Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date	12/04/2012
State:	California
County:	Kern
API Number:	04-030-44621
Operator Name:	Aera Energy Llc
Well Name and Number:	541AR-29
Longitude:	-119.7355794
Latitude:	35.4686058
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	1,980
Total Water Volume (gal)*:	79,380

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%	75.03737%	
	Baker Hughes	Biocide	2-Methyl-4-Isothiazolin-3-One	2682-20-4	5.00%	0.00017%	
			5-Chloro-2-Methyl-4-Isothiazolin-3-One	26172-55-4	10.00%	0.00034%	
			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%	0.00204%	
			Magnesium Chloride	7786-30-3	5.00%	0.00017%	
			Magnesium Nitrate	10377-60-3	10.00%	0.00034%	
GBW-5 Baker Hughes	Baker Hughes	Breaker	Ammonium Persulfate	7727-54-0	100.00%	0.00227%	SmartCare Product
			Ammonium Phosphate	7727-54-0	100.00%	0.00340%	
Enzyme G-I Baker Hughes	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00278%	SmartCare Product	
			Water	7732-18-5	97.00%	0.08986%	
Clay Master-5C (Tote)	Baker Hughes	Clay Control	Oxyakylated Amine Quat	138879-94-4	60.00%	0.02610%	
Clay Master-5C	Baker Hughes	Clay Control	Oxyakylated Amine Quat	138879-94-4	60.00%	0.02543%	
XLW-10A	Baker Hughes	Crosslinker	Ethylene Glycol	107-21-1	30.00%	0.03321%	SmartCare Product
			Sodium Hydroxide	1310-73-2	10.00%	0.01107%	
			Sodium Tetraborate	1330-43-4	30.00%	0.03321%	

	Hughes						
			Cyrstalline Silica, Quartz (SiO2)	14808-60-7	5.00%	0.00841%	
			Guar Gum	9000-30-0	60.00%	0.14984%	
			Isotridecanol, ethoxylated	9043-30-5	5.00%	0.00841%	
			Paraffinic Petroleum Distillate	64742-55-8	30.00%	0.05045%	
			Petroleum Distillate Blend	Trade Secret	70.00%	0.08563%	
			Petroleum Distillates	64742-47-8	30.00%	0.05045%	
Sand, White, 20/40	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00%	13.14916%	
Sand, Brown, 8/40	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00%	11.19912%	
Ingredients shown a	bove are sub	ject to 29 CFR 1910.1200	O(i) and appear on Material Safety Data	Sheets (MSDS). Ingredier	nts shown below are	Non-MSDS.	
			2-Butoxy-1-Propanol	15821-83-7		0.0001345391%	
			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		0.0221420223%	

5131-66-8

5.00%

SmartCare Product

0.00841%

GW-3LDF

Baker

Gelling Agent

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

1-Butoxy-2-Propanol

^{*} 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%