## Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date	07/28/2012
Last Fracture Date	0112012012
State:	California
County:	Kern
API Number:	04-030-46362
Operator Name:	Vintage Prod Of Cal
Well Name and Number:	Jackson & Perkins 27-3H
Longitude:	-119.27327
Latitude:	35.53686
Long/Lat Projection:	NAD27
Production Type:	Oil
True Vertical Depth (TVD):	7,737
Total Water Volume (gal)*:	376,236

## 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
Water	Operator	Carrier	Water	7732-18-5	100.00%	69.76022%	
Alpha 125	Baker Hughes	Biocide	Glutaraldehyde	111-30-8	30.00%	0.00499%	SmartCare Product
Enzyme G-I	Baker Hughes	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00375%	SmartCare Product
			Water	7732-18-5	97.00%	0.12124%	
BC-3	Baker Hughes	Breaker Catalyst	No Hazardous Ingredients	Trade Secret	100.00%	0.01870%	
BF-7L, Tote	Baker Hughes	Buffer	Potassium Carbonate	584-08-7	60.00%	0.08213%	SmartCare Product
			Potassium Hydroxide	1310-58-3	1.00%	0.00137%	
			Water	7732-18-5	60.00%	0.08213%	
BF-7L	Baker Hughes	Buffer	Potassium Carbonate	584-08-7	60.00%	0.18005%	SmartCare Product
			Potassium Hydroxide	1310-58-3	1.00%	0.00300%	
			Water	7732-18-5	60.00%	0.18005%	
1, 3 1	Baker Hughes	Crosslinker	D-Glucitol	50-70-4	10.00%	0.02064%	
			Glyoxal	107-22-2	30.00%	0.06191%	
			Sodium Hydroxide	1310-73-2	5.00%	0.01032%	
			Sodium Tetraborate	1330-43-4	10.00%	0.02064%	
GLFC-1B	Baker Hughes	Gelling Agent	Alkanes / Alkenes	Multiple	45.00%	0.17464%	
			Guar Gum	9000-30-0	50.00%	0.19405%	
GW-4LBF	Baker Hughes	Gelling Agent	Guar Gum	9000-30-0	60.00%	0.13637%	SmartCare Product
			Paraffinic Petroleum Distillate	64742-55-8	60.00%	0.13637%	

			Petroleum Distillate	64742-47-8	60.00%	0.13637%	
Sand, White, 20/40	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00%	19.21298%	
Sand, White, 100 mesh	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00%	0.30466%	
Super LC, 20/40	Baker Hughes	Proppant	Hexamethylenetetramine	1009-7-0	0.01%	0.00087%	
			P/F Resin	9003-35-4	5.00%	0.43622%	
			Silicon Dioxide (Silica Sand)	14808-60-7	97.00%	8.46269%	
GasFlo G, 330 gal tote	Baker Hughes	Surfactant	Methanol	67-56-1	30.00%	0.04279%	SmartCare Product
			Mixture of Surfactants	Trade Secret	60.00%	0.08558%	
			Water	7732-18-5	50.00%	0.07131%	
Ingredients shown a	above are sub	oject to 29 CFR 1910.	1200(i) and appear on Material Safety Data	Sheets (MSDS). Ingred	ients shown below are	Non-MSDS.	
			Acetyl Triethyl Citrate	77-89-4		0.0187032821%	
			Crystalline Silica	14808-60-7			
			Ethylene Glycol Monobutyl Ether	111-76-2			
			Methanol	67-56-1		0.0000416040%	
			Poly (oxy-1,2-ethanediyl)	24938-91-8			
			Quaternary Ammonium Compounds bis[Hydrogenated Tallow Alkyl] Dimethyl Salts With Bentonite	68953-58-2			
			Sodium Bicarbonate	144-55-8		0.0227289409%	
			Water	7732-18-5		0.0124811968%	

<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%