

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date	5/9/2011
State:	Colorado
County:	Boulder
API Number:	05-013-06581
Operator Name:	Encana Oil & Gas (USA) Inc.
Well Name and Number:	Wiggett 12-13
Longitude:	-105.070038
Latitude:	40.057021
Long/Lat Projection:	NAD83
Production Type:	Gas
True Vertical Depth (TVD):	8,329
Total Water Volume (gal)*:	419,538

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	A&W Water Service Inc	Base Fluid	Water		100.00%	81.53430%	Fresh Water
Sand - Premium White - 20/40	Halliburton Energy Services	Proppant	Crystalline silica, quartz	14808-60-7	100.00%	11.71045%	
Sand - Premium White - 30/50	Halliburton Energy Services	Proppant	Crystalline silica, quartz	14808-60-7	100.00%	5.86059%	
CL-23	Halliburton Energy Services	Crosslinker	Zirconium, acetate lactate oxo ammonium complexes	68909-34-2	60.00%	0.01854%	
			Ammonium chloride	12125-02-9	30.00%	0.00927%	
BA-20	Halliburton Energy Services	Buffer	Ammonium acetate	631-61-8	100.00%	0.02806%	
			Acetic acid	64-19-7	30.00%	0.00842%	
LoSurf-300D	Halliburton Energy Services	Non-ionic Surfactant	Ethanol	64-17-5	60.00%	0.02338%	
			Heavy aromatic petroleum naphtha	64742-94-5	30.00%	0.01169%	
			Naphthalene	91-20-3	5.00%	0.00195%	
			1,2,4 Trimethylbenzene	95-63-6	1.00%	0.00039%	
			Poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydroxy-, branched	127087-87-0	5.00%	0.00195%	
Clayfix 3	Halliburton Energy Services	Additive	Sodium Chloride	7647-14-5	30.00%	0.03729%	
VICON NF	Halliburton Energy Services	Breaker	Chlorous acid, sodium salt	7758-19-2	10.00%	0.02835%	

			Sodium chloride	7647-14-5	30.00%	0.08505%	
FR-66	Halliburton Energy Services	Friction Reducer	Hydrotreated light petroleum distillate	64742-47-8	30.00%	0.00890%	
SP Breaker	Halliburton Energy Services	Breaker	Sodium persulfate	7775-27-1	100.00%	0.00054%	
WG-18	Halliburton Energy Services	Gelling Agent	Guar gum derivative	Not Listed	100.00%	0.12595%	
OptiKleen-WF™	Halliburton Energy Services	Concentrate	Sodium perborate tetrahydrate	10486-00-7	100.00%	0.00333%	
15% Hydrochloric Acid	Halliburton Energy Services	Solvent	Hydrochloric acid	7647-01-0	30.00%	0.06763%	
HAI-404M™	Halliburton Energy Services	Corrosion Inhibitor	Quaternary ammonium salt	Not Listed	10.00%	0.00012%	
			1-(Benzyl)quinolinium chloride	15619-48-4	10.00%	0.00012%	
			Methanol	67-56-1	30.00%	0.00035%	
			Aldehyde	Not Listed	30.00%	0.00035%	
			Isopropanol	67-63-0	30.00%	0.00035%	
BIO-CLEAR® 1000	Clearwater International L.L.C.	Biocide	2,2-dibromo-3-nitrilopropionamide	10222-01-2	97.60%	0.00280%	

\* 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%

All component information listed was obtained from the supplier's Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational Safety and Health Administration's (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects "proprietary", "trade secret", and "confidential business information" and the criteria for how this information is reported on an MSDS is subject to 29 CFR 1910.1200(i) and Appendix D.