

Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date:	January 28, 2013
Last Submission Date:	June 28, 2013
Province:	AB
ERCB Field Centre:	Wainwright
Surface location:	09-24-036-06W4
Well Licence Number:	0446078
Licensee Name:	Apache Canada Ltd.
Unique Well Identifier:	00/01-19-036-05W4/0
Well Name:	ACL HZ PROVOST 1-19-36-5
Number of Stages:	9
Bottom Hole Latitude:	52.100762
Bottom Hole Longitude:	-110.699099
Lat/Long Projection:	NAD 83
Production Fluid Type:	CRUDE OIL
True Vertical Depth (TVD):	847.46
Total Water Volume (m3):	812,000

Hydraulic Fracturing Fluid Composition:

Fracture Start/End Date:	Component Type	Trade Name	Supplier	Purpose	Ingredient/Family Name	CAS # / HMIRC #	Concentration in Component (% by mass)	Concentration in HFF (% by mass)
Jan 28 2013 - Jan 28 2013	CARRIER FLUID				Water	Not Available	100.000000%	77.113820%
	PROPPANT	Sand (12/20)	Trican		silica crystalline	14808-60-7	100.000000%	8.527559%
	PROPPANT	Sand (16/30)	Trican		silica crystalline	14808-60-7	100.000000%	13.131826%
	ADDITIVE	Busan 94	Trican	Bactericide/Biocide	polyethylene glycol	25322-68-3	60.000000%	0.028930%
	ADDITIVE	Busan 94	Trican	Bactericide/Biocide	2,2-dibromo-3-nitrilopropionamide	10222-01-2	30.000000%	0.014465%
	ADDITIVE	Busan 94	Trican	Bactericide/Biocide	sodium bromide	7647-15-6	4.000000%	0.001928%
	ADDITIVE	Busan 94	Trican	Bactericide/Biocide	dibromoacetonitrile	3252-43-5	3.000000%	0.001446%
	ADDITIVE	Busan 94	Trican	Bactericide/Biocide	non-hazardous ingredients	Not Available	3.000000%	0.001446%
	ADDITIVE	WBO-2	Trican	Breaker	sodium persulfate	7775-27-1	100.000000%	0.038574%
	ADDITIVE	BXL-A	Trican	Breaker	triethanolamine	102-71-6	60.000000%	0.049760%
	ADDITIVE	BXL-A	Trican	Breaker	non-hazardous ingredients	Not Available	30.000000%	0.024880%
	ADDITIVE	BXL-A	Trican	Breaker	diethanolamine	111-42-2	10.000000%	0.008293%
	ADDITIVE	DRA-2	Trican	Buffer	non-hazardous ingredients	Not Available	100.000000%	0.175277%
ADDITIVE	CC-55	Trican	Clay Control	1,3-propanediaminium-2-substitued, -hexaalkyl-, di halide	7744	60.000000%	0.101371%	
ADDITIVE	CC-55	Trican	Clay Control	non-hazardous ingredients	Not Available	35.000000%	0.059133%	

Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date:	January 19, 2013
Last Submission Date:	June 27, 2013
Province:	AB
ERCB Field Centre:	Wainwright
Surface location:	05-13-036-06W4
Well Licence Number:	0449497
Licensee Name:	Apache Canada Ltd.
Unique Well Identifier:	02/04-14-036-06W4/0
Well Name:	ACL 102 HZ PROVOST 4-14-36-6
Number of Stages:	15
Bottom Hole Latitude:	52.086646
Bottom Hole Longitude:	-110.764731
Lat/Long Projection:	NAD 83
Production Fluid Type:	CRUDE OIL
True Vertical Depth (TVD):	897.19
Total Water Volume (m3):	1,158,530

Hydraulic Fracturing Fluid Composition:

