

# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	1/22/2014
Job End Date:	1/22/2014
State:	Wyoming
County:	Park
API Number:	49-029-06883-00-00
Operator Name:	Marathon Oil
Well Name and Number:	Wilson B 11
Longitude:	-108.88817300
Latitude:	44.32835500
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	4,080
Total Base Water Volume (gal):	29,685
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	81.53419	Density = 8.340
SAND - PREMIUM WHITE	Halliburton	Proppant					
			Crystalline silica, quartz	14808-60-7	100.00000	14.03626	
HYDROCHLORIC ACID 10-30%	Halliburton	Solvent					
			Hydrochloric acid	7647-01-0	30.00000	0.88426	
SSA-2	Halliburton	Proppant					
			Crystalline silica, quartz	14808-60-7	100.00000	0.65867	
LGC-VI	Halliburton	Liquid Gel Concentrate					
			Guar gum derivative	Confidential	60.00000	0.27917	Denise Tuck, Halliburton 3000 N. Sam Houston Pkwy E., Houston, TX 77032 281-871-6226
			Diesel	68476-34-6	60.00000	0.27917	
WLC-6 FLUID LOSS ADDITIVE	Halliburton	Fluid Loss Additive					
			Tallow soap	Confidential	100.00000	0.11527	
BC-140	Halliburton	Crosslinker					

			Monoethanolamine borate	26038-87-9	60.00000	0.07212
			Ethylene glycol	107-21-1	30.00000	0.03606
LoSurf-300D	Halliburton	Non-ionic Surfactant				
			Ethanol	64-17-5	60.00000	0.05201
			Heavy aromatic petroleum naphtha	64742-94-5	30.00000	0.02600
			Naphthalene	91-20-3	5.00000	0.00433
			Poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydroxy-, branched	127087-87-0	5.00000	0.00433
			1,2,4 Trimethylbenzene	95-63-6	1.00000	0.00087
GBW-30 BREAKER	Halliburton	Breaker				
			Carbohydrates	Confidential	100.00000	0.01647
			Hemicellulase enzyme	9012-54-8	30.00000	0.00494
SP BREAKER	Halliburton	Breaker				
			Sodium persulfate	7775-27-1	100.00000	0.01647
BE-6 MICROBIOCIDE	Halliburton	Biocide				
			2-Bromo-2-nitro-1,3-propanediol	52-51-7	100.00000	0.00296
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)				
			Water	7732-18-5		3.02013
		Other Ingredient(s)				
			Oxyalkylated phenolic resin	Confidential		0.02600
		Other Ingredient(s)				
			Ethoxylated branched C13 alcohol	78330-21-9		0.02326
		Other Ingredient(s)				
			Oxyalkylated phenolic resin	Confidential		0.00867
		Other Ingredient(s)				
			Bentonite, benzyl(hydrogenated tallow alkyl) dimethylammonium stearate complex	121888-68-4		0.00465
		Other Ingredient(s)				
			Sodium sulfate	7757-82-6		0.00002

\* 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)