Hydraulic Fracturing: Chemical Disclosure and Groundwater Protection Priorities

September 26, 2011

Mike Nickolaus
Ground Water Protection Council
To promote the protection and conservation of ground water resources for all beneficial uses, recognizing ground water as a critical component of the ecosystem, and

To provide a forum for stakeholder communication and research in order to improve governments’ role in the protection and conservation of ground water
Hydraulic Fracturing and GWPC

• 1997 – GWPC submitted an amicus brief in the LEAF case
• 2000 – Passed a resolution calling on congress to clarify status of HF relative to SDWA
• 2000 – Passed a resolution calling for the banning of diesel fuel use in HF in coalbed methane zones that are also USDWs
• 1998 to 2009 Conducted surveys related to hydraulic fracturing regulation
• 2009 - Provided congressional testimony to House Environment and Natural Resources committee
• 2009 to 2011 – Held HF sessions at UIC Conferences, Annual Forums, NGWA Meeting and RBDMS Fall Training
• 2009 - Published 2 reports that included significant discussions of HF (Shale Gas Primer) and (State Regulations Designed to Protect Water Resources)
• 2010 - Submitted comment letter to EPA about the scope of its upcoming HF study
• 2011 – Working with states and EPA concerning diesel fuel use guidance
• 2011– Developing RBDMS HF Schema
• 2011 – Published a two state study of contamination incident investigations (categorized by oilfield practice) (September, 2011)
• 2011– Launched FracFocus Hydraulic Fracturing Chemical Disclosure Registry
Studies

- University of Texas (HF efficiency)
- Resources for the Future (Risk analysis)
- Massachusetts Institute of Technology (Water usage)
- U.S. Environmental Protection Agency, Science Advisory Board (Evaluation of contamination probabilities) Final 2014
- General Accounting Office (Status unknown)
Regulations

- USEPA and State Regulatory Actions
  - Diesel fuel use in HF (Guidance) September, 2011
    - Status
    - Legal questions
    - State implementation
  - State disclosure regulations
    - Pennsylvania, Montana, Wyoming, Texas, New Mexico, California, Colorado, West Virginia, Oklahoma, Arkansas, Louisiana…….
To provide factual information to the public about the process of hydraulic fracturing and the chemicals used in that process
**VS.**

**Mis-information**

A Colossal Fracking Mess
The dirty truth behind the new natural gas. Related: A V.F. video look at a town transformed by fracking.

By Christopher Bateman • Photographs by Jacques del Conte
WEB EXCLUSIVE June 21, 2010

**Information**

State Oil and Natural Gas Regulations Designed to Protect Water Resources

Modern Shale Gas Development in the United States: A Primer

April 2009
The best way to counter misinformation:

 PROVIDE TRANSPARENCY!

○ THIS TAKES AWAY FEAR OF THE UNKNOWN! AND

○ EMPOWERS PEOPLE!
Welcome to FracFocus, the hydraulic fracturing chemical registry website. This website is a joint project of the Ground Water Protection Council and the Interstate Oil and Gas Compact Commission.

On this site you can search for information about the chemicals used in the hydraulic fracturing of oil and gas wells. You will also find educational materials designed to help you put this information in perspective.

Looking for information about a well site near you?

Search for nearby well sites that have been hydraulically fractured to see what chemicals were used in the process.

FAQs

Q. I know there are wells in my area that have been fractured, but when I search for them I get no results. Why?

A. The most likely reasons are that either the wells were fractured before January 1, 2011 or they have not yet been entered into the system. Only wells fractured after January 1st will be entered into the system and since the uploading of records began only recently it will take some time before a large number of wells is available. Please keep checking back as wells are added on a daily basis.

Groundwater Protection: Priority Number One

Oil and natural gas producers have stringent requirements for how wells must be completed. The genesis of these requirements is water safety. Casing is the first line of defense used to protect freshwater aquifers.
These elements describe the fracturing process, the methods used to protect groundwater, why chemicals are used and which chemicals are used. To find information about the state regulatory agencies and their regulations. We also provide answers to frequently asked questions and provide a means for the public to pose questions about hydraulic fracturing. The site also allows a person to see the hydraulic fracturing records of individual wells.
Select a combination of criteria from the listed fields and click on the search button.
If the search produces results they will be presented as a list from which you can choose a record to view. Click on the pdf logo to see the record.

