

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date	3/30/2012
State:	Texas
County:	Mitchell
API Number:	42-335-35595
Operator Name:	Quantum Resources Management, LLC
Well Name and Number:	Turner Gregory Unit #1111
Longitude:	-101.103638
Latitude:	32.383824
Long/Lat Projection:	NAD27
Production Type:	Oil
True Vertical Depth (TVD):	3,032
Total Water Volume (gal)*:	87,803

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	1.00000	0.771380	
HCl, 10.1 - 15%	FTSI	Acidizing	Hydrochloric Acid	7647-01-0	0.15000	0.006372	
0	0	0	Water	7732-18-5	0.85000	0.036110	
CI-150	FTSI	Corrosion Inhibitor	Isopropanol	67-63-0	0.30000	0.000036	
			Dimethylformamide	68-12-2	0.10000	0.000012	
			Organic amine resin salt	Proprietary	0.30000	0.000036	
			Quaternary ammonium compound	Proprietary	0.10000	0.000012	
			Aromatic aldehyde	Proprietary	0.10000	0.000012	
			Ethylene Glycol	107-21-1	0.30000	0.000036	
			Diethylene glycol	111-46-6	0.01000	0.000001	
			Water	7732-18-5	0.05000	0.000006	
			Fatty acid	Proprietary	0.00100	0.000000	
			Fatty acid salt	Proprietary	0.00100	0.000000	
			Aliphatic alcohol	Proprietary	0.00100	0.000000	
			Alkylene Oxide Block Polymer	Proprietary	0.10000	0.000012	
NE-100	FTSI	Non-Emulsifier	2-Butoxyethanol	111-76-2	0.10000	0.000052	
			2-Propanol	67-63-0	0.10000	0.000052	
			Dodecylbenzenesulfonic acid	27176-87-0	0.05000	0.000026	
0	0	0	Sulfuric Acid	7664-93-9	0.00014	0.000000	
0	0	0	Water	7732-18-5	0.90000	0.000470	
			Sulfur Dioxide	7446-09-5	0.00001	0.000000	
FE-100L	FTSI	Iron Control	Citric Acid	77-92-9	0.55000	0.000080	
			Water	7732-18-5	0.60000	0.000087	
ICI-445	FTSI	Biocide	didecyl dimethyl ammonium chloride	7173-51-5	0.50000	0.000004	
			Ethanol	64-17-5	0.10000	0.000001	
			Water	7732-18-5	0.40000	0.000003	
HVG-1	FTSI	Guar Slurry	Guar Gum	9000-30-0	0.50000	0.002457	

			Petroleum Distillate	64742-47-8	0.55000	0.002702	
			Clay	14808-60-7	0.02000	0.000098	
BXL-2	FTSI	Crosslinker	Sodium metaborate	10555-76-7	0.25000	0.000270	
			Boric acid	10043-35-3	0.15000	0.000162	
			Potassium hydroxide	1310-58-3	0.12000	0.000130	
			Water	7732-18-5	0.75000	0.000810	
			Surfactant	68439-51-	0.02000	0.000022	
			Ethylene Glycol monobutyl ether	111-76-2	0.00250	0.000003	
B-10	FTSI	High pH Buffer	Potassium Carbonate	584-08-7	0.48000	0.000221	
			Potassium Hydroxide	1310-58-3	0.20000	0.000092	
			Water	7732-18-5	0.55000	0.000253	
ICI-150	FTSI	Biocide	Gluteral	111-30-8	0.50000	0.000198	
			Water	7732-18-5	0.50000	0.000198	
			Methanol	67-56-1	0.00500	0.000002	
LEB-300	FTSI	Breaker	Non-Harardous Materials	NA	1.00000	0.000049	
KCL-2	FTSI	Clay Protection	Quaternary Ammonium Chloride	70750-07-1	0.60000	0.000228	
			Methanol	67-56-1	0.02000	0.000008	
			Non-Harardous Materials	NA	1.00000	0.000379	
Sand, TG, 16/30	FTSI	Proppant	Crystalline Silica (Quartz)	14808-60-6	1.00000	0.178024	

* 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)