EPA Industry Representatives Webinar on Hydraulic Fracturing Using Diesel Fuels
Wednesday, May 11, 2011

Meeting Summary

Webinar Purpose

The purpose of the webinar was to engage in outreach with industry stakeholders on approaches that the Underground Injection Control program may use to develop guidance for permitting the use of diesel fuels in hydraulic fracturing for oil and natural gas extraction. Hydraulic fracturing using diesel fuels is considered a Class II injection activity.

EPA presented background on the Underground Injection Control program and an overview of the guidance approaches. The presentations were followed by a question and answer session in which stakeholders were invited to comment and proposed additional approaches to permitting hydraulic fracturing using diesel fuels. Questions posed by EPA to stakeholders included the following:

- What should be considered as "diesel fuels"?
- What are important siting considerations?
- What suggestions do you have for reviewing the area around the well to ensure there are no conduits for fluid migration?
- What should the permit duration be, considering the intermittent nature of hydraulic fracturing and Class II plugging and abandonment provisions?
- What well construction requirements should apply to hydraulic fracturing wells using diesel fuels?
- What well operation and mechanical integrity requirements should apply to hydraulic fracturing wells using diesel fuels?
- What well monitoring and reporting requirements should apply to hydraulic fracturing wells using diesel fuels?
- What information should be submitted with the permit application?
- What should the time frame be for submitting a Class II diesel fuels hydraulic fracturing permit?
- What are alternatives for authorizing/permitting Class II wells using diesel fuels for hydraulic fracturing?
- How do the Class II financial responsibility requirements apply to wells using diesel fuels for hydraulic fracturing?
- What public notification requirements or special environmental justice considerations should be considered for authorization of wells using diesel fuels for hydraulic fracturing?

Introductory Presentations

Bruce Kobelski (Acting Chief, Drinking Water Protection Division – Prevention Branch, EPA) presented basic information on EPA's Underground Injection Control program, outlining the history and purpose of the program. Under the Safe Drinking Water Act, the Underground Injection Control program is mandated to prevent the contamination of underground sources of

drinking water through migration from injection wells. The presenter described the six well classes, including the new Class VI for geologic sequestration of carbon dioxide. The technical requirements of the Underground Injection Control program fall into several broad categories, including site characterization, area of review, well construction, operation and monitoring, mechanical integrity testing, and well plugging and closure. All injection must be authorized by a permitting agency. Forty states and two tribes have primary enforcement responsibility (primacy) for all or some Underground Injection Control well classes, while other programs are under direct implementation by EPA.

Ann Codrington (Acting Director, Drinking Water Protection Division, EPA) outlined EPA's mandate to create a permitting guidance for hydraulic fracturing using diesel fuels. While most hydraulic fracturing activities are excluded from the Safe Drinking Water Act under the Energy Policy Act of 2005, hydraulic fracturing using diesel fuels is not and is subject to Safe Drinking Water Act requirements. The guidance aims to clarify existing Underground Injection Control Class II regulations, providing recommendations for permit writers so that permitting of hydraulic fracturing activities using diesel fuels provides the required protection of Underground Sources of Drinking Water.

Webinar Discussion Summary

> *The statements made during this discussion do not represent the views or opinions of EPA. The claims made by participants have not been verified or endorsed by EPA.*

<u>What should be considered as "diesel fuels"?</u>

- Industry participants suggested several possible approaches for defining diesel fuels for the purposes of the guidance:
    1. Define diesel fuels according to Chemical Abstracts Service numbers. Participants clarified that they obtain diesel fuel from a variety of sources, including gas stations and bulk terminal stations.
    2. Define diesel fuels according to 40 CFR 80 as "any fuel sold in any state or territory of the U.S. and suitable for use in diesel engines, and that is a distillate known as No. 1 or No. 2, a non-distillate fuel with comparably chemical and physical properties (bio diesel), or a mixture of fuels meeting the requirements of the above paragraphs."
    3. Require a permit only if diesel is used as the carrier fluid or the major constituent of the fracture fluid. A participant suggested that a fracture fluid containing 1% diesel fuel by volume should require a permit. Participants suggested that permitting should not be required for diesel fuels used as constituents of additives.
- EPA clarified that the definition of "diesel fuels" used in the guidance will be ultimately determined by the intent of the statute. EPA is collecting input from a variety of stakeholders and EPA will develop the final definition following this process.

<u>What well construction requirements should apply to hydraulic fracturing using diesel fuels?</u>

- A participant suggested consulting existing state requirements for production wells. The participant suggested that there is no need for additional requirements.
- A participant stated that most states require cementing below the lowermost Underground Source of Drinking Water.
- Some participants encouraged EPA to ask states and EPA regional offices about their current experience with determining the base of the lowermost Underground Source of Drinking Water.
- Some participants noted that well design and construction do not differ between wells that will be hydraulically fractured and those that will not.
- A participant noted that during construction of a well, operators often have not yet determined which service company will fracture the well and therefore do not know what constituents will be used in the fracture fluid.

<u>What well operation and mechanical integrity requirements should apply to hydraulic fracturing wells using diesel fuels?</u>

- A participant suggested that some of the potential approaches on the discussion question slide do not apply to hydraulic fracturing using diesel fuels, including requirements for no significant leak in the casing, tubing, or packer, testing at least once every five years, and using blowout preventers. The participant suggested that, instead, service companies should conduct a pressure test before each hydraulic fracturing event.

