

Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date	10/19/2012
State:	California
County:	Kern
API Number:	04-030-48518
Operator Name:	Aera Energy Llc
Well Name and Number:	964FR-33
Longitude:	-119.713054
Latitude:	35.4498704
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	1,310
Total Water Volume (gal)*:	44,352

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%	66.76147%	
X-Cide 207	Baker Hughes	Biocide	2-Methyl-4-Isothiazolin-3-One	2682-20-4	5.00%	0.00005%	
			5-Chloro-2-Methyl-4-Isothiazolin-3-One	26172-55-4	10.00%	0.00011%	
			Crystalline Silica: Cristobalite	14464-46-1	1.00%	0.00001%	
			Crystalline Silica: Quartz (SiO2)	14808-60-7	1.00%	0.00001%	
			Diatomaceous Earth, Calcined	91053-39-3	60.00%	0.00065%	
			Magnesium Chloride	7786-30-3	5.00%	0.00005%	
			Magnesium Nitrate	10377-60-3	10.00%	0.00011%	
GBW-5	Baker Hughes	Breaker	Ammonium Phosphate	7727-54-0	100.00%	0.00451%	SmartCare Product
Enzyme G-I	Baker Hughes	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00108%	SmartCare Product
			Water	7732-18-5	97.00%	0.03504%	
Clay Master-5C (Tote)	Baker Hughes	Clay Control	Oxyakylated Amine Quat	138879-94-4	60.00%	0.04369%	
XLW-10A	Baker Hughes	Crosslinker	Ethylene Glycol	107-21-1	30.00%	0.02332%	SmartCare Product
			Sodium Hydroxide	1310-73-2	10.00%	0.00777%	
			Sodium Tetraborate	1330-43-4	30.00%	0.02332%	
GW-3LDF	Baker Hughes	Gelling Agent	1-Butoxy-2-Propanol	5131-66-8	5.00%	0.00864%	SmartCare Product
			Cyrstalline Silica, Quartz (SiO2)	14808-60-7	5.00%	0.00864%	

			Guar Gum	9000-30-0	60.00%	0.10366%	
			Isotridecanol, ethoxylated	9043-30-5	5.00%	0.00864%	
			Paraffinic Petroleum Distillate	64742-55-8	30.00%	0.05183%	
			Petroleum Distillates	64742-47-8	30.00%	0.05183%	
Sand, White, 20/40	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00%	32.82486%	
ScaleSorb 3, (25# pail)	Baker Hughes	Scale Inhibitor	Amino Alkyl Phosphonic Acid	Trade Secret	30.00%	0.00569%	SmartCare Product
			Crystalline Silica: Quartz (SiO2)	14808-60-7	1.00%	0.00019%	
			Diatomaceous Earth, Calcined	91053-39-3	100.00%	0.01896%	
			Phosphonic Acid	13598-36-2	1.00%	0.00019%	
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		0.0001382175%	
			Water	7732-18-5		0.0155440555%	

* 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%

All component information listed was obtained from the supplier's Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational Safety and Health Administration's (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects "proprietary", "trade secret", and "confidential business information" and the criteria for how this information is reported on an MSDS is subject to 29 CFR 1910.1200(i) and Appendix D.