

Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date	12/11/2012
State:	California
County:	Kern
API Number:	04-030-44623
Operator Name:	Aera Energy Llc
Well Name and Number:	542ER3-29
Longitude:	-119.7357451
Latitude:	35.46841
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	1,911
Total Water Volume (gal)*:	74,928

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%	75.56493%	
X-Cide 207	Baker Hughes	Biocide	2-Methyl-4-Isothiazolin-3-One	2682-20-4	5.00%	0.00018%	
			5-Chloro-2-Methyl-4-Isothiazolin-3-One	26172-55-4	10.00%	0.00036%	
			Crystalline Silica: Cristobalite	14464-46-1	1.00%	0.00004%	
			Crystalline Silica: Quartz (SiO2)	14808-60-7	1.00%	0.00004%	
			Diatomaceous Earth, Calcined	91053-39-3	60.00%	0.00218%	
			Magnesium Chloride	7786-30-3	5.00%	0.00018%	
			Magnesium Nitrate	10377-60-3	10.00%	0.00036%	
GBW-5	Baker Hughes	Breaker	Ammonium Persulfate	7727-54-0	100.00%	0.00242%	SmartCare Product
			Ammonium Phosphate	7727-54-0	100.00%	0.00302%	
Enzyme G-I	Baker Hughes	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00221%	SmartCare Product
			Water	7732-18-5	97.00%	0.07141%	
Clay Master-5C (Tote)	Baker Hughes	Clay Control	Oxyakylated Amine Quat	138879-94-4	60.00%	0.03213%	
Clay Master-5C	Baker Hughes	Clay Control	Oxyakylated Amine Quat	138879-94-4	60.00%	0.02499%	
XLW-10A	Baker Hughes	Crosslinker	Ethylene Glycol	107-21-1	30.00%	0.03543%	SmartCare Product
			Sodium Hydroxide	1310-73-2	10.00%	0.01181%	
			Sodium Tetraborate	1330-43-4	30.00%	0.03543%	
GW-3LDF	Baker Hughes	Gelling Agent	1-Butoxy-2-Propanol	5131-66-8	5.00%	0.01244%	SmartCare Product
			Cyrstalline Silica, Quartz (SiO2)	14808-60-7	5.00%	0.01244%	
			Guar Gum	9000-30-0	60.00%	0.20412%	
			Isotridecanol, ethoxylated	9043-30-5	5.00%	0.01244%	

			Paraffinic Petroleum Distillate	64742-55-8	30.00%	0.07466%	
			Petroleum Distillate Blend	Trade Secret	70.00%	0.09589%	
			Petroleum Distillates	64742-47-8	30.00%	0.07466%	
Sand, White, 20/40	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00%	12.11971%	
Sand, Brown, 8/40	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00%	11.58267%	
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		0.0001990972%	
			Crystalline Silica	14808-60-7			
			Ethylene Glycol Monobutyl Ether	111-76-2			
			Poly (oxy-1,2-ethanediyl)	24938-91-8			
			Quaternary Ammonium Compounds bis[Hydrogenated Tallow Alkyl] Dimethyl Salts With Bentonite	68953-58-2			
			Water	7732-18-5		0.0236225582%	
* 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)							