

Bayswater Exploration

G&D Hanks TA-27-28HN

Intervals 1-46

Niobrara Formation

Weld County, CO

API: 05-123-46288

Prepared for: Robert Carney

October 28, 2018

Stimulation Treatment Post Job Report

Prepared By:

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Silver Crew

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Engineering Executive Summary

On September 28, 2018 a stimulation treatment was performed in the Niobrara formation on the G&D Hanks TA-27-28HN well in Weld County, CO. The G&D Hanks TA-27-28HN was a 46 stage Horizontal Plug and Perf Design. The proposed treatment consisted of:

24,255,000 gallons of FR Water
25,000 gallons of 15% HCl Acid
6,186,530 gallons of Proppant Laden Fluid
1,886,000 pounds of 100 Mesh
10,988,000 pounds of 30/50 White

The actual treatment fully completed 43 of 46 stages. During the treatment 0 stages were skipped, and 3 stages screened out or were otherwise cut short of design. The actual treatment consisted of:

24,158,619 gallons of FR Water
409,180 gallons of Fresh Water
14,000 gallons of 15% HCl Acid
21,034,804 gallons of Proppant Laden Fluid
1,886,000 pounds of 100 Mesh
10,944,800 pounds of 30/50 White

A more detailed description of the actual treatment can be found in the attached reports. The following comments were provided to summarize events and changes to the proposed treatment:

Intervals 2, 6, and 7 were cut short due to pressure issues. Interval 2 was screened out when pressure spiked up and kicked out all pumps. Pressure spike was observed on both the well side and the truck side pressure transducers, indicating the pressure spike was real. No ball seat or sleeve shift was observed for this interval. After discussion decided it is possible that the spike was finally the sleeve shifting open. Please see stage comments for more details.

Per customer request, acid was only pumped on stages 1-19. After that it was pumped on an as needed basis. Intervals deviated from designed sand cycles when there were pressure issues.

Came offline during Interval 25 due to issues with the discharge mag meter on the blender. Please see stage comments for more details.

Halliburton is strongly committed to quality control on location. Before and after each job all chemicals, proppants, and fluid volumes are measured to assure the highest level of quality control. Tank fluid analysis, crosslink time, and break tests are performed before each job in order to optimize the performance of the treatment fluids.

FightR and Opti concentrations were adjusted as needed due to pressure.

Halliburton maintains a continuous quality improvement process and appreciates any comments or suggestions that you may have. Halliburton again thanks you for the opportunity to perform service work on this well. We hope to be your solutions provider for future projects.

Thank you,

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Customer Bayswater Exploration
Lease G&D Hanks TA-27-28HN
Formation Niobrara
API 05-123-46288
Date September 28, 2018



