Thank you to Linda Spry O’Rourke (COGCC) and Andrew Casper (COGA) for providing most of the presentation slides
HYDRAULIC FRACTURING: DEFINITION

- The use of fluids to create a crack by hydraulic pressure
- The continued injection of fluids into the created crack fracture to make it grow larger
- The placement of small granular solids into the crack to ensure the crack remains open after the hydraulic pressure is no longer applied
WHY HYDRAULICALLY FRACTURE A WELL?

- Increase the **Rate** at which the well is capable of producing oil or gas
- Most unconventional formations **Require** hydraulic fracturing to be economic
BACKGROUND FOR DISCLOSURE RULE

- Nearly every well in Colorado is hydraulically fractured (HF)
- COGCC regulates HF
- Public concern with fluids used in process
- National trend is public disclosure
- Summer 2011: Governor Hickenlooper announced support of state disclosure rule
CHEMICAL DISCLOSURE RULE PROCESS

- COGCC Stakeholder Meetings
- Parties to Rulemaking:
  + Industry
  + Environmental Community
  + Local Government Interests/Water Utilities
- Dec. 5, 2011 Hearing
- Dec. 13, 2011 Compromise and Final Rule Adoption
CHEMICAL DISCLOSURE RULE PROCESS

- Was a consensus rulemaking
- ***In 2011, many GarCo operators began voluntarily disclosing their hazardous fracturing chemicals using the www.FracFocus.org website.
HIGHLIGHTS OF RULE CHANGES:

- Improved Access to Records
- Public Disclosure of Hydraulic Fracturing Chemicals
  - New Form 41 for trade secret information
- Required Notice of Intent to Conduct Hydraulic Fracturing Treatment
  - New Form 42 for public notification
HIGHLIGHTS OF RULE CHANGES:

- Applies to all hydraulic fracturing treatments on or after April 1, 2012.
- Requires public disclosure of HF chemicals using FracFocus.org (60 days)
- Appropriate Trade Secret Protection
- 48 hour advance notice from Operator to the Commission is required of intention to hydraulically fracture a well.
HIGHLIGHTS OF RULE CHANGES

- Information reported (well-by-well basis)
  - Volume of water used
  - Chemicals and concentrations (may be reported in a format that does not link chemical ingredients to respective additive)

- Trade Secrets
  - Family name still required
  - Structure of the disclosure requirement may minimize number of trade secret claims
HYDRAULIC FRACTURING FLUIDS

Composition of Frac Fluid

- Water 90.60%
- Proppant 8.96%
- Other 0.45%

Components:
- Acid 0.11%
- Breaker 0.01%
- Bactericide/Biocide 0.001%
- Clay Stabilizer/Controller 0.05%
- Corrosion Inhibitor 0.001%
- Crosslinker 0.01%
- Friction Reducer 0.08%
- Gelling Agent 0.05%
- Iron Control 0.003%
- Scale Inhibitor 0.04%
- Surfactant 0.08%
- pH Adjusting Agent 0.01%

From: Gas Research Institute
HYDRAULIC FRACTURING FLUIDS

- Depending on the fluid system being pumped various additives are used:
  - Polymers
  - Crosslinkers
  - pH Control
  - Gel Breakers
  - Surfactants
  - Clay Control
  - Bacteria Control
  - Fluid Loss Additives

- Additives are transported in concentrated form
- Typically injected at less than 3 gallons per 1,000 gal of water (0.3%)
- All additive injection rates are controlled.
- The purpose of any additive is to help improve the overall process
INDUSTRY GOALS FOR CHEMICAL DISCLOSURE

- Implementation of public disclosure rule which is effective to alleviate public concern
- Appropriate level of disclosure, balancing the public interest with burden to industry
- Provide the necessary information in the proper context for risk management
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?

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.

