

## Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	8/30/2016
Job End Date:	10/1/2016
State:	Texas
County:	Crockett
API Number:	42-105-42271-00-00
Operator Name:	EP Energy
Well Name and Number:	University 41-01-DH
Latitude:	31.03689000
Longitude:	-101.11795000
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,141
Total Base Water Volume (gal):	16,643,214
Total Base Non Water Volume:	186,606



### 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	Supplied by Operator	Base Fluid					
			Water	7732-18-5	100.00000	98.61051	
Other Chemical (s)	Listed Above	See Trade Name (s) List					
			Water	7732-18-5	30.00000	0.00079	

			Water	7732-18-5	40.00000	0.00998	
			Water	7732-18-5	75.00000	0.02305	
			Water	7732-18-5	95.00000	0.01789	
			Water	7732-18-5	90.00000	0.04246	
			Water	7732-18-5	85.00000	0.03962	
			Water	7732-18-5	40.00000	0.02421	
			Water	7732-18-5	85.00000	0.80582	
SHALE SURF 1000	FTSI	Surfactant					
				Listed Below			
FRW-1050	FTSI	Friction Reduction Agent					
				Listed Below			
FE-100L	FTSI	Scale Inhibitor					
				Listed Below			
100 Mesh Sand	FTSI	Proppant					
				Listed Below			
10.1%-15.0% HCL	FTSI	Acid					
				Listed Below			

CS POLYBREAK 210	FTSI	Polymer breaker					
				Listed Below			
FRW-600	FTSI	Friction Reducer					
				Listed Below			
NE-100	FTSI	Non-emulsifier					
				Listed Below			
CI-150	FTSI	Acid Corrosion Inhibitor					
				Listed Below			
Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.							
			Silica, Quartz	14808-60-7	100.00000	0.21000	
			Hydrogen Chloride	7647-01-0	15.00000	0.14220	
			Acrylamide Polymer	Trade Secret	30.00000	0.01816	
			Hydrotreated light distillate	64742-47-8	30.00000	0.01816	
			Citric Acid	77-92-9	50.00000	0.01537	
			Polyacrylamide	Proprietary	50.00000	0.01248	
			Ethanaminium, N,N,N- trimethyl-2-[(1-oxo-2- propen-1-yl)oxy]-, chloride (1:1), polymer with 2-propenamide	69418-26-4	35.00000	0.00873	
			Isoparaffinic Solvent	64742-47-8	30.00000	0.00749	
			Ethoxylated alcohol	Proprietary	13.00000	0.00606	
			Ammonium acetate	631-61-8	10.00000	0.00605	
			Poly-(oxy-1,2- ethanediyl)-alpha- undecyl-omega	34398-01-1	11.00000	0.00513	
			2-Propanol	67-63-0	10.00000	0.00472	

			2-Butoxyethanol	111-76-2	10.00000	0.00472	
			Ethylene glycol	107-21-1	10.00000	0.00307	
			Alcohols, ethoxylated	68551-12-2	5.00000	0.00303	
			Alcohols, ethoxylated	68002-97-1	5.00000	0.00303	
			Alcohols, ethoxylated	68439-50-9	5.00000	0.00303	
			Dodecylbenzenesulfonic acid	27176-87-0	5.00000	0.00236	
			2-Propanol	67-63-0	5.00000	0.00233	
			2-Butoxyethanol	111-76-2	5.00000	0.00233	
			Methanol	67-56-1	5.00000	0.00233	
			Sodium chlorite	7758-19-2	12.00000	0.00226	
			Methanol	67-56-1	60.00000	0.00158	
			Isopropanol	67-63-0	60.00000	0.00158	
			Ethoxylated Sorbitan Monooleate	9005-65-6	6.00000	0.00150	
			Citric Acid	77-92-9	5.00000	0.00125	
			Alcohols, ethoxylated	68439-50-9	5.00000	0.00125	
			Alcohols, ethoxylated	68002-97-1	5.00000	0.00125	
			Alcohols, ethoxylated	68551-12-2	5.00000	0.00125	
			Fatty amino compound salt	Proprietary	30.00000	0.00079	
			Ethylene Glycol	107-21-1	30.00000	0.00079	
			Organic amine resin salt	Proprietary	30.00000	0.00079	
			Aromatic Ketone compound	Proprietary	30.00000	0.00079	
			Aromatic aldehyde	Proprietary	30.00000	0.00079	
			Ethoxylated fatty alcohol	Proprietary	30.00000	0.00079	
			Tridecyl Alcohol Ethoxylate	78330-21-9	3.00000	0.00075	
			Cyclohexene	5989-27-5	1.00000	0.00047	
			Alkylene Oxide Block Polymer	Proprietary	10.00000	0.00026	
			Quaternary ammonium compound	Proprietary	10.00000	0.00026	
			Dimethylformamide	68-12-2	10.00000	0.00026	

			Ethoxylated Alcohols	Proprietary	10.00000	0.00026	
			Polyalkylene glycol	Proprietary	10.00000	0.00026	
			Ammonium Chloride	12125-02-9	1.00000	0.00025	
			Acetic Acid	64-19-7	5.00000	0.00013	
			Oxyalkylated Fatty Amine	Proprietary	5.00000	0.00013	
			Acetophenone	98-86-2	5.00000	0.00013	
			Formaldehyde	50-00-0	5.00000	0.00013	
			Oxyalkylated Alcohol	Proprietary	5.00000	0.00013	
			Diethylene glycol	111-46-6	1.00000	0.00003	
			2-Propenamide	79-06-1	0.10000	0.00002	
			Fatty Acid	Proprietary	0.10000	0.00000	
			Fatty Acid Salt	Proprietary	0.10000	0.00000	
			Aliphatic alcohol	Proprietary	0.10000	0.00000	
			Chlorine Dioxide	10049-04-4	0.00100	0.00000	
			Sodium Hydroxide	1310-73-2	0.00070	0.00000	
			Aromatic Aldehyde	Proprietary			

\* Total Water Volume sources may include various types of water including fresh water, produced water, and recycled water

\*\* Information is based on the maximum potential for concentration and thus the total may be over 100%

\*\*\* If you are calculating a percentage of total ingredients do not add the water volume below the green line to the water volume above the green line

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)