

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date	3/15/2012
State:	California
County:	Kern
API Number:	04-030-46364
Operator Name:	Occidental of Elk Hills, Inc.
Well Name and Number:	6-4BH-7D
Longitude:	-119.4347132
Latitude:	35.16078686
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	3,199
Total Water Volume (gal)*:	300,678

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
4 Percent KCL Water	Operator				100.00%	81.86857%	Density = 8.540
SAND - PREMIUM - 100 MESH	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%	17.43546%	
SAND - PREMIUM BROWN	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%	17.43546%	
LoSurf-300M	Halliburton	Non-ionic Surfactant	1,2,4 Trimethylbenzene	95-63-6	1.00%	0.00007%	
			Ethanol	64-17-5	60.00%	0.00432%	
			Heavy aromatic petroleum naphtha	64742-94-5	30.00%	0.00216%	
			Naphthalene	91-20-3	5.00%	0.00036%	
			Poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydr	127087-87-0	5.00%	0.00036%	

			oxy-, branched			
BC-140	Halliburton	Crosslinker	Ethylene glycol	107-21-1	30.00%	0.00287%
			Monoethanolamine borate	26038-87-9	60.00%	0.00574%
MO-67	Halliburton	pH Control Additive	Sodium hydroxide	1310-73-2	30.00%	0.00122%
FE-1A ACIDIZING COMPOSITION	Halliburton	Additive	Acetic acid	64-19-7	60.00%	0.00069%
			Acetic anhydride	108-24-7	100.00%	0.00114%
LGC-36 UC	Halliburton	Liquid Gel Concentrate	Guar gum	9000-30-0	60.00%	0.21133%
			Naphtha, hydrotreated heavy	64742-48-9	60.00%	0.21133%
GBW-30 BREAKER	Halliburton	Breaker	Hemicellulase enzyme	9012-54-8	15.00%	0.00010%
			Carbohydrates	Confidential Business Information	95.00%	0.00061%
SP BREAKER	Halliburton	Breaker	Sodium persulfate	7775-27-1	100.00%	0.00064%
BE-3S BACTERICIDE	Halliburton	Biocide	2,2 Dibromo-3-nitrilopropionamide	10222-01-2	100.00%	0.00010%
			2-Monobromo-3-nitrilopropionamide	1113-55-9	5.00%	0.00000%
			Crystalline silica, quartz	14808-60-7		
			Fatty alcohol polyglycol ether surfactant	9043-30-5		
			Oxyalkylated Phenolic Resin	Confidential Business Information		
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			Quaternary ammonium compounds, bis(hydrogenated tallow alkyl) dimethyl,salts with bentonite	68953-58-2		
			Sodium chloride	7647-14-5		
			Sodium sulfate	7757-82-6		
			Water	7732-18-5		

* 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%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.

Ingredients Listed Below (white line). This Line Are Part of the Fluid Composition Provided by Halliburton Which Do Not Appear On the Material Safety Data Sheets (MSDS)

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