Hydraulic Fracturing Fluid Product Component Information Disclosure

ture Date 08/28/2012	Last Fracture Date
State: California	State:
County: Kern	County:
Number: 04-030-47969	API Number:
or Name: Vintage Prod Of Cal	Operator Name:
Number: MJ 24-14W	Well Name and Number:
ongitude: -119.68509	Longitude:
Latitude: 35.40302	Latitude:
ojection: NAD27	Long/Lat Projection:
i <mark>on Type:</mark> Oil	Production Type:
th (TVD): 6,630	True Vertical Depth (TVD):
me (gal)*: 134,820	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%	82.76136%	
Alpha 125	Baker Hughes	Biocide	Glutaraldehyde	111-30-8	30.00%	0.00661%	SmartCare Product
GBW-5	Baker Hughes	Breaker	Ammonium Persulfate	7727-54-0	100.00%	0.00294%	SmartCare Product
Enzyme G-I	Baker Hughes	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00409%	SmartCare Product
			Water	7732-18-5	97.00%	0.13219%	
BC-3	Baker Hughes	Breaker Catalyst	No Hazardous Ingredients	Trade Secret	100.00%	0.01252%	
BF-7L	Baker Hughes	Buffer	Potassium Carbonate	584-08-7	60.00%	0.08807%	SmartCare Product
			Potassium Hydroxide	1310-58-3	1.00%	0.00147%	
			Water	7732-18-5	60.00%	0.08807%	
Clay Master-5C (Tote)	Baker Hughes	Clay Control	Oxyakylated Amine Quat	138879-94-4	60.00%	0.06214%	
XLW-32, 260 gal tote	Baker Hughes	Crosslinker	Boric Acid (H3BO3)	10043-35-3	30.00%	0.01801%	
			Methanol	67-56-1	60.00%	0.03602%	
			Methyl Borate	121-43-7	30.00%	0.01801%	
GW-3LDF	Baker Hughes	Gelling Agent	1-Butoxy-2-Propanol	5131-66-8	5.00%	0.02508%	SmartCare Product
			Cyrstalline Silica, Quartz (SiO2)	14808-60-7	5.00%	0.02508%	
			Guar Gum	9000-30-0	60.00%	0.30100%	
			Isotridecanol, ethoxylated	9043-30-5	5.00%	0.02508%	
			Paraffinic Petroleum Distillate	64742-55-8	30.00%	0.15050%	
			Petroleum Distillates	64742-47-8	30.00%	0.15050%	
Sand, White, 30/50	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00%	11.95955%	
Super LC, 30/50	Baker	Proppant	Hexamethylenetetramine	1009-7-0	0.01%	0.00039%	

	Hughes							
			P/F Resin	9003-35-4	5.00%	0.19510%		
			Silicon Dioxide (Silica Sand)	14808-60-7	97.00%	3.78503%		
GasFlo G, 330 gal tote	Baker Hughes	Surfactant	Methanol	67-56-1	30.00%	0.02607%	SmartCare Product	
			Mixture of Surfactants	Trade Secret	60.00%	0.05214%		
			Water	7732-18-5	50.00%	0.04345%		
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.								
			2-Butoxy-1-Propanol	15821-83-7		0.0004013320%		
			Acetyl Triethyl Citrate	77-89-4		0.0125235120%		
			Methanol	67-56-1		0.0000550961%		
			Water	7732-18-5		0.0165288271%		

^{*} 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)

^{**} Information is based on the maximum potential for concentration and thus the total may be over 100%