Fracture Start/End Date:	Component Type	Trade Name	Supplier	Purpose	Ingredient/Family Name	CAS # / HMIRC #	Concentration in Component (% by mass)	Concentration in HFF (% by mass)
Jan 18 2013 - Jan 19 2013	CARRIER FLUID				Water	Not Available	100.000000%	76.077191%
	PROPPANT	Frac Sand - regular	Trican		silica crystalline	14808-60-7	200.000000%	22.446486%
	ADDITIVE	Busan 94	Trican	Bactericide/Biocide	Polyethylene Glycol	25322-68-3	60.000000%	0.035907%
	ADDITIVE	Busan 94	Trican	Bactericide/Biocide	2,2-dibromo-3-nitrilopropionamide	10222-01-2	30.000000%	0.017953%
	ADDITIVE	Busan 94	Trican	Bactericide/Biocide	sodium bromide	7647-15-6	4.000000%	0.002393%
	ADDITIVE	Busan 94	Trican	Bactericide/Biocide	dibromoacetonitrile	3252-43-5	3.000000%	0.001795%
	ADDITIVE	Busan 94	Trican	Bactericide/Biocide	non-hazardous ingredients	Not Available	3.000000%	0.001795%
	ADDITIVE	WBO-2	Trican	Breaker	sodium persulfate	7775-27-1	100.000000%	0.047091%
	ADDITIVE	BXL-A	Trican	Breaker	triethanolamine	102-71-6	60.000000%	0.062774%
	ADDITIVE	BXL-A	Trican	Breaker	non-hazardous ingredients	Not Available	30.000000%	0.031387%
	ADDITIVE	BXL-A	Trican	Breaker	diethanolamine	111-42-2	10.000000%	0.010462%
	ADDITIVE	DRA-2	Trican	Buffer	non-hazardous ingredients	Not Available	100.000000%	0.219336%
	ADDITIVE	CC-55	Trican	Clay Control	1,3-propanediaminium-2-substituted, -hexaalkyl-, dihalide	7744	60.000000%	0.131748%
ADDITIVE	CC-55	Trican	Clay Control	non-hazardous ingredients	Not Available	35.000000%	0.076853%	

Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date:	January 17, 2013
Last Submission Date:	June 27, 2013
Province:	AB
ERCB Field Centre:	Wainwright
Surface location:	05-13-036-06W4
Well Licence Number:	0449498
Licensee Name:	Apache Canada Ltd.
Unique Well Identifier:	02/05-14-036-06W4/0
Well Name:	ACL 102 HZ PROVOST 5-14-36-6
Number of Stages:	13
Bottom Hole Latitude:	52.090226
Bottom Hole Longitude:	-110.764829
Lat/Long Projection:	NAD 83
Production Fluid Type:	CRUDE OIL
True Vertical Depth (TVD):	895.27
Total Water Volume (m3):	989,450

Hydraulic Fracturing Fluid Composition:

Fracture Start/End Date:	Component Type	Trade Name	Supplier	Purpose	Ingredient/Family Name	CAS # / HMIRC #	Concentration in Component (% by mass)	Concentration in HFF (% by mass)
Jan 17 2013 - Jan 17 2013	CARRIER FLUID				Water	Not Available	100.000000%	78.222282%
	PROPPANT	Frac Sand - regular	Trican		silica crystalline	14808-60-7	200.000000%	20.569650%
	ADDITIVE	Busan 94	Trican	Bactericide/Biocide	Polyethylene Glycol	25322-68-3	60.000000%	0.035200%
	ADDITIVE	Busan 94	Trican	Bactericide/Biocide	2,2-dibromo-3-nitrilopropionamide	10222-01-2	30.000000%	0.017600%
	ADDITIVE	Busan 94	Trican	Bactericide/Biocide	sodium bromide	7647-15-6	4.000000%	0.002346%
	ADDITIVE	Busan 94	Trican	Bactericide/Biocide	dibromoacetonitrile	3252-43-5	3.000000%	0.001760%
	ADDITIVE	Busan 94	Trican	Bactericide/Biocide	non-hazardous ingredients	Not Available	3.000000%	0.001760%
	ADDITIVE	WBO-2	Trican	Breaker	sodium persulfate	7775-27-1	100.000000%	0.039113%
	ADDITIVE	BXL-A	Trican	Breaker	triethanolamine	102-71-6	60.000000%	0.060543%
	ADDITIVE	BXL-A	Trican	Breaker	non-hazardous ingredients	Not Available	30.000000%	0.030271%
	ADDITIVE	BXL-A	Trican	Breaker	diethanolamine	111-42-2	10.000000%	0.010090%
	ADDITIVE	DRA-2	Trican	Buffer	non-hazardous ingredients	Not Available	100.000000%	0.177720%
	ADDITIVE	CC-55	Trican	Clay Control	1,3-propanediaminium-2-substituted, -hexaalkyl-, dihalide	7744	60.000000%	0.102784%
ADDITIVE	CC-55	Trican	Clay Control	non-hazardous ingredients	Not Available	35.000000%	0.059957%	

Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date:	February 04, 2013
Last Submission Date:	June 27, 2013
Province:	AB
ERCB Field Centre:	Wainwright
Surface location:	16-23-039-12W4
Well Licence Number:	0451400
Licensee Name:	Apache Canada Ltd.
Unique Well Identifier:	00/09-24-039-12W4/0
Well Name:	ACL HZ PROVOST 9-24-39-12
Number of Stages:	14
Bottom Hole Latitude:	52.370401
Bottom Hole Longitude:	-111.592635
Lat/Long Projection:	NAD 83
Production Fluid Type:	CRUDE OIL
True Vertical Depth (TVD):	831.59
Total Water Volume (m3):	514,280

