Testimony to the United States Congress – Committee on Natural Resources
May 8, 2013
At a hearing entitled
DOI Hydraulic Fracturing Rule: A Recipe for Government Waste, Duplication and Delay

Considerations for Public Disclosure of the Chemicals Used in Hydraulic Fracturing Operations

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Mr. Chairman and members of the Committee:

My name is John Amos; I am a geologist, and the founder and President of SkyTruth, a non-profit corporation based in West Virginia that uses satellite and aerial images, digital mapping, data analysis and digital graphics to investigate and illustrate environmental issues and incidents. Our staff has expertise in the areas of remote sensing, image processing and analysis, GIS and digital mapping, database management, and software design and programming. We analyze satellite and aerial imagery, and we build and maintain large datasets acquired from state and federal government agencies to analyze environmental conditions. These datasets describe permitting and drilling activity on public and private lands, oil and hazardous s materials spill reports, and other information of interest to the public. Over the past year, with considerable effort, we've been collecting data related to hydraulic fracturing operations nationwide, primarily through a website called FracFocus.

The US Bureau of Land Management (BLM) is revising the rules that will govern gas and oil drilling operations on public lands throughout the Nation, including rules regarding disclosure of chemicals used in hydraulic fracturing operations at potentially tens of thousands of gas and oil wells that will be drilled across millions of acres of public land in coming years Based on SkyTruth's work, I am concerned that BLM will direct operators to use the FracFocus website to satisfy the public call for disclosure of the chemicals used[1]. Given the considerable time and effort required to extract meaningful data from FracFocus, it is clear that this decision by the BLM would waste society's resources: it would require Americans from many sectors of

[1] http://www.eenews.net/public/energywire/2013/02/08/1

society – including scientific researchers, concerned citizens, public interest groups, and industry – to undertake redundant, very costly efforts to obtain the data in a usable form, or simply do without the information. In both cases, BLM's approach undermines the goal of public disclosure.

There is strong and growing public interest in learning more about the chemicals used in the drilling and completion of natural gas and oil wells throughout the nation. These chemicals are transported through communities large and small; staged at drilling locations distributed throughout residential and rural areas; and injected into wells at very high pressures. It is likely that over the coming decades, tens to perhaps hundreds of thousands of gas and oil wells will be drilled on public and private lands throughout America, to tap our unconventional natural gas and oil resources from low-permeability sandstone and shale reservoirs. The majority of these wells will be stimulated by hydraulic fracturing. This process may be repeated several times over the productive lifespan of each well.

Accurate, timely, and comprehensive information about the chemicals used in hydraulic fracturing would be useful across a broad range of societal interests. A few examples:

- Homeowners want to know what chemicals might contaminate their groundwater if there are problems with nearby drilling operations, so they can order periodic, chemical-specific tests of their drinking water to ensure the continued safety of their family water supply.
- Municipal water managers want to predict the regional impact of drilling activity on public water supply quantity and quality.
- Emergency management officials want to know what types and amounts of chemicals are regularly transported through their communities, so they can formulate effective contingency plans.
- Scientific researchers want to study regional patterns and trends in the use of chemicals over the years as drillout proceeds, to measure and better understand any impacts of drilling activity on public health, safety, and environmental indicators.
- State and local investigators want to know if chemical usage information is being disclosed accurately and in a timely way, and if all operators are complying with applicable disclosure laws.
- Industry wants to study spatial and temporal patterns in drilling and hydraulic fracturing activity for basic business intelligence and strategy.

Most of these societally valuable uses require aggregating and analyzing the chemical information obtained from many individual hydraulic fracturing operations. FracFocus, a website sponsored by the gas and oil industry, was established to collect information volunteered by gas and oil well operators about the chemicals they used in performing

individual hydraulic fracturing operations. FracFocus also provides a public interface to this chemical information. Several states have since passed laws requiring varying levels of public disclosure of the chemicals used in hydraulic fracturing, and some have directed operators to use FracFocus as the means of accomplishing public disclosure[2]; a legal use of the FracFocus site that it was not designed to accommodate. It was also not designed to allow aggregating and analyzing information. Indeed, the site's operators have publicly stated that FracFocus was intentionally designed to thwart that use[3]. This design, in both its philosophy and implementation (for example, the publication of data in PDF files, a format that is not "machine-readable"), violates key elements of the Administration's Open Government Directive of December 8, 2009[4], guidance to agencies regarding the management of federal information resources[5], and the Open Government initiative[6], rendering the site noncompliant as a public disclosure platform.

Based on our experience an effective platform for the public disclosure of the chemicals used in hydraulic fracturing operation should, at a minimum:

- Enable the bulk download of data in a machine-readable (not PDF) format
- Embrace no intellectual property restrictions
- Designate an official legal reference copy of all chemical disclosure reports
- Identify an official publication date for all chemical disclosure reports
- Incorporate a document change management system to clearly identify additions or revisions.

Each of these elements is discussed below.

