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MAY - 3 2012

MONTANA BOARD OF OIL & GAS CONSERVATION • BILLINGS

9/7/2011	Fracture Date
MT	State:
Richland	County:
25-083-22879	API Number:
Continental Resources	Operator Name:
Cochrane 1-11H	Well Name and Number:
-104.5876295	Longitude:
47.926124	Latitude:
NAD27	Long/Lat Projection:
Oil	Production Type:
	True Vertical Depth (TVD):
1,057,690	Total Water Volume (gal)*:

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)** 84.64374%	Comments
WF125, YF125FLEX	Schlumberger		Water (Includes Mix Water Supplied by Client)	-			
			Crystalline silica	14808-60-7	93.83854%	14.41009%	
			Guar gum	9000-30-0	1.85905%	0.28548%	
			Hydrocarbon hydrocarbon	Proprietary	1.85905%	0.28548%	
			Phenolic resin	9003-35-4	1.44430%	0.22179%	
			Tetramethylammonium chloride	75-57-0	0.42994%	0.06602%	
			Aliphatic polyol	Proprietary	0.32812%	0.05039%	
			Methanol	67-56-1	0.32569%	0.05001%	
			Sodium hydroxide	1310-73-2	0.21059%	0.03234%	
			Potassium hydroxide	1310-58-3	0.16406%	0.02519%	
			Decyl-dimethyl amine oxide	2605-79-0	0.10748%	0.01651%	
			Oxyalkylated alkyl alcohol (1)	Proprietary	0.04653%	0.00714%	
			Oxyalkylated alcohol (2)	Proprietary	0.04653%	0.00714%	
			Sodium bromate	7789-38-0	0.03444%	0.00529%	
			Diammonium peroxidisulphate	7727-54-0	0.03100%	0.00476%	
			Quaternary ammonium compound	Proprietary	0.02326%	0.00357%	
			Oxyalkylated alcohol (1)	Proprietary	0.02326%	0.00357%	
			Heavy aromatic naphtha	64742-94-5	0.02326%	0.00357%	
			Amorphous silicia	Proprietary	0.00767%	0.00118%	
			Tetrakis(hydroxymethyl)phosphonium sulfate	55566-30-8	0.00767%	0.00118%	

^{*} Total Water Volume sources may include fresh water, produced water, and/or recycled water

Report ID: RPT-JPL-1289 (Generated on 12/10/2011 2:58 PM)

^{**} Information is based on the maximum potential for concentration and thus the total may be over 100%

Fracture Date	7/21/2011
State:	Montana
County:	Richland
API Number:	25-083-22870
Operator Name:	XTO Energy
Well Name and Number:	Thiel 2 11X-12
Longitude:	-104.096336
Latitude:	47.686258
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	10,152
Total Water Volume (gal)*:	2,254,602

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			Water	7732-18-5	100.00%	87.43482%	
Sand	Schlumberge r	Proppant	Crystalline Silica	14808-60-7	100.00%	11.38364%	
3306	Schlumberge r	Gel					
			Hydrocarbon hydrocarbon	Proprietary	60.00%	0.27220%	Pending Disclosure by Supplier
			Guar gum	9000-30-0	60.00%	0.27220%	
J583	Schlumberge r	Clay Stabilizer (w/Surfactant)					
			Tetramethylammonium chloride	75-57-0	40.00%	0.10158%	
			Decyl-dimethyl amine oxide	2605-79-0	10.00%	0.02540%	
			Proprietary Component	Proprietary	50.00%	0.12698%	Pending Disclosure by Supplier
XE183K	Schlumberge r	Crosslinker					
			Potassium hydroxide	1310-58-3	15.00%	0.02730%	
			Proprietary Component	Proprietary	85.00%	0.15472%	Pending Disclosure by Supplier
Gyptron T-475	Champion Technologies	Antiscale					
			Ethylene Glycol	67-56-1	30.00%	0.02948%	
			Methanol	67-56-1	10.00%	0.00983%	
			Amine phosphonate 5	Proprietary	5.00%	0.00491%	Pending Disclosure by Supplier
			Potassium Chloride	7447-40-7	5.00%	0.00491%	
			Amine phosphonate 5, Potassium Salt	Proprietary	30.00%	0.02948%	Pending Disclosure by Supplier
			Proprietary Component	Proprietary	20.00%	0.01965%	Pending Disclosure by Supplier
V054	Schlumberge r	Non-Emulsifying Surfactant					
		_	Methanol	67-56-1	70.00%	0.05837%	
			Oxyalkylated alkyl alcohol (1)	Proprietary	10.00%	0.00834%	Pending Disclosure by Supplier
			Oxyalkylated alcohol (2)	Proprietary	10.00%	0.00834%	Pending Disclosure by Supplier
			Quaternary ammonium compound	Proprietary	5.00%	0.00417%	Pending Disclosure by Supplier

			Heavy aromatic naphtha	64742-94-5	5.00%	0.00417%	
			Oxyalkylated alcohol (1)	Proprietary	5.00%	0.00417%	Pending Disclosure by Supplie
J481	Schlumberge r	Gel Breaker (High Temp)					
			Sodium bromate	7789-38-0	100.00%	0.04576%	
J353L	Schlumberge r	Gel Stabilizer High Temperature					
			Sodium thiosulphate	7772-98-7	30.00%	0.00809%	
			Proprietary Component	Proprietary	70.00%	0.01888%	Pending Disclosure by Supplie
Bactron K-31W	Champion Technologies	Antibacterial					
			Ethylene Glycol	107-21-1	30.00%	0.00610%	
			Glutaraldehyde	111-30-8	30.00%	0.00610%	
			Ethanol	64-17-5	30.00%	0.00610%	
			Proprietary Component	Proprietary	10.00%	0.00203%	Pending Disclosure by Supplie
Bactron K-139W	Champion Technologies	Antibacterial					
			Isopropyl Alcohol	67-63-0	60.00%	0.00957%	
			Ethylene Glycol	107-21-1	30.00%	0.00479%	
			Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	10.00%	0.00160%	
			Glutaraldehyde	111-30-8	5.00%	0.00080%	
			Ethanol	64-17-5	5.00%	0.00080%	
J218	Schlumberge r	Non-Encapsulated Gel Breaker (Instant)					
			Diammonium peroxidisulphate	7727-54-0	100.00%	0.00122%	

^{*} 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%

8/24/2011	Fracture Date
Montana	State:
Richland	County:
25-083-22875	API Number:
XTO Energy	Operator Name:
Sherlock 13X-24	Well Name and Number:
-104.2269	Longitude:
47.7373	Latitude:
NAD83	Long/Lat Projection:
Oil	Production Type:
10,421	True Vertical Depth (TVD):
2,537,598	Total Water Volume (gal)*:

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MONTANA BOARD OF OIL & GAS CONS. BILLINGS

