

Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date	12/17/2012
State:	California
County:	Kern
API Number:	04-030-48274
Operator Name:	Aera Energy Llc
Well Name and Number:	732AU-29
Longitude:	-119.7378299
Latitude:	35.4668018
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	1,420
Total Water Volume (gal)*:	23,226

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%	78.44048%	
X-Cide 207	Baker Hughes	Biocide	2-Methyl-4-Isothiazolin-3-One	2682-20-4	5.00%	0.00024%	
			5-Chloro-2-Methyl-4-Isothiazolin-3-One	26172-55-4	10.00%	0.00049%	
			Crystalline Silica: Cristobalite	14464-46-1	1.00%	0.00005%	
			Crystalline Silica: Quartz (SiO2)	14808-60-7	1.00%	0.00005%	
			Diatomaceous Earth, Calcined	91053-39-3	60.00%	0.00292%	
			Magnesium Chloride	7786-30-3	5.00%	0.00024%	
			Magnesium Nitrate	10377-60-3	10.00%	0.00049%	
GBW-5	Baker Hughes	Breaker	Ammonium Phosphate	7727-54-0	100.00%	0.00608%	SmartCare Product
Enzyme G-I	Baker Hughes	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00243%	SmartCare Product
			Water	7732-18-5	97.00%	0.07862%	
BF-7L	Baker Hughes	Buffer	Potassium Carbonate	584-08-7	60.00%	0.12113%	SmartCare Product
			Potassium Hydroxide	1310-58-3	1.00%	0.00202%	
			Water	7732-18-5	60.00%	0.12113%	
Clay Master-5C (Tote)	Baker Hughes	Clay Control	Oxyakylated Amine Quat	138879-94-4	60.00%	0.07172%	
XLW-32, 260 gal tote	Baker Hughes	Crosslinker	Boric Acid (H3BO3)	10043-35-3	30.00%	0.03211%	
			Methanol	67-56-1	60.00%	0.06422%	

			Methyl Borate	121-43-7	30.00%	0.03211%	
GW-3LDF	Baker Hughes	Gelling Agent	1-Butoxy-2-Propanol	5131-66-8	5.00%	0.02733%	SmartCare Product
			Cyrstalline Silica, Quartz (SiO2)	14808-60-7	5.00%	0.02733%	
			Guar Gum	9000-30-0	60.00%	0.32794%	
			Isotridecanol, ethoxylated	9043-30-5	5.00%	0.02733%	
			Paraffinic Petroleum Distillate	64742-55-8	30.00%	0.16397%	
			Petroleum Distillates	64742-47-8	30.00%	0.16397%	
Sand, White, 20/40	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00%	20.28517%	
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		0.0004372556%	
			Water	7732-18-5			

* 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)