

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date	12/21/2011
State:	CO
County:	WELD
API Number:	05-123-21841
Operator Name:	KerrMcGee
Well Name and Number:	YAMAGUCHI 10-27
Longitude:	-104.874645
Latitude:	40.195265
Long/Lat Projection:	NAD83
Production Type:	Gas
True Vertical Depth (TVD):	7,454
Total Water Volume (gal)*:	466,721

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
15% HCL Acid	Superior	Perf Breakdown	Water	7732-18-5	90.00%	0.05106%	
			Hydrogen Chloride	7647-01-0	33.00%	0.01872%	
AI-3	Superior	Corrosion Inhibitor	Alcohol Blend		20.00%	0.00004%	
Frac-cide 1000	Baker Hughes	Biocide	Water	007732-18-5	5.00%	0.00008%	
			2,2-dibromo-3-nitrilopropionamide	010222-01-2	100.00%	0.00169%	
Resin Coated Sand	Superior	Propping Agent	Crystalline silica (Quartz)	14808-60-7	100.00%	0.18790%	
Sand (Proppant)	Superior	Propping Agent	Crystalline silica (Quartz)	14808-60-7	99.90%	8.22070%	
Super CS-2	Superior	Surfactant	Isopropanol	67-63-0	20.00%	0.02532%	
			Cyclohexanes	5989-27-5	100.00%	0.12659%	
			Alkyl Alkoxylate	Proprietary	100.00%	0.12659%	
			Alcohols	Proprietary	100.00%	0.12659%	
Water	Anadarko	Base Carrier Fluid	Water		100.00%	91.31270%	
WFR-5W	Superior	Cationic Friction Reducer	Hydrotreated paraffinic solvent	64742-47-8	30.00%	0.02558%	
			Ethoxylated alcohol blend	Proprietary	5.00%	0.00426%	

* 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%

All component information listed was obtained from the supplier’ s Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational Safety and Health Administration’ s (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects "proprietary", "trade secret", and "confidential business information" and the criteria for how this information is reported on an MSDS is subject to 29 CFR 1910.1200(i) and Appendix D.