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
		Vehicle	Water	7732-18-5	100.00%	0.88640%	
Water	0	A STATE OF THE STA	Crystalline Silica	14808-60-7	100.00%	0.10419%	
Sand	Superior Well Svcs Superior Well Svcs	Proppant Gel	Orystamins office	MARKET STATE OF THE STATE OF TH		0.00488%	
LSG-1	Superior vveil Svcs	Gei	Iso-Alkanes/n-Alkanes	proprietary	60.00%	0.00244%	Pending Disclosure by Supplier
			Polysaccharide Blend	proprietary	60.00%	0.00244%	Pending Disclosure by Supplier
	O	Clay Control	1 orysaderiande biens	,		0.00127%	
Clay Treat LT	Superior Well Svcs	Clay Control	Choline Chloride	67-48-1	70.00%	0.00074%	
			Water	7789-20-0	50.00%	0.00053%	
	2 : 14 !! 2	Delayed Cross-linker	Water	1700 200	1000000	0.00091%	
XLBHT-2	Superior Well Svcs	Delayed Cross-linker	Potassium Formate	590-29-4	50.00%	0.00088%	
			Formic Acid	64-18-6	2.00%	0.00004%	
			Proprietary Component	proprietary	0.00%	0.00000%	Pending Disclosure by Supplier
	0 T 1 T 1	Coole labibites	Proprietary Component	ргориологу	1007.05	0.00066%	
Gyptron T-475	Champion Technologies	Scale Inhibitor	Ethylene Glycol	107-21-1	30.00%	0.00025%	****
			Methanol	67-56-1	10.00%	0.00008%	
			Amine phosphonate 5	proprietary	5.00%	0.00004%	Pending Disclosure by Supplier
			Potassium Chloride	7447-40-7	5.00%	0.00004%	
			Amine phosphonate 5, Potassium Salt	proprietary	30.00%	0.00025%	Pending Disclosure by Supplier
	Olympia Tarkadasia	Authoritaid	Parising prosprioritate of Foldosterin cont	p. op. io.e. y	75-210-210	0.00036%	, , , ,
Bactron K-31W	Champion Technologies	Antibacterial	Ethylene Glycol	107-21-1	30.00%	0.00012%	
			Glutaraldehyde	111-30-8	30.00%	0.00012%	
			Ethanol	64-17-5	30.00%	0.00012%	
			Proprietary Component	proprietary	0.00%	0.00000%	Pending Disclosure by Supplier
	0 14110	Non-Emulsifying Surfactant	Propriotally competions	ричения		0.00036%	
Super OW-3	Superior Well Svcs	Non-Emulsilying Surfactant	Isopropyl Alcohol	67-63-0	40.00%	0.00032%	
			Proprietary Component	proprietary	5.00%	0.00004%	Pending Disclosure by Supplier
			r rophiciary component	p.s.p.s.s.y	0.00%	0.00000%	
					0.00%	0.00000%	
					0.00%	0.00000%	
					0.00%	0.00000%	
	0 1 1 1 1 1 1 1 1 1 1 1	Gel Stabilizer (Buffer)				0.00032%	
PH-16L	Superior Well Svcs	Gel Stabilizer (Buller)	Potassium Hydroxide	1310-58-3	70.00%	0.00032%	
			Proprietary Component	proprietary	0.00%	0.00000%	Pending Disclosure by Supplier
			Trophotaly component	F-F/	0.00%	0.00000%	
					0.00%	0.00000%	
	O A I Mall Cours	Encapsulated Gel Breaker (Delayed) High Temp				0.00004%	
OB-2 HT	Superior Well Svcs	Encapsulated Get breaker (Delayed) High Temp	Ammonium Persulfate	7727-54-0	100.00%	0.00003%	
			Crystalline Silica in the form of Quartz	14808-60-7	40.00%	0.00001%	
	0 1 14 1 0	Non-Encapsulated Gel Breaker (Instant)	or you all the form of Quartz			0.00003%	
OB Breaker	Superior Well Svcs	Non-Encapsulated Ger Breaker (Instant)		7727-54-0	100.00%	0.00003%	

^{*} Total Water Volume sources may include fresh water, produced water, and/or recycled water

Report ID: RPT-JPL-1289 (Generated on 12/10/2011 2:58 PM)

^{**} Information is based on the maximum potential for concentration and thus the total may be over 100%

Fracture Date	10/3/2012
State:	MT
County:	Rosebud
API Number:	25-087-21738
Operator Name:	Fidelity
Well Name and Number:	71 Ranch 44-1H
Longitude:	-107.379455
Latitude:	46.642727
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	5,115
Total Water Volume (gal)*:	1,082,654

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
Sand (Proppant)	CWS	Propping Agent					
DAP-925	CWS	Acid Corrosion Inhibitor					
DWP-111	CWS	Gel Slurry					
DWP-123	CWS	Crosslinker					
DWP-204	CWS	pH Buffer					
DWP-621	CWS	Friction Reducer					
DWP-902	CWS	Breaker					
DWP-905	CWS	Breaker					
DWP-913	CWS	Clay Control					
DWP-944	CWS	Biocide					
DWP-955	CWS	Non-Emulsifier					
Hydrochloric Acid	CWS	Clean Perforations					
			2,2-Dibromo-3-Nitrilopropionamide	10222-01-2	40.00%	0.01180%	
			Ammonium Persulfate	7727-54-0	100.00%	0.08724%	
			Apatite	64476-38-6	0.10%	0.0072478	
			Biotite	1302-27-8	0.10%	0.00285%	
			Calcite	471-34-1	1.00%	0.02366%	
			Choline chloride	67-48-1	100.00%	0.06960%	
			Crystalline silica (Quartz)	14808-60-7	30.00%	12.98209%	
			Distillates (petroleum), hydrotreated middle	64742-46-7	60.00%	0.17820%	
			Fatty acids	Trade Secret	30.00%	0.00001%	
			Formaldehyde	50-00-0	0.10%	0.00001%	
			Formic Acid	64-18-6	13.00%	0.00149%	
			Goethite	1310-14-1	0.10%	0.00510%	
			Guar gum	9000-30-0	60.00%	0.17820%	
			Hydrochloric acid	7647-01-0	37.00%	0.03165%	
			Illite	12173-60-3	1.00%	0.00465%	
			Ilmenite	98072-94-7	0.10%	0.00172%	
			Methanol	67-56-1	60.00%	0.00002%	
			Modified thiourea polymer	68527-49-1	30.00%	0.00002%	
			Nonionic surfactant	Trade Secret	5.00%	0.00106%	7
	1		140/110/110 Juliaciani	Trade Occiet	J.00 /0	0.0010070	

			Olefin	Trade Secret	5.00%	0.00000%	
			Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	37251-67-5	1.50%	0.00446%	
			Paraffinic hydrocarbon solvent	64742-47-8	30.00%	0.00637%	
			Polyacrylamide polymer	Trade Secret	40.00%	0.00849%	
			Polyethylene Glycol Mixture	25322-68-3	70.00%	0.01180%	
			Polyoxyalkylenes	Trade Secret	30.00%	0.00001%	
			Polyoxyalkylenes surfactant	Trade Secret	5.00%	0.00106%	
			Potassium hydroxide	1310-58-3	30.00%	0.03760%	
			Propargyl Alcohol	107-19-1	10.00%	0.00000%	
			Quaternary ammonium compounds, bis(hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2	5.00%	0.01485%	
			Sodium chloride	7647-14-5	1.00%	0.00000%	
			Sodium tetraborate pentahydrate	12179-04-3	Trade Secret	Trade Secret	
			Styrene acrylic copolymer	25085-34-1	40.00%	0.03490%	1
Water	Customer & CWS	Base Fluid & Mix Water	Water	7732-18-5	100.00%	86.38062%	
CO2	Customer	Base Fluid Gas	Carbon Dioxide	124-38-9	Not Listed	Not Listed	

^{*} 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%

2/8/2011	Fracture Date
Montana	State:
Richland	County:
25-083-22850	API Number:
XTO Energy	Operator Name:
Thiel 11X-12	Well Name and Number:
-104.096764	Longitude:
47.685967	Latitude:
NAD83	Long/Lat Projection:
Oil	Production Type:
10,147	True Vertical Depth (TVD):
1,557,161	Total Water Volume (gal)*:

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		Vehicle	Water	7732-18-5		100.00%	87.99928%	
Sand	Superior Well Svcs	Proppant	Crystalline Silica	14808-60-7		100.00%	10.93520%	
LSG-1	Superior Well Svcs	Gel			1			
			Iso-Alkanes/n-Alkanes	proprietary		60.00%	0.27551%	Pending Disclosure by Supplier
			Polysaccharide Blend	proprietary		60.00%	0.27551%	Pending Disclosure by Supplier
XLBHT-2	Superior Well Svcs	Delayed Cross-linker						
			Potassium Formate	590-29-4		50.00%	0.11949%	
			Formic Acid	64-18-6		2.00%	0.00478%	
			Proprietary Component	proprietary		48.00%	0.11471%	Pending Disclosure by Supplier
Clay Treat LT	Superior Well Svcs	Clay Control						
			Choline Chloride	67-48-1		70.00%	0.06693%	
			Water	7789-20-0		50.00%	0.04780%	
Gyptron T-106	Champion Technologies	Scale Inhibitor						
			Methanol	67-56-1		30.00%	0.02692%	
			Hydrochloric acid	7647-01-0		5.00%	0.00449%	
			Proprietary Component	proprietary		65.00%	0.05832%	Pending Disclosure by Supplier
Super OW-3	Superior Well Svcs	Non-Emulsifying Surfactant						
			Isopropyl Alcohol	67-63-0		40.00%	0.03293%	
			Proprietary Component	proprietary		5.00%	0.00412%	Pending Disclosure by Supplier
			Proprietary Component	proprietary		55.00%	0.04527%	Pending Disclosure by Supplier
PH-16L	Superior Well Svcs	Gel Stabilizer (Buffer)		<u> </u>				
			Potassium Hydroxide	1310-58-3		70.00%	0.04371%	
			Proprietary Component	proprietary		30.00%	0.01873%	Pending Disclosure by Supplier
Bactron K-31W	Champion Technologies	Antibacterial						,
			Ethylene Glycol	107-21-1		30.00%	0.00939%	
			Glutaraldehyde	111-30-8		30.00%	0.00939%	
			Ethanol	64-17-5		30.00%	0.00939%	
			Proprietary Component	proprietary		10.00%	0.00313%	Pending Disclosure by Supplier
OB-2 HT	Superior Well Svcs	Encapsulated Gel Breaker (Delayed) High Temp.						
			Ammonium Persulfate	7727-54-0		100.00%	0.00299%	
			Crystalline Silica in the form of Quartz	14808-60-7		40.00%	0.00120%	

