Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	5/17/2016
Job End Date:	6/9/2016
State:	Texas
County:	Martin
API Number:	42-317-40367-00-00
Operator Name:	QEP Energy Company
Well Name and Number:	UNIVERSITY 7-1627 S 16SS
Latitude:	32.41160000
Longitude:	-102.19338700
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	9,353
Total Base Water Volume (gal):	7,433,579
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	87.69405	Density = 8.410
PROP-RC CERAMIC-30/50, BULK, SAND-PREMIUM WHITE-40/70, BULK, WG-36 GELLING AGENT	Halliburton	NA					
			NA	NA			
BA-20 BUFFERING AGENT, BC-140 X2, Biovert NWB, CLAYFIX 3, DCA-23003, DCA-32003, FE-1A ACIDIZING COMPOSITION, HAI-OS ACID INHIBITOR, LOSURF-360, MO-67, N-Zyme 3, OPTIFLO-IIIA DELAYED RELEASE BREAKER, OptiKleen-WF(TM),	Halliburton	Additive, Breaker, Buffer, Concentrate, Corrosion Inhibitor, Gelling Agent, Initiator, pH Control Additive, Proppant, Surfactant, Viscosifier					
			NA	NA			

HYDROCHLORIC ACID	Halliburton	Base Fluid					
			NA	NA			
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.							
		Hazardous and Non-Hazardous Ingredients					
			Crystalline silica, quartz	14808-60-7	100.00000	10.89548	
			Mullite	1302-93-8	100.00000	0.89537	
			Water	7732-18-5	100.00000	0.70401	
			Hydrochloric acid	7647-01-0	60.00000	0.40677	
			Guar gum	9000-30-0	100.00000	0.04922	
			Phenol / formaldehyde resin	9003-35-4	5.00000	0.04477	
			Monoethanolamine borate	26038-87-9	100.00000	0.02322	
			Hexamethylenetetramine	100-97-0	1.00000	0.00895	
			Ethylene glycol	107-21-1	30.00000	0.00696	
			Sodium perborate tetrahydrate	10486-00-7	100.00000	0.00570	
			Sodium chloride	7647-14-5	30.00000	0.00488	
			Ammonium acetate	631-61-8	100.00000	0.00345	
			Ammonium persulfate	7727-54-0	100.00000	0.00280	
			Bentonite, benzyl(hydrogenated tallow alkyl) dimethylammonium stearate complex	121888-68-4	5.00000	0.00246	
			Polylactide resin	Proprietary	100.00000	0.00210	
			Acetic acid	64-19-7	60.00000	0.00171	
			Acetic anhydride	108-24-7	100.00000	0.00113	
			Surfactant mixture	Confidential	1.00000	0.00098	
			Polymer	Confidential	30.00000	0.00084	
			Inorganic salt	Confidential	5.00000	0.00084	
			Magnesium chloride hexahydrate	7791-18-6	5.00000	0.00081	
			Methanol	67-56-1	60.00000	0.00056	
			Silica gel	112926-00-8	1.00000	0.00049	
			Alcohols, C14-C15, ethoxylated	68951-67-7	30.00000	0.00028	
			Fatty acids, tall oil	Confidential	30.00000	0.00028	
			Reaction product of acetophenone, formaldehyde, thiourea and oleic acid in dimethyl formamide	68527-49-1	30.00000	0.00028	
			Sodium hydroxide	1310-73-2	30.00000	0.00019	
			Calcium chloride	10043-52-4	1.00000	0.00016	
			Olefins	Confidential	5.00000	0.00011	
			Poly(oxy-1,2-ethanediyl), .alpha.-isodecyl-.omega.-hydroxy-	61827-42-7	30.00000	0.00011	
			Propargyl alcohol	107-19-7	10.00000	0.00009	
			Crystalline Silica, Quartz	14808-60-7	0.10000	0.00005	
			Talc	14807-96-6	1.00000	0.00003	

			2,7-Naphthalenedisulfonic acid, 3-hydroxy-4-[(4-sulfor-1-naphthalenyl) azo] -, trisodium salt	915-67-3	0.10000	0.00002	
			Complex alkylamine	Proprietary	5.00000	0.00002	
			Alkane	Confidential	1.00000	0.00000	Denise Tuck, Halliburton, 3000 N. Sam Houston Pkwy E., Houston, TX 77032, 281-871-6226
			Sodium bicarbonate	144-55-8	0.01000	0.00000	
			Ethylenediaminetetraacetic acid, tetrasodium salt	64-02-8	0.01000	0.00000	
			NFIDB:N-Zyme 3	NFIDB:N-Zyme 3	100.00000		Not Found in DB
			NFIDB:DCA-23003	NFIDB:DCA-23003	100.00000		Not Found in DB
			NFIDB:DCA-32003	NFIDB:DCA-32003	100.00000		Not Found in DB

* 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)