

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	11/4/2012
State:	California
County:	Kern
API Number:	0403046457
Operator Name:	Occidental of Elk Hills, Inc.
Well Name and Number:	64SE-24Z
Longitude:	-119.557768
Latitude:	35.303754
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	3,460
Total Water Volume (gal)*:	121,300

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%	46.89392%	Density = 4.000
SAND - PREMIUM BROWN	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%	51.49457%	
LOSURF-300M™	Halliburton	Surfactant	1,2,4 Trimethylbenzene	95-63-6	1.00%	0.00200%	
			Ethanol	64-17-5	60.00%	0.12022%	
			Heavy aromatic petroleum naphtha	64742-94-5	30.00%	0.06011%	
			Naphthalene	91-20-3	1.00%	0.00200%	
			Poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydroxy-,branched	127087-87-0	10.00%	0.02004%	
MO-67	Halliburton	Buffer	Sodium hydroxide	1310-73-2	30.00%	0.07236%	
BC-140	Halliburton	Crosslinker	Ethylene glycol	107-21-1	30.00%	0.06379%	
			Monoethanolamine borate	26038-87-9	60.00%	0.12758%	
LGC-36 CBM	Halliburton	Gelling Agent	Paraffinic solvent	Confidential Business Information	60.00%	0.55774%	
BE-3S BACTERICIDE	Halliburton	Biocide	2,2 Dibromo-3-nitrilopropionamide	10222-01-2	100.00%	0.00503%	
			2-Monobromo-3-nitrilopropionamide	1113-55-9	5.00%	0.00025%	
GBW-30 BREAKER	Halliburton	Breaker	Hemicellulase enzyme	9012-54-8	15.00%	0.00341%	
			Carbohydrates	Confidential Business Information	95.00%	0.02158%	

* 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%

All component information listed was obtained from the supplier's Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational Safety and Health Administration's (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects 'proprietary', 'trade secret', and 'confidential business information' and the criteria for how this information is reported on an MSDS is subject to 29 CFR 1910.1200(i) and Appendix D.