Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date	2/22/2012
State	
State:	California
County:	Kern
API Number:	0402958674
Operator Name:	Occidental of Elk
	Hills, Inc.
Well Name and Number:	3-32A-36R
Longitude:	-119.461341
Latitude:	35.279504
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	2,749
Total Water Volume (gal)*:	222,415

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentratio n in Additive (% by mass)**	Maximum Ingredient Concentratio n in HF Fluid (% by mass)**	Comments
8% KCL Water	Operator				100.00%	37.38615%	Density = 8.700
SAND - PREMIUM WHITE	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%	44.98576%	
CRC SAND	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%	16.26500%	
			Hexamethylenetetramine	100-97-0	2.00%	0.32530%	
			Phenol / formaldehyde resin	9003-35-4	5.00%	0.81325%	
LoSurf-300M	Halliburton	Non-ionic Surfactant	1,2,4 Trimethylbenzene	95-63-6	1.00%	0.00110%	
			Ethanol	64-17-5	60.00%	0.06595%	
			Heavy aromatic petroleum naphtha	64742-94-5	30.00%	0.03297%	
			Naphthalene	91-20-3	5.00%	0.00550%	
			Poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydr	127087-87-0	5.00%	0.00550%	

			oxy-, branched			
CAT-3 ACTIVATOR	Halliburton	Activator	EDTA/Copper chelate	Confidential Business Information	30.00%	0.01699%
SUPERSET W	Halliburton	Activator	Methanol	67-56-1	60.00%	0.06395%
			Ethoxylated nonylphenol	Confidential Business Information	60.00%	0.06395%
CLA-STA XP ADDITIVE	Halliburton	Clay Stabilizer	Polyepichlorohydrin, trimethyl amine quaternized	51838-31-4	60.00%	0.07611%
GEL-STA L STABILIZER	Halliburton	Stabilizer	Sodium thiosulfate	7772-98-7	60.00%	0.09892%
MO-67	Halliburton	pH Control Additive	Sodium hydroxide	1310-73-2	30.00%	0.02173%
LGC-36 UC	Halliburton	Liquid Gel Concentrate	Guar gum	9000-30-0	60.00%	0.32541%
			Naphtha, hydrotreated heavy	64742-48-9	60.00%	0.32541%
FE-1A ACIDIZING COMPOSITION	Halliburton	Additive	Acetic acid	64-19-7	60.00%	0.03493%
			Acetic anhydride	108-24-7	100.00%	0.05822%
BC-140	Halliburton	Crosslinker	Ethylene glycol	107-21-1	30.00%	0.03094%
			Monoethanolamine borate	26038-87-9	60.00%	0.06188%
BE-3S BACTERICIDE	Halliburton	Biocide	2,2 Dibromo-3-nitrilopropionamide	10222-01-2	100.00%	0.00723%
			2-Monobromo-3-nitrilopropionamid e	1113-55-9	5.00%	0.00036%
GBW-30 BREAKER	Halliburton	Breaker	Hemicellulase enzyme	9012-54-8	15.00%	0.00202%
			Carbohydrates	Confidential Business Information	95.00%	0.01281%
SP BREAKER	Halliburton	Breaker	Sodium persulfate	7775-27-1	100.00%	0.00138%
			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		
			Sodium sulfite	7757-83-7		
			Trimethylamine, N-oxide	1184-78-7		

Water 7732-18-5

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)

^{*} 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%