

## Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	3/15/2012
State:	California
County/Parish	Kern County
API Number:	0403046207
Operator Name:	Occidental of Elk Hills, Inc.
Well Name and Number:	5-1H-1C
Longitude:	-119.455665592709
Latitude:	35.1794356228715
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	2,987
Total Water Volume (gal)*:	356,551

### 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
WF115, YF125ST	Schlumberger	Surfactant , Breaker, Crosslinker, Gelling Agent, Clay Control Agent, Bactericide, Demulsifier, Propping Agent	Water (Including Mix Water Supplied by Client)*	-		72.44192%	
			Crystalline silica	14808-60-7	98.16504%	27.05240%	
			Guar gum	9000-30-0	0.81055%	0.22337%	
			1, 2, 3 - Propanetriol	56-81-5	0.30758%	0.08476%	
			Sodium tetraborate decahydrate	1303-96-4	0.18455%	0.05086%	
			Methanol	67-56-1	0.14600%	0.04023%	
			Diammonium peroxidisulphate	7727-54-0	0.10690%	0.02946%	
			Decyl-dimethyl amine	2605-79-0	0.09031%	0.02489%	

			oxide				
			Zirconium dichloride oxide	7699-43-6	0.04446%	0.01225%	
			Alcohol, C7-9-iso, C8, ethoxylated	78330-19-5	0.02595%	0.00715%	
			Alcohol, C9-11-iso, C10, ethoxylated	78330-20-8	0.02595%	0.00715%	
			Ethoxylated propoxylated 4-nonylphenol-formaldehyde resin	30846-35-6	0.01940%	0.00535%	
			Vinylidene chloride/methylacrylate copolymer	25038-72-6	0.01385%	0.00382%	
			Heavy aromatic naphtha	64742-94-5	0.01310%	0.00361%	
			Alcohol, C11-14, ethoxylated	78330-21-9	0.01284%	0.00354%	
			Quaternary ammonium compounds chlorides derivatives	68989-00-4	0.01284%	0.00354%	
			Non-crystalline silica	7631-86-9	0.01069%	0.00295%	
			Tetrakis(hydroxymethyl)phosphonium sulfate	55566-30-8	0.00848%	0.00234%	
			Poly(oxy-1,2-ethanediyl)	25322-68-3	0.00577%	0.00159%	
			Naphtalene (impurity)	91-20-3	0.00262%	0.00072%	
			Decyldimethyl amine (impurity)	1120-24-7	0.00144%	0.00040%	
			Hydrogen peroxide (impurity)	7722-84-1	0.00087%	0.00024%	
			Magnesium silicate hydrate (talc)	14807-96-6	0.00073%	0.00020%	

\* 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%

Report ID: RPT-3726 (Generated on 5/11/2012 2:53 PM)

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