Hydraulic Fracturing Fluid Composition:

Fracture Start/End Date:	Component Type	Trade Name	Supplier	Purpose	Ingredient/Family Name	CAS # / HMIRC #	Concentration in Component (% by mass)	Concentration in HFF (% by mass)
Feb 3 2013 - Feb 4 2013	CARRIER FLUID				Nitrogen	7727-37-9	100.000000%	23.473954%
	CARRIER FLUID				Water	Not Available	100.000000%	50.074252%
	PROPPANT	Frac Sand - regular	Trican		silica crystalline	14808-60-7	100.000000%	24.961623%
	PROPPANT	Sand (30/50)	Trican		silica crystalline	14808-60-7	100.000000%	0.414510%
	ADDITIVE	GBE-1:5	Trican	Breaker	propylene glycol	57-55-6	70.000000%	0.007013%
	ADDITIVE	GBE-1:5	Trican	Breaker	non-hazardous ingredients	Not Available	30.000000%	0.003005%
	ADDITIVE	PH-2	Trican	Buffer	Acetic acid	64-19-7	60.000000%	0.062548%
	ADDITIVE	PH-2	Trican	Buffer	Water	7732-18-5	40.000000%	0.041698%
	ADDITIVE	WF-2	Trican	Foamer	polyethylene glycol hexyl ether sulfate, ammonium salt	63428-86-4	60.000000%	0.325837%
	ADDITIVE	WF-2	Trican	Foamer	non-hazardous ingredients	Not Available	20.000000%	0.108612%
	ADDITIVE	WF-2	Trican	Foamer	2-butoxyethanol	111-76-2	13.000000%	0.070598%
	ADDITIVE	WF-2	Trican	Foamer	sulfonate, alkyl (C14-16) olefin, sodium salt	68439-57-6	7.000000%	0.038014%
	ADDITIVE	WG-33L	Trican	Gelling Agent	non-hazardous ingredients	Not Available	100.000000%	0.331054%
ADDITIVE	S-8	Trican	Surfactant	Methanol	67-56-1	60.000000%	0.052365%	

Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date:	February 02, 2013
Last Submission Date:	June 28, 2013
Province:	AB
ERCB Field Centre:	Wainwright
Surface location:	16-23-039-12W4
Well Licence Number:	0451401
Licensee Name:	Apache Canada Ltd.
Unique Well Identifier:	00/16-24-039-12W4/0
Well Name:	ACL HZ PROVOST 16-24-39-12
Number of Stages:	14
Bottom Hole Latitude:	52.374616
Bottom Hole Longitude:	-111.592716
Lat/Long Projection:	NAD 83
Production Fluid Type:	CRUDE OIL
True Vertical Depth (TVD):	834.11
Total Water Volume (m3):	509,710

Hydraulic Fracturing Fluid Composition:

Fracture Start/End Date:	Component Type	Trade Name	Supplier	Purpose	Ingredient/Family Name	CAS # / HMIRC #	Concentration in Component (% by mass)	Concentration in HFF (% by mass)
Feb 1 2013 - Feb 2 2013	CARRIER FLUID				Nitrogen	7727-37-9	100.000000%	21.868465%
	CARRIER FLUID				Water	Not Available	100.000000%	52.004771%
	PROPPANT	Frac Sand - regular	Trican		silica crystalline	14808-60-7	100.000000%	0.457924%
	PROPPANT	Sand (16/30)	Trican		silica crystalline	14808-60-7	100.000000%	24.560220%
	ADDITIVE	GBE-1:5	Trican	Breaker	propylene glycol	57-55-6	70.000000%	0.007228%
	ADDITIVE	GBE-1:5	Trican	Breaker	non-hazardous ingredients	Not Available	30.000000%	0.003097%
	ADDITIVE	PH-2	Trican	Buffer	Acetic acid	64-19-7	60.000000%	0.064464%
	ADDITIVE	PH-2	Trican	Buffer	Water	7732-18-5	40.000000%	0.042976%
	ADDITIVE	WF-2	Trican	Foamer	polyethylene glycol hexyl ether sulfate, ammonium salt	63428-86-4	60.000000%	0.335820%
	ADDITIVE	WF-2	Trican	Foamer	non-hazardous ingredients	Not Available	20.000000%	0.111940%
	ADDITIVE	WF-2	Trican	Foamer	2-butoxyethanol	111-76-2	13.000000%	0.072761%
	ADDITIVE	WF-2	Trican	Foamer	sulfonate, alkyl (C14-16) olefin, sodium salt	68439-57-6	7.000000%	0.039179%
	ADDITIVE	WG-33L	Trican	Gelling Agent	non-hazardous ingredients	Not Available	100.000000%	0.341199%
ADDITIVE	S-8	Trican	Surfactant	Methanol	67-56-1	60.000000%	0.053970%	

Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date:	November 25, 2013
Last Submission Date:	December 12, 2013
Province:	AB
ERCB Field Centre:	Grande Prairie
Surface location:	06-12-073-09W6
Well Licence Number:	0453746
Licensee Name:	Canadian Natural Resources Limited
Unique Well Identifier:	00/05-14-073-09W6/0
Well Name:	CNRL HZ HYTHE 5-14-73-9
Number of Stages:	22
Bottom Hole Latitude:	55.320781
Bottom Hole Longitude:	-119.278341
Lat/Long Projection:	NAD 83
Production Fluid Type:	Not Applicable
True Vertical Depth (TVD):	2,182.29
Total Water Volume (m3):	349,982

Hydraulic Fracturing Fluid Composition:

Fracture Start/End Date:	Component Type	Trade Name	Supplier	Purpose	Ingredient/Family Name	CAS # / HMIRC #	Concentration in Component (% by mass)	Concentration in HFF (% by mass)
Nov 23 2013 - Nov 25 2013	CARRIER FLUID				Water	7732-18-5	100.000000%	1.111398%
	CARRIER FLUID				Water	Not Available	100.000000%	82.832210%
	CARRIER FLUID				Hydrochloric acid	7647-01-0	30.000000%	0.333419%
	PROPPANT	SAND - PREMIUM WHITE	Halliburton		Crystalline silica, quartz	14808-60-7	200.000000%	10.718042%
	PROPPANT	CRC SAND	Halliburton		Crystalline silica, quartz	14808-60-7	100.000000%	4.454005%
	PROPPANT	CRC SAND	Halliburton		Phenol / formaldehyde resin	9003-35-4	5.000000%	0.222700%
	PROPPANT	CRC SAND	Halliburton		Hexamethylenetetramine	100-97-0	2.000000%	0.089080%
	ADDITIVE	FE-6B	Halliburton	Activator	Copper Sulfate	7758-98-7	100.000000%	0.001760%
	ADDITIVE	FE-6B	Halliburton	Activator	Copper Sulfate	Not Available	100.000000%	0.001700%
	ADDITIVE	FE-6B	Halliburton	Activator	Inert ingredient(s)	Trade Secret	0.010000%	0.010000%
	ADDITIVE	Aqucar 742	Halliburton	Bactericide/Biocide	Glutaraldehyde	111-30-8	42.500000%	0.000006%
	ADDITIVE	Aqucar 742	Halliburton	Bactericide/Biocide	Glutaraldehyde	111-30-8	42.500000%	0.000006%
	ADDITIVE	Aqucar 742	Halliburton	Bactericide/Biocide	Methanol	67-56-1	42.000000%	0.000006%
	ADDITIVE	Aqucar 742	Halliburton	Bactericide/Biocide	Methanol	67-56-1	42.000000%	0.000006%
	ADDITIVE	Aqucar 742	Halliburton	Bactericide/Biocide	Ethanol	64-17-5	10.000000%	0.000001%
ADDITIVE	Aqucar 742	Halliburton	Bactericide/Biocide	Ethanol	64-17-5	10.000000%	0.000001%	

Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date:	January 16, 2013
Last Submission Date:	August 27, 2013
Province:	AB
ERCB Field Centre:	Midnapore
Surface location:	13-22-026-18W4
Well Licence Number:	0449251
Licensee Name:	Cenovus Energy Inc.
Unique Well Identifier:	02/14-27-026-18W4/0
Well Name:	CVE 13A-22 HZ WAYNE 14-27-26-18
Number of Stages:	18
Bottom Hole Latitude:	51.255474
Bottom Hole Longitude:	-112.439310
Lat/Long Projection:	NAD 83
Production Fluid Type:	CRUDE OIL
True Vertical Depth (TVD):	1,469.60
Total Water Volume (m3):	1,071,945

Hydraulic Fracturing Fluid Composition:

