,658. See also Kate Konschnik et al., Harvard Law School, Legal Fractures in Chemical Disclosure Laws: Why the Voluntary Chemical Disclosure Registry FracFocus Fails as a Regulatory Compliance Tool (2013), http://blogs.law.harvard.edu/environmentallawprogram/files/2013/04/4-23-2013-LEGAL-FRACTURES.pdf.

"expects that recent and foreseeable improvements to the system will address many of the[ ] concerns" related to searching and aggregating data on the site.[19] For these and other reasons, EWG does not support the use of FracFocus as it currently exists for the reporting and disclosure of information required by the proposed rule. In order to ensure accurate, reliable, and full public disclosure of chemical information in an accessible and useful format, EWG recommends that all required information be disclosed to the public through a government controlled website.

If FracFocus is to be used, BLM must ensure that the database meets the following standards:

- All data published on FracFocus must use uniform terminology. There should be no variation allowed from site to site or state to state in the terms used to describe or characterize well data.

- Drillers must be required to submit and disclose all of their well data on FracFocus. Full disclosure must be mandatory and drillers cannot be allowed broad discretion to decide what information is made public. Well data from state agencies also must be submitted to and disclosed on FracFocus, including complete drilling records and any accident reports.

- The public must be able to easily search and aggregate all data on FracFocus in spreadsheets, using commonly available computer software. This provision must apply regardless of whether the data pertains to wells in a single state or in multiple states.

- Local, state, and federal regulators must be able to use the information on FracFocus for enforcement purposes, and it must be admissible in court.

- Information submitted to FracFocus — including initial submissions and requests for updates — must be available to the public through public records act requests.

- To protect public health and the environment, there must be strict and enforceable limits on the ability of drilling companies to claim "proprietary" status for their data in an effort to restrict access to information about chemicals used in fracking fluids.

- In the event of an emergency resulting from an acute or chronic illness or injury, health providers must have immediate access to all data submitted to FracFocus, including information protected as trade secrets. The model for requests by health providers must be the hazard communications standard for the U.S. Occupational Health and Safety Administration, 29 C.F.R. § 1910.1200.

EWG believes section 3162.3-3(j)(1) gives companies too much discretion to withhold information about chemicals by claiming that the information qualifies as a "trade secret." This exception could allow drillers to circumvent the section of the rule that requires specific information about a chemical's identity and use to be disclosed by broadly hiding information under a "trade secret" umbrella. If this occurs, the public could be unknowingly exposed to serious risks, and scientist might not know which chemicals to test for in determining whether hydraulic fracturing operations caused pollution. At most, BLM should allow trade secret status only for hydraulic fracturing fluid formulas and not for the individual chemical constituents. This way, the public would know the identity of each chemical injected into a well, but companies' formulas would be protected. BLM also should require companies

[19] BLM Revised Proposed Rule, supra note 4, at 31,657.

to immediately disclose to medical personnel any trade secret relevant to treating individuals who experience an adverse event after exposure to hydraulic fracturing chemicals.

EWG is also concerned that the revised proposed rule essentially allows drilling companies to self-regulate the use of trade secret claims. Section 3162.3-3(j)(1) requires only that companies submit an affidavit to BLM asserting that information otherwise subject to disclosure is exempt due to trade secret protections.[20] It does not require that companies submit the underlying information or any substantiation of the trade secret claim to regulators. Recent investigations into chemical disclosure reports made by the drilling industry have revealed that too much information necessary for protecting public health is being hidden behind trade secret and similar claims. According to a report published by EnergyWire in September 2012, sixty-five percent of disclosures made to FracFocus included at least one trade secret.[21] A review by Bloomberg of disclosure data from Texas found that companies have withheld information on at least five ingredients for every well in that state, including ingredients known to cause health problems.[22] It is unacceptable for drillers to use trade secret claims to hide the chemicals they are using. As written, BLM's proposed rule all but ensures that large amounts of information highly relevant to assessing the risks posed by hydraulic fracturing fluids will be kept secret from the public and from regulators. BLM must require drilling companies to submit all information subject to disclosure to the agency with substantiation for each trade secret claim, and the agency must routinely review the information submitted to it to ensure that information is not being withheld from the public inappropriately.

3. The proposed rule's requirements for evaluating wellbore integrity fail to adequately protect groundwater resources.

Strong standards for assessing and proving wellbore integrity are essential to managing the risks to groundwater posed by hydraulic fracturing. The revised proposed rule weakens the standards initially proposed by BLM related to wellbore integrity in significant ways: drilling companies would no longer be required to run cement bond logs on each well, and BLM would no longer be required to review and approve the few logs that would be run prior to the commencement of hydraulic fracturing operations.[23] These revisions expose public health and the environment to an unacceptable level of risk. The rule must be strengthened to ensure that problems associated with well failure are identified and corrected before wells are fractured.