OB Breaker	Non-Encapsulated Gel Breaker (Instant)					
		Ammonium Persulfate	7727-54-0	100.00%	0.00299%	
		Proprietary Component	proprietary	10.00%	0.00030%	Pending Disclosure by Supplier

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^{**} Information is based on the maximum potential for concentration and thus the total may be over 100%

5/9/2011	Fracture Date
Montana	State:
Richland	County:
25-083-22854	API Number:
XTO Energy	Operator Name:
Witt 13X-25	Well Name and Number:
-104.226783	Longitude:
47.724986	Latitude:
NAD83	Long/Lat Projection:
Oil	Production Type:
10,318	True Vertical Depth (TVD):
914,088	Total Water Volume (gal)*:

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		Vehicle	Water	7732-18-5	100.00%	86.10299%	
Sand	Superior Well Svcs	Proppant	Crystalline Silica	14808-60-7	100.00%	12.70124%	
LSG-1	Superior Well Svcs	Gel					
			Iso-Alkanes/n-Alkanes	proprietary	60.00%	0.27181%	Pending Disclosure by Supplier
			Polysaccharide Blend	proprietary	60.00%	0.27181%	Pending Disclosure by Supplier
KLBHT-2	Superior Well Svcs	Delayed Cross-linker					
			Potassium Formate	590-29-4	50.00%	0.13402%	
		_	Formic Acid	64-18-6	2.00%	0.00536%	
			Proprietary Component	proprietary	48.00%	0.12866%	Pending Disclosure by Supplier
Syptron T-475	Champion Technologies	Scale Inhibitor					
			Ethylene Glycol	107-21-1	30.00%	0.03861%	
		_	Methanol	67-56-1	10.00%	0.01287%	
			Amine phosphonate 5	proprietary	5.00%	0.00643%	Pending Disclosure by Supplier
		<u> </u>	Potassium Chloride	7447-40-7	5.00%	0.00643%	
			Amine phosphonate 5, Potassium Salt	proprietary	30.00%	0.03861%	Pending Disclosure by Supplier
			Proprietary Component	proprietary	20.00%	0.02574%	Pending Disclosure by Supplier
Clay Treat LT	Superior Well Svcs	Clay Control					
			Choline Chloride	67-48-1	70.00%	0.06898%	
			Water	7789-20-0	50.00%	0.04927%	
Bactron K-31W	Champion Technologies	Antibacterial					
			Ethylene Glycol	107-21-1	30.00%	0.03004%	
			Glutaraldehyde	111-30-8	30.00%	0.03004%	
			Ethanol	64-17-5	30.00%	0.03004%	
			Proprietary Component	proprietary	10.00%	0.01001%	Pending Disclosure by Supplier
Super OW-3	Superior Well Svcs	Non-Emulsifying Surfactant					
			Isopropyl Alcohol	67-63-0	40.00%	0.03105%	
			Proprietary Component	proprietary	5.00%	0.00388%	Pending Disclosure by Supplier
			Proprietary Component	proprietary	55.00%	0.04270%	Pending Disclosure by Supplier
PH-16L	Superior Well Svcs	Gel Stabilizer (Buffer)					
			Potassium Hydroxide	1310-58-3	70.00%	0.04450%	
			Proprietary Component	proprietary	30.00%	0.01907%	Pending Disclosure by Supplier
DB-2 HT	Superior Well Svcs	Encapsulated Gel Breaker (Delayed) High Temp.	<u> </u>				2 11
			Ammonium Persulfate	7727-54-0	100.00%	0.00307%	
			Crystalline Silica in the form of	14808-60-7	40.00%	0.00123%	

			Quartz				
OB Breaker	Superior Well Svcs	Non-Encapsulated Gel Breaker (Instant)					
			Ammonium Persulfate	7727-54-0	100.00%	0.00307%	
			Proprietary Component	proprietary	10.00%	0.00031%	Pending Disclosure by Supplier

^{*} 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%

Fracture Date	02/09/2012
State:	Montana
County:	Sheridan
API Number:	25-091-21891
Operator Name:	Marathon Oil Company
Well Name and Number:	Wegner 34-11H
Longitude:	-104.1362
Latitude:	48.44861
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	9,647
Total Water Volume (gal)*:	1,725,667

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	Operator	Carrier	Water	7732-18-5	100.00%	83.04193%	0
Frac-Cide 1000	Baker Hughes	Biocide	2,2-Dibromo-3-Nitrilopropionamide	10222-01-2	100.00%	0.00078%	0
Alpha 452	Baker Hughes	Biocide	Tetrakis(hydroxymethyl) Phosphonium Sulfate	55566-30-8	60.00%	0.01502%	0
GBW-5	Baker Hughes	Breaker	Ammonium Persulfate	7727-54-0	100.00%	0.00006%	SmartCare Product
Enzyme G-I	Baker Hughes	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00068%	0
0	0	0	Water	7732-18-5	97.00%	0.02199%	0
GBW-23L	Baker Hughes	Breaker	White Mineral Oil	8042-47-5	100.00%	0.04842%	0
BF-9L, 55 gal drum	Baker Hughes	Buffer	Potassium Carbonate	584-08-7	60.00%	0.03493%	SmartCare Product
0	0	0	Potassium Hydroxide	1310-58-3	30.00%	0.01747%	0
XLW-30AG, tote	Baker Hughes	Crosslinker	Hydrotreated Light Distillate	64742-47-8	70.00%	0.02929%	SmartCare Product
XLW-32	Baker Hughes	Crosslinker	Boric Acid (H3BO3)	10043-35-3	30.00%	0.00191%	0
0	0	0	Methanol	67-56-1	60.00%	0.00382%	0
0	0	0	Methyl Borate	121-43-7	30.00%	0.00191%	0
GW-3LDF	Baker Hughes	Gelling Agent	Guar Gum	9000-30-0	40.00%	0.21285%	SmartCare Product
0	0	0	Petroleum Distillate Blend	Trade Secret	70.00%	0.37249%	0

NE-900, tote	Baker Hughes	Non-emulsifier	Methanol	67-56-1	30.00%	0.01234%	SmartCare Product
0	0	0	Oxyalkylated Alkylphenol	9016-45-9	10.00%	0.00411%	(
Sand, White, 30/50	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00%	12.71993%	C
Sand, White, 40/70	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00%	3.38556%	(
ScaleSorb 3, (50# bag)	Baker Hughes	Scale Inhibitor	Amino Alkyl Phosphonic Acid	Trade Secret	30.00%	0.00485%	SmartCare Product
0	0	0	Crystalline Silica: Quartz (SiO2)	14808-60-7	1.00%	0.00016%	
0	0	0	Diatomaceous Earth, Calcined	91053-39-3	100.00%	0.01616%	(
0	0	0	Phosphonic Acid	13598-36-2	1.00%	0.00016%	(
InFlo 250W	Baker Hughes	Surfactant	2-Butoxyethanol	111-76-2	5.00%	0.00231%	(
0	0	0	Methanol	67-56-1	30.00%	0.01387%	(
0	0	0	Surfactants	Trade Secret	80.00%	0.03700%	С
Additional Ingredien	its						
			2-Bromo-3-Nitrilopropionamide	1113-55-9			
			Alkyl Benzenesulfonic Acid	68584-22-5			
			Boric Anhydride	1303-86-2			
			Copolymer	Trade Secret			
			Crystalline Silica	14808-60-7			
			Dibromoacetonitrile	3252-43-5			
			Ethylene Glycol Monobutyl Ether	111-76-2			
			Formaldehyde	50-00-0			
			Magnesium Hydroxide	1309-42-8			
			Magnesium Oxide	1309-48-4			
			Magnesium Peroxide	14452-57-4			
			Methanol	67-56-1			
			Modified Amide	68442-77-3			
			Petroleum Distillates	64742-47-8			
			Poly (oxy-1,2-ethanediyl)	24938-91-8			
			Propylene Carbonate	108-32-7			
			Quaternary Ammonium Compounds bis[Hydrogenated Tallow Alkyl] Dimethyl Salts With Bentonite	68953-58-2			
			Sodium Aryl Sulfonate	119345-04-9			
			Sodium Chloride	7647-14-5			
			Sodium Sulfate	7757-82-6			
			Sodium Tetraborate	1330-43-4			
			Water	7732-18-5			

