

**Senate Committee on Energy and Natural Resources
Full Committee Forum on Environmental Impacts of Shale Gas Development
and Best Practices**

May 23, 2013

**Responses of Halliburton Energy Services, Inc. to
Selected Questions for the Record from Chairman Wyden**

Disclosure

1. *Should the public have information on the chemicals being used before the fracking takes place? I understand that the chemicals necessary may need to be adjusted during the fracking operation, but couldn't companies provide their best information on what they plan to use, and then modify the report after the fact?*

Halliburton Energy Services, Inc. (“HESI”) believes that the disadvantages of “pre-frac” disclosure outweigh its potential benefits to the public. Two potential benefits of such disclosure have been identified. The primary benefit identified by supporters of pre-frac disclosure has been that disclosure of the chemicals to be used in a hydraulic fracturing operation in advance of the operation taking place would facilitate the ability of regulators or a nearby homeowner to conduct baseline water quality testing on a drinking water well and ultimately to trace potential impacts to their sources. However, conducting baseline testing for particular chemicals expected to be used in a particular hydraulic fracturing operation is not the only way or even necessarily the best way to accomplish these goals.

Baseline testing of this kind generally relies on the use of “indicator chemicals,” *i.e.*, chemicals that can be used to provide an indication of changes in water quality. As reflected in the discussions during recent roundtables of experts convened by the U.S. Environmental Protection Agency (“EPA”) as part of its ongoing study of hydraulic fracturing and drinking water, the emerging consensus is that an effort to identify a single indicator is likely not the best approach. Rather, the most effective approach is likely to be a “tiered” approach that would rely in the first instance on common water quality parameters such as total dissolved solids, chlorides, potassium and sodium. If these parameters are significantly elevated after well development activities have taken place, it would provide an indication that fracturing fluids and/or brines from the formation being fractured may have entered the aquifer and that additional investigation is warranted. One advantage of this approach is that these parameters can easily be tested by using well-accepted methods.

Following this approach, some states are already establishing baseline water quality testing programs that do not rely on an identification of chemicals expected to be used in a particular well. For example, Ohio requires an application to drill a new horizontal well to contain pre-drilling sampling of water wells within 1500 feet of the proposed well. Ohio Rev. Code § 1509.06(8)(c). The statute prescribes that sampling shall be conducted in accordance

with the Ohio Department of Natural Resources' guidance document on pre-drilling water sampling, which prescribes a three-tier sampling parameter system:

- Tier 1: Barium; Chloride; Magnesium; Potassium; Sodium; Strontium; Sulfate; Total dissolved solids; Specific Conductivity.
- Tier 2: Tier 1 sample parameters + Calcium; Hardness; Total Alkalinity; pH; Iron; Manganese; Total suspended solids; Bromide.
- Tier 3: Tier 1 and 2 sample parameters + BTEX (benzene, toluene, xylene, ethylbenzene); Methane (dissolved).

ODNR, *Recommendations for Water Well Sampling Before Oil & Gas Drilling* (Nov. 2012).

In addition, Colorado adopted a groundwater baseline sampling and monitoring rule in January 2013 that requires initial baseline and subsequent monitoring samples to be taken within a one-half mile radius of a proposed oil and gas well. 2 Colo. Code Regs. § 404-1-609. The Colorado rule prescribes certain compounds for which initial baseline tests and subsequent samples shall be analyzed, including:

total dissolved solids (TDS), dissolved gases (methane, ethane, propane), major anions (bromide, chloride, sulfate, and fluoride), major cations (potassium, sodium, magnesium, and calcium), alkalinity (total bicarbonate and carbonate as CaCO₃), BTEX compounds (benzene, toluene, ethylbenzene and xylenes), and TPH.

Id. § 404-1-609(e)(2)-(3). Most recently, the Wyoming Oil and Gas Conservation Commission is in the process of drafting a baseline testing rule that is based on Colorado's new rule.

These state programs demonstrate that pre-frac disclosure is not necessary for a state to implement requirements for baseline testing. In fact, Ohio and Colorado do not require pre-frac disclosure of the chemicals used in hydraulic fracturing operations at a particular well. Rather, the commonly accepted methods for baseline testing involve analyzing samples for general "indicator chemicals" instead of specific chemicals used in hydraulic fracturing operations.