NOTE: Environmental, public health and safety, and other public advocacy groups have expressed additional concerns about public disclosure that are worthy of discussion but not addressed further here, including, among other issues, the inconsistent and opaque use of trade-secret exemptions to conceal the identities of many of the chemicals used[7]; the

[2] See http://www.velaw.com/uploadedFiles/VEsite/Resources/HydraulicFracturingFluidDisclosureRequirements.pdf from http://fracking.velaw.com/
[3] http://www.eenews.net/public/energywire/2013/02/08/1 and http://eenews.net/public/energywire/2012/05/21/1
[4] http://m.whitehouse.gov/open/documents/open-government-directive
[5] http://m.whitehouse.gov/omb/circulars_a130_a130trans4#7 (see in particular Section 7, Basic Considerations and Assumptions)
[6] http://www.whitehouse.gov/open/about
[7] http://www.mysanantonio.com/business/article/Exact-mix-of-fracking-fluids-remain-a-mystery-4246634.php

timeliness of reporting and disclosure to the interested public; and the administration of a government-mandated public dataset by a non-profit, non-government entity[8].

1) Bulk Data Download

Currently, members of the public cannot use the data archived at FracFocus for meaningful analysis without great difficulty. First, they must go to great lengths to download, one at a time, the individual FracFocus chemical disclosure reports in PDF (text document) format. Each report includes data on dozens of chemicals used on a single hydraulic fracturing operation. Next, a user must extract the data, one field at a time from each individual PDF document, in order to compile the date in a useful spreadsheet or digital database. A typical user without advanced computer programming skills would have to perform these operations manually. At a rate of 15 cut-and-paste operations per minute, it would take 12,255 hours of tedious, repetitive manual work, or almost 6 years of full-time effort, to extract the data that are currently archived at FracFocus. This estimate does not include the significant additional time, effort, and computer resources required to download the 42,000 chemical disclosure reports. [9]

A user with advanced programming skills can, with diligent effort, automate the process. To our knowledge only three organizations – SkyTruth[10], and two commercial oil and gas industry service companies who are selling the data, Pivot Upstream Group[11] and PacWest Consulting Partners[12] – have accomplished this feat. However, any automation success is subject to being "broken" at any time, should the FracFocus site operators make any changes to their system.

The current publication mechanism in FracFocus does not allow bulk download, presenting a substantial barrier to anyone seeking to use the data for research, public information, or regulatory purposes.

Recommendation

- Minimum - Publish the entire collection in a simple standard text format (such as CSV) that can be imported directly into a spreadsheet or database.
- Better - Provide a way to bulk-download the disclosure data in a search result.

[8] http://eenews.net/public/energywire/2012/05/21/1
[9] See comment by David Manthos at http://www.forbes.com/sites/davidblackmon/2013/04/25/harvards-fracfocus-study-grades-an-f/?ss=business%3Aenergy
[10] http://frack.skytruth.org/home/whats-new/frackingchemicaldatabase
[11] http://pivotupstreamgroup.com/D-FRAC.aspx
[12] http://pacwestcp.com/research/fracdb/

- Best - Automatically re-publish FracFocus disclosure data to Data.gov[13] (a web portal providing public access to Federal government datasets) or a similar Open Data Initiative-compliant publication portal.

2) No Intellectual Property Restrictions

The "Website Terms and Conditions of Use" statement[14] on the FracFocus website is unreasonably restrictive, explicitly forbidding users from sharing the chemical disclosure reports (PDF files), which could exert a chilling effect on those who want to share information with their friends and neighbors, and on organizations that want to aggregate the data for scientific research or public education purposes.

Recommendation

Remove the Intellectual Property restriction entirely for all the disclosure data. Make an explicit statement that the data can be freely shared and used for any purpose.

3) Official Reference Copy for Reports

Individual disclosure documents (PDF files) archived at FracFocus have no permanent web link (URL). Therefore, anyone reporting on, or seeking explanations about, the content of a disclosure report have no permanent reference for the original document. Moreover, because of the Intellectual Property restrictions discussed above, users cannot share or republish a copy of that document for others to see. As a result, users have no way to reference or share the information archived at FracFocus.

Recommendation

Add a mechanism to provide a permanent web link (URL) to each disclosure document based on a unique document ID number. This becomes the official reference copy of the document in case there is any question about the accuracy of data re-published by a third party.

Document Publishing Date

Currently there is no way to determine when a chemical disclosure report was first published, so there is no way to verify whether that disclosure was made within the timeframe required by state or federal law.

Recommendation

Include a "published date" with each disclosure record.

[13] http://www.data.gov/
[14] http://fracfocus.org/terms-of-use (in particular section 7, Intellectual Property Information)

Document Change Management

We have observed documents that had their content altered after initial publication, such that the first edition of the document is no longer available and the new edition bears no indication that a previous edition was published, when it was published, or what specific information was changed.

Recommendation

Add a document change history and/or edit tracking to the document record, and assign a new unique document ID to the revised document so that the earlier version remains accessible.

In summary: The BLM is poised to issue revised regulations governing natural gas and oil extraction from millions of acres of land held in the public trust. A significant aspect of this resource development is the public disclosure of chemicals used during hydraulic fracturing operations, an issue of broad national concern. No mechanism for effective public disclosure currently exists. To avoid consigning society to wasteful, redundant efforts to access the data and convert them to an effective, usable, machine-readable format, BLM should mandate a public disclosure platform that complies with the objectives and specific implementation guidance that constitute the Open Government Initiative. The recommendations we've given here should be considered a minimum starting point.