^{*} 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%

1/29/2016	Job Start Date:
1/29/2016	Job End Date:
Montana	State:
Wibaux	County:
25-109-21202-00-00	API Number:
Interstate Explorations LLC	Operator Name:
Nelson 2-1	Well Name and Number:
-104.16253600	Longitude:
46.94453300	Latitude:
NAD83	Datum:
NO	Federal/Tribal Well:
11,750	True Vertical Depth:
50,833	Total Base Water Volume (gal):
0	Total Base Non Water Volume:







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
Silica Sand	Sanjel	Proppant					
			Crystalline Silica, SiO2	14808-60-7	99.90000	6.82219	
Liquid Nitrogen	Sanjel	Stimulation					
			Nitrogen	7727-37-9	100.00000	2.33809	
Buffer A	Sanjel	Low ph Buffer					
			Acedic Acid	64-19-7	60.00000	0.19484	
15% HCI	Sanjel	Acid					
			Hydrogen Chloride Anhydrous	7647-01-0	40.00000	0.18907	
WG-9ZL	Sanjel	Gellant					
			Petroleum Distillate blend	64742-47-8	60.00000	0.14960	
WG-9ZL	Sanjel	Gellant					
			Polysaccharide blend	NA	60.00000	0.14960	
FA-1	Sanjel	Foamer					
			Ammonium C8-10 Alcohol	68891-29-2	60.00000	0.10638	
SCC-1L	Sanjel	Clay Control					
			No hazardous ingredients	NA	100.00000	0.09481	
FA-1	Sanjel	Foamer					
			Ethanol	64-17-5	30.00000	0.05319	
NE-7	Sanjel	Non-emulsifier					

			Hexylene glycol	107-41-5	40.00000	0.01883	
NE-7	Sanjel	Non-emulsifier					
			Benzenesulfonic acid, C10-16- alkyl deribatives.	68584-22-5	30.00000	0.01412	
Bioclear 2000	Weatherford	Biocide					
			2,2-dibromo-3- nitrilopropionamide	10222-01-2	40.00000	0.00346	
NE-7	Sanjel	Non-emulsifier					
			Diethylenetriamine	111-40-0	5.00000	0.00235	
FA-1	Sanjel	Foamer					
			C8-C10 ethoxylated alcohol	68439-45-2	1.00000	0.00177	
1% Breaker O	Sanjel	Break Fluid					
			Ammoniun persulfate	7727-54-0	1.00000	0.00046	
AI-8	Sanjel	Acid Inhibitor					
			Isopropanol	67-63-0	40.00000	0.00035	
D-3	Sanjel	Demulsifier					
			Sodium 2-ethylhexyl sulphate	126-92-1	70.00000	0.00034	
AI-8	Sanjel	Acid Inhibitor					_
			Modified thiorea polymer	Proprietary	30.00000	0.00026	
AI-8	Sanjel	Acid Inhibitor					
			Polyoxyalkylenes	Proprietary	30.00000	0.00026	
AI-8	Sanjel	Acid Inhibitor					
			Fatty acids	Proprietary	30.00000	0.00026	
AI-8	Sanjel	Acid Inhibitor	4				
			Propargyl alcohol	107-19-7	10.00000	0.00009	
Ingredients shown	above are subject to 2	.9 CFR 1910.1200 <u>(i)</u> and	l appear on Material Safety Data She	eets (MSDS). Ingre	dients shown below are N	lon-MSDS.	
Base Fluid	Operator	Base Fluid					
			Water, other	7732-18-5	100.00000	89.41079	

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)

^{*} 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%

6/24/2015
6/29/2015
Montana
Valley
25-105-21580-00-00
Great Western Oil & Gas Company,
LLQ
Treasure 26-3143-302HC-C
-106.08577200
48.41038600
NAD27
YES
5,470
0
4,000







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
HCI > 10%	Halliburton	Base Fluid					
			NA	NA			
FERCHEK A REDUCING AGENT, HAI-404M(TM), LOSURF-300D, SCA- 130 INHIBITOR	Halliburton	Corrosion Inhibitor, Inhibitor, Iron Reducing Agent, Non- ionic Surfactant					
			NA	NA			
Ingredients shown abo	ve are subject to 29 CF	R 1910.1200(i) and app	pear on Material Safety Data She	ets (MSDS). Ingredie	nts shown below are	Non-MSDS.	
		Hazardous and Non- Hazardous Ingredients					
		<u> </u>	NFIDB:HCl > 10%	NFIDB:HCl > 10%	100.00000	97.75077	
			Water	7732-18-5	100.00000	1.81395	
			Aldol	107-89-1	60.00000	1.07758	
			Ethanol	64-17-5	60.00000	0.09856	
				123-73-9	5.00000	0.08980	
			Acetaldehyde	75-07-0	5.00000	0.08980	
			Oxyalkylated phenolic resin	Confidential	30.00000	0.06571	
			Hydroxylamine hydrochloride	11/1/5470	60.00000		
			Citric acid	77-92-9	60.00000		
			Methanol	67-56-1	30.00000	0.05393	

	Naphthenic acid ethoxylate	68410-62-8	30.00000	0.05393
	Isopropanol	67-63-0	30.00000	0.05393
	Aldehyde	Confidential	30.00000	0.05393Denise Tuck, Halliburton, 3000 N. Sam Houston Pkwy E., Houston, TX 77032, 281- 871-6226
	Heavy aromatic petroleum naphtha	64742-94-5	30.00000	0.04928
	Fatty acids, tall oil	Confidential	10.00000	0.01798
	Alcohols, C12-16, ethoxylated	68551-12-2	10.00000	0.01798
	Polyethoxylated fatty amine salt	61791-26-2	10.00000	0.01798
	Quaternary ammonium salt	Confidential	10.00000	0.01798
	1-(Benzyl)quinolinium chloride	15619-48-4	10.00000	0.01798
	Ethoxylated amine	Confidential	5.00000	0.00899
	Naphthalene	91-20-3	5.00000	0.00821
	Poly(oxy-1,2-ethanediyl), alpha- (4-nonylphenyl)-omega- hydroxy-, branched	127087-87-0	5.00000	0.00821
	Silica, amorphous - fumed	7631-86-9	5.00000	0.00546
	Ammonium phosphate	7722-76-1	1.00000	0.00180
	Sodium iodide	7681-82-5	1.00000	0.00180
	1,2,4 Trimethylbenzene	95-63-6	1.00000	0.00164
	Inorganic salt	Confidential	1.00000	0.00109

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)

^{*} 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%

1/24/2015
1/28/2015
Montana
Wibaux
25-109-21204-00-00
Slawson Exploration Company, Inc.
Michels 1-3-10H
-104.09836060
46.91751670
NAD83
NO
9,908
1,480,856
0







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	Customer & CWS	Base Fluid & Mix Water					
			Water	7732-18-5	100.00000	92.04982	
Sand (Proppant), DAP-925, DWP-111, DWP-126, DWP-204, DWP-213, DWP-621, DWP-913, DWP-955, DWP-975, Hydrochloric Acid	cws	Propping Agent, Acid Corrosion Inhibitor, Gel Slurry, Crosslinker, pH Buffer, pH Buffer, Friction Reducer, Clay Control, Non-Emulsifier, Breaker, Clean Perforations					
			Crystalline silica (Quartz)	14808-60-7	100.00000	7.00919	
			Hydrochloric acid	7647-01-0	37.00000	0.39006	
			Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000		
			Guar gum	9000-30-0	60.00000	0.20502	
			Choline chloride	67-48-1	100.00000		
			Isobutyl alcohol	78-83-1	30.00000	0.02423	
			Quaternary ammonium compounds, bis(hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2	5.00000		
			Calcite	471-34-1	1.00000	0.01472	

