Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	8/1/2016
Job End Date:	8/3/2016
State:	Texas
County:	Upton
API Number:	42-461-40161-00-00
Operator Name:	Opus Operating II LLC
Well Name and Number:	University Taylor Draw 30-1
Latitude:	31.15484600
Longitude:	-101.78912200
Datum:	NAD27
Federal Well:	YES
Indian Well:	NO
True Vertical Depth:	10,100
Total Base Water Volume (gal):	1,879,290
Total Base Non Water Volume:	

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
CS-4	C&J Well Services	Clay Control Additives					
				Listed Below			
GA-5	C&J Well Services	Gelling Agents					
				Listed Below			

BR-1	C&J Well Services	Gel Breakers					
				Listed Below			
CI-3	C&J Well Services	Acid Corrosion Inhibitors					
				Listed Below			
ICA-1	C&J Well Services	Iron Control Additives					
				Listed Below			
Sand	C&J Well Services	Proppants - Manufactured - Preferred Sands					
				Listed Below			
Sand	C&J Well Services	Sand - Bulk - Texas					
				Listed Below			
Water	OPUS OPERATING	Carrier Fluid					
				Listed Below			
HC-15	C&J Well Services	Bulk Acid					
				Listed Below			
BR-2	C&J Well Services	Gel Breakers					
				Listed Below			
XL-20	C&J Well Services	Cross-linkers					

				Listed Below			
Sand	C&J Well Services	Sand - Bulk - Texas					
				Listed Below			
Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.							
			Water	7732-18-5	100.00000	91.34151	
			Crystalline Silica, quartz	14808-60-7	99.90000	4.96048	
			Water	7732-18-5	85.00000	1.83329	
			*Quartz (SiO2)	14808-60-7	98.00000	1.31999	
			Hydrochloric Acid	7647-01-0	15.00000	0.32352	
			Castor Oil	8001-79-4	5.00000	0.06735	
			Distillates (Petroleum), Hydrotreated Light	64742-47-8	60.00000	0.06280	
			Guar Gum	9000-30-0	55.00000	0.05757	
			Aluminum Oxide	1344-28-1	1.10000	0.05462	
			Crystalline Silica, quartz	14808-60-7	99.90000	0.03493	
			Water	7732-18-5	60.00000	0.01421	
			Iron Oxide	1309-37-1	1.00000	0.01347	
			Trisodium Nitrilotriacetate	5064-31-3	50.00000	0.01184	
			Water	7732-18-5	75.00000	0.00814	
			Titanium Oxide	13463-67-7	0.10000	0.00497	
			Iron Oxide	1309-37-1	0.10000	0.00497	
			Ammonium Persulfate	7727-54-0	76.00000	0.00359	
			Proprietary	Proprietary	30.00000	0.00326	
			Ethoxylated Alcohols (C10-C16)	68002-97-1	3.00000	0.00314	
			Organophylic Clay	68953-58-2	3.00000	0.00314	
			Ammonium Persulfate	7727-54-0	100.00000	0.00277	
			Water	7732-18-5	70.00000	0.00242	
			Ethylene Glycol	107-21-1	40.00000	0.00166	

			Ethylene Glycol	107-21-1	40.00000	0.00138	
			Cured Resin	Proprietary	24.00000	0.00113	
			Potassium Hydroxide	1310-58-3	10.00000	0.00109	
			Dimethylformamide	68-12-2	20.00000	0.00083	
			2-Propen-1-aminium, N,N-dimethyl-N-2-propenyl-, chloride, homopolymer	26062-79-3	20.00000	0.00069	
			Tar bases, quinoline derivs, benzyl chloride-quaternized	72480-70-7	15.00000	0.00062	
			Cinnamaldehyde	104-55-2	15.00000	0.00062	
			2-Butoxyethanol	111-76-2	15.00000	0.00062	
			Silica, Crystalline-Quartz	14808-60-7	0.45000	0.00047	
			Aluminum Oxide	1344-28-1	1.10000	0.00039	
			Nonyphenol (branched), ethoxylated	127087-87-0	5.00000	0.00021	
			1-DECANOL	112-30-1	5.00000	0.00021	
			1-OCTANOL	111-87-5	2.50000	0.00010	
			Triethyl Phosphate	78-40-0	2.50000	0.00010	
			Isopropyl Alcohol	67-63-0	2.50000	0.00010	
			Titanium Oxide	13463-67-7	0.10000	0.00004	
			Iron Oxide	1309-37-1	0.10000	0.00004	

* 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)