FAQs

Q. Where does the water for hydraulic fracturing come from?

A. Although the source of water for fracturing can come from surface water, ground water or both, the volumes of water needed for fracturing horizontal shale gas wells necessitate that, with some notable exceptions like the Barnett shale in Texas, surface water provide the bulk of the water used in most areas of the country. Water can be taken from streams, ponds or artificial reservoirs, or can be purchased from water providers such as a municipality. In some cases, recycled water from prior hydraulic fracturing operations can be used.
FRACTOCUS.ORG WELL SEARCH
LOCATE WELLS WITH MAP
## Hydraulic Fracturing Fluid Product Component Information Disclosure

<table>
<thead>
<tr>
<th>Fracture Date</th>
<th>5/9/2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>State</td>
<td>Colorado</td>
</tr>
<tr>
<td>County</td>
<td>Garfield</td>
</tr>
<tr>
<td>API Number</td>
<td>05-045-16289</td>
</tr>
<tr>
<td>Operator Name</td>
<td>Chevron USA Inc.</td>
</tr>
<tr>
<td>Well Name and Number</td>
<td>SKR 598-36-AV-01</td>
</tr>
<tr>
<td>Longitude</td>
<td>-108.34021</td>
</tr>
<tr>
<td>Latitude</td>
<td>39.5725861111111</td>
</tr>
<tr>
<td>Long/Lat Projection</td>
<td>NAD83</td>
</tr>
<tr>
<td>Production Type</td>
<td>Gas</td>
</tr>
<tr>
<td>True Vertical Depth (TVD)</td>
<td>6,318</td>
</tr>
<tr>
<td>Total Water Volume (gal)*</td>
<td>1,566,037</td>
</tr>
</tbody>
</table>
## 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>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>Chevron</td>
<td>Base Fluid</td>
<td>Crystalline silica, quartz</td>
<td>14808-60-7</td>
<td>100.00%</td>
<td>92.63980%</td>
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<tr>
<td>Sand-Premium White-30/50</td>
<td>Halliburton</td>
<td>Proppant</td>
<td>Hydrotreated light petroleum distillate</td>
<td>64742-47-8</td>
<td>30.00%</td>
<td>0.00625%</td>
</tr>
<tr>
<td>FR-66</td>
<td>Halliburton</td>
<td>Friction Reducer</td>
<td>Potassium hydroxide</td>
<td>1310-58-3</td>
<td>5.00%</td>
<td>0.00104%</td>
</tr>
<tr>
<td>BE-7</td>
<td>Halliburton</td>
<td>Biocide</td>
<td>Sodium hypochlorite</td>
<td>7681-52-9</td>
<td>30.00%</td>
<td>0.02696%</td>
</tr>
<tr>
<td>SANDWEDGE WF</td>
<td>Halliburton</td>
<td>Conductivity Enhancer</td>
<td>Sodium hydroxide</td>
<td>1310-73-2</td>
<td>2.00%</td>
<td>0.00180%</td>
</tr>
<tr>
<td>RE8234SCW</td>
<td>Baker Petrolite</td>
<td>Scale Inhibitor</td>
<td>Heavy aromatic petroleum naphtha</td>
<td>64742-94-5</td>
<td>10.00%</td>
<td>0.00526%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Amine phosphonate salt</td>
<td>Trade Secret</td>
<td>30.00%</td>
<td>0.00456%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ethylene Glycol</td>
<td>107-21-1</td>
<td>30.00%</td>
<td>0.00456%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Methanol</td>
<td>67-56-1</td>
<td>30.00%</td>
<td>0.00456%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Modified Amine</td>
<td>Trade Secret</td>
<td>10.00%</td>
<td>0.00152%</td>
</tr>
</tbody>
</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 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 on an MSDS is subject to 29 CFR 1910.1200(i) and Appendix D.
The rule intends for the FracFocus website to be searchable by chemical ingredient, chemical abstract service number and time period by January 1, 2013 (Note: the site is already searchable by well, by county and by operator).

