

Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date	10/25/2011
State:	California
County:	Kern
API Number:	04-030-44613
Operator Name:	Aera Energy Llc
Well Name and Number:	517DR2-20
Longitude:	-119.7408576
Latitude:	35.4724704
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	1,940
Total Water Volume (gal)*:	41,580

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%	77.33145%	
X-Cide 207	Baker Hughes	Biocide	2-Methyl-4-Isothiazolin-3-One	2682-20-4	5.00%	0.00013%	
			5-Chloro-2-Methyl-4-Isothiazolin-3-One	26172-55-4	10.00%	0.00027%	
			Crystalline Silica: Cristobalite	14464-46-1	1.00%	0.00003%	
			Crystalline Silica: Quartz (SiO2)	14808-60-7	1.00%	0.00003%	
			Diatomaceous Earth, Calcined	91053-39-3	60.00%	0.00161%	
			Magnesium Chloride	7786-30-3	5.00%	0.00013%	
			Magnesium Nitrate	10377-60-3	10.00%	0.00027%	
GBW-5	Baker Hughes	Breaker	Ammonium Persulfate	7727-54-0	100.00%	0.00446%	SmartCare Product
Enzyme G-I	Baker Hughes	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00134%	SmartCare Product
			Water	7732-18-5	97.00%	0.04330%	
Clay Master-5C	Baker Hughes	Clay Control	Oxyakylated Amine Quat	138879-94-4	60.00%	0.05398%	
XLW-10A	Baker Hughes	Crosslinker	Ethylene Glycol	107-21-1	30.00%	0.03162%	SmartCare Product
			Sodium Hydroxide	1310-73-2	10.00%	0.01054%	
			Sodium Tetraborate	1330-43-4	30.00%	0.03162%	
GW-3LDF	Baker Hughes	Gelling Agent	Guar Gum	9000-30-0	40.00%	0.09468%	SmartCare Product
			Petroleum Distillate Blend	Trade Secret	70.00%	0.16570%	

Sand, White, 20/40	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00%	22.20778%	
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.							
			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		0.0210790962%	
* 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)							