Fracture Start/End Date:	Component Type	Trade Name	Supplier	Purpose	Ingredient/Family Name	CAS # / HMIRC #	Concentration in Component (% by mass)	Concentration in HFF (% by mass)
Jan 14 2013 - Jan 16 2013	CARRIER FLUID				Water (Including Mix Water Supplied by Client)*	Not Available	200.000000%	82.554521%
	PROPPANT	YF125LG	Schlumberger			14808-60-7	100.000000%	14.446348%
	PROPPANT	YF125LG	Schlumberger		Crystalline silica	14808-60-7	100.000000%	14.446348%
	ADDITIVE	XC826	Baker Chemical	Bactericide/Biocide	2-Bromo-2-nitropropane-1,3-diol	52-51-7	200.000000%	0.004094%
	ADDITIVE	XC826	Baker Chemical	Bactericide/Biocide	Methanol	67-56-1	200.000000%	0.016379%
	ADDITIVE	WCW3030X	Baker Chemical	Clay Control	Methanol	67-56-1	100.000000%	0.009986%
	ADDITIVE	WCW3030X	Baker Chemical	Clay Control	Polyamine polymer	68409-70-1	100.000000%	0.009986%
	ADDITIVE	WCW3030X	Baker Chemical	Clay Control	Propylene glycol	57-55-6	100.000000%	0.004998%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	2,2',2'''-nitrilotriethanol	102-71-6	100.000000%	0.020896%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Alcohol, C11-14, ethoxylated	78330-21-9	100.000000%	0.004347%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Alcohol, C7-9-iso, C8, ethoxylated	78330-19-5	100.000000%	0.008782%
ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Alcohol, C9-11-iso, C10, ethoxylated	78330-20-8	100.000000%	0.008782%	

Fracture Start/End Date:	Component Type	Trade Name	Supplier	Purpose	Ingredient/Family Name	CAS # / HMIRC #	Concentration in Component (% by mass)	Concentration in HFF (% by mass)
Jan 14 2013 - Jan 16 2013	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Alcohols, C14-15, ethoxylated (7EO)	68951-67-7	100.000000%	0.000204%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Alkenes, C>10 a-	64743-02-8	100.000000%	0.000091%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Boric acid	10043-35-3	100.000000%	0.012383%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	C13 alcohol ethoxylate	9043-30-5	100.000000%	0.000893%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Diammonium peroxidisulphate	7727-54-0	100.000000%	0.039432%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Dicoco dimethyl quaternary ammonium chloride	61789-77-3	100.000000%	0.000658%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Dihydrogenated tallow dimethyl ammonium bentonite	68953-58-2	100.000000%	0.008433%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Disodium hydroxyethylethylenediamin ediacetate (impurity)	62099-15-4	100.000000%	0.000080%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Distillates (petroleum), hydrotreated light	64742-47-8	100.000000%	0.253011%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Ethoxylated propoxylated 4-nonylphenol-formaldehyde resin	30846-35-6	100.000000%	0.006564%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Fatty acids, tall-oil	61790-12-3	100.000000%	0.000535%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Glycinen2biscarboxymethyl aminoethyln2hydroxyethyltri sodiumsa	139-89-9	100.000000%	0.001536%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Guar gum	9000-30-0	100.000000%	0.228206%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Heavy aromatic naphtha	64742-94-5	100.000000%	0.004435%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Hemicellulase enzyme	9012-54-8	100.000000%	0.004079%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Hydrogen chloride	7647-01-0	100.000000%	0.130341%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Magnesium silicate hydrate (talc)	14807-96-6	100.000000%	0.000096%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Methanol	67-56-1	100.000000%	0.050143%
ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Naphtalene (impurity)	91-20-3	100.000000%	0.000886%	
ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Nitrogen, liquid form	7727-37-9	100.000000%	2.066101%	

Fracture Start/End Date:	Component Type	Trade Name	Supplier	Purpose	Ingredient/Family Name	CAS # / HMIRC #	Concentration in Component (% by mass)	Concentration in HFF (% by mass)
Jan 14 2013 - Jan 16 2013	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Poly(oxy-1,2-ethanediyl)	25322-68-3	100.000000%	0.001951%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Polyethylene glycol monoethyl ether	31726-34-8	100.000000%	0.015005%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Potassium hydroxide	1310-58-3	100.000000%	0.000030%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Prop-2-yn-1-ol	107-19-7	100.000000%	0.000136%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Propan-2-ol	67-63-0	100.000000%	0.000131%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Propanol, (2-methoxymethylethoxy)-	34590-94-8	100.000000%	0.003274%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Propylene Carbonate	108-32-7	100.000000%	0.002282%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Quaternary ammonium compounds chlorides derivatives	68989-00-4	100.000000%	0.004347%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Sodium glycolate (impurity)	2836-32-0	100.000000%	0.000080%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Sodium hydroxide	1310-73-2	100.000000%	0.012966%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Tetramethylammonium chloride	75-57-0	100.000000%	0.063590%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Thiourea, polymer with formaldehyde and 1-phenylethanone	68527-49-1	100.000000%	0.000440%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Trisodium nitrilotriacetate (impurity)	5064-31-3	100.000000%	0.000041%
	ADDITIVE	YF127LG, 28% HCL	Schlumberger	Energizing Fluid	Vinylidene chloride/methylacrylate copolymer	25038-72-6	100.000000%	0.002334%