If the site is not searchable by those additional parameters by 2013, the COGCC will begin making the information available and searchable on its own site, as soon as practicable.
If a vendor, service provider or operator claim a chemical and/or its concentration as a trade secret, a form (Form 41) must be submitted to the director of the Oil and Gas Conservation Commission.

Trade Secret provisions allow any person who believes a trade secret has been inappropriately claimed to seek redress through the COGCC initially and then through the courts, if needed.
Form 41 must include contact information for a representative should further information be promptly needed regarding the composition of the trade secret chemical claimed.

Form 41 must be updated immediately if contact information changes.

By signing the Form 41 document, the signer is legally attesting to the legitimacy of the trade secret claim.

Trade secret information must be provided promptly to the COGCC director and health professionals upon request.
TRADE SECRET CLAIM OF ENTITLEMENT

If a chemical used in the hydraulic fracturing treatment of a well is entitled to trade secret protection, the operator must still provide information on its chemical family to FracFocus. The supplier, service company or operator, as applicable, must also provide the identity of a trade secret chemical to a health professional that satisfies certain conditions (immediate disclosure is required in medical emergencies). At the time of claiming that a chemical, concentration, or both is a trade secret, the vendor, service company or operator must file a Form 41 with the Commission to provide accurate contact information. If the contact information changes for the party maintaining trade secret protection they must immediately submit a new Form 41 with the current information.

<table>
<thead>
<tr>
<th>Entity Asserting Trade Secret Claim</th>
</tr>
</thead>
<tbody>
<tr>
<td>OGCC Operator Number:</td>
</tr>
<tr>
<td>Company Name:</td>
</tr>
<tr>
<td>Address:</td>
</tr>
<tr>
<td>City:</td>
</tr>
<tr>
<td>State:</td>
</tr>
<tr>
<td>Zip:</td>
</tr>
<tr>
<td>Contact Person:</td>
</tr>
<tr>
<td>Phone:</td>
</tr>
<tr>
<td>Fax:</td>
</tr>
<tr>
<td>Email:</td>
</tr>
</tbody>
</table>

Classification of Entity Asserting Trade Secret Claim

- Operator
- Vendor
- Service Provider
- Other - Specify in detail: 

Claim of Entitlement to Trade Secret Protection

Rule 205A requires disclosure of all chemicals intentionally added to base fluid as part of a hydraulic fracturing treatment, as well as the maximum concentrations and (if applicable) CAS numbers for those chemicals, except in those limited situations where the specific identity or concentration of a chemical are permitted to be withheld as a trade secret. For purposes of Rule 205A, the term “trade secret” is defined in the COGCC Series 100 Definitions (Nov. 2011 version).

The Entity identified above claims that the

- [ ] identity or
- [ ] maximum concentration, or
- [ ] both, of the following chemical qualifies as a trade secret: 
You may use a descriptive label, such as “Company TS1,” for a chemical identifier in lieu of identifying the chemical. This chemical identifier may be used to reference the chemical in subsequent disclosures filed with the Chemical Disclosure Registry.

In order to claim that information is entitled to protection as a trade secret, you must check all the affirmations below and submit specific information regarding each of the following (can be attached on separate pages).

☐ 1. The entity holding the trade secret information has not disclosed the information to any other person, other than a member of a local emergency planning committee, an officer or employee of the United States or a state or local government, an employee of such person, or a person who is bound by a confidentiality agreement, and such person has taken reasonable measures to protect the confidentiality of such information and intends to continue to take such measures, or disclosure has otherwise been limited such that the information is not readily available to competitors.

☐ 2. The information is not required to be disclosed, or otherwise made available, to the public under any other Federal or State law.

☐ 3. Disclosure of the information is likely to cause harm to the competitive position of the entity holding the trade secret information.

☐ 4. The information is not readily discoverable through reverse engineering.

This form must be signed by an authorized agent of the entity making assertion.

