

HALLIBURTON

Fracturing Service Treatment Report

Legal Data

Date: July 13, 2013 District: Farmington Customer: Elm Ridge S.O. #: 900585806
Well Name: IGE #117 Legals: S: 7W T: 18 R: 33N County/State: La Plata County, CO API#: 50-067-09532

Well Data

Job Type	Delta 140 w/ SW MAX			Tubing:	
Formation	Fruitland Coal	Total Depth:	5,000	Packer:	
Casing:	5.5" 17.0 # J-55	Liner:	-	Total:	
Perforations:	4 spf	Perf Size:		Interval:	2606-2716

Treatment Data

Slurry		Foam		Average Rates		Pressure	
Pad Volume:	11,972	Pad Volume:	40,116	Clean:	9.1	Average:	1,905
Treatment:	14,175	Treatment:	36,166	Slurry:	10.4	ISIP:	NA
Flush:	0	Flush:	0	Foam:	30.8	5 Minute:	4,154
Total:	26,147	Total:	76,284	N2 / CO2	16,072	10 Minute:	4,184
Pad %:	46%	Sand Total:	792	Q	70	15 Minute:	4,199

Job Data

Time	Volumes		Rates		Pressure	Sand	Stage Description
Stage Time	Stage Volume	Fluid Total	Slurry Rate	BH Rate	Tubing/Casing	Stage LBS	
-	-	-	-	-	0 on WH	-	Start Job
8:48	179	179	2.0	1.7	35	-	Start Load & Break
8:50	1,000	1,000	4.8	4.8	568	-	Acid Spearhead
8:55	1,432	1,432	9.2	14.8	910	14	Acid Flush
8:59	11,972	11,972	9.2	30.6	1,780	53	Pad
9:30	2,439	14,411	10.5	32.1	1,400	82	1.0# 20/40 PW
9:37	3,222	17,633	11.6	31.3	1,819	244	2.0# 20/40 PW
9:45	3,374	21,007	12.5	29.8	1,922	412	3.0# 20/40 PW
9:54	1,794	22,801	-	19.0	1,722	3	4.0# 20/40 PW
10:01	-	-	-	-	4,115	-	Fluid Flush
10:05	-	-	-	-	NA	-	ISIP
10:10	-	-	-	-	4,154	-	5 min - SIP
10:15	-	-	-	-	4,184	-	10 min - SIP
10:20	-	-	-	-	4,199	-	15 min - SIP
10:21	-	-	-	-	4,199	-	Shut In

Job Summary & Comments

Formation broke at 2,199 psi at 8.8 bpm
Pumped 973 mscf of N2 and used 280 mscf for cool down.
Pumped 26,147 gallons of Delta 140 w/ SSW frac fluid (excluding gallons of flush) at an avg. rate of 10.4 bpm and an avg. WHTP of 1,905 psi.
Pumped 76,284 gallons of 70 Q Delta 140 w/ SSW frac fluid (excluding gallons of flush) at an avg. rate of 30.8 bpm and an avg. quality of 69.9%.
Pumped 743 sacks of 20/40 CRC (per Densometer) with a max BH sand concentration of 5.3 lb/gal.
Coated 740 sks of 20/40 PW with SWMax at a set point of 2.4gal/1000#
Total fluid to recover is 685 bbls.
A 46% pad was pumped.
The maximum surface pressure reached (during treatment) was 4,233 psi.
FG not available due to screenout.
Pumped 22,777 gallons of Delta 140 (clean volume for ticket).
IFS calculated 79 sks in WB. 67% (661 sks) of designed (940 sks) prop placed in formation.

Treater/N2 Treater J Casillo / F. Ketchum
TCC Operator: J. Chavers
Engineer: K. Mason

Chemicals Pumped

Chemical	Req. Strap	After Prime Up	Ending Strap	Design	Used	Ticket Total	Percentage Error
LGC-36	427	427	305	125	122	122	-2.40%
BC-140	289	287	264	23	23	25	-
AQF-3	335	330	248	97	82	87	-15.46%
LoSurf-300D	335	329	315	14	14	20	-
SandWedge-NT	350	345	165	177	180	185	1.69%
GBW-30	50	50	35	15	15	15	-
OptiFlo H.T.E	50	50	33	28	17	17	-39.29%