Comments:

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date:	January 26, 2013
Last Submission Date:	June 05, 2013
Province:	AB
ERCB Field Centre:	Drayton Valley
Surface location:	13-31-048-04W5
Well Licence Number:	0452098
Licensee Name:	Journey Energy Inc.
Unique Well Identifier:	00/04-01-049-05W5/0
Well Name:	JOURNEY HZ PEMBINA 4-1-49-5
Number of Stages:	17
Bottom Hole Latitude:	53.192673
Bottom Hole Longitude:	-114.608895
Lat/Long Projection:	NAD 83
Production Fluid Type:	CRUDE OIL
True Vertical Depth (TVD):	1,289.71
Total Water Volume (m3):	319,792

Hydraulic Fracturing Fluid Composition:

Fracture Start/End Date:	Component Type	Trade Name	Supplier	Purpose	Ingredient/Family Name	CAS # / HMIRC #	Concentration in Component (% by mass)	Concentration in HFF (% by mass)
Jan 25 2013 - Jan 26 2013	CARRIER FLUID				Linear/branched c11 alcohol ethoxylate (3 eo), Linear/branched c11 alcohol ethoxylate (8 eo)	127036-24-2	200.000000%	0.017980%
	CARRIER FLUID				2-Butoxyethanol	111-76-2	100.000000%	0.009430%
	CARRIER FLUID				Acetic acid ethenyl ester, polymer with ethenol	25213-24-5	100.000000%	0.001487%
	CARRIER FLUID				Benzenesulfonic acid, 4-ethenyl-, sodium salt, homopolymer	25704-18-1	100.000000%	0.015717%
	CARRIER FLUID				Butan-1-ol	71-36-3	100.000000%	0.003765%
	CARRIER FLUID				Erucic amidopropyl dimethyl betaine	149879-98-1	100.000000%	0.218027%
	CARRIER FLUID				Ethane-1,2-diol	107-21-1	100.000000%	0.000075%
	CARRIER FLUID				Magnesium silicate hydrate (talc)	14807-96-6	100.000000%	0.000210%
	CARRIER FLUID				Nitrogen, liquid form	7727-37-9	100.000000%	28.860315%
	CARRIER FLUID				Polyvinyl acetate, partially hydrolyzed	304443-60-5	100.000000%	0.000688%

Fracture Start/End Date:	Component Type	Trade Name	Supplier	Purpose	Ingredient/Family Name	CAS # / HMIRC #	Concentration in Component (% by mass)	Concentration in HFF (% by mass)
Jan 25 2013 - Jan 26 2013	CARRIER FLUID				Propan-2-ol	67-63-0	100.000000%	0.168507%
	CARRIER FLUID				Sodium chloride	7647-14-5	100.000000%	0.029936%
	CARRIER FLUID				Sodium chloroacetate	3926-62-3	100.000000%	0.002823%
	CARRIER FLUID				Tetramethylammonium chloride	75-57-0	100.000000%	0.041074%
	CARRIER FLUID				Undecanol, branched and linear (impurity)	128973-77-3	100.000000%	0.000950%
	CARRIER FLUID				Vinylidene chloride/methylacrylate copolymer	25038-72-6	100.000000%	0.006584%
	CARRIER FLUID				Water (Including Mix Water Supplied by Client)*	7732-18-5	100.000000%	37.663669%
	PROPPANT	ClearFRAC XT	Schlumberger		Crystalline silica	14808-60-7	100.000000%	34.693071%

Comments:

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date:	February 19, 2013
Last Submission Date:	April 29, 2013
Province:	AB
ERCB Field Centre:	St. Albert
Surface location:	03-33-067-08W5
Well Licence Number:	0437488
Licensee Name:	Arcan Resources Ltd.
Unique Well Identifier:	00/02-28-067-08W5/2
Well Name:	ARCAN 3-33 HZ ETHEL 2-28-67-8
Number of Stages:	9
Bottom Hole Latitude:	54.825084
Bottom Hole Longitude:	-115.152125
Lat/Long Projection:	NAD 83
Production Fluid Type:	CRUDE OIL
True Vertical Depth (TVD):	2,360.01
Total Water Volume (m3):	109,907

