

## Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	4/12/2012
State:	California
County/Parish	Kern County
API Number:	0403007172
Operator Name:	Occidental of Elk Hills, Inc.
Well Name and Number:	388AH-26R
Longitude:	-119.46628
Latitude:	35.283142
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	2,770
Total Water Volume (gal)*:	264,063

### 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
YF120ST	Schlumberger	Activator , Surfactant , Breaker, Crosslinker, Gelling Agent, Clay Control Agent, Bactericide, Demulsifier, Propping Agent	Water (Including Mix Water Supplied by Client)*	-		76.16234%	
			Crystalline silica	14808-60-7	98.14334%	23.39507%	
			Guar gum	9000-30-0	0.61696%	0.14707%	
			1, 2, 3 - Propanetriol	56-81-5	0.20564%	0.04902%	
			Phenolic resin	9003-35-4	0.20559%	0.04901%	
			Methanol	67-56-1	0.17056%	0.04066%	
			Diammonium peroxidisulphate	7727-54-0	0.14382%	0.03428%	
			Sodium tetraborate	1303-96-4	0.12339%	0.02941%	

			decahydrate				
			Alcohol, C7-9-iso, C8, ethoxylated	78330-19-5	0.09545%	0.02275%	
			Decyl-dimethyl amine oxide	2605-79-0	0.08152%	0.01943%	
			Propan-2-ol	67-63-0	0.07280%	0.01735%	
			Alcohol, C9-11-iso, C10, ethoxylated	78330-20-8	0.02825%	0.00673%	
			Ethoxylated propoxylated 4-nonylphenol-formaldehyde resin	30846-35-6	0.02112%	0.00503%	
			Vinylidene chloride/methylacrylate copolymer	25038-72-6	0.01970%	0.00470%	
			Heavy aromatic naphtha	64742-94-5	0.01426%	0.00340%	
			Quaternary ammonium compounds chlorides derivatives	68989-00-4	0.01398%	0.00333%	
			Alcohol, C11-14, ethoxylated	78330-21-9	0.01398%	0.00333%	
			Cationic polymer	Proprietary	0.00980%	0.00234%	
			Non-crystalline silica	7631-86-9	0.00951%	0.00227%	
			Tetrakis(hydroxymethyl)phosphonium sulfate	55566-30-8	0.00783%	0.00187%	
			Poly(oxy-1,2-ethanediyl)	25322-68-3	0.00628%	0.00150%	
			Naphtalene (impurity)	91-20-3	0.00285%	0.00068%	
			Decyldimethyl amine (impurity)	1120-24-7	0.00130%	0.00031%	
			Magnesium silicate hydrate (talc)	14807-96-6	0.00104%	0.00025%	

			Hydrogen peroxide (impurity)	7722-84-1	0.00078%	0.00019%	
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\* 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%

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Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)