The oil and gas drilling industry has a poor track record on the issue of wellbore integrity. In 2003, Schlumberger, one of the world's largest drilling services companies, analyzed data collected by the U.S. Minerals Management Service for 15,500 wells in the outer continental shelf and concluded in a report published in the company's Oilfield Review magazine that forty-three percent of those wells had experienced leaks resulting in gas migration over a period of approximately three decades.[24] More recent data collected by the Pennsylvania Department of Environmental Protection (DEP) demonstrate that

[20] Proposed 43 C.F.R. pt. 3162.3-3(j)(1).
[21] Mike Soraghan, Hydraulic Fracturing: Two-Thirds of Frack Disclosures Omit 'Secrets', EnergyWire, Sept. 26, 2012, http://www.eenews.net/stories/1059970474.
[22] Ben Elgin, et al., Fracking Secrets By Thousands Keep U.S. Clueless on Wells, Bloomberg, Nov. 30, 2010, http://www.bloomberg.com/news/2012-11-30/frack-secrets-by-thousands-keep-u-s-clueless-on-wells.html.
[23] Proposed 43 C.F.R. pt. 3162.3-3(d)(2).
[24] Claudio Brufatto, et al., From Mud to Cement—Building Gas Wells, Oilfield Review, Sept. 1, 2003, at 62, http://www.slb.com/~/media/Files/resources/oilfield_review/ors03/aut03/p62_76.ashx.

well failures continue to be a problem for the drilling industry. In a report published earlier this year, Anthony R. Ingraffea, a professor of engineering at Cornell University, analyzed the DEP's violations database to assess the rate of well failures within the state, which overlays the Marcellus Shale.[25] According to his analysis, six to seven percent of new wells drilled in Pennsylvania in 2010, 2011, and 2012 experienced failures.[26]

The consequences of well failures can be significant. In 2004, for example, Colorado state officials reported that a well in Garfield County that had been improperly cemented and subsequently fractured allowed natural gas and associated contaminants to travel underground more than 4,000 feet laterally.[27] As a result, a creek was contaminated with dangerous levels of benzene, a human carcinogen.[28] More recently, researchers from Duke University sampled 141 drinking water wells in northeastern Pennsylvania and found elevated levels of methane, propane, and ethane in wells located within 1 km of natural gas wells.[29] Twelve of the wells sampled, 11 of which were located within 1 km of a natural gas well, had methane concentrations greater than 28 milligrams per liter, the level at which the U.S. Department of the Interior advises homeowners to take immediate remediation action to reduce the risk of explosion.[30] The authors of the study asserted that the contamination was likely due to poor well construction, including faulty steel casings and inadequate cement sealing.[31]

Given the high rate of well failure observed within the drilling industry and the significant threat well failures pose to groundwater resources, BLM's standards governing wellbore integrity should be clear, rigorous, and strictly enforced. As an initial matter, the proposed rule gives operators too much discretion to choose how to evaluate cement bonding. Under the revised proposed rule, operators would no longer be required to run cement bond logs. Instead, section 3162.3-3(e) would allow operators to produce a "cement evaluation log," a term used to describe "any of one of a class of tools" an operator could select to verify cement integrity, "such as, but not limited to, a cement bond log, ultrasonic imager, variable density logs, micro-seismograms, CBLs with directional receiver array, ultrasonic pulse echo technique, or isolation scanner."[32] The risk of groundwater contamination resulting from well failures cannot be responsibly managed when drilling operators are allowed to place cost and speed above accuracy and effectiveness. BLM must evaluate best practices for verifying the integrity of cement bonding, select the tool(s) that will achieve the greatest level of risk reduction, and require that drilling operators use the tool(s) correctly and consistently at all wells that fall under the jurisdiction of the proposed rule.

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[25] Anthony R. Ingraffea, Ph.D., P.E., Physicians, Scientists & Eng'rs for Healthy Energy, Fluid Migration Mechanisms Due to Faulty Well Design and/or Construction: An Overview and Recent Experiences in the Pennsylvania Marcellus Play 5-8 (2013), http://www.psehealthyenergy.org/data/PSE__Cement_Failure_Causes_and_Rate_Analaysis_Jan_2013_Ingraffea1.pdf.
[26] Id.
[27] URS Corp., Phase I Hydrogeologic Characterization of the Mamm Creek field Area in Garfield County (2006), http://cogcc.state.co.us/ (follow link for "Library" and then "Piceance Basin") (prepared for Bd. of County Comm'rs, Garfield County, Colo.); Colo. Oil & Gas Conservation Comm'n, Order No. 1V-276 (Aug. 16, 2004), http://cogcc.state.co.us/ (follow link for "Orders").
[28] Id.
[29] Robert Jackson, et al., Increased Stray Gas Abundance in a Subset of Drinking Water Wells Near Marcellus Shale Gas Extraction, 110 Proceedings of the Nat'l Academy of Sciences of the U.S.A. 11250, 11251 (2013), http://www.pnas.org/content/110/28/11250.full.pdf+html.
[30] Id.
[31] Id. at 11254.
[32] Proposed 43 C.F.R. pt. 3162.3-3(e).

