

# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/23/2013
Job End Date:	4/23/2013
State:	Texas
County:	Ward
API Number:	42-475-36277-00-00
Operator Name:	Whiting Petroleum
Well Name and Number:	GWO 1948
Longitude:	-102.98801590
Latitude:	31.58173650
Datum:	NAD27
Federal/Tribal Well:	NO
Total Base Water Volume (gal):	4,454
Total Base Non Water Volume:	712



## 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	Base Carrier Fluid					
			Water	7732-18-5	100.00000	72.23616	
Sand	Operator	Proppant					
			Silicon Dioxide	14808-60-7	100.00000	25.85419	
SG-15M	ASK	Polymer					
			Guar Powder	9000-30-0	60.00000	0.67868	
			White Mineral Oil	8042-47-5	40.00000	0.45116	
			Proprietary	Proprietary	5.00000	0.05639	
			Bentonite	14808-60-7	5.00000	0.05639	
GB-150	Chemplex, L.C.	Breaker					
			Non-hazardous ingredients	NA	100.00000	0.26836	
CS-14	Chemplex, L.C.	Clay Control					
			Non-hazardous salts(Choline)	Proprietary	66.00000	0.12640	
			Water	7732-18-5	45.00000	0.08751	
XL-335	ASK	Crosslinker					
			Ethylene Glycol	107-21-1	25.00000	0.03306	
			Potassium Hydroxide	1310-58-3	25.00000	0.03306	
			Proprietary	Proprietary	25.00000	0.03306	
			Proprietary	Proprietary	15.00000	0.01945	
			Proprietary	Proprietary	10.00000	0.01361	

NE-227	CESI	Non-emulsifier					
			Ethoxylated Nonylphenol	9016-45-9	20.00000	0.03111	
			Isopropanol	67-63-0	15.00000	0.02334	
			Methanol	67-56-1	15.00000	0.02334	
GB-2	Fritz Industries, Inc.	Breaker					
			Ammonium Persulfate	7727-54-0	100.00000	0.02917	
B-24	Weatherfork	Biocide					
			2,2 Dibromo-3-Nitrilopropionamide	10222-01-2	100.00000	0.00194	

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.

\* 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)