

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	10/28/2012
State:	California
County:	Kern
API Number:	0403047157
Operator Name:	Occidental of Elk Hills, Inc.
Well Name and Number:	366-15R
Longitude:	-119.489054
Latitude:	35.314466
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	10,124
Total Water Volume (gal)*:	169,821

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
3% KCL Water	Operator				100.00%	42.41680%	Density = 8.500
4% KCL Water	Operator				100.00%	42.61701%	Density = 8.500
RC CERAMIC PROP	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	30.00%	3.97163%	
			Mullite	1302-93-8	100.00%	13.23876%	
			Phenol / formaldehyde resin	9003-35-4	5.00%	0.66194%	
VERSAPROP	Halliburton	Proppant	Aluminum silicate	1302-76-7	65.00%	0.22975%	
			Corundum	1302-44-56	65.00%	0.22975%	
LOSURF-300M™	Halliburton	Surfactant	1,2,4 Trimethylbenzene	95-63-6	1.00%	0.00041%	
			Ethanol	64-17-5	60.00%	0.02434%	
			Heavy aromatic petroleum naphtha	64742-94-5	30.00%	0.01217%	
			Naphthalene	91-20-3	1.00%	0.00041%	
			Poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydroxy-,branched	127087-87-0	10.00%	0.00406%	
MO-67	Halliburton	Buffer	Sodium hydroxide	1310-73-2	30.00%	0.03097%	
VICON NF BREAKER	Halliburton	Breaker	Chlorous acid, sodium salt	7758-19-2	10.00%	0.00966%	
			Sodium chloride	7647-14-5	30.00%	0.02898%	
SUPERSET W	Halliburton	Activator	Methanol	67-56-1	60.00%	0.03976%	
			Ethoxylated Nonylphenol	Confidential Business Information	60.00%	0.03976%	
LGC-36 CBM	Halliburton	Gelling Agent	Paraffinic solvent	Confidential Business Information	60.00%	0.35841%	
CL-28M CROSSLINKER	Halliburton	Crosslinker	Crystalline silica, quartz	14808-60-7	5.00%	0.00541%	
			Borate salts	Confidential Business Information	60.00%	0.06495%	
K-38	Halliburton	Crosslinker	Disodium octaborate tetrahydrate	12008-41-2	100.00%	0.04588%	
FE-1A ACIDIZING COMPOSITION	Halliburton	Misc Additive	Acetic acid	64-19-7	60.00%	0.00950%	
			Acetic anhydride	108-24-7	100.00%	0.01584%	
LOSURF-300M™	Halliburton	Surfactant	1,2,4 Trimethylbenzene	95-63-6	1.00%	0.00045%	
			Ethanol	64-17-5	60.00%	0.02704%	
			Heavy aromatic petroleum naphtha	64742-94-5	30.00%	0.01352%	
			Naphthalene	91-20-3	1.00%	0.00045%	
			Poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydroxy-,branched	127087-87-0	10.00%	0.00451%	