The other principal rationale advanced for pre-frac disclosure is that it allows regulators to assess the risks posed by a proposed hydraulic fracturing operation and to take appropriate action prior to the hydraulic fracturing activity taking place. However, as demonstrated by the recent Gradient report (*National Human Health Risk Evaluation for Hydraulic Fracturing Fluid Additives*), the use of particular chemicals in hydraulic fracturing operations is not expected to pose a risk to human health. Nevertheless, regulators already can and do take steps to minimize any potential risks that might be associated with hydraulic fracturing activities. These measures are independent of the particular chemicals being used. For example, the most important step taken by regulators is to ensure well integrity. These measures – such as requiring evidence of the adequacy of the cementing of the well and pressure

testing the casing – do not depend at all on the chemical makeup of the fracturing fluid. Likewise, regulators can review measures that an operator proposes to use to prevent, respond to and mitigate the effects of any spills of hydraulic fracturing additives or flowback fluids. Again, these measures are entirely independent of the chemical makeup of the fracturing fluid.

In short, a list of the particular chemicals proposed to be used in hydraulically fracturing a well is not needed to accomplish the stated goals of those who advocate pre-frac disclosure. At the same time, a requirement to provide such a list to regulators and the public as part of a process for approving a proposed hydraulic fracturing activity has the potential to create confusion and frustration because of the potential for changes to be made to the proposed list of additives to be used. For example, if a homeowner were to pay for specific types of baseline water quality tests based on a list of proposed additives and chemical constituents, some aspects of the testing could be rendered worthless if the operator were to change the proposed mix of additives due to a change in service companies, new information regarding subsurface conditions at the well site or other factors; such changes can be made even after the hydraulic fracturing operation has already begun. Moreover, pre-frac reporting imposes burdens on operators and on regulators who must review the submitted information and devote resources to addressing any changes in the proposed makeup of the fracturing fluid, resources that could instead be devoted to oversight activities – such as those described above relating to well integrity and spill prevention – that result in more direct benefits with respect to environmental protection.

FracFocus

2. *False reporting: Under Federal law, making a false certification to the Federal government is a criminal offense. Are there any legal repercussions resulting from false certifications on the FracFocus site?*

FracFocus was established to provide a venue for voluntary disclosure of identities, quantities, and concentrations of chemicals used in hydraulic fracture stimulations. However, a growing number of states either require or allow the use of FracFocus in satisfying state reporting requirements regarding the content of fracturing fluids. Thirteen states – Colorado, Louisiana, Mississippi, Montana, North Dakota, Ohio, Oklahoma, Pennsylvania, South Dakota, Tennessee, Texas, Utah, and West Virginia – currently use FracFocus as either a required or optional part of their disclosure regulatory schemes.

Where FracFocus is used to satisfy state reporting requirements, state law provides sanctions for false certification of the accuracy of the information posted to the website. Examples of these legal repercussions include the following:

Louisiana - Hydraulic fracturing regulations, contained in Louisiana Administrative Code 43:XIX.118, require that operators report detailed information on hydraulic fracturing fluid composition and volumes to either the State's Office of Conservation or to a registry, like FracFocus, that will make the information available to the public free of charge. The Louisiana Office of Conservation's Well History and Work Resume Form (Form WH-1) requires that individuals certify that "all volumes, ingredients, and concentrations reported" are correct to the best of the certifier's knowledge. Entities may choose to report to FracFocus instead of the state. Those that elect to report through FracFocus must furnish a statement to the

state asserting that they have reported the required information to a free, publicly available registry.

Infractions of Louisiana's regulations "may result in shutting in and sealing of any drilling or producing well or wells, tank storage or lease or leases, involved in the infraction, and prohibition of acceptance of oil or gas from such well or lease for purchasing or transporting by agent"; alternatively, infractions may be punished by a fine of not more than \$5,000, imprisonment for not more than six months, or both.

West Virginia - Code of State Rules, Title 35, Series 8, Governing Horizontal Well Development, is set to go into effect on July 1, 2013. These rules require that operators or service providers must list detailed information about the additives used in hydraulic fracturing when they submit a Well Completion Report, called Form WR-35. Operators or service providers shall provide this detailed information to both the West Virginia Office of Oil and Gas and to FracFocus.

West Virginia's Horizontal Well Act establishes civil penalties of up to \$5,000 per day for violations of the regulations contained in Title 35, Series 8. It also provides that any person who "intentionally misrepresents any material fact in an application, record, report, plan or other document filed or required to be maintained" under the Horizontal Well Act or the regulations in Title 35, Section 8, shall be fined not less than \$1,000 and not more than \$10,000.

3. *Identity of Chemicals: I have also heard complaints that it is difficult to determine what chemicals are used in fracking, even when disclosure is made on FracFocus. I am told that this is the case because there is no standardized way of reporting the chemicals. Would it make sense to require the use of Chemical Abstract Service (CAS) numbers for the chemicals, as the proposed BLM regulation does?*

The FracFocus form already calls for the reporting of Chemical Abstracts Service numbers and this information is routinely included in FracFocus reports.