

Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date	05/01/2012
State:	California
County:	Kern
API Number:	04-030-46902
Operator Name:	Aera Energy Llc
Well Name and Number:	548N4-35
Longitude:	-119.7801264
Latitude:	35.5325096
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	1,470
Total Water Volume (gal)*:	66,234

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%	78.15133%	
GBW-5	Baker Hughes	Breaker	Ammonium Persulfate	7727-54-0	100.00%	0.00566%	SmartCare Product
Enzyme G-I	Baker Hughes	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00113%	SmartCare Product
			Water	7732-18-5	97.00%	0.03662%	
Clay Master-5C (Tote)	Baker Hughes	Clay Control	Oxyakylated Amine Quat	138879-94-4	60.00%	0.04594%	
XLW-10A	Baker Hughes	Crosslinker	Ethylene Glycol	107-21-1	30.00%	0.02407%	SmartCare Product
			Sodium Hydroxide	1310-73-2	10.00%	0.00802%	
			Sodium Tetraborate	1330-43-4	30.00%	0.02407%	
GW-3LDF	Baker Hughes	Gelling Agent	Acyclic Hydrocarbon Blend	Trade Secret	60.00%	0.10970%	SmartCare Product
			Alcohols, C12-14, Ethoxylated Propoxylated	68439-51-0	5.00%	0.00914%	
			Crystalline Silica, Quartz	14808-60-7	5.00%	0.00914%	
			Guar Gum	9000-30-0	60.00%	0.10970%	
Sand, White, 20/40	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00%	21.38016%	
ScaleSorb 3, (25# pail)	Baker Hughes	Scale Inhibitor	Amino Alkyl Phosphonic Acid	Trade Secret	30.00%	0.00743%	SmartCare Product
			Crystalline Silica: Quartz (SiO2)	14808-60-7	1.00%	0.00025%	
			Diatomaceous Earth, Calcined	91053-39-3	100.00%	0.02477%	

			Phosphonic Acid	13598-36-2	1.00%	0.00025%	
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.							
			Isotridecanol, Ethoxylated (TDA-6)	9043-30-5		0.0091415457%	
			Isotridecanol, Ethoxylated (TDA-9)	9043-30-5		0.0091415457%	
			Quaternary Ammonium Compounds bis[Hydrogenated Tallow Alkyl] Dimethyl Salts With Bentonite	68953-58-2		0.0091415457%	
			Water	7732-18-5		0.0251894003%	
* 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)							