

## Hydraulic Fracturing Fluid Product Component Information Disclosure

<b>Last Fracture Date</b>	<b>03/08/2013</b>
<b>State:</b>	<b>California</b>
<b>County:</b>	<b>Kern</b>
<b>API Number:</b>	<b>04-030-48477</b>
<b>Operator Name:</b>	<b>Vintage Prod Of Cal</b>
<b>Well Name and Number:</b>	<b>Vintage 8-14H</b>
<b>Longitude:</b>	<b>-119.2468</b>
<b>Latitude:</b>	<b>35.48819</b>
<b>Long/Lat Projection:</b>	<b>NAD27</b>
<b>Production Type:</b>	<b>Oil</b>
<b>True Vertical Depth (TVD):</b>	<b>8,148</b>
<b>Total Water Volume (gal)*:</b>	<b>471,324</b>

### 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%	77.00818%	
Enzyme G-I	Baker Hughes	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00132%	SmartCare Product
			Water	7732-18-5	97.00%	0.04279%	
High Perm CRB	Baker Hughes	Breaker	Ammonium Persulphate	7727-54-0	60.00%	0.00071%	SmartCare Product
			Crystalline Silica Quartz	14808-60-7	30.00%	0.00035%	
BF-8L	Baker Hughes	Buffer	Monoethanolamine	141-43-5	85.00%	0.18238%	
XLW-56, 330 gal tote	Baker Hughes	Crosslinker	D-Glucitol	50-70-4	10.00%	0.00383%	
			Glyoxal	107-22-2	30.00%	0.01150%	
			Sodium Hydroxide	1310-73-2	5.00%	0.00192%	
			Sodium Tetraborate	1330-43-4	10.00%	0.00383%	
GW-3LDF	Baker Hughes	Gelling Agent	1-Butoxy-2-Propanol	5131-66-8	5.00%	0.03145%	SmartCare Product
			Cyrstalline Silica, Quartz (SiO2)	14808-60-7	5.00%	0.03145%	
			Guar Gum	9000-30-0	60.00%	0.37739%	
			Isotridecanol, ethoxylated	9043-30-5	5.00%	0.03145%	
			Paraffinic Petroleum Distillate	64742-55-8	30.00%	0.18870%	
			Petroleum Distillates	64742-47-8	30.00%	0.18870%	
Ferrotrol 300L (Totes)	Baker Hughes	Iron Control	Citric Acid	77-92-9	60.00%	0.02360%	SmartCare Product
Sand, White, 20/40	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00%	21.63195%	
GasFlo G, 330 gal tote	Baker Hughes	Surfactant	Methanol	67-56-1	30.00%	0.04756%	SmartCare Product

			Mixture of Surfactants	Trade Secret	60.00%	0.09511%	
			Water	7732-18-5	50.00%	0.07926%	
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		0.0005031886%	
			Cured Acrylic Resin	Trade Secret		0.0003527267%	
			Water	7732-18-5		0.0157306781%	
* 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)							