

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	4/25/2012
State:	California
County/Parish	Kern County
API Number:	0403046408
Operator Name:	Occidental of Elk Hills, Inc.
Well Name and Number:	385A-31S
Longitude:	-119.430521
Latitude:	35.273073
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	5,420
Total Water Volume (gal)*:	95,521

Hydraulic Fracturing Fluid Composition

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
YF135 Flex	Schlumberger	Activator , Surfactant , Breaker, Gelling Agent, Crosslinker, Bactericide, Demulsifier, Propping Agent	Water (Including Mix Water Supplied by Client)*	-		74.79145%	
			Crystalline silica	14808-60-7	95.24796%	24.01063%	
			Phenolic resin	9003-35-4	1.94384%	0.49001%	
			Guar gum	9000-30-0	1.03843%	0.26177%	
			Propan-2-ol	67-63-0	0.51030%	0.12864%	
			Alcohol, C7-9-iso, C8, ethoxylated	78330-19-5	0.49702%	0.12529%	
			Potassium borate	1332-77-0	0.28503%	0.07185%	
			Methanol	67-56-1	0.14615%	0.03684%	

			Glycerol	56-81-5	0.09295%	0.02343%	
			Potassium hydroxide	1310-58-3	0.09294%	0.02343%	
			Decyl-dimethyl amine oxide	2605-79-0	0.07377%	0.01860%	
			Diammonium peroxidisulphate	7727-54-0	0.06960%	0.01754%	
			Alcohol, C9-11-iso, C10, ethoxylated	78330-20-8	0.02598%	0.00655%	
			Ethoxylated propoxylated 4-nonylphenol-formaldehyde resin	30846-35-6	0.01942%	0.00489%	
			Heavy aromatic naphtha	64742-94-5	0.01312%	0.00331%	
			Quaternary ammonium compounds chlorides derivatives	68989-00-4	0.01286%	0.00324%	
			Alcohol, C11-14, ethoxylated	78330-21-9	0.01286%	0.00324%	
			Vinylidene chloride/methylacrylate copolymer	25038-72-6	0.01167%	0.00294%	
			Non-crystalline silica	7631-86-9	0.00953%	0.00240%	
			Tetrakis(hydroxymethyl)phosphonium sulfate	55566-30-8	0.00670%	0.00169%	
			Poly(oxy-1,2-ethanediyl)	25322-68-3	0.00577%	0.00146%	
			Naphtalene (impurity)	91-20-3	0.00262%	0.00066%	
			Decyldimethyl amine (impurity)	1120-24-7	0.00118%	0.00030%	
			Hydrogen peroxide (impurity)	7722-84-1	0.00071%	0.00018%	
			Magnesium silicate hydrate (talc)	14807-96-6	0.00061%	0.00015%	

<p>* Total Water Volume sources may include fresh water, produced water, and/or recycled water</p> <p>** Information is based on the maximum potential for concentration and thus the total may be over 100%</p> <p>Report ID: RPT-4168 (Generated on 6/5/2012 2:10 PM)</p> <p>Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)</p>							