HYDRAULIC FRACTURING

Chemical Disclosure

- GWPC/IOGCC FracFocus
- Voluntary
- Chemicals listed on MSDS
- Roll-out April 2011
  - Over 3,719 – most Texas wells
    - 30% of wells nationally
    - 50% of wells in Texas
  - 57 participating companies
  - 47 reporting companies
  - Over 68,000 site visits
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.

**Is groundwater protected?**

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.

**Groundwater Protection: Priority Number One**

Q. How much water is used in hydraulic fracturing?

A. This varies from well to well and depends upon the well configuration (vertical or horizontal), the number of stages fractured, and the specific characteristics of the formation being fractured. In vertical wells with a single fractured stage it is not uncommon to use less than 50,000 gallons of water during a fracture job, while a multi interval fracture job in a horizontal well can use several million gallons of water. Read more...
Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date: 2/20/2011
State: TEXAS
County: WEBB
API Number: 4247940980
Operator Name: CHESAPEAKE
Well Name and Number: PGE DOS 6H
Longitude: -99.65956
Latitude: 28.07671
Long/Lat Projection: NAD27
Production Type: Gas
True Vertical Depth (TVD): 8,111
Total Water Volume (gal)": 4,019,736

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>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh Water</td>
<td>Carrier/Base Fluid</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sand (Proppant)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCL 10.1-15</td>
<td>BJ SERVICES COMPANY USA A</td>
<td>Acid</td>
<td>Hydrochloric Acid</td>
<td>007647-01-0</td>
<td>15.00%</td>
<td>0.19999%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FERROTROL 280L</td>
<td>BJ SERVICES COMPANY USA A</td>
<td>Iron Control Agent</td>
<td>Cupric Chloride Dihydrate (Copper II Chloride Dihydrate)</td>
<td>010125-13-0</td>
<td>100.00%</td>
<td>0.00704%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cl-27</td>
<td>BJ SERVICES COMPANY USA A</td>
<td>Corrosion Inhibitor</td>
<td>Methanol (Methyl Alcohol)</td>
<td>0000067-56-1</td>
<td>60.00%</td>
<td>0.00267%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ethoxylated Alcohols* C14-15</td>
<td>068951-67-7</td>
<td>30.00%</td>
<td>0.00133%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Modified Thiourea Polymer</td>
<td>068927-45-1</td>
<td>30.00%</td>
<td>0.00133%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Tall Oil Fatty Acids</td>
<td>061790-12-3</td>
<td>30.00%</td>
<td>0.00133%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Propargyl Alcohol (2-Propynol)</td>
<td>000107-19-7</td>
<td>10.00%</td>
<td>0.00044%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Alkenes* C&gt;10 alpha-</td>
<td>064743-02-8</td>
<td>5.00%</td>
<td>0.00022%</td>
<td></td>
</tr>
<tr>
<td>G/W.4LF</td>
<td>BJ SERVICES COMPANY USA A</td>
<td>Gelling Agent</td>
<td>Petroleum Distillate Blend</td>
<td>N/A</td>
<td>70.00%</td>
<td>0.24724%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Guar Gum</td>
<td>000600-30-0</td>
<td>40.00%</td>
<td>0.14128%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sodium Acetate</td>
<td>000127-09-3</td>
<td>5.00%</td>
<td>0.01766%</td>
<td></td>
</tr>
<tr>
<td>ClayCare</td>
<td>BJ SERVICES COMPANY USA A</td>
<td>Clay Stabilizer</td>
<td>Choline Chloride</td>
<td>000067-48-1</td>
<td>75.00%</td>
<td>0.06175%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Water</td>
<td>007732-16-5</td>
<td>30.00%</td>
<td>0.02470%</td>
<td></td>
</tr>
</tbody>
</table>
HYDRAULIC FRACTURING

FracFocus Users in Texas

Anadarko Petroleum Corporation
BP America Production Company
Chesapeake Operating, Inc.
Conoco Phillips Company, LP
El Paso E&P Company
EnerVest, Ltd
EXCO Resources, Inc.
HighMount E&P Texas LLC
Occidental Oil & Gas
Petrohawk Energy Corporation
Plains Exploration and Prod. Co.
Rosetta Resources
SM Energy
Talisman Energy USA Inc.
XTO Energy/ExxonMobil

