

DIRECTIONS:

WELL / TREATMENT INFO.		SAND / FLUID TALLY		
Well Name: Casey Blue D 21-11		Proppant Type: 20/40 Ottawa & 12/20 SB Excel		
Legal Location: E Sec. 21-T3N-R64W		Proppant Volume: 350,120 LBS		
Formation: NIOBRARA RE-COMplete		Total H ₂ O in Tanks: 5153 BBLs		
Perforations: 6,774 TO 6,790		Less Tank Bottoms: 54 BBLs		
Service Company: HALLIBURTON		Total USABLE H ₂ O: 5099 BBLs		
Fluid System: SILVERSTIM 28 - HYBRID		Water Required: 5000 BBLs		
ACID B/D + 50 BPM HYBRID FRAC, 250K PROPPANT		EXCESS H ₂ O: 99 BBLs		
	Size (Inch,weight)	Length (feet)	Volume Factor (bbls/ft)	BURST (PSI)
Tubulars primary	0			
secondary	0			
casing	3 1/2" 7.7# M75	6,774	0.00914	61.91
packer @				6912

DATE: June 14, 2006
WATER SOURCE: LOVELAND WATER

	Tubing	Casing
Max Pressure:	NA	6500
Pop - Off:	NA	6300

	Pressure	Rate
Maximum	6246	50.1
Minimum	3247	0.0
Average	6101	43.4
Average HHP:	6494.4	

MIDPERF: 6,782

TOP PERF: 6,774

MAX SAND: 4.0

CAPACITY: 61.91 BBLs

Pipe Time: 1.43 Minutes

Water Pumped (bbls): 4954.0

Water Cal'c, less chemical (bbls): 4967.5

2513 Actual Flush Volume (gals) Water Variance (%): 0.27

59.8 Actual Flush Volume (bbls) Sand Pumped (lbs): 350,120

3.0 Sand @ Inline Densimeter Sand Cal'c (lbs): 349,184

Sand Variance (%): -0.27

TIME OF DAY	STP (psig)	RATE (BPM)	P _{annulus} (psig)	Slurry Total (BBLs)	Clean Total (BBLs)	pH	Viscosity (cp)	COMMENTS
645	8500		X					P-TEST HALLIBURTON LINES
720	0/4153	0/3.6	X	20	20	---	---	LOAD HOLE WITH 15% HCL ACID (24 BBLs)
728	3700/4231	5.0/10.0	X	24	24	---	---	SWITCH OVER TO BLENDER TO SPOT ACID
736	3329	0.0	X	84	84	---	---	SHUT DOWN BREAKDOWN - EVALUATE/SOAK
741	3247	0.0	X	84	84	---	---	5 MIN LEAKOFF = 82 PSI
744	6008	27.3	X	156	156	7.55	1.1	RESUME SLICKWATER PAD
756	5944	48.5	X	556	556	7.81	1.1	PUMPS UP TO RATE
757	6050	49.5	X	664	664	7.83	1.1	
801	5877	46.8	X	770	770	7.84	1.0	
803	6048	48.6	X	875	875	7.88	1.0	
804	6099	48.6	X	950	950	7.89	1.0	
806	6134	48.6	X	1050	1050	7.88	1.0	
808	6155	48.5	X	1135	1135	7.89	1.0	
809	6179	48.4	X	1195	1195	8.00	1.0	Increasing FR to 1.5
812	5960	49.0	X	1350	1350	8.10	1.0	
814	6111	50.1	X	1440	1440	8.13	1.0	
815	6140	50.1	X	1500	1500	8.31	1.0	
816	6138	50.1	X	1550	1550	8.27	1.0	
817	6174	50.0	X	1600	1600	8.27	1.0	
819	6120	50.1	X	1650	1650	8.23	1.0	
820	6012	45.2	X	1692	1692	10.13	26.0	STAGE SILVERSTIM 28 PAD -START CAT 3
821	6097	42.7	X	1780	1780	10.05	24.5	
823	6246	42.6	X	1837	1837	10.08	24.5	START 1.0# OTTOWA 20/40 SAND
824	6220	42.6	X	1900	1897	10.13	24.5	XLINK TIME = 0:30
827	6246	42.6	X	2012	2005	10.16	24.5	START 2.0# OTTOWA 20/40 SAND
829	6200	42.8	X	2120	2105	10.15	24.5	
831	6180	42.8	X	2190	2170	10.14	24.5	
833	6174	42.8	X	2300	2268	10.14	24.5	XLINK TIME = 0:54
837	6180	42.8	X	2450	2406	10.12	24.5	
840	6188	42.9	X	2620	2563	10.09	24.5	
844	6197	43.0	X	2750	2683	10.07	24.5	
848	6201	43.1	X	2900	2820	10.08	24.5	
853	6204	43.2	X	3134	3034	10.09	24.5	START 3.0# OTTOWA 20/40 SAND-START CAT-4
855	6123	43.1	X	3232	3120	10.03	24.5	XLINK TIME = 0:57
857	6122	43.0	X	3322	3200	10.04	24.5	
903	6135	43.2	X	3551	3400	10.04	24.5	
908	6134	43.0	X	3778	3600	10.04	24.5	
911	6077	42.5	X	3924	3729	9.91	24.5	INCREASE BREAKER CATALYST 3
917	5940	41.0	X	4175	3950	10.11	24.5	Switched HP unit b/c of gauge malfunction.
923	6088	42.0	X	4404	4150	10.11	24.5	XLINK TIME = 1:18
928	6080	42.0	X	4632	4352	10.07	24.5	START 4.0# OTTOWA 20/40 SAND
931	6050	42.1	X	4750	4450	10.00	24.5	
936	6046	42.0	X	4915	4591	9.80	24.2	INCREASE BREAKER CATALYST 4 LOADING
942	5955	41.7	X	5202	4834	9.68	23.6	START 4.0# SB EXCEL 12/20 PROPPANT
943	5804	41.8	X	5273	4894	9.46	23.6	START FLUSH
945	3365	0.0	X	5333	4954			SHUT DOWN
950	3265	0.0	X					SHUT IN WELL - RU FLOWBACK
1045	3000	0.0	X					TURN ON FLOWBACK ON 20/64" CHOKE
gallons slickwater 70056				134,484 gallons gel pumped				

TREATMENT INFORMATION

Pre-Job ISDP:	3329 psig
Post-Job ISDP:	3365 psig
Perf Friction:	N/A psi
NWB Friction:	N/A psi
Frac Gradient:	0.924 psi/ft
Volume to Load:	17 bbls
Backside Volume:	0 bbls
Fluid To Recover:	4954 bbls
Transfer:	6 bbls

N/A on Annulus

Holes Open: N/A 0.34 inches
5 min. Leak-Off: N/A psi
Leak-Off Coeff.: N/A ft / (min)^{0.5}

P _{shut-in} :	3265 psig in	5 minutes
P _{turn-on} :	3000 psig	
T _{turn-on} :	60 minutes	

μ _{avg} :	24.5
μ _{max} :	26.0
μ _{min} :	23.6
pH _{avg} :	10.0

FRAC PUMPS:	Chemical Vol: 42.1 bbls	AVG Water Temp: #DIV/0! °F
JOB EVALUATION:		CREW: Charlie

Operationally this treatment went well with no issues to report regarding fluids or equipment.

Pressure response was positive throughout the treatment with an average slope of 0.xx.