

## Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date	8/8/2012
State:	California
County:	Kern
API Number:	0403047596
Operator Name:	Occidental of Elk Hills, Inc.
Well Name and Number:	335X-36S
Longitude:	-119.349495
Latitude:	35.27462
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	9,152
Total Water Volume (gal)*:	356,436

### 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
7% KCL Water	Operator				100.00%	87.82748%	Density = 8.650
CERAMIC PROP	Halliburton	Proppant	Crystalline silica, cristobalite	14464-46-1	30.00%	1.64123%	
			Mullite	1302-93-8	100.00%	5.47077%	
			Silica, amorphous - fumed	7631-86-9	30.00%	1.64123%	
SAND - COMMON WHITE	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%	0.08546%	
CRC SAND PREMIUM	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%	5.64026%	
			Hexamethylenetetramine	100-97-0	2.00%	0.11281%	
			Phenol / formaldehyde resin	9003-35-4	5.00%	0.28201%	
VICON NF BREAKER	Halliburton	Breaker	Chlorous acid, sodium salt	7758-19-2	10.00%	0.01359%	
			Sodium chloride	7647-14-5	30.00%	0.04076%	
CAT-3	Halliburton	Activator	EDTA/Copper chelate	Confidential Business	30.00%	0.00679%	

ACTIVATOR				Information		
SUPERSET W	Halliburton	Activator	Methanol	67-56-1	60.00%	0.02051%
			Ethoxylated nonylphenol	Confidential Business Information	60.00%	0.02051%
RockOn™ MX 5-2350	Multi-Chem	Surfactant	Ethoxylated Alcohols	Proprietary	13.00%	0.03252%
			Methanol	67-56-1	100.00%	0.25013%
			Sulfonate	Proprietary	10.00%	0.02501%
FR-66	Halliburton	Friction Reducer	Hydrotreated light petroleum distillate	64742-47-8	30.00%	0.00038%
FE-1A ACIDIZING COMPOSITION	Halliburton	Additive	Acetic acid	64-19-7	60.00%	0.00536%
			Acetic anhydride	108-24-7	100.00%	0.00894%
MO-67	Halliburton	pH Control Additive	Sodium hydroxide	1310-73-2	30.00%	0.02042%
CL-28M CROSSLINKER	Halliburton	Crosslinker	Crystalline silica, quartz	14808-60-7	5.00%	0.00396%
			Borate salts	Confidential Business Information	60.00%	0.04756%
LGC-36 UC	Halliburton	Liquid Gel Concentrate	Guar gum	9000-30-0	60.00%	0.15607%
			Naphtha, hydrotreated heavy	64742-48-9	60.00%	0.15607%
K-38	Halliburton	Crosslinker	Disodium octaborate tetrahydrate	12008-41-2	100.00%	0.00271%
BE-3S BACTERICIDE	Halliburton	Biocide	2,2 Dibromo-3-nitrilopropionamide	10222-01-2	100.00%	0.00251%
			2-Monobromo-3-nitrilopropionamide	1113-55-9	5.00%	0.00013%
WG-36 GELLING AGENT	Halliburton	Gelling Agent	Guar gum	9000-30-0	100.00%	0.11038%
			Alcohols, C12-16, ethoxylated	68551-12-2		
			Aluminum Silicate	1302-76-7		
			Ammonium chloride	12125-02-9		
			Bentonite, benzyl(hydrogenated tallow alkyl) dimethylammonium stearate complex	121888-68-4		
			Crystalline silica, quartz	14808-60-7		
			Fatty alcohol polyglycol ether surfactant	9043-30-5		
			Inorganic mineral	Proprietary		
			Polyacrylamide Copolymer	Confidential Business Information		
			Polymer	Proprietary		
			Quaternary ammonium	68953-58-2		

	compounds, bis(hydrogenated tallow alkyl) dimethyl, salts with bentonite	
	Silica gel	112926-00-8
	Sodium chloride	7647-14-5
	Sorbitan monooleate polyoxyethylene derivative	9005-65-6
	Sorbitan, mono-9-octadecenoate, (Z)	1338-43-8
	Surfactant Mixture	Confidential Business Information
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	Tall oil acid diethanolamide	68155-20-4
	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 The White 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)