Apache Corporation
Cabot Oil & Gas Corporation
Chevron U.S.A. Inc.
Devon Energy Production, Co.
Energen Resources Corp.
EOG Resources, Inc.
Forest Oil Corporation
Newfield Exploration Company
Penn Virginia Oil & Gas Corp.
Pioneer Natural Resources USA
Range Resources Corporation
Shell Exploration & Production Co.
Williams
HYDRAULIC FRACTURING

Chemical Disclosure – HB 3328

❖ RRC rules by July 2012:
  ❖ Must require:
    ❖ Use of FracFocus
    ❖ Service companies to supply information
  ❖ Trade secret challenge limited to:
    ❖ Landowner and adjacent landowner
    ❖ State agency with appropriate jurisdiction
  ❖ Information to emergency responder, health professional

❖ RRC rules by July 2013:
  ❖ Supplemental list of chemicals, but no concentrations
Hydraulic Fracturing

Proposed New Rule 16 Tex. Adm. Code §3.29
(Statewide Rule 29):

Aug. 29, 2011 Conference to propose
Sept. 9, 2011 Texas Register
Oct. 5, 2011 Public Hearing
Oct. 11, 2011 End Comment Period
Nov. 2011 Conference to adopt
Dec. 2011 Effective
HYDRAULIC FRACTURING

- SWR 29
  - Definitions
  - Applicability
  - Required disclosures
  - Disclosures not required
  - Trade Secret protection
  - Trade Secret challenge
  - Trade Secret confidentiality
  - Penalties
HYDRAULIC FRACTURING

• SWR 29
  – Definitions
    • Additive
    • Base fluid
    • Health professional or emergency responder
    • Hydraulic fracturing fluid
    • Hydraulic fracturing treatment
    • Trade secret
    • Others
HYDRAULIC FRACTURING

• SWR 29 - Definition of Trade Secret:

Any formula, pattern, device, or compilation of information that is used in a person's business, and that gives the person an opportunity to obtain an advantage over competitors who do not know or use it; and requires a factual showing to the Office of the Attorney General, Open Records Division, that the information meets the following factors, in accordance with the definition of "trade secret" in the Restatement of Torts, Comment B to Section 757 (1939), as adopted by the Texas Supreme Court in *Hyde Corp. v. Huffines*, 314 S.W.2d 763, 776 (Tex. 1958):

(A) the extent to which the information is known outside of the company;
(B) the extent to which it is known by employees and others involved in the company's business;
(C) the extent of measures taken by the company to guard the secrecy of the information;
(D) the value of the information to the company and its competitors;
(E) the amount of effort or money expended by the company in developing the information; and
(F) the ease or difficulty with which the information could be properly acquired or duplicated by others.
HYDRAULIC FRACTURING

• SWR 29
  – Applicability
    – HF treatment performed on a well for which RRC has issued the initial drilling permit on or after the effective date
HYDRAULIC FRACTURING

• SWR 29
  – Required disclosures
    • Supplier and service company
      – Service company
      – Operator
    • Operator
      – Commission
      – Health professionals and emergency responders
  • Chemical disclosure to RRC
    – Chemical Disclosure Registry (FracFocus)
    – Supplemental list of other chemical ingredients
HYDRAULIC FRACTURING

• SWR 29
  – Disclosures not required
    • Ingredients not intentionally added
    • Ingredients not disclosed by manufacturer, supplier, service company
    • Ingredients that occur naturally or are otherwise unintentionally present
    • Specific ingredients eligible for trade secret protection
HYDRAULIC FRACTURING

• SWR 29
  – Trade Secret protection
  – Trade Secret challenge
    • Eligibility to challenge claim of Trade Secret protection
    • Procedure for challenge
      – Challenger
      – Owner of trade secret
      – RRC
  – Trade Secret confidentiality
  – Penalties
HYDRAULIC FRACTURING

• ISSUES
  – “Full” disclosure
  – OSHA v EPCRA Trade Secret Standards
  – Federal v State Public Information/Trade Secret laws
    • Definition of trade secret
    • Eligibility to challenge claim of Trade Secret protection
  – RRC procedures v OAG procedures
Leslie Savage, P.G.
Chief Geologist
Oil & Gas Division
Railroad Commission of Texas

Leslie.savage@rrc.state.tx.us

It isn’t what we don’t know that gives us trouble,
It’s what we know – that ain’t so.

Will Rogers