

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date	1/5/2012
State:	California
County:	Los Angeles
API Number:	0403726421
Operator Name:	Plains Exploration & Production
Well Name and Number:	VIC1 635
Longitude:	-118.3771225
Latitude:	34.00234951
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	8,430
Total Water Volume (gal)*:	125,248

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%	81.77644%	Density = 8.700
SAND - COMMON WHITE	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%	1.42615%	
SAND - PREMIUM WHITE	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%	4.30405%	
CRC SAND	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%	9.98805%	
			Hexamethylenetetramine	1009-7-0	2.00%	0.19976%	
			Phenol / formaldehyde resin	900303-35-4	5.00%	0.49940%	
LOSURF-300M™	Halliburton	Surfactant	1,2,4 Trimethylbenzene	95-63-6	1.00%	0.00079%	
			Ethanol	64-17-5	60.00%	0.04763%	
			Heavy aromatic petroleum naphtha	64742-94-5	30.00%	0.02382%	
			Naphthalene	91-20-3	1.00%	0.00079%	
			Poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydroxy-, branched	127087-87-0	10.00%	0.00794%	
K-38	Halliburton	Crosslinker	Disodium octaborate tetrahydrate	12008-41-2	100.00%	0.02099%	
FR-66	Halliburton	Friction Reducer	Hydrotreated light petroleum distillate	64742-47-8	30.00%	0.01335%	
SandWedge® NT	Halliburton	Conductivity Enhancer	Dipropylene glycol monomethyl ether	34590-94-8	60.00%	0.29738%	
			Heavy aromatic petroleum naphtha	64742-94-5	10.00%	0.04956%	
BA-40L BUFFERING AGENT	Halliburton	Buffer	Potassium carbonate	584-08-7	60.00%	0.03990%	
CL-28M CROSSLINKER	Halliburton	Crosslinker	Crystalline silica, quartz	14808-60-7	5.00%	0.00250%	
			Borate salts	Confidential Business Information	60.00%	0.02995%	
FE-1A ACIDIZING COMPOSITION	Halliburton	Misc Additive	Acetic acid	64-19-7	60.00%	0.01278%	
			Acetic anhydride	108-24-7	100.00%	0.02130%	

LGC-36 UC	Halliburton	Gelling Agent	Guar gum	9000-30-0	60.00%	0.16582%	
			Naphtha, hydrotreated heavy	64742-48-9	60.00%	0.16582%	
MO-67	Halliburton	Buffer	Sodium hydroxide	1310-73-2	30.00%	0.00283%	
BE-3S BACTERICIDE	Halliburton	Biocide	2,2 Dibromo-3-nitrilopropionamide	10222-01-2	100.00%	0.00285%	
			2-Monobromo-3-nitrilopropionamide	1113-55-9	5.00%	0.00014%	
K-38	Halliburton	Crosslinker	Disodium octaborate tetrahydrate	12008-41-2	100.00%	0.01902%	
SP BREAKER	Halliburton	Breaker	Sodium persulfate	7775-27-1	100.00%	0.01949%	

* 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%

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