Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	5/27/2017
Job End Date:	6/6/2017
State:	Texas
County:	Martin
API Number:	42-317-40598-00-00
Operator Name:	QEP Energy Company
Well Name and Number:	University 7-2730 N 09SA
Latitude:	32.37231000
Longitude:	-102.17455600
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	9,409
Total Base Water Volume (gal):	9,291,598
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					
			Water	7732-18-5	100.00000	87.13067	Density = 8.330
NZyme-3	Halliburton	Additive					
				Listed Below			

MO-67	Halliburton	pH Control Additive					
				Listed Below			
FDP-S1258-16	Halliburton	Surfactant					
				Listed Below			
FDP-M1075-12	Halliburton	Scale Inhibitor					
				Listed Below			
BC-140 X2	Halliburton	Initiator					
				Listed Below			
SAND-PREMIUM WHITE-30/50	Halliburton	Proppant					
				Listed Below			
MC B-8614	Halliburton	Biocide					
				Listed Below			
HYDROCHLORIC ACID	Halliburton	Solvent					
				Listed Below			
SAND-COMMON WHITE-100 MESH	Halliburton	Proppant					
				Listed Below			
WG-36 GELLING AGENT	Halliburton	Gelling Agent					

				Listed Below			
CLAYFIX 3	Halliburton	Additive					
				Listed Below			
CRC-30/50	Halliburton	Proppant					
				Listed Below			
D-AIR 3000L	Halliburton	Defoamer					
				Listed Below			
HAI-OS ACID INHIBITOR	Halliburton	Corrosion Inhibitor					
				Listed Below			
OPTIFLO-III DELAYED RELEASE BREAKER	Halliburton	Breaker					
				Listed Below			
FDP-S1176-15	Halliburton	Friction Reducer					
				Listed Below			
FE-1A ACIDIZING COMPOSITION	Halliburton	Additive					
				Listed Below			
BA-20 BUFFERING AGENT	Halliburton	Buffer					

				Listed Below			
OptiKleen-WF (TM)	Halliburton	Concentrate					
				Listed Below			
FDP-S1226-15	Halliburton	Surfactant					
				Listed Below			
Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.							
			Crystalline silica, quartz	14808-60-7	100.00000	11.41502	
			Water	7732-18-5	100.00000	1.18990	
			Hydrochloric acid	7647-01-0	60.00000	0.66328	
			Guar gum	9000-30-0	100.00000	0.06114	
			Phenol / formaldehyde resin	9003-35-4	5.00000	0.03829	
			Ethonal	64-17-5	30.00000	0.03644	
			Monoethanolamine borate	26038-87-9	100.00000	0.02764	
			Polyacrylate	Proprietary	30.00000	0.01978	
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.01978	
			Sodium perborate tetrahydrate	10486-00-7	100.00000	0.01595	
			Hexamethylenetetramine	100-97-0	2.00000	0.01532	
			Ethoxylated alcohols	Proprietary	30.00000	0.01290	
			Ethonxylated fatty acid	Proprietary	10.00000	0.01215	
			Fatty Nitrogen Derived Amides	Proprietary	10.00000	0.01215	
			Sodium chloride	7647-14-5	30.00000	0.00892	
			Ethylene glycol	107-21-1	30.00000	0.00829	
			Methanol	67-56-1	60.00000	0.00758	
			Butyl Alcohol	71-36-3	5.00000	0.00607	
			Acetic acid	64-19-7	60.00000	0.00515	

			Ammonium persulfate	7727-54-0	100.00000	0.00442	
			Sodium hydroxide	1310-73-2	30.00000	0.00403	
			Alkenes	Proprietary	100.00000	0.00344	Denise Tuck, Halliburton, 3000 N. Sam Houston Pkwy E., Houston, TX 77032, 281-871-6226
			Sobitan, mono-9-octadececenoate, (Z)	1338-43-8	5.00000	0.00330	
			9-Octadecenamide, n,n-bis-2(hydroxy-ethyl)-,(Z)	93-83-4	5.00000	0.00330	
			Castor oil, ethoxylated	61791-12-6	5.00000	0.00330	
			Ammonium chloride	12125-02-9	5.00000	0.00330	
			Acetic anhydride	108-24-7	100.00000	0.00303	
			Cured acrylic resin	Proprietary	30.00000	0.00133	
			Naphthalene	91-20-3	1.00000	0.00121	
			Siloxanes and Silicones, di-Me, reaction products with silica	67762-90-7	30.00000	0.00103	
			Polypropylene glycol	25322-69-4	30.00000	0.00103	
			Inorganic salt	Proprietary	5.00000	0.00092	
			Magnesium chloride hexahydrate	7791-18-6	5.00000	0.00092	
			Fatty acids, tall oil	Proprietary	30.00000	0.00075	
			Reaction product of acetophenone, formaldehyde, thiourea and oleic acid in dimethyl formamide	68527-49-1	30.00000	0.00075	
			Olefins	Proprietary	5.00000	0.00030	
			Alcohols, C12-13, ethoxylated	66455-14-9	30.00000	0.00029	991739, 990218
			Propargyl alcohol	107-19-7	10.00000	0.00025	
			Calcium chloride	10043-52-4	1.00000	0.00018	
			Ethylene Glycol	107-21-1	60.00000	0.00016	
			Glutaraldehyde	111-30-8	30.00000	0.00015	

			Alcohols, C12-16, ethoxylated	68551-12-2	5.00000	0.00005	
			2,7-Naphthalenedisulfonic acid, 3-hydroxy-4-[(4-sulfor-1-naphthalenyl) azo] -, trisodium salt	915-67-3	0.10000	0.00003	
			Telomer	Proprietary	10.00000	0.00003	
			Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl chlorides	68424-85-1	5.00000	0.00002	
			Hemicellulase enzyme	9012-54-8	5.00000	0.00001	
			Ethanol	64-17-5	1.00000	0.00000	
			Sodium polyacrylate	9003-04-7	1.00000	0.00000	
			Phosphoric acid	7664-38-2	0.10000	0.00000	
			Ethylene oxide	75-21-8	0.01000	0.00000	
			Acrylic acid	79-10-7	0.01000	0.00000	

* 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)