Of even greater concern, the proposed rule drastically reduces the number of wells on which cement evaluation logs would be run. As opposed to the original proposed rule, which would have required cement bond logs to be run on each well, the revised proposed rule would allow operators to run cement evaluation logs on only a "type well" that is representative of the local geology and typical drilling techniques in a field, unless an operator observed certain problems with the cement job at a particular well.[33] BLM estimates that this revision will result in cement evaluation logs being run on just eight percent of wells that would be covered by rule.[34] It justifies this low figure by explaining that "the replication of adequate cementing across multiple wells in a geographic area" will achieve an acceptable level of risk reduction.[35] However, the drilling industry's record on the issue of wellbore integrity does not support BLM's rationale. EWG urges BLM to require operators to evaluate the integrity of the cement bonding at each well covered by the proposed rule.

Finally, the proposed rule would allow drilling operators to submit cement evaluation logs for type wells to BLM for review within 30 days of *completing* hydraulic fracturing operations.[36] EWG is concerned that this timeline will turn the submission and review of cement evaluation into an exercise in paperwork. If the logs are to be useful tools for identifying and correcting weaknesses or flaws in the cement bonding of wells before well failure occurs, drilling companies must be required to evaluate and prove the integrity of each well prior to the commencement of a hydraulic fracturing job. EWG urges BLM to restore the provision in the original proposed rule that required pre-fracturing submission and review of cement logs.

4. The proposed rule fails to ensure that the toxic wastewater associated with hydraulic fracturing will be stored safely and responsibly.

Section 3162.3-3(h) of the proposed rule would allow operators to store fluids recovered from hydraulic fracturing operations in tanks or lined pits.[37] The use of pits for the storage of the toxic wastewater associated with hydraulic fracturing creates the potential for hazardous substances to leach into the surrounding environment and water supply, threatening public health, wildlife, and air, soil, and water quality. EWG strongly recommends that BLM prohibit the use of pits in its final rule.

The produced water that rushes to the surface after a well is hydraulically fractured can contain toxic chemicals, salt, heavy metals, and naturally occurring radioactive contaminants.[38] Some of these substances, such as the known human carcinogen benzene, can permeate the soil and pollute water in very small amounts.[39] EWG believes that the hazardous nature of these recovered fluids leaves no room for error when determining best practices for wastewater storage.

[33] Companies would be required to complete cement evaluation logs for each well for which there were indications of an inadequate cement job. Proposed 43 C.F.R. pt. 3162.3-3(e)(4).
[34] BLM Revised Proposed Rule, supra note 4, at 31,666.
[35] Id.
[36] Proposed 43 C.F.R. pt. 3162.3-3(e)(2).
[37] Proposed 43 C.F.R. pt. 3162.3-3(h).
[38] Ian Urbina, Regulation Lax as Gas Wells' Tainted Water Hits Rivers, N.Y. Times, Feb. 27, 2011, http://www.nytimes.com/2011/02/27/us/27gas.html?pagewanted=all&_r=0.
[39] See Dusty Horwitt, Drilling Around the Law, supra note 15, at 7.

The problems associated with the use of wastewater pits are numerous and significant. Pits leak and overflow, creating channels for wastewater to pollute streams, contaminate soil, and kill vegetation.[40] Chemicals contained in the hydraulic fracturing wastewater stored in pits can vaporize, compromising air quality and public health.[41] Pits also create public safety hazards. In March 2010, for example, a 400,000-gallon hydraulic fracturing wastewater pit in Pennsylvania caught fire, producing clouds of smoke that could be seen for miles.[42]

The use of wastewater pits creates unnecessary dangers. Closed storage tanks more effectively isolate fluids recovered from hydraulic fracturing operations from the surrounding environment, lessening impacts to natural resources and public health.[43] Tanks can also be placed in secondary containment structures with raised sides that are designed to capture hazardous fluids in the event of ruptures, spills, or leaks, further reducing the risks posed by hydraulic fracturing wastewater.[44] EWG urges BLM to amend the provisions of the proposed rule related to the temporary storage of produced water at drilling sites to require the use of closed tanks with secondary containment features.

Thank you for the opportunity to comment on BLM's proposed rule to regulate hydraulic fracturing on federal and Indian lands.

Sincerely,

Briana Dema
Staff Attorney

[40] See Laura Legere, Hazards Posed by Natural Gas Drilling Not Always Underground, Scranton Times-Tribune, June 21, 2010, http://thetimes-tribune.com/news/hazards-posed-by-natural-gas-drilling-not-always-underground-1.857452.
[41] For example, according to records obtained by Earthworks, the Colorado Oil and Gas Conservation Commission documented complaints from several families living in the vicinity of open-air wastewater pits in 2005, including noxious odors, headaches, and nausea, all reportedly caused by vapor rising off of the pits. See Colorado Contamination Incidents, Earthworks, http://www.earthworksaction.org/issues/detail/colorado_contamination_incidents#BARRETT (last visited Aug. 21, 2013).
[42] Legere, supra note 40.
[43] See, e.g., Rebecca Hammer & Jeanne VanBriesen, NRDC, In Fracking's Wake: New Rules are Needed to Protect Our Health and Environment from Contaminated Wastewater (2012), http://www.nrdc.org/energy/files/fracking-wastewater-fullreport.pdf.
[44] Id. at 6.