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<th>API No.</th>
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<th>State</th>
<th>County</th>
<th>Operator</th>
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<th>Well Type</th>
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# Hydraulic Fracturing Fluid Product Component Information Disclosure

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<th>Fracture Date</th>
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<td>County</td>
<td>ADAMS</td>
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<tr>
<td>API Number</td>
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<tr>
<td>Operator Name</td>
<td></td>
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<td>Well Name and Number</td>
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<tr>
<td>Latitude</td>
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<td>Production Type</td>
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<td>True Vertical Depth (TVD)</td>
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<td>Total Water Volume (gal)**</td>
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## Hydraulic Fracturing Fluid Composition:

<table>
<thead>
<tr>
<th>Trade Name</th>
<th>Supplier</th>
<th>Purpose</th>
<th>Ingredients</th>
<th>Chemical Abstract Service Number (CAS #)</th>
<th>Maximum Ingredient Concentration in Additive (% by mass)**</th>
<th>Maximum Ingredient Concentration in HF Fluid (% by mass)**</th>
<th>Comments</th>
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<tbody>
<tr>
<td>Claytreat-4390</td>
<td>BJ Services</td>
<td>Clay Stabilization</td>
<td>No MSDS Ingredients</td>
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<td>100.00%</td>
<td>0.09371%</td>
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<tr>
<td>Frac-cide 1000</td>
<td>BJ Services</td>
<td>Bacteriocide</td>
<td>2,2-dibromo-3-nitropropionamide</td>
<td>010222-01-2</td>
<td>100.00%</td>
<td>0.02185%</td>
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<tr>
<td>FR-66</td>
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<td>Cationic Friction Reducer</td>
<td>Hydrotreated light distillate</td>
<td>64742-47-8</td>
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<td>0.01600%</td>
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<tr>
<td>GASPERM 1100</td>
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<td>Surfactant</td>
<td>Citrus extract</td>
<td>94266-47-4</td>
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<td>Sand (Proppant)</td>
<td>Halliburton</td>
<td>Propping Agent</td>
<td>Crystalline silica (Quartz)</td>
<td>14808-60-7</td>
<td>99.90%</td>
<td>7.83741%</td>
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<td>Resin Coated Sand</td>
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<td>Propping Agent</td>
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<td>Water</td>
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</table>

* Total Water Volume sources may include fresh water, produced water, and/or recycled water
** Information is based on the maximum potential for concentration and thus the total may be over 100%

All component information listed was obtained from the supplier’s Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational Safety and Health Administration’s (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects “proprietary”, “trade secret”, and “confidential business information” and the criteria for how this information is reported on an MSDS is subject to 29 CFR 1910.1200(i) and Appendix D.
Montana (Rule final)
Louisiana (Rule pending)
Texas (By statute, rule pending)
New Mexico (Proposed rule)
Under consideration
  ◦ Colorado
  ◦ Oklahoma
  ◦ West Virginia
  ◦ Others?
Since April 11, 2011 FracFocus has:

- Acquired 60 Participating companies
- Had over 4,400 hydraulic fracturing records loaded; and
- Been visited by more than 55,000 people from 120 countries

The future of FracFocus:

- Easier search and record access capability
- Operator tools to facilitate easier record uploads
- Administrative tools to help operators manage their records
- Communication with state database systems
Groundwater Contamination: Where are the real risks?

- **Hydraulic fracturing**— Occurrences and risk factors likely *very low* and localized.

- **Septic systems**— Occurrences and risk factors likely *high* and localized but also cumulative.

- **Storm water**— Occurrences and risk factors likely *high* and widespread.

- **Pesticides and nutrients**— Occurrences and risk factors likely *very high* and widespread.
The time we spend on this-------------

IS

Time we can’t spend on these----