Polyacrylamide polymer	Proprietary	40.00000	0.00893Proprietary CAS
Paraffinic hydrocarbon solvent	64742-47-8	30.00000	0.00670
Oxirane, 2-methyl-, polymer with pxirane, monodecyl ether	37251-67-5	1.50000	0.00513
Formic Acid	64-18-6	13.00000	0.00365
Methanol	67-56-1	60.00000	0.00260
Ammonium Persulfate	7727-54-0	100.00000	0.00241
Goethite	1310-14-1	0.10000	0.00210
Polyoxyalkylenes	Proprietary	30.00000	0.00130Proprietary CAS
Modified thiourea polymer	68527-49-1	30.00000	0.00130
Fatty acids	Proprietary	30.00000	0.00130Proprietary CAS
Polyoxyalkylenes surfactant	Proprietary	5.00000	0.00112Proprietary CAS
Nonionic surfactant	Proprietary	5.00000	0.00112Proprietary CAS
Biotite	1302-27-8	0.10000	0.00070
Apatite	64476-38-6	0.10000	0.00070
Inorganic base	Proprietary	7.00000	0.00058Proprietary CAS
Vinylidene chloride-methyl acrylate copolymer	25038-72-6	30.00000	0.00052
	107-19-7	10.00000	0.00043
Oletin	Proprietary	5.00000	0.00022Proprietary CAS
Hydrated magnesium silicate	14807-96-6	1.00000	0.00009
Poly(tetrafluoroethylene)	9002-84-0	1.00000	0.00007
Sodium chloride	7647-14-5	1.00000	0.00004
Formaldehyde	50-00-0	0.10000	
Borate salt	Proprietary		Proprietary CAS & Additive Concentration
Ethoxylated phenolic resin	Proprietary		Proprietary CAS & Additive Concentration
Isobutyl ketone I	Proprietary		Proprietary CAS & Additive Concentration
Ethoxylated nonyl phenol	Proprietary		Proprietary CAS & Additive Concentration
Isobutyl ketone II	Proprietary		Proprietary CAS & Additive Concentration
Borate salt #2	Proprietary		Proprietary CAS & Additive Concentration

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)

^{*} 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%

12/17/2014
12/17/2014
Montana
Wibaux
25-109-21202-00-00
Interstate Explorations LLC
Nelson # 2-1
-104.16254000
46.94453000
NAD83
NO
11,750
0
0







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
15% HCI	Sanjel	Acid					
			Hydrogen Chloride Anhydrous	7647-01-0	40.00000	37.57006	
HTAI-1	Sanjel	Corrosion Inhibitor					
			Propylene Glycol	57-55-6	70.00000	1.65149	
ICA-8	Sanjel	Acid Iron Control					
			Sodium Hypophosphite	7681-53-0	70.00000	1.18357	
HTAI-1	Sanjel	Corrosion Inhibitor					
			Antimony Potassium Oxide	29638-69-5	40.00000	0.94371	
AI-8	Sanjel	Acid Inhibitor					
			Isopropanol	67-63-0	40.00000	0.51694	
S-101	Sanjel	Surfactant					
			Isopropanol	67-63-0	60.00000	0.29897	
AI-8	Sanjel	Acid Inhibitor					
			Propargyl alcohol	107-19-7	10.00000	0.12924	
D-2	Sanjel	Surfactant					
			Sodium-2-ethylhexyl sulfate	126-92-1	60.00000	0.11534	
ICA-8C	Sanjel	Acid Iron Control					
			Copper (II) Chloride	7447-39-4	100.00000	0.04191	
D-2	Sanjel	Surfactant					

			2-ethylhexanol	104-76-7	1.50000	0.00288	
AI-8	Sanjel	Acid Inhibitor					
			Fatty acids	Proprietary			
AI-8	Sanjel	Acid Inhibitor					
			Modified thiorea polymer	Proprietary			
AI-8	Sanjel	Acid Inhibitor					
			Polyoxyalkylenes	Proprietary			
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							

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)

^{*} 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%

11/20/2014
11/24/2014
Montana
Toole
25-101-24258-00-00
Anadarko Petroleum Corporation
HORGUS FEE 3702-08-05-11H
-111.90566000
48.98111100
NAD27
NO
3,893
333,609
0







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
N002	SCHLUMBERGER	NITROGEN					
			NITROGEN, LIQUID FORM	7727-37-9	100.00000	76.67191	
WATER	ANADARKO	CARRIER/BASE FLUID					
			WATER	7732-18-5	100.00000	16.90516	
WHITE OTTAWA/ST. PETERS 20/40	SCHLUMBERGER	PROPPING AGENT					
			CRYSTALLINE SILICA	14808-60-7	100.00000	5.44336	
H015	SCHLUMBERGER	ACID					
			HYDROCHLORIC ACID	7647-01-0	15.00000	0.10451	
F105	SCHLUMBERGER	SOLVENT					
			POLYETHOXYLATED ALKANOL (1)	PROPRIETARY	60.00000	0.03452	
			2-BUTOXYETHANOL	111-76-2	30.00000	0.01726	
			BUTAN-1-OL	71-36-3	13.00000	0.00748	
			POLYETHOXYLATED ALKANOL (2)	PROPRIETARY	10.00000	0.00575	
L071	SCHLUMBERGER	CLAY STABILIZER					
			CHOLINIUM CHLORIDE	67-48-1	75.00000	0.03817	
J590	SCHLUMBERGER	GELLING AGENT					
			PROPAN-2-OL	67-63-0	30.00000	0.02557	

J589	SCHLUMBERGER	CROSS-LINKER					
			PROPAN-2-OL	67-63-0	30.00000	0.01660	
B244	SCHLUMBERGER	BIOCIDE					
			GLUTARALDEHYDE	111-30-8	25.00000	0.00356	
A264	SCHLUMBERGER	CORROSION INHIBITOR					
			METHANOL	67-56-1	40.00000	0.00096	
			ALIPHATIC ACIDS	PROPRIETARY	30.00000	0.00072	
			ETHOXYLATED #1	PROPRIETARY	30.00000	0.00072	
			PROP-2-YN-1-OL	107-19-7	10.00000	0.00024	
B451	SCHLUMBERGER	NONEMULSIFIER					
				67-63-0	30.00000	0.00136	
			1, 2, 3 - PROPANETRIOL	56-81-5	10.00000	0.00045	
B315	SCHLUMBERGER	FRICTION REDUCER					
		_	HYDROTREATED LIGHT (64742-47-8	30.00000	0.00172	
			ALIPHATIC ALCOHOL GLYCOL ETHER	PROPRIETARY	1.50000	0.00009	
U042	SCHLUMBERGER	IRON CONTROL					
			TETRASODIUM ETHYLENEDIAMINETETRAAC ETATE	64-02-8	60.00000	0.00123	
			SODIUM HYDROXIDE	1310-73-2	5.00000	0.00010	
			TRISODIUM NITRILOACETATE (IMPURITY)	5064-31-3	1.00000	0.00002	
L058	SCHLUMBERGER	IRON CONTROL					
			SODIUM ERYTHORBATE	6381-77-7	100.00000	0.00075	
Ingredients she	own above are subject to 29 (CFR 1910.1200(i) and ap	ppear on Material Safety Data She	ets (MSDS). Ingredie	ents shown below are N	Non-MSDS.	
		Other Chemicals					
			BETAINE	PROPRIETARY	60.00000	0.05114	
			SULFONATED POLYSTYRENE	PROPRIETARY	100.00000	0.00410	

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)

^{*} 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%

2/25/2014
2/25/2014
Montana
Dawson
25-021-21195-00-00
Interstate Explorations LLC
MBA Consultants # 1-1
-104.55836000
47.36613000
NAD27
NO
12,000
54,687
0







