

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date	12/27/2012
State:	California
County:	Kern
API Number:	0403049013
Operator Name:	Occidental of Elk Hills, Inc.
Well Name and Number:	73-19R
Longitude:	-119.540833
Latitude:	35.307423
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	2,982
Total Water Volume (gal)*:	19,068

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% KCL Water	Operator				100.00%	80.01325%	Density = 8.530
CRC SAND PREMIUM	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%	19.03303%	
			Hexamethylenetetramine	100-97-0	2.00%	0.38066%	
			Phenol / formaldehyde resin	9003-35-4	5.00%	0.95165%	
LOSURF-300 NONIONIC SURFACTANT	Halliburton	Surfactant	Isopropanol	67-63-0	60.00%	0.05601%	
			Light aromatic solvent	64742-95-6	30.00%	0.02800%	
			Ethoxylated nonylphenol	Confidential Business Information	10.00%	0.00933%	
MO-67	Halliburton	pH Control Additive	Sodium hydroxide	1310-73-2	30.00%	0.06269%	
SUPERSET W	Halliburton	Activator	Methanol	67-56-1	60.00%	0.07748%	
			Ethoxylated nonylphenol	Confidential Business Information	60.00%	0.07748%	

BC-140	Halliburton	Crosslinker	Ethylene glycol	107-21-1	30.00%	0.02952%
			Monoethanolamine borate	26038-87-9	60.00%	0.05903%
LGC-36 UC	Halliburton	Liquid Gel Concentrate	Guar gum	9000-30-0	60.00%	0.24842%
			Naphtha, hydrotreated heavy	64742-48-9	60.00%	0.24842%
GBW-30 BREAKER	Halliburton	Breaker	Hemicellulase enzyme	9012-54-8	15.00%	0.00103%
			Carbohydrates	Confidential Business Information	95.00%	0.00654%
BE-3S BACTERICIDE	Halliburton	Biocide	2,2 Dibromo-3-nitrilopropionamide	10222-01-2	100.00%	0.00295%
			2-Monobromo-3-nitrilopropionamide	1113-55-9	5.00%	0.00015%
Ingredients Listed Below This Line Are Part of the Fluid Composition Provided by Halliburton Which Do Not Appear On the Material Safety Data Sheets (MSDS)						
			Crystalline silica, quartz	14808-60-7		
			Fatty alcohol polyglycol ether surfactant	9043-30-5		
			Formaldehyde polymer with 4,1,1-dimethylethyl phenolmethyl oxirane	29316-47-0		
			Formaldehyde polymer with methyl oxirane, 4-nonylphenol and oxirane	63428-92-2		
			Naphthalene	91-20-3		
			Quaternary ammonium compounds, bis(hydrogenated tallow alkyl) dimethyl, salts with bentonite	68953-58-2		
			Sodium chloride	7647-14-5		
			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.

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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)