

# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	10/24/2013
Job End Date:	10/24/2013
State:	Colorado
County:	La Plata
API Number:	05-067-06727-00-00
Operator Name:	BP America Production Company
Well Name and Number:	IVERS GAS UNIT 1-16 1
Longitude:	-107.53033400
Latitude:	37.21850100
Datum:	NAD27
Federal/Tribal Well:	YES
True Vertical Depth:	2,485
Total Base Water Volume (gal):	18,420
Total Base Non Water Volume:	2,723



## 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
HYDROCHLORIC ACID 10-30%	Halliburton	Solvent					
			Hydrochloric acid	7647-01-0	30.00000	15.15289	
LGC-36 UC	Halliburton	Liquid Gel Concentrate					
			Guar gum	9000-30-0	60.00000	0.97937	
BC-140	Halliburton	Crosslinker					
			Ethylene glycol	107-21-1	30.00000	0.05945	
EXPEDITE 225 COMPONENT A	Halliburton	Resin					
			Epoxy resin	Proprietary	100.00000	0.05010	
BC-140	Halliburton	Crosslinker					
			Monoethanolamine borate	26038-87-9	60.00000	0.02973	
LoSurf-300D	Halliburton	Non-ionic Surfactant					
			Heavy aromatic petroleum naphtha	64742-94-5	30.00000	0.02517	
LoSurf-300D	Halliburton	Non-ionic Surfactant					
			Poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydroxy-, branched	127087-87-0	5.00000	0.01503	
EXPEDITE 225 COMPONENT B	Halliburton	Hardener					
			Methanol	67-56-1	60.00000	0.01259	

OPTIFLO-HTE	Halliburton	Breaker					
			Walnut hulls	Mixture	100.00000	0.01259	
EXPEDITE 225 COMPONENT A	Halliburton	Resin					
			Butyl lactate	138-22-7	10.00000	0.01253	
LoSurf-300D	Halliburton	Non-ionic Surfactant					
			1,2,4 Trimethylbenzene	95-63-6	1.00000	0.00495	
LoSurf-300D	Halliburton	Non-ionic Surfactant					
			Ethanol	64-17-5	60.00000	0.00495	
LoSurf-300D	Halliburton	Non-ionic Surfactant					
			Naphthalene	91-20-3	5.00000	0.00420	
EXPEDITE 225 COMPONENT A	Halliburton	Resin					
			Butyl glycidyl ether	2426-08-6	30.00000	0.00376	
LGC-36 UC	Halliburton	Liquid Gel Concentrate					
			Naphtha, hydrotreated heavy	64742-48-9	60.00000	0.00099	
OPTIFLO-HTE	Halliburton	Breaker					
			Crystalline silica, quartz	14808-60-7	30.00000	0.00063	
EXPEDITE 225 COMPONENT B	Halliburton	Hardener					
			Modified cycloaliphatic amine adduct	Mixture	60.00000	0.00013	
GBW-30 BREAKER	Halliburton	Breaker					
			Hemicellulase enzyme	9012-54-8	30.00000	0.00013	
EXPEDITE 225 COMPONENT B	Halliburton	Hardener					
			Phosphate ester	Proprietary	10.00000		
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.							
None Indicated	Halliburton	None Indicated					
			Water	7732-18-5		50.05963	This Line is Part of the Fluid Composition Provided by Halliburton Which Does Not Appear On the Material Safety Data Sheets (MSDS)
Fresh Water	Operator	Base Fluid					
			Fresh water	7732-18-5	100.00000	47.65443	
SAND - PREMIUM BROWN	Halliburton	Proppant					
			Crystalline silica, quartz	14808-60-7	100.00000	0.97937	
None Indicated	Halliburton	None Indicated					
			Quaternary ammonium compounds, bis(hydrogenated tallow alkyl) dimethyl, salts with bentonite	68953-58-2		0.08161	This Line is Part of the Fluid Composition Provided by Halliburton Which Does Not Appear On the Material Safety Data Sheets (MSDS)
None Indicated	Halliburton	None Indicated					
			Oxyalkylated phenolic resin	Proprietary		0.02973	This Line is Part of the Fluid Composition Provided by Halliburton Which Does Not Appear On the Material Safety Data Sheets (MSDS)

None Indicated	Halliburton	None Indicated					
			Oxyalkylated phenolic resin	Proprietary		0.00991	This Line is Part of the Fluid Composition Provided by Halliburton Which Does Not Appear On the Material Safety Data Sheets (MSDS)
None Indicated	Halliburton	None Indicated					
			Siloxanes and silicones, dimethyl,	63148-52-7		0.00500	This Line is Part of the Fluid Composition Provided by Halliburton Which Does Not Appear On the Material Safety Data Sheets (MSDS)
None Indicated	Halliburton	None Indicated					
			Cured acrylic resin	Proprietary		0.00376	This Line is Part of the Fluid Composition Provided by Halliburton Which Does Not Appear On the Material Safety Data Sheets (MSDS)
None Indicated	Halliburton	None Indicated					
			Crystalline silica, quartz	14808-60-7		0.00163	This Line is Part of the Fluid Composition Provided by Halliburton Which Does Not Appear On the Material Safety Data Sheets (MSDS)
None Indicated	Halliburton	None Indicated					
			Enzyme	Proprietary		0.00063	This Line is Part of the Fluid Composition Provided by Halliburton Which Does Not Appear On the Material Safety Data Sheets (MSDS)
None Indicated	Halliburton	None Indicated					
			Quaternary amine	Proprietary		0.00030	This Line is Part of the Fluid Composition Provided by Halliburton Which Does Not Appear On the Material Safety Data Sheets (MSDS)
None Indicated	Halliburton	None Indicated					
			Organo amino silane	Proprietary		0.00020	This Line is Part of the Fluid Composition Provided by Halliburton Which Does Not Appear On the Material Safety Data Sheets (MSDS)
None Indicated	Halliburton	None Indicated					
			Phosphoric acid	7664-38-2		0.00015	This Line is Part of the Fluid Composition Provided by Halliburton Which Does Not Appear On the Material Safety Data Sheets (MSDS)
None Indicated	Halliburton	None Indicated					
			C.I. Pigment Red 5	6410-41-9		0.00013	This Line is Part of the Fluid Composition Provided by Halliburton Which Does Not Appear On the Material Safety Data Sheets (MSDS)
None Indicated	Halliburton	None Indicated					

			Cured acrylic resin	Proprietary		0.00013	This Line is Part of the Fluid Composition Provided by Halliburton Which Does Not Appear On the Material Safety Data Sheets (MSDS)
None Indicated	Halliburton	None Indicated					
			Ethylenediamine	107-15-3		0.00010	This Line is Part of the Fluid Composition Provided by Halliburton Which Does Not Appear On the Material Safety Data Sheets (MSDS)
None Indicated	Halliburton	None Indicated					
			Fatty alcohol polyglycol ether surfactant	9043-30-5		0.00010	This Line is Part of the Fluid Composition Provided by Halliburton Which Does Not Appear On the Material Safety Data Sheets (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)