Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	1/28/2012
State:	California
County/Parish	Kern County
API Number:	0403045926
Operator Name:	Occidental of Elk Hills,
	Inc.
Well Name and Number:	4-4-27B
Longitude:	-119.492891956994
Latitude:	35.2034103260413
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	3,098
Total Water Volume (gal)*:	231,480

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
WF120, YF120ST	Schlumberger	Breaker, Surfactant, Crosslinker, Gelling Agent, Clay Control Agent, Bactericide, Demulsifier, Propping Agent	Water (Including Mix Water Supplied by Client)*	-		74.42705%	
			Crystalline silica	14808-60-7	98.30372%	25.13916%	
			Guar gum	9000-30-0	0.72570%	0.18558%	
			Diammonium peroxidisulphate	7727-54-0	0.22786%	0.05827%	
			1, 2, 3 - Propanetriol	56-81-5	0.22108%	0.05654%	
			Methanol	67-56-1	0.15073%	0.03855%	
			Sodium tetraborate decahydrate	1303-96-4	0.13265%	0.03392%	
			Decyl-dimethyl amine	2605-79-0	0.07669%	0.01961%	

	oxide				
	Alcohol, C9-11-iso, C10, ethoxylated	78330-20-8	0.02465%	0.00630%	
	Alcohol, C7-9-iso, C8, ethoxylated	78330-19-5	0.02465%	0.00630%	
	Vinylidene chloride/methylacrylate copolymer	25038-72-6	0.02362%	0.00604%	
	Ethoxylated propoxylated 4-nonylphenol-formaldehy de resin	30846-35-6	0.01842%	0.00471%	
	Polyvinylidene chloride	9002-85-1	0.01657%	0.00424%	
	Heavy aromatic naphtha	64742-94-5	0.01244%	0.00318%	
	Quaternary ammonium compounds chlorides derivatives	68989-00-4	0.01220%	0.00312%	
	Alcohol, C11-14, ethoxylated	78330-21-9	0.01220%	0.00312%	
	Cationic polymer	Proprietary	0.01018%	0.00260%	
	Non-crystalline silica	7631-86-9	0.00921%	0.00235%	
	Tetrakis(hydroxymethyl)p hosphonium sulfate	55566-30-8	0.00723%	0.00185%	
	Poly(oxy-1,2-ethanediyl)	25322-68-3	0.00548%	0.00140%	
	Naphtalene (impurity)	91-20-3	0.00249%	0.00064%	
	Magnesium silicate hydrate (talc)	14807-96-6	0.00166%	0.00042%	
	Decyldimethyl amine (impurity)	1120-24-7	0.00123%	0.00031%	
	Hydrogen peroxide (impurity)	7722-84-1	0.00074%	0.00019%	

- * 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)