Hydraulic Fracturing Fluid Product Component Information Disclosure

3/20/2012	Fracture Date
California	State:
Kern	County:
0403046692	API Number:
Occidental of Elk Hills, Inc.	Operator Name:
3-8-31G	Well Name and Number:
-119.4441744	Longitude:
35.18169767	Latitude:
NAD83	Long/Lat Projection:
Oil	Production Type:
2,870	True Vertical Depth (TVD):
31,836	Total Water Volume (gal)*:

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentratio n in HF Fluid (% by mass)**	Comments
4% KCL Water	Operator				100.00%	43.99839%	Density = 8.540
SAND - PREMIUM WHITE	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%	39.53711%	
CRC SAND PREMIUM	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%	16.08601%	
			Hexamethylenetetramine	100-97-0	2.00%	0.32172%	
			Phenol / formaldehyde resin	9003-35-4	5.00%	0.80430%	
LoSurf-300D	Halliburton	Non-ionic Surfactant	1,2,4 Trimethylbenzene	nethylbenzene 95-63-6 1.00% 0.00037%			
			Ethanol	64-17-5	60.00%	0.02191%	
			Heavy aromatic petroleum naphtha	64742-94-5	30.00%	0.01095%	
			Naphthalene	91-20-3	5.00%	0.00183%	
			Poly(oxy-1,2-ethanediyl),	127087-87-0	5.00%	0.00183%	

			alpha-(4-nonylphenyl)-omega-hydr oxy-, branched				
BW-30 BREAKER	Halliburton	Breaker	Hemicellulase enzyme	9012-54-8	15.00%	0.00728%	
			Carbohydrates	Confidential Business Information	95.00%	0.04610%	
BC-140	Halliburton	Crosslinker	Ethylene glycol	107-21-1	30.00%	0.01214%	
			Monoethanolamine borate	26038-87-9	60.00%	0.02427%	
MO-67	Halliburton	pH Control Additive	Sodium hydroxide	1310-73-2	30.00%	0.00309%	
FE-1A ACIDIZING COMPOSITION	Halliburton	Additive	Acetic acid	64-19-7	60.00%	0.00348%	
			Acetic anhydride	108-24-7	100.00%	0.00580%	
LGC-36 UC	Halliburton	Liquid Gel Concentrate	Guar gum	9000-30-0	60.00%	0.13708%	
			Naphtha, hydrotreated heavy	64742-48-9	60.00%	0.13708%	
SP BREAKER	Halliburton	Breaker	Sodium persulfate	7775-27-1	100.00%	0.00405%	
GBW-30 BREAKER	Halliburton	Breaker	Hemicellulase enzyme	9012-54-8	15.00%	0.00058%	
			Carbohydrates	Confidential Business Information	95.00%	0.00369%	
BE-3S BACTERICIDE	Halliburton	Biocide	2,2 Dibromo-3-nitrilopropionamide	10222-01-2	100.00%	0.00049%	
			2-Monobromo-3-nitrilopropionamid e	1113-55-9	5.00%	0.00002%	
			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			

- * 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)