

# Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date	12/4/2012
State:	California
County:	Kern
API Number:	0403048676
Operator Name:	Occidental of Elk Hills, Inc.
Well Name and Number:	52E-34R
Longitude:	-119.490057
Latitude:	35.279578
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	4,281
Total Water Volume (gal)*:	75,871

## 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
Brine Water	Operator				100.00%	71.03902%	Density = 4.000
SAND - PREMIUM BROWN	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%	28.37175%	
LoSurf-300M	Halliburton				100.00%	0.00000%	Not Found in DB
MO-67	Halliburton	pH Control Additive	Sodium hydroxide	1310-73-2	30.00%	0.07682%	
BC-140	Halliburton	Crosslinker	Ethylene glycol	107-21-1	30.00%	0.04213%	
			Monoethanolamine borate	26038-87-9	60.00%	0.08427%	
LGC-36	Halliburton				100.00%	0.00000%	Not Found in DB
FE-1A ACIDIZING COMPOSITION	Halliburton	Additive	Acetic acid	64-19-7	60.00%	0.08811%	
			Acetic anhydride	108-24-7	100.00%	0.14685%	
GBW-30 BREAKER	Halliburton	Breaker	Hemicellulase enzyme	9012-54-8	15.00%	0.00527%	

			Carbohydrates	Confidential Business Information	95.00%	0.03336%
BE-3S BACTERICIDE	Halliburton Biocide		2,2 Dibromo-3-nitrilopropionamide	10222-01-2	100.00%	0.01077%
			2-Monobromo-3-nitrilopropionamide	1113-55-9	5.00%	0.00054%
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)						
			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)