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	Customer	Carrier					
			Water	7732-18-5	100.00000	87.13815	
Econoprop, 20/40 mesh	Trican	Proppant					
			mullite	1302-93-8	85.00000	10.31529	
			Silica	7631-86-9	35.00000	4.24747	
			silica crystalline-cristobalite	14464-46-1	20.00000	2.42713	
FR-12 (Anionic Acrylamide)	Trican	Friction Reducer					
			Mineral oil/ light hydrotreated pet. distillate	64742-47-8	60.00000	0.02522	
			Anionic polyacrylamide copolymer	25987-30-8	40.00000	0.01681	
			Ammonium Chloride	12125-02-9	2.00000	0.00084	
pH-15 (pH Buffer)	Trican	pH Buffer					
			Potassium carbonate	584-08-7	31.96000	0.02602	
			Potassium hydroxide	1310-58-3	13.05000	0.01063	
WXB-15 (Borate Crosslinker)	Trican	Crosslinker					
			Petroleum distillate blend	64742-96-7	47.72000	0.03619	
Bio Clear 5000 (Biocide)	Trican	Biocide					

			Polyethylene glycol	25322-68-3	70.00000	0.03079	
			2,2-dibromo-3- nitrilopropionamide	10222-01-2	10.00000	0.00440	
CC-55 (Clay control)	Trican	Clay Control					_
			Bis Quaternary Compound	Proprietary	40.40000	0.02462	
			Formic acid	64-18-6	4.30000	0.00262	
S-17 (Surfactant)	Trican	Surfactant					
			Ethylene/propylene oxide polymer	Proprietary	7.00000	0.00529	
			Amine sulfonate	Proprietary	4.90000	0.00370	
			2-Ethylhexanol	104-76-7	2.10000	0.00159	
			alcohols, C11-14-iso, C13- rich ethoxylates	78330-21-9	1.00000	0.00076	
Encap HP (Encapsulated Breaker)	Trican	Breaker					
,			ammonium persulfate	7727-54-0	100.00000		
			Crystalline silica: Quartz (SiO2)	14808-60-7	15.00000		
			cured acrylic resin	Proprietary	25.00000		
Ingredients shown ab	ove are subject to 29 C	FR 1910.1200(i) and a	opear on Material Safety Data She	ets (MSDS). Ingredie	ents shown below are I	Non-MSDS.	
3	<u> </u>	Other Chemicals		, , ,			
			Silica, Amorphous	112926-00-8			
			methylcellulose	9004-67-5			
			Tallow alkyldimethylammonium chloride/bentonite complex	71011-25-1			
			2-butoxyethanol	111-76-2			
			Z-butoxyethanol Water	7732-18-5			
			Water	7732-18-5			
			Water modified amidoamine Trade Secret Ingredient ethoxylated alcohol, C11-14-iso	7732-18-5 68990-47-6 Proprietary			
			Water modified amidoamine Trade Secret Ingredient	7732-18-5 68990-47-6 Proprietary 78330-21-9 7647-14-5			
			Water modified amidoamine Trade Secret Ingredient ethoxylated alcohol, C11-14-iso Sodium Chloride Sorbitan monooleate	7732-18-5 68990-47-6 Proprietary 78330-21-9			
			Water modified amidoamine Trade Secret Ingredient ethoxylated alcohol, C11-14-iso Sodium Chloride Sorbitan monooleate Ulexite	7732-18-5 68990-47-6 Proprietary 78330-21-9 7647-14-5 1338-43-8 1319-33-1			
			Water modified amidoamine Trade Secret Ingredient ethoxylated alcohol, C11-14-iso Sodium Chloride Sorbitan monooleate Ulexite Fatty acids	7732-18-5 68990-47-6 Proprietary 78330-21-9 7647-14-5 1338-43-8 1319-33-1 61790-12-3			
			Water modified amidoamine Trade Secret Ingredient ethoxylated alcohol, C11-14-iso Sodium Chloride Sorbitan monooleate Ulexite Fatty acids Alkyl amine salts	7732-18-5 68990-47-6 Proprietary 78330-21-9 7647-14-5 1338-43-8 1319-33-1 61790-12-3 Proprietary			
			Water modified amidoamine Trade Secret Ingredient ethoxylated alcohol, C11-14-iso Sodium Chloride Sorbitan monooleate Ulexite Fatty acids Alkyl amine salts Aspartic acid, homopolymer, sodium salt	7732-18-5 68990-47-6 Proprietary 78330-21-9 7647-14-5 1338-43-8 1319-33-1 61790-12-3 Proprietary			
			Water modified amidoamine Trade Secret Ingredient ethoxylated alcohol, C11-14-iso Sodium Chloride Sorbitan monooleate Ulexite Fatty acids Alkyl amine salts Aspartic acid, homopolymer, sodium salt polydimethylsiloxane	7732-18-5 68990-47-6 Proprietary 78330-21-9 7647-14-5 1338-43-8 1319-33-1 61790-12-3 Proprietary 94525-01-6 63148-62-9			
			Water modified amidoamine Trade Secret Ingredient ethoxylated alcohol, C11-14-iso Sodium Chloride Sorbitan monooleate Ulexite Fatty acids Alkyl amine salts Aspartic acid, homopolymer, sodium salt	7732-18-5 68990-47-6 Proprietary 78330-21-9 7647-14-5 1338-43-8 1319-33-1 61790-12-3 Proprietary			

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)

^{*} 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%

Hydraulic Fracturing Fluid Product Component Information Disclosure Fracture Date 2/6/2013 Montana State: County: Glacier 25-035-22128 API Number: **Operator Name:** Anschutz Exploration Corp. Well Name and Number: Paisley 1-4-37-13 Longitude: -113.31579285 Latitude: 48.987935018 NAD83 Long/Lat Projection: **Production Type:** Oil True Vertical Depth (TVD): 7,697 Total Water Volume (gal)*:

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
GelLP-10	CST	Gel	Phosphoric Acid	7664-38-2	5.00%	0.05733%	
GelLP-10	CST	Gel	Ester Mixture	Trade Secret	95.00%	1.08935%	
Activator XL-105	CST	Crosslinker	Ferric Sulfate	10028-22-5	45.00%	0.65772%	
Activator XL-105	CST	Crosslinker	Water	7732-18-5	30.00%	0.43848%	
Activator XL-105	CST	Crosslinker	2-Butoxyethanol	111-76-2	25.00%	0.36540%	
Activator XL-105	CST	Crosslinker	Fatty Amine Condensate	Trade Secret	10.00%	0.146159%	
Activator XL-105	CST	Crosslinker	Glycerol	Trade Secret	10.00%	0.146159%	
Activator XL-105	CST	Crosslinker	Soy Amide	Trade Secret	10.00%	0.146159%	
Activator XL-105	CST	Crosslinker	Alpha Olefin Sulfonate	Trade Secret	10.00%	0.146159%	
Activator XL-105	CST	Crosslinker	Cocamide Diethanolamide	Trade Secret	10.00%	0.146159%	
Activator XL-105	CST	Crosslinker	Sulfuric Acid	766493-9	1.00%	0.01462%	•
BrkLP-10	Clearwater Speciality Chemical Co.	Breaker	Petroleum Distillates	64741-44-2	100.00%	0.49089%	
BrkLP-10	Clearwater Speciality Chemical Co.	Breaker	Magnesium Oxide	1309-48-4	60.00%	0.29454%	
Versaprop and Interprop	Saint-Gobain Proppants	Proppant	Aluminum Silicate (Mullite)	10043-01-3	65.00%	8.43231%	
Versaprop and Interprop	Saint-Gobain Proppants	Proppant	Aluminum Oxide (Corundum)	1344-28-1	65.00%	8.43231%	
HD-5 Propane	Gibsons	Base Fluid	Propane	74-98-6	99.00%	83.08878%	
HD-5 Propane	Gibsons	Base Fluid	Ethane	74-84-0	5.00%	4.19640%	
HD-5 Propane	Gibsons	Base Fluid	Butane(s)	75-28-5	5.00%	4.19640%	
HD-5 Propane	Gibsons	Base Fluid	Propylene	115-07-1	5.00%	4.19640%	

^{*} Total Water Volume sources may include fresh water, produced water, and/or recycled water

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

^{**} Information is based on the maximum potential for concentration and thus the total may be over 100%