Hydraulic Fracturing Fluid Composition:

Fracture Start/End Date:	Component Type	Trade Name	Supplier	Purpose	Ingredient/Family Name	CAS # / HMIRC #	Concentration in Component (% by mass)	Concentration in HFF (% by mass)
Feb 18 2013 - Feb 19 2013	CARRIER FLUID				water	7732-18-5	100.000000%	63.986444%
	ADDITIVE	28% HCl	Nabors Well Service Canada Ltd	Acid	water	7732-18-5	72.000000%	25.417791%
	ADDITIVE	28% HCl	Nabors Well Service Canada Ltd	Acid	Hydrochloric Acid	7647-01-0	28.000000%	9.884696%
	ADDITIVE	KR-153SL	Nabors Well Service Canada Ltd	Bactericide/Biocide	Polyethylene glycol (PEG)	25322-68-3	50.000000%	0.037741%
	ADDITIVE	KR-153SL	Nabors Well Service Canada Ltd	Bactericide/Biocide	Non-Hazardous	Not Available	30.000000%	0.022644%
	ADDITIVE	KR-153SL	Nabors Well Service Canada Ltd	Bactericide/Biocide	2,2-Dibromo-3-nitrilo-propionamide (DBNPA)	10222-01-2	20.000000%	0.015096%
	ADDITIVE	EB-4L	Nabors Well Service Canada Ltd	Breaker	Non-Hazardous	Not Available	60.000000%	0.009162%

Fracture Start/End Date:	Component Type	Trade Name	Supplier	Purpose	Ingredient/Family Name	CAS # / HMIRC #	Concentration in Component (% by mass)	Concentration in HFF (% by mass)
Feb 18 2013 - Feb 19 2013	ADDITIVE	EB-4L	Nabors Well Service Canada Ltd	Breaker	Ethylene glycol	107-21-1	40.000000%	0.006108%
	ADDITIVE	PH-4	Nabors Well Service Canada Ltd	Buffer	Acetic Acid	64-19-7	70.000000%	0.056416%
	ADDITIVE	PH-4	Nabors Well Service Canada Ltd	Buffer	Non-Hazardous	Not Available	30.000000%	0.024178%
	ADDITIVE	Clay Treat LT	Nabors Well Service Canada Ltd	Clay Control	Non-Hazardous	Not Available	100.000000%	0.125937%
	ADDITIVE	XL-4	Nabors Well Service Canada Ltd	Crosslinker	Non-Hazardous	Not Available	75.000000%	0.042437%
	ADDITIVE	XL-4	Nabors Well Service Canada Ltd	Crosslinker	Isopropyl Alcohol	67-63-0	25.000000%	0.014145%
	ADDITIVE	WFR-C	Nabors Well Service Canada Ltd	Friction Reducer	Polyquaternium-33	69418-26-4	50.000000%	0.019088%
	ADDITIVE	WFR-C	Nabors Well Service Canada Ltd	Friction Reducer	Petroleum Distillates	64742-47-8	40.000000%	0.015271%
	ADDITIVE	WFR-C	Nabors Well Service Canada Ltd	Friction Reducer	Citric Acid	77-92-9	5.000000%	0.001908%
	ADDITIVE	WFR-C	Nabors Well Service Canada Ltd	Friction Reducer	Non-Hazardous	Not Available	5.000000%	0.001908%
	ADDITIVE	LSG-200	Nabors Well Service Canada Ltd	Gelling Agent	Petroleum Distillates	64742-47-8	55.000000%	0.178312%
	ADDITIVE	LSG-200	Nabors Well Service Canada Ltd	Gelling Agent	Guar Gum	9000-30-0	50.000000%	0.162102%
	ADDITIVE	Super 100 NE	Nabors Well Service Canada Ltd	Surfactant	Isopropanol	67-63-0	40.000000%	0.023000%
	ADDITIVE	Super 100 NE	Nabors Well Service Canada Ltd	Surfactant	Non-Hazardous	Not Available	38.000000%	0.021850%
	ADDITIVE	Super 100 NE	Nabors Well Service Canada Ltd	Surfactant	Methyl Alcohol	67-56-1	10.000000%	0.005750%

