## Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date	1/27/2013	
State:	California	
County:	Kern	
API Number:	04-030-49676	
Operator Name:		Occidental of Elk Hills, Inc.
Well Name and Number:	72-19R	
Longitude:	-119.538519	
Latitude:	35.309239	
Long/Lat Projection:	NAD83	
Production Type:	Oil	
True Vertical Depth (TVD):	3,084	
Total Water Volume (gal)*:	11,191	

## 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
Agent, Industrial Antimicrobial, Emulsion Preventer, Propping	Breaker, Breaker Aid, Gelling Agent, Crosslinker, Clay Control Agent, Industrial Antimicrobial, Emulsion	Water (Including Mix Water Supplied by Client)*	-		72.55461%		
			Crystalline silica	14808-60-7	95.59547%	26.23655%	
			Phenolic resin	9003-35-4	1.95093%	0.53544%	
			Guar gum	9000-30-0	0.50905%	0.13971%	
			Propan-2-ol	67-63-0	0.49856%	0.13683%	
			Alcohol, C7-9-iso, C8, ethoxylated	78330-19-5	0.38349%	0.10525%	
			Potassium borate	1332-77-0	0.30350%	0.08330%	
			Diammonium peroxidisulphate	7727-54-0	0.28024%	0.07691%	
			Glycerol	56-81-5	0.12633%	0.03467%	
			2,2`,2"-nitrilotriethanol	102-71-6	0.11418%	0.03134%	
			Potassium hydroxide	1310-58-3	0.09911%	0.02720%	
		Polyethylene glycol monohexyl ether	31726-34-8	0.07073%	0.01941%		
			Zirconium dichloride oxide	7699-43-6	0.06331%	0.01738%	
		Vinylidene chloride/methylacrylate copolymer	25038-72-6	0.02958%	0.00812%		
			Crosslinked PO/EO-block polymer	68123-18-2	0.02475%	0.00679%	
		Non-crystalline silica	7631-86-9	0.01837%	0.00504%		
		Tetrakis(hydroxymethyl)phosphonium sulfate	55566-30-8	0.01698%	0.00466%		
		Alkyl (c10-c14) alcohols, ethoxylated	66455-15-0	0.00824%	0.00226%		
			Alcohol, C11-14, ethoxylated	78330-21-9	0.00822%	0.00226%	
			Methyl oxirane polymer with oxirane	9003-11-6	0.00815%	0.00224%	

Dioctyl sulfosuccinate sodium salt	577-11-7	0.00385%	0.00106%	
Dicoco dimethyl quaternary ammonium chloride	61789-77-3	0.00310%	0.00085%	
Magnesium silicate hydrate (talc)	14807-96-6	0.00156%	0.00043%	
Propylene glycol	57-55-6	0.00082%	0.00023%	
2-ethylhexan-1-ol	104-76-7	0.00011%	0.00003%	
Potassium oleate	143-18-0	0.00005%	0.00001%	
Oleic acid	112-80-1	0.00004%	0.00001%	
Acetic acid, potassium salt	127-08-2	0.00001%	< 0.00001%	
Acetic acid	64-19-7	< 0.00001%	< 0.00001%	

<sup>\*</sup> Total Water Volume sources may include fresh water, produced water, and/or recycled water

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

<sup>\*\*</sup> Information is based on the maximum potential for concentration and thus the total may be over 100%