## Hydraulic Fracturing Fluid Product Component Information Disclosure

06/30/2012	Last Fracture Date
California	State:
Kern	County:
04-030-47677	API Number:
Vintage Prod Of Cal	Operator Name:
Sill 5-14H	Well Name and Number:
-119.24907	Longitude:
35.49761	Latitude:
NAD27	Long/Lat Projection:
Oil	Production Type:
7,610	True Vertical Depth (TVD):
494,760	Total Water Volume (gal)*:

## 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%	73.92716%	
Alpha 125	Baker Hughes	Biocide	Glutaraldehyde	111-30-8	30.00%	0.00644%	SmartCare Product
Enzyme G-I	Baker Hughes	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00623%	SmartCare Product
			Water	7732-18-5	97.00%	0.20146%	
High Perm CRB	Baker Hughes	Breaker	Ammonium Persulphate	7727-54-0	60.00%	0.00108%	SmartCare Product
			Crystalline Silica Quartz	14808-60-7	30.00%	0.00054%	
BC-3	Baker Hughes	Breaker Catalyst	No Hazardous Ingredients	Trade Secret	100.00%	0.03709%	
BF-7L	Baker Hughes	Buffer	Potassium Carbonate	584-08-7	60.00%	0.27773%	SmartCare Product
			Potassium Hydroxide	1310-58-3	1.00%	0.00463%	
			Water	7732-18-5	60.00%	0.27773%	
XLW-56, 330 gal tote	Baker Hughes	Crosslinker	D-Glucitol	50-70-4	10.00%	0.02117%	
			Glyoxal	107-22-2	30.00%	0.06351%	
			Sodium Hydroxide	1310-73-2	5.00%	0.01058%	
			Sodium Tetraborate	1330-43-4	10.00%	0.02117%	
GLFC-1B	Baker Hughes	Gelling Agent	Alkanes / Alkenes	Multiple	45.00%	0.06976%	
			Guar Gum	9000-30-0	50.00%	0.07751%	
GW-4LBF	Baker	Gelling Agent	Guar Gum	9000-30-0	60.00%	0.41901%	SmartCare Product

	Hughes						
			Paraffinic Petroleum Distillate	64742-55-8	60.00%	0.41901%	
			Petroleum Distillate	64742-47-8	60.00%	0.41901%	
Sand, White, 20/40	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00%	18.48748%	
Sand, White, 100 mesh	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00%	0.37634%	
	Baker Hughes	Proppant	Hexamethylenetetramine	1009-7-0	0.01%	0.00044%	
			P/F Resin	9003-35-4	5.00%	0.22184%	
			Silicon Dioxide (Silica Sand)	14808-60-7	97.00%	4.30373%	
GasFlo G, 330 gal tote	Baker Hughes	Surfactant	Methanol	67-56-1	30.00%	0.04837%	SmartCare Product
			Mixture of Surfactants	Trade Secret	60.00%	0.09674%	
			Water	7732-18-5	50.00%	0.08062%	
Ingredients shown a	above are sul	oject to 29 CFR 1910.120	O(i) and appear on Material Safety Data	Sheets (MSDS). Ingredie	nts shown below are	Non-MSDS.	
			Acetyl Triethyl Citrate	77-89-4		0.0370880392%	
			Crystalline Silica	14808-60-7			
			Cured Acrylic Resin	Trade Secret		0.0005376247%	
			Ethylene Glycol Monobutyl Ether	111-76-2			
			Methanol	67-56-1		0.0000536435%	
			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		0.0698357268%	
			Water	7732-18-5		0.0160930424%	

<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%