Fracture Date	10/3/2012
State:	MT
County:	Rosebud
API Number:	25-087-21738
Operator Name:	Fidelity
Well Name and Number:	71 Ranch 44-1H
Longitude:	-107.379455
Latitude:	46.642727
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	5,115
Total Water Volume (gal)*:	1,082,654

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
Sand (Proppant)	CWS	Propping Agent					
DAP-925	CWS	Acid Corrosion Inhibitor					
DWP-111	CWS	Gel Slurry					
DWP-123	CWS	Crosslinker					
DWP-204	CWS	pH Buffer					
DWP-621	CWS	Friction Reducer					
DWP-902	CWS	Breaker					
DWP-905	CWS	Breaker					
DWP-913	CWS	Clay Control					
DWP-944	CWS	Biocide					
DWP-955	CWS	Non-Emulsifier					
Hydrochloric Acid	cws	Clean Perforations					
			2,2-Dibromo-3-Nitrilopropionamide Ammonium Persulfate Apatite Biotite Calcite	10222-01-2 7727-54-0 64476-38-6 1302-27-8 471-34-1	40.00% 100.00% 0.10% 0.10% 1.00%	0.01180% 0.08724% 0.00285% 0.00285% 0.02366%	
			Choline chloride	67-48-1	100.00%	0.06960%	
			Crystalline silica (Quartz)	14808-60-7	30.00%	12.98209%	
			Distillates (petroleum), hydrotreated middle	64742-46-7	60.00%	0.17820%	
			Fatty acids	Trade Secret	30.00%	0.00001%	
			Formaldehyde	50-00-0	0.10%	0.00000%	
			Formic Acid	64-18-6	13.00%	0.00149%	
			Goethite	1310-14-1	0.10%	0.00510%	
			Guar gum	9000-30-0	60.00%	0.17820%	
			Hydrochloric acid	7647-01-0	37.00%	0.03165%	
			Illite	12173-60-3	1.00%	0.00465%	
			Ilmenite	98072-94-7	0.10%	0.00172%	
			Methanol	67-56-1	60.00%	0.00002%	
			Modified thiourea polymer	68527-49-1	30.00%	0.00001%	
		Г	Nonionic surfactant	Trade Secret	5.00%	0.00106%	

			Olefin	Trade Secret	5.00%	0.00000%	
			Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	37251-67-5	1.50%	0.00446%	
			Paraffinic hydrocarbon solvent	64742-47-8	30.00%	0.00637%	
			Polyacrylamide polymer	Trade Secret	40.00%	0.00849%	
			Polyethylene Glycol Mixture	25322-68-3	70.00%	0.01180%	
			Polyoxyalkylenes	Trade Secret	30.00%	0.00001%	
			Polyoxyalkylenes surfactant	Trade Secret	5.00%	0.00106%	
			Potassium hydroxide	1310-58-3	30.00%	0.03760%	
			Propargyl Alcohol	107-19-1	10.00%	0.00000%	
			Quaternary ammonium compounds, bis(hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2	5.00%	0.01485%	
			Sodium chloride	7647-14-5	1.00%	0.00000%	
			Sodium tetraborate pentahydrate	12179-04-3	Trade Secret	Trade Secret	
			Styrene acrylic copolymer	25085-34-1	40.00%	0.03490%	
Water	Customer & CWS	Base Fluid & Mix Water	Water	7732-18-5	100.00%	86.38062%	
CO2	Customer	Base Fluid Gas	Carbon Dioxide	124-38-9	Not Listed	Not Listed	

^{*} 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%

Fracture Date	8/22/2012
State:	MT
County:	Rosebud
API Number:	25-087-21736
Operator Name:	Fidelity
Well Name and Number:	Grebe 31-33H Bid
Longitude:	-107.576491
Latitude:	46.6693
Long/Lat Projection:	NAD83
Production Type:	Gas
True Vertical Depth (TVD):	4,993
Total Water Volume (gal)*:	1,062,679

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
Sand (Proppant)	CWS	Propping Agent	Silicon Dioxide	14808-60-7	100.00%	11.64973%	
DWP-621	CWS	Friction Reducer	No Hazardous Materials	Not listed	100.00%	0.01884%	
DWP-111	CWS	Gel Slurry	No Hazardous Materials	Not listed	100.00%	0.32074%	
DWP-204	CWS	pH Buffer	Formic Acid	64-18-6	13.00%	0.00148%	
DWP-123	CWS	Crosslinker	Borate Salt	Trade secret	Trade secret		
DWP-913	CWS	Clay Control	No Hazardous Materials	Not listed	100.00%	0.09335%	
DWP-931G	CWS	Non-Emulsifier	Polyethylene glycol nonylphenyl ether,liquids	9016-45-9	40.00%	0.02345%	
			Formaldehyde, polymer with 4-(1, 1-dimethylethyl)phenol, methyloxirane and oxirane	30704-64-4	30.00%	0.01759%	
			Diisobutyl ketone	108-83-8	30.00%	0.01759%	
			Isobutyl Alcohol	78-83-1	30.00%	0.01759%	
			2-Heptanone, 4,6-dimethyl	19549-80-5	5.00%	0.00293%	
DWP-944	CWS	Biocide	Polyethylene Glycol Mixture	25322-68-3	70.00%	0.01684%	
			2,2-Dibromo-3-Nitrilopropionamide	10222-01-2	40.00%	0.00962%	
DWP-902	CWS	Breaker	Ammonium Persulfate	7727-54-0	75.00%	0.11416%	
			Cured Acrylic Resin	Not listed	16.00%	0.02435%	
			Silica, Crystalline-Quartz	14808-60-7	10.00%	0.01522%	
DAP-925	cws	Acid Corrosion Inhibitor	Modified Thiourea Polymer	68527-49-1	30.00%	0.00019%	
			Fatty Acids	Trade secret	30.00%	0.00019%	
			Methanol	67-56-1	60.00%	0.00039%	
			Propargyl Alcohol	107-19-1	10.00%	0.00006%	
			Olefin	Trade secret	5.00%	0.00003%	
			Polyoxyalkylenes	Trade secret	30.00%	0.00019%	
Hydrochloric Acid	CWS	Acid	Hydrochloric Acid	7647-01-0	35.00%	0.56790%	
Water	Customer	Base Fluid	Water		100.00%	85.89157%	

^{*} 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%

ngredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)	

2012-04-17
Montana
Sheridan
2509121897
SAMSON RESOURCES CORP - EBUS
Zuma 15-22-35-58H
-104.110017
48.766597
NAD83
Oil
8,348
858,375

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				100.00%	89.47743%	Density = 8.330
SAND - PREMIUM WHITE	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%	9.50705%	
MO-67	Halliburton	pH Control Additive	Sodium hydroxide	1310-73-2	30.00%	0.02201%	
CL-31 CROSSLINKER	Halliburton	Crosslinker	Potassium hydroxide	1310-58-3	5.00%	0.00204%	
			Potassium metaborate	13709-94-9	60.00%	0.02448%	
CL-22 UC	Halliburton	Crosslinker	Potassium formate	590-29-4	60.00%	0.04915%	
Bactron K-31W	Halliburton	Biocide	Ethanol	64-17-5	60.00%	0.01431%	
			Ethylene glycol	107-21-1	60.00%	0.01431%	
			Glutaraldehyde	111-30-8	60.00%	0.01431%	
FR-66	Halliburton	Friction Reducer	Hydrotreated light petroleum distillate	64742-47-8	30.00%	0.00339%	
VICON NF BREAKER	Halliburton	Breaker	Chlorous acid, sodium salt	7758-19-2	10.00%	0.04146%	
			Sodium chloride	7647-14-5	30.00%	0.12439%	
3rd Party Scale Inhibitor	Operator	*3rd Party Additive	*Supplied by Operator		100.00%	0.01036%	Density = 8.600
FDP-S1007-11	Halliburton	Surfactant	Citrus, extract	94266-47-4	10.00%	0.01303%	
			Isopropanol	67-63-0	30.00%	0.03909%	
FDP-S998-10	Halliburton	Surfactant	Ethylene glycol	107-21-1	60.00%	0.01342%	
			THPS	Confidential Business Information	30.00%	0.00671%	
WG-36 GELLING AGENT	Halliburton	Gelling Agent	Guar gum	9000-30-0	100.00%	0.20662%	
Ingredients Listed Below This Line Are Part of the Fluid Composition Provided by Halliburton Which Do Not Appear On the Material Safety Data Sheets (MSDS)							
			Acrylate Polymer	Confidential Business Information			
			Alcohols, C12-16, ethoxylated	68551-12-2			