<u>What monitoring and reporting requirements should apply to wells that are hydraulically fractured using diesel fuels?</u>

- A participant suggested that microseismic monitoring could be used to monitor fracture propagation during a fracture job.
- A participant emphasized that EPA should consider existing reporting and monitoring requirements as well as what is already done by operators. The short-term nature of hydraulic fracturing should be considered in light of existing requirements and practices.
- A participant noted that injection pressure, flow rate, and cumulative volume are items already monitored by operators and a monthly reporting frequency seems appropriate.
- A participant suggested that monitoring, reporting, and baseline sampling be limited to diesel fuels and not take into account other potential parameters.
- Participants discussed the possibility of using monitoring wells in the same field to monitor wells that undergo hydraulic fracturing. The participants did not provide any specific recommendations.

<u>What are important siting considerations?</u>

- Participants did not provide any recommendations for this topic.

<u>What suggestions do you have for reviewing the area around the well to ensure there are no conduits for fluid migration?</u>

- A participant emphasized that EPA should consider existing state siting requirements and noted that a key element of siting and well construction is ensuring the isolation of Underground Sources of Drinking Water from production zones.

What should the permit duration be, considering the intermittent nature of hydraulic fracturing and Class II plugging and abandonment provisions?

- A participant suggested that permits be issued for the duration of the fracturing activity.
- A participant noted that EPA will need to define what constitutes the hydraulic fracturing process. The participant noted that wells will require the injection of fluids throughout their operating lives, and much of this may not be considered hydraulic fracturing. However, the participant noted that diesel could be used in other injection activities and would fall outside the scope of the guidance.

What information should be submitted with the permit application?

- Some participants emphasized the importance of integration with current state Application for Permit to Drill requirements.
- A participant emphasized that operators know the composition of the fracture fluid at the time of injection, but they generally do not have this information during well construction.
- A participant suggested that baseline sampling for diesel fuel may not be appropriate due to the short-term nature of fracturing events and the small volumes of diesel that may be involved (assuming that diesel is used as an additive component rather than the carrier fluid).

What should the time frame be for submitting a Class II permit for hydraulic fracturing using diesel fuels?

- A participant noted that Colorado has a 30-day time frame for Applications for Permits to Drill and suggested that this would be appropriate for hydraulic fracturing using diesel fuels as well.
- A participant suggested that more input from EPA on the time to approve permits and the information required by permits would be useful in determining the time-frame for submission of Class II permits for hydraulic fracturing using diesel fuels.

How do the Class II financial responsibility requirements apply to wells using diesel fuels hydraulic fracturing?

- A participant expressed support for accepting oil and gas financial security demonstrations as outlined in the Underground Injection Control regulations.
- A participant suggested that existing state bonding requirements are sufficient for the short duration of fracture operations.

What public notification requirements or special environmental justice considerations should be considered for authorization of wells using diesel fuels for hydraulic fracturing?

- A participant suggested that existing state Application for Permit to Drill public notification requirements should be sufficient.
- A participant commented that environmental justice considerations are not appropriate given that oil and gas development depends on the location of geologic formations and operators have little flexibility in the location of their operations. Another participant noted that owners of mineral resources should be represented in any environmental justice discussion.

<u>What are alternatives for authorizing/permitting Class II wells using diesel fuels for hydraulic fracturing?</u>

- A participant suggested the use of area permits for injection wells that are similar in operation, use, and construction within a producing field.
- A participant noted that the regional general permits issued by the U.S. Army Corps of Engineers may be appropriate.
- A participant suggested the use of field rules that are broadly applicable within a field, such as those issued by the Railroad Commission of Texas.

Webinar Attendance

The webinar was attended by individuals representing EPA Headquarters and regional offices, oil and gas companies, consulting firms, law firms, and industry groups,. Organizations represented include the following:

American Gas Association (AGA)
ALL Consulting
America's Natural Gas Alliance
American Petroleum Institute (API)
Anadarko Petroleum Corporation
Andrews Kurth
Antea Group
Baker Botts, LLP
Bracewell & Giuliani, LLP
Chesapeake Energy Corporation
Chevron
Colorado Oil & Gas Association
ConocoPhillips, Inc.
Devon Energy
El Paso Corporation
Encana Oil & Gas, Inc.
Engineering Analytics, Inc.
EOG Resources, Inc.
EPA Headquarters, Washington, DC
EPA Region 3, Philadelphia, PA
EPA Region 5, Chicago, IL

EPA Region 7, Kansas City, MO
EPA Region 8, Denver, CO
Halliburton Energy Services, Inc.
International Association of Drilling Contractors (IADC)
Independent Petroleum Association of America (IPAA)
K.P. Kauffman Co., Inc.
McKenna, Long, & Aldridge
Newfield Exploration Company
Noble Energy, Inc.
QEP Energy Company
Quicksilver Resources, Inc.
SandRidge Energy
Schlumberger
Shell Upstream Americas
Southwestern Energy
Talisman
Tetra Tech, Inc.
United States Oil and Gas Association (USOGA)
West Slope Colorado Oil & Gas Association
Williams Production Company
XTO Energy