

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	8/17/2014
Job End Date:	9/3/2014
State:	North Dakota
County:	Dunn
API Number:	33-025-02338-00-00
Operator Name:	G3 Operating, LLC.
Well Name and Number:	Fort Berthold 148-94-33C-28-9H
Longitude:	-102.67038400
Latitude:	47.58929600
Datum:	NAD27
Federal/Tribal Well:	YES
True Vertical Depth:	10,953
Total Base Water Volume (gal):	893,121
Total Base Non Water Volume:	0



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
Fresh Water	Operator	Base Fluid					
			Fresh Water	7732-18-5	100.00000	61.10237	Density = 8.330
SAND - PREMIUM WHITE	Halliburton	Proppant					
			Crystalline silica, quartz	14808-60-7	100.00000	9.57254	
LOSURF-300D	Halliburton	Non-ionic Surfactant					
			Ethanol	64-17-5	60.00000	0.16242	
			Heavy aromatic petroleum naphtha	64742-94-5	30.00000	0.08121	
			Poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydroxy-, branched	127087-87-0	5.00000	0.01354	
			Naphthalene	91-20-3	5.00000	0.01354	
			1,2,4 Trimethylbenzene	95-63-6	1.00000	0.00271	
MC B-8630	Multi Chem	Biocide					
			Acetone	67-64-1		0.05952	Density = 8.220
			Misc	NA		0.04464	
			Glutaraldehyde	111-30-8		0.04464	
FR-66	Halliburton	Friction Reducer					
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.13408	
CERAMIC PROP	Halliburton	Proppant					

			Crystalline silica, quartz	14808-60-7		0.09576	
			Phenol / formaldehyde resin	9003-35-4		0.00479	
			Hexamethylenetetramine	100-97-0		0.00192	
MC MX 2-2822	Multi Chem	Scale Inhibitor					
			Misc	NA		0.03831	
			Sodium Salt	8913		0.02873	
			Methyl Alcohol	67-56-1		0.02873	Density = 8.760
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.							
		Other Ingredient(s)					
			Aluminum silicate	1302-76-7		28.36289	
		Other Ingredient(s)					
			Aluminum oxide	1344-28-1		8.50887	
		Other Ingredient(s)					
			Iron oxide	1309-37-1		2.83629	
		Other Ingredient(s)					
			Titanium dioxide	13463-67-7		1.41814	
		Other Ingredient(s)					
			Water	7732-18-5		0.26817	
		Other Ingredient(s)					
			Polyacrylamide copolymer	Confidential		0.13408	
		Other Ingredient(s)					
			Oxyalkylated phenolic resin	Confidential		0.08121	
		Other Ingredient(s)					
			Oxyalkylated phenolic resin	Confidential		0.02707	
		Other Ingredient(s)					
			Amide	Confidential		0.02235	
		Other Ingredient(s)					
			Alcohols ethoxylated	Confidential		0.02235	Denise Tuck, Halliburton 3000 N. Sam Houston Pkwy E., Houston, TX 77032 281-871-6226
		Other Ingredient(s)					
			Sodium chloride	7647-14-5		0.02235	
		Other Ingredient(s)					
			Ammonium chloride	12125-02-9		0.02235	
		Other Ingredient(s)					
			Sorbitan, mono-9-octadecenoate, (Z)	1338-43-8		0.00447	
		Other Ingredient(s)					
			Sorbitan monooleate polyoxyethylene derivative	9005-65-6		0.00447	

* 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%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.

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