I certify under penalty of perjury that this report has been examined by me and to the best of my knowledge is true, correct and complete.

Print Name: ___________________________  Email: ___________________________
Signature: ___________________________  Date: ___________________________

Signature block certifying trade secret status
COGCC HANDLING OF TRADE SECRET CLAIMS

- COGCC does not verify if something is a trade secret unless an issue is raised by an affected party.
- COGCC verifies that information has been provided.
- If there is a complaint, COGCC can investigate or the courts could investigate.
- Certification on form 41 allows policing of trade secret claims and legal challenges.
NOTICE OF HYDRAULIC FRACTURING TREATMENT – 48-hour notice required

**Date of Treatment:** 03/26/2012  
**Time:** 08:00 (HH:MM)

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**NOTICE OF NOTIFICATION**

**Entity Information**

<table>
<thead>
<tr>
<th>OGCC Operator Number:</th>
<th>16700</th>
<th>Contact Person:</th>
<th>Julie Justus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company Name:</td>
<td>CHEVRON USA INC</td>
<td>Phone:</td>
<td>#Error</td>
</tr>
<tr>
<td>Address:</td>
<td>6001 BOLLINGER CANYON RD</td>
<td>Fax:</td>
<td>#Error</td>
</tr>
<tr>
<td>City:</td>
<td>SAN RAMON</td>
<td>State:</td>
<td>CA</td>
</tr>
<tr>
<td>Location ID:</td>
<td></td>
<td>API #:</td>
<td>05 - 045 - 17282</td>
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<tr>
<td>Sec:</td>
<td>9</td>
<td>T.p.:</td>
<td>05</td>
</tr>
</tbody>
</table>

---

**I certify under penalty of perjury that this report has been examined by me and to the best of my knowledge is true, correct and complete.**

**Print Name:** Julie Justus  
**Email:** ijustus@chevron.com

**Signature:** ___________________________  
**Title:** R.H & E Spec.  
**Date:** 03/22/2012
MORE INFORMATION ON FRACING AVAILABLE ON COGCC WEBSITE

PUBLIC ANNOUNCEMENTS

Hydraulic Fracturing Confidentiality Agreement Form 35 (02/06/2013)
Click on this link to see Notice of Hearing and associated documents.

Hydraulic Fracturing Disclosure Rulemaking
Click on this link to see Special Meeting Notice, First Prehearing Order, Draft Statement of Basis and Purpose, and Proposed Amendments.

LTD 32-09 and 32-09H comment period extended New
The comment period for the proposed Quicksilver Resources Ptlaw Partners, LTD 32-09 and 32-09H, well site in Routt County has been extended by request to 4/26/2012

Form 42 Now Available in eForm and PDF Format New
The Form 42, Notice of Notification (Notice of Hydraulic Fracturing) is now available in eform and in the Form section in a PDF format.

EForm Training for Industry Staff and LGD Staff (03/20/2012)
The CGGCC is presenting eform Training session in various locations around the state in the coming months. Please click on the link above to get more details on locations and dates.

HOT TOPICS

Setback Review Stakeholder Group (02/25/2013)
The CGGCC Setback Review Stakeholder Group documentation web pages

Governor’s Task Force for State and Local Govt (03/09/2013)
Task Force on Cooperative Strategies Governor’s Task Force Regarding State and Local Regulation of Oil and Gas Development

Oil and Gas Industry Spills and Releases (06/13/2013)
This memorandum explains how the CGGCC seeks to prevent spills and releases, and what regulatory actions that they are promptly, accurately, investigated, and remediated.

Hydraulic Fracturing Information (04/27/2011)
With the public’s interest in and concern about the potential impacts of fracking on public health and the environment, the COGCC has compiled information for the public’s review.

Garfield County
CONCLUSION

New Rules provide:

- New approach to chemical disclosure
- Balance of interests
- Transparency and accountability
- Increased public confidence