

## Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date	10/15/2012
State:	California
County:	Kern
API Number:	04-030-47772
Operator Name:	Occidental of Elk Hills, Inc.
Well Name and Number:	323-16R
Longitude:	-119.515657
Latitude:	35.32168
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	9,765
Total Water Volume (gal)*:	88,650

### 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
Lease Water	Operator				100.00%	86.87409%	Density = 8.540
CRC SAND	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%	11.88128%	
			Hexamethylenetetramine	100-97-0	2.00%	0.23763%	
			Phenol / formaldehyde resin	9003-35-4	5.00%	0.59406%	
PREMIUM PROP PLUS	Halliburton	Proppant	Aluminum oxide	1344-28-1	100.00%	0.34425%	
			Crystalline silica, cristobalite	14464-46-1	5.00%	0.01721%	
MO-67	Halliburton	pH Control Additive	Sodium hydroxide	1310-73-2	30.00%	0.02376%	
CAT-3 ACTIVATOR	Halliburton	Activator	EDTA/Copper chelate	Confidential Business Information	30.00%	0.00456%	
VICON NF BREAKER	Halliburton	Breaker	Chlorous acid, sodium salt	7758-19-2	10.00%	0.00115%	
			Sodium chloride	7647-14-5	30.00%	0.00346%	
SUPERSET W	Halliburton	Activator	Methanol	67-56-1	60.00%	0.04647%	
			Ethoxylated nonylphenol	Confidential Business	60.00%	0.04647%	

				Information		
CL-28M CROSSLINKER	Halliburton	Crosslinker	Crystalline silica, quartz	14808-60-7	5.00%	0.00602%
			Borate salts	Confidential Business Information	60.00%	0.07229%
LOSURF-300 NONIONIC SURFACTANT	Halliburton	Surfactant	Isopropanol	67-63-0	60.00%	0.04181%
			Light aromatic solvent	64742-95-6	30.00%	0.02090%
			Ethoxylated nonylphenol	Confidential Business Information	10.00%	0.00697%
LGC-36 UC	Halliburton	Liquid Gel Concentrate	Guar gum	9000-30-0	60.00%	0.31155%
			Naphtha, hydrotreated heavy	64742-48-9	60.00%	0.31155%
BE-3S BACTERICIDE	Halliburton	Biocide	2,2 Dibromo-3-nitrilopropionamide	10222-01-2	100.00%	0.00184%
			2-Monobromo-3-nitrilopropionamide	1113-55-9	5.00%	0.00009%
K-38	Halliburton	Crosslinker	Disodium octaborate tetrahydrate	12008-41-2	100.00%	0.00574%
			Aluminum silicate	1302-76-7		
			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		
			Inorganic mineral	Proprietary		
			Naphthalene	91-20-3		
			Polymer	Proprietary		
			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.

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)

v2.0

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