Fracture Start/End Date:	Component Type	Trade Name	Supplier	Purpose	Ingredient/Family Name	CAS # / HMIRC #	Concentration in Component (% by mass)	Concentration in HFF (% by mass)
Feb 18 2013 - Feb 19 2013	ADDITIVE	Super 100 NE	Nabors Well Service Canada Ltd	Surfactant	Cocoamidopropyl hydroxysultaine	68139-30-0	7.000000%	0.004025%
	ADDITIVE	Super 100 NE	Nabors Well Service Canada Ltd	Surfactant	Ethylene glycol monobutyl ether	111-76-2	5.000000%	0.002875%

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date:	February 12, 2013
Last Submission Date:	October 04, 2013
Province:	AB
ERCB Field Centre:	Grande Prairie
Surface location:	16-05-088-10W6
Well Licence Number:	0452559
Licensee Name:	Birchcliff Energy Ltd.
Unique Well Identifier:	00/16-04-088-10W6/2
Well Name:	BIRCHCLIFF 16-5HZ CLEARH 16-4-88-10
Number of Stages:	15
Bottom Hole Latitude:	56.609197
Bottom Hole Longitude:	-119.518690
Lat/Long Projection:	NAD 83
Production Fluid Type:	CRUDE OIL
True Vertical Depth (TVD):	1,118.10
Total Water Volume (m3):	1,028,940

Hydraulic Fracturing Fluid Composition:

Fracture Start/End Date:	Component Type	Trade Name	Supplier	Purpose	Ingredient/Family Name	CAS # / HMIRC #	Concentration in Component (% by mass)	Concentration in HFF (% by mass)
Feb 12 2013 - Feb 12 2013	CARRIER FLUID				Water	Not Available	100.000000%	80.994416%
	PROPPANT	20/40 RCS	Trican		silica crystalline	14808-60-7	100.000000%	6.392801%
	PROPPANT	Sand (20/40)	Trican		silica crystalline	14808-60-7	100.000000%	11.370891%
	PROPPANT	20/40 RCS	Trican		hexamethylenetetramine	100-97-0	10.000000%	0.639279%
	ADDITIVE	WBO-2	Trican	Breaker	sodium persulfate	7775-27-1	100.000000%	0.015828%
	ADDITIVE	GBE-1:5	Trican	Breaker	propylene glycol	57-55-6	70.000000%	0.020607%
	ADDITIVE	GBE-1:5	Trican	Breaker	Non-Hazardous Ingredients	Not Available	30.000000%	0.008831%
	ADDITIVE	DRA-2	Trican	Buffer	Non-Hazardous Ingredients	Not Available	100.000000%	0.148071%
	ADDITIVE	CC-55	Trican	Clay Control	1,3-propanediaminium-2-substitued, -hexaalkyl-, di halide	7744	60.000000%	0.111205%
	ADDITIVE	CC-55	Trican	Clay Control	Non-Hazardous Ingredients	Not Available	35.000000%	0.064870%
	ADDITIVE	CC-55	Trican	Clay Control	formic acid	64-18-6	5.000000%	0.009267%
	ADDITIVE	WCA-1	Trican	Conductivity Enhancer	ethylene glycol	107-21-1	60.000000%	0.055327%
	ADDITIVE	WCA-1	Trican	Conductivity Enhancer	Non-Hazardous Ingredients	Not Available	40.000000%	0.036885%
ADDITIVE	WXB-10	Trican	Crosslinker	borate salts	1319-33-1	60.000000%	0.117327%	

Fracture Start/End Date:	Component Type	Trade Name	Supplier	Purpose	Ingredient/Family Name	CAS # / HMIRC #	Concentration in Component (% by mass)	Concentration in HFF (% by mass)
Feb 12 2013 - Feb 12 2013	ADDITIVE	WXB-10	Trican	Crosslinker	distillates (petroleum), hydrotreated light	64742-47-8	60.000000%	0.117327%
	ADDITIVE	WG-111L	Trican	Gelling Agent	distillates (petroleum), hydrotreated middle	64742-46-7	60.000000%	0.262504%
	ADDITIVE	WG-111L	Trican	Gelling Agent	polysaccharide blend	Not Available	60.000000%	0.262504%
	ADDITIVE	S-2	Trican	Surfactant	isopropanol	67-63-0	80.000000%	0.110352%
	ADDITIVE	S-2	Trican	Surfactant	2-ethylhexanol	104-76-7	10.000000%	0.013794%
	ADDITIVE	S-2	Trican	Surfactant	solvent naphtha (petroleum), heavy aromatic	64742-94-5	10.000000%	0.013794%
	ADDITIVE	S-2	Trican	Surfactant	oxydiethylenebis (alkyldimethyl ammonium chloride)	68607-28-3	5.000000%	0.006897%
	ADDITIVE	S-2	Trican	Surfactant	methanol	67-56-1	1.000000%	0.001379%

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