

# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	9/3/2015
Job End Date:	9/3/2015
State:	Texas
County:	Crockett
API Number:	42-105-42254-00-00
Operator Name:	Warren American Oil Company
Well Name and Number:	University of Texas 245 #5
Longitude:	-101.35536700
Latitude:	30.99608300
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	2,500
Total Base Water Volume (gal):	40,079
Total Base Non Water Volume:	3,727



## 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	81.13394	
Sand	Multiple Suppliers	Proppants					
			Silicon Dioxide	14808-60-7	100.00000	18.08784	
SG-15G	PfP Technology	Gelling Agents					
			Petroleum Distillate(Mineral Oil)	64742-47-8	55.00000	0.25011	
			Guar Gum	9000-30-0	50.00000	0.22738	
			Bentonite Clay	14808-60-7	2.00000	0.00910	
			Surfactant	68439-51-0	2.00000	0.00910	
NE-227	PfP Technology	Non and De-Emulsifiers					
			Deionized Water	7732-18-5	75.00000	0.05921	
			Demulsifier Blend	Proprietary	40.00000	0.03158	
			Dipropylene glycol monomethyl ether	34590-94-8	20.00000	0.01579	
GB-150	Chemplex, L.C.	Gel Breakers/Delayed Breakers					
			Water	7732-18-5	90.00000	0.08016	
			Sodium Chloride	7647-14-5	15.00000	0.01336	
			Mannanase Enzymes	Proprietary	2.00000	0.00178	
XL-335	PfP Technology	Crosslinkers					

			Glycerol	56-81-5	45.00000	0.04483	
			Sodium Metaborate	7775-19-1	40.00000	0.03985	
CS-14	Magnablend/PIP	Clay Control / Stabilizers					
			Water	7732-18-5	55.00000	0.02427	
			Choline Chloride	67-48-1	55.00000	0.02427	
GB-2	Finoric	Gel Breakers/Delayed Breakers					
			Ammonium Persulfate	7727-54-0	100.00000	0.01092	
B-24	Lubrizol	Biocides					
			2,2 Dibromo-3-Nitrilopropionamide	10222-01-2	100.00000	0.00073	

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)