Part 2: Technical Considerations for Hydraulic Fracturing and Groundwater Protection

Introductory Description of Hydraulic Fracturing

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GWPC's January 2012 UIC Conference: **Introductory Description of Hydraulic Fracturing**

A. Introduction and Overview

B. HF Base Fluids

C. HF Proppants

D. HF Chemical Additives

E. HF Pumping

F. HF Flowback

G. Exam

H. Q&As

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What we pump into the hydrocarbon formation to stimulate it

How we pump and then recover this stimulation treatment
Introduction and Overview

1. Hydraulic Fracturing or “HF” (but please) not “fracking”!

   http://en.wikipedia.org/wiki/Frak_(expletive)

2. What is HF?

   http://www.hydraulicfracturing.com/Process/Pages/information.aspx

3. What is not HF?

   http://www.youtube.com/watch?v=hZ2jwqhNtCI
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**HF Base Fluids**

1. **Water**
   
   [http://www.hydraulicfracturing.com/Water-Usage/Pages/Information.aspx](http://www.hydraulicfracturing.com/Water-Usage/Pages/Information.aspx)

2. **Energized Fluids: N₂ and CO₂**
   

3. **Liquefied Petroleum Gas “LPG”**
   
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**HF Proppants**

1. Sand
   
   http://flexfracsand.com/

2. Resin Coated Sand “RCS”
   
   http://www.atlasresinproppants.com/

3. Ceramics
   
   http://www.carboceramics.com/

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20/40 Ottawa White Sand
HF Chemical Additives

1. Acids
2. Gels and Crosslinkers
3. Buffers
4. Gel Breakers
5. Friction Reducers
6. Surfactants
7. Iron Control
8. Corrosion Inhibitors
9. Biocides
10. Scale Inhibitors

http://fracfocus.org/chemical-use/what-chemicals-are-used


Green Chemistry?
HF Pumping

1. Equipment Spread and Logistics

2. Testing and Monitoring Pressures

3. Stage by Stage Isolation and Pumping

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HF Flowback

1. Plug drill-outs
2. Recovery of HF fluids
3. Initial hydrocarbon production
4. Hydrocarbons to sales
Exam

True / False: is this HF?

False  False  True

Q&As