Bortonie, benzy(hydrogenated tallow alloy) dimethylammonium stearate complex Borate sailts Confidential Business Information Crystalline silica, quartz 14808-60-7 Polyacrylamide Copolymer Confidential Business Information Silica gel 112926-00-8 Sodium carboxymethyl cellulose 9004-32-4 Sodium carboxymethyl cellulose 9004-32-4 Sodium carboxymethyl cellulose 9005-66-6 Sodium carboxymethyl cellulose 9005-66-6 Sodium sycollate 2836-32-0 Sorbitan monooleate polyoxyethylene 9005-66-6				Ammonium chloride	12125-02-9			
Crystalline silica, quartz 14808-60-7 Polyacrylamide Copolymer Confidential Business Information Silica gel 112926-00-8 Sodium carboxymethyl cellulose 9004-32-4 Sodium chloride 7647-14-5 Sodium glycollate 2836-32-0 Sorbitan monocleate polyoxyethylene dervative Sorbitan, mono-9-octadecenoate, (Z) 1338-43-8 Surfactant Mixture Confidential Business Information Surfactant Mixture Confidential Business Information Tall oil acid diethanolamide 68155-20-4 Water 7732-18-5				alkyl) dimethylammonium stearate				
Polyacrylamide Copolymer Confidential Business Information Silica gel 112926-00-8 Sodium carboxymethyl cellulose 9004-32-4 Sodium chloride 7647-14-5 Sodium glycollate 2836-32-0 Sorbitan monooleate polyoxyethylene derivative Sorbitan, mono-9-octadecenoate, (Z) 1338-43-8 Surfactant Mixture Confidential Business Information Surfactant Mixture Confidential Business Information Tall oil acid diethanolamide 68155-20-4 Water 7732-18-5					Information			
Silica gel 112926-00-8 Sodium carboxymethyl cellulose 9004-32-4 Sodium chloride 7647-14-5 Sodium plycollate 2836-32-0 Sorbitan monoelaete polyoxyethylene derivative Sorbitan, mono-9-octadecenoate, (Z) 1338-43-8 Surfactant Mixture Confidential Business Information Surfactant Mixture Confidential Business Information Tall oil acid diethanolamide 68155-20-4 Water 7732-18-5				Crystalline silica, quartz	14808-60-7			
Sodium carboxymethyl cellulose 9004-32-4 Sodium chloride 7647-14-5 Sodium glycollate 2836-32-0 Sorbitan monooleate polyoxyethylene derivative 9005-65-6 Sorbitan, mono-9-octadecenoate, (Z) 1338-43-8 Surfactant Mixture Confidential Business Information Surfactant Mixture Confidential Business Information Tall oil acid diethanolamide 68155-20-4 Water 7732-18-5				Polyacrylamide Copolymer	Information			
Sodium chloride Sodium glycollate Sodium glycollate Sorbitan monoeleate polyoxyethylene derivative Sorbitan, monoe-9-octadecenoate, (Z) 1338-43-8 Surfactant Mixture Confidential Business Information Surfactant Mixture Confidential Business Information Tall oil acid diethanolamide 68155-20-4 Water 7732-18-5					112926-00-8			
Sodium glycollate 2836-32-0 Sorbitan monoleate polyoxyethylene derivative Sorbitan, mono-9-octadecenoate, (Z) 1338-43-8 Surfactant Mixture Confidential Business Information Surfactant Mixture Confidential Business Information Tall oil acid diethanolamide 68155-20-4 Water 7732-18-5				Sodium carboxymethyl cellulose	9004-32-4			
Sorbitan monooleate polyoxyethylene derivative 9005-65-6 derivative 30rbitan, mono-9-octadecenoate, (Z) 1338-43-8 Surfactant Mixture Confidential Business Information Surfactant Mixture Confidential Business Information Tall oil acid diethanolamide 68155-20-4 Water 7732-18-5				Sodium chloride	7647-14-5			
derivative Sorbitan, mono-9-octadecenoate, (Z) 1338-43-8 Surfactant Mixture Confidential Business Information Surfactant Mixture Confidential Business Information Tall oil acid diethanolamide 68155-20-4 Water 7732-18-5				Sodium glycollate	2836-32-0			
Surfactant Mixture Surfactant Mixture Confidential Business Information Tall oil acid diethanolamide 68155-20-4 Water 7732-18-5				derivative				
Surfactant Mixture Surfactant Mixture Confidential Business Information Tall oil acid diethanolamide 68155-20-4 Water 7732-18-5				Sorbitan, mono-9-octadecenoate, (Z)	1338-43-8			
Tall oil acid diethanolamide 68155-20-4 Water 7732-18-5				Surfactant Mixture				
Water 7732-18-5 Water 7732-18-5 Water 7732-18-5				Surfactant Mixture				
otal 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%			,	Tall oil acid diethanolamide	68155-20-4			
nformation is based on the maximum potential for concentration and thus the total may be over 100%				Water	7732-18-5			
nformation is based on the maximum potential for concentration and thus the total may be over 100%								
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redient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS))%			
	edient information	on for chemical	s subject to 29 CFR 1910	0.1200(i) and Appendix D are obtained from	n suppliers Material Safety D	ata Sheets (MSDS))	

Fracture Date	10/15/2011
State:	Montana
County:	Roosevelt
API Number:	25-085-21788
Operator Name:	G3 Operating
Well Name and Number:	Olson 1-21-16H
Longitude:	-104.321873743074
Latitude:	48.2451341918777
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	10,276
Total Water Volume (gal)*:	2,209,141

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
Sand (Proppant)	Calfrac	Propping Agent	Crystalline silica (Quartz)	14808-60-7	100.00%	14.92685%	
DWP-111	Calfrac	Liquid Guar Gel	No Hazardous Materials	Not listed	100.00%	0.50750%	
DWP-123	Calfrac	Crosslinker	Borate Salt	Trade secret	Trade secret		
			Potassium Hydroxide	1310-58-3	13.00%	0.03729%	
DWP-204	Calfrac	pH Buffer	Formic Acid	64-18-6	13.00%	0.00568%	
DWP-213	Calfrac	pH Buffer	Inorganic Base	Trade secret	7.00%	0.00663%	
DWP-901	Calfrac	Oxidizing Breaker	Ammonium Persulfate	7727-54-0	95.00%	0.00628%	
DWP-915	Calfrac	Clay Control	Tetramethylammonium Chloride	75-57-0	60.00%	0.03249%	
DWP-931	Calfrac	Non-Emulsifier	Isobutyl Alcohol	78-83-1	30.00%	0.02454%	
			Polysubstituted Aromatic Hydrocarbon Solvent	Trade secret	13.00%	0.01063%	
			Light Aromatic Hydrocarbon Solvent	Trade secret	5.00%	0.00409%	
			Light Aromatic Hydrocarbon Solvent	Trade secret	13.00%	0.01063%	
			Polysubstituted Aromatic Hydrocarbon Solvent	Trade secret	13.00%	0.01063%	
			Polysubstituted Aromatic Hydrocarbon Solvent	Trade secret	5.00%	0.00409%	
			Polysubstituted Aromatic Hydrocarbon Solvent	Trade secret	5.00%	0.00409%	
			Ethoxylated Nonyl Phenol	Trade secret	40.00%	0.03271%	
			Ethoxylated Phenolic Resin	Trade secret	30.00%	0.02454%	
DWP-944	Calfrac	Biocide	Polyethylene Glycol Mixture	25322-68-3	70.00%	0.00681%	
			2,2-Dibromo-3-Nitrilopropionamide	10222-01-2	40.00%	0.00389%	
DWP-975	Calfrac	Encapsulated Oxidative Breaker	Ammonium Persulfate	7727-54-0	76.00%	0.13624%	
			Cured Resin	Not listed	24.00%	0.04302%	
DAP-902	Calfrac	Scale Inhibitor	No Hazardous Materials	Not listed	100.00%	0.02080%	
Water	Provided by Customer	Base Fluid	Water		100.00%	83.78803%	

^{*} 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%