Wellbore Summary		
Tubular	Top MD	Bot MD
5.5" 20# Casing	0	17,933

Directional Data		
KOP	6,897 ft	
Avg. TVD	7,119 ft	
Total MD	17,933 ft	

			Sleeve / Perf Depth (ft)		Perforation Data							
Zone #	Displacement to Sleeve/Top Perf (gal)	Displacement to Sleeve/Top Perf (bbl)	Top MD (ft)	Btm MD (ft)	Zone #	Number of Perf Clusters (count)	Cluster Spacing (ft)	Perf Gun Length (ft)	Perf Density (spf)	Total Perfs (count)	Phasing (deg)	Perf Diameter (in)
1	16,443	391	17,654	17,843	1	Multistage Sleeve						
2	16,222	386	17,417	17,560	2	Multistage Sleeve						
3	16,002	381	17,181	17,323	3	Multistage Sleeve						
4	15,782	376	16,944	17,086	4	Multistage Sleeve						
5	15,561	370	16,707	16,850	5	Multistage Sleeve						
6	15,341	365	16,471	16,613	6	Multistage Sleeve						
7	15,120	360	16,234	16,376	7	Multistage Sleeve						
8	14,900	355	15,997	16,139	8	Multistage Sleeve						
9	14,679	349	15,760	15,902	9	Multistage Sleeve						
10	14,458	344	15,523	15,668	10	Multistage Sleeve						
11	14,226	339	15,274	15,457	11	9	23	1	3	40	360	0.33
12	14,026	334	15,059	15,242	12	9	23	1	3	40	360	0.33
13	13,825	329	14,844	15,027	13	9	23	1	3	40	360	0.33
14	13,625	324	14,629	14,812	14	9	23	1	3	40	360	0.33
15	13,425	320	14,414	14,597	15	9	23	1	3	40	360	0.33
16	13,225	315	14,199	14,382	16	9	23	1	3	40	360	0.33
17	13,024	310	13,984	14,167	17	9	23	1	3	40	360	0.33
18	12,824	305	13,769	13,952	18	9	23	1	3	40	360	0.33
19	12,624	301	13,554	13,737	19	9	23	1	3	40	360	0.33
20	12,424	296	13,339	13,522	20	9	23	1	3	40	360	0.33
21	12,223	291	13,124	13,307	21	9	23	1	3	40	360	0.33
22	12,023	286	12,909	13,092	22	9	23	1	3	40	360	0.33
23	11,823	281	12,694	12,877	23	9	23	1	3	40	360	0.33
24	11,623	277	12,479	12,662	24	9	23	1	3	40	360	0.33
25	11,422	272	12,264	12,447	25	9	23	1	3	40	360	0.33
26	11,222	267	12,049	12,232	26	9	23	1	3	40	360	0.33
27	11,022	262	11,834	12,017	27	9	23	1	3	40	360	0.33
28	10,821	258	11,619	11,802	28	9	23	1	3	40	360	0.33
29	10,621	253	11,404	11,587	29	9	23	1	3	40	360	0.33
30	10,421	248	11,189	11,372	30	9	23	1	3	40	360	0.33
31	10,221	243	10,974	11,157	31	9	23	1	3	40	360	0.33
32	10,020	239	10,759	10,942	32	9	23	1	3	40	360	0.33
33	9,820	234	10,544	10,727	33	9	23	1	3	40	360	0.33
34	9,620	229	10,329	10,512	34	9	23	1	3	40	360	0.33
35	9,420	224	10,114	10,297	35	9	23	1	3	40	360	0.33
36	9,219	220	9,899	10,082	36	9	23	1	3	40	360	0.33
37	9,019	215	9,684	9,867	37	9	23	1	3	40	360	0.33
38	8,819	210	9,469	9,652	38	9	23	1	3	40	360	0.33
39	8,619	205	9,254	9,437	39	9	23	1	3	40	360	0.33
40	8,418	200	9,039	9,222	40	9	23	1	3	40	360	0.33
41	8,218	196	8,824	9,007	41	9	23	1	3	40	360	0.33
42	8,018	191	8,609	8,792	42	9	23	1	3	40	360	0.33
43	7,818	186	8,394	8,577	43	9	23	1	3	40	360	0.33
44	7,617	181	8,179	8,362	44	9	23	1	3	40	360	0.33
45	7,417	177	7,964	8,147	45	9	23	1	3	40	360	0.33
46	7,217	172	7,749	7,932	46	9	23	1	3	40	360	0.33

Customer Bayswater Exploration
Formation Niobrara
Lease G&D Hanks TA-27-28HN
API 05-123-46288
Date September 28, 2018

Stage Summaries

Interval	Average				Max		ISIP		FR Water		Fresh Water		Fluids		Proppant Laden Fluid		Total Fluid		Proppants		
	Pressure	Rate	Temp	pH	Pressure	Rate	psi	psi/ft	gal	bbl	gal	bbl	gal	bbl	gal	bbl	gal	bbl	100 Mesh Ticket Weight	30/50 Ticket Weight	Total Proppant Ticket Weight
																			lbs	lbs	lbs
1	7679	51.8	54	7.45	8025	62.4	4177	1.020	343,812	8,186	0		2,000	48	253,843	6,044	376,220	8,958	40,000	40,000	80,000
2	7409	58.2	52	7.57	10770	74.4	--	--	572,333	13,627	0		1,000	24	447,116	10,646	573,333	13,651	41,000	186,700	227,700
3	7368	74.9	50	8.48	8141	78.5	4581	1.076	626,278	14,911	0		1,000	24	479,159	11,409	627,278	14,935	41,000	205,400	246,400
4	7154	79.8	49	8.76	7723	80.5	4485	1.063	559,577	13,323	0		1,000	24	475,042	11,311	560,577	13,347	41,000	205,300	246,300
5	7286	79.4	51	8.82	7768	80.0	4707	1.094	523,068	12,454	0		500	12	460,037	10,953	523,568	12,466	41,000	246,000	287,000
6	7505	57.0	51	8.94	8277	66.0	4636	1.084	512,311	12,198	21,000	500	500	12	455,250	10,839	533,811	12,710	41,000	235,700	276,700
7	7279	75.9	51	9.00	7896	80.2	4703	1.094	507,109	12,074	0		500	12	445,760	10,613	507,609	12,086	41,000	231,400	272,400
8	7385	73.5	51	9.00	7950	80.2	4264	1.032	545,375	12,985	0		500	12	459,845	10,949	545,875	12,997	41,000	245,500	286,500
9	7365	61.6	61	9.00	8071	80.1	4584	1.077	581,226	13,839	0		500	12	467,146	11,123	581,726	13,851	41,000	246,500	287,500
10	7073	80.1	53	9.47	7950	80.3	4439	1.057	520,120	12,384	20,286	483	500	12	460,767	10,971	540,906	12,879	41,000	246,100	287,100
11	7325	80.0	47	9.19	7549	80.3	4527	1.069	523,981	12,476	17,430	415	500	12	458,966	10,928	541,911	12,903	41,000	246,000	287,000
12	7360	79.0	48	9.00	7975	80.2	4765	1.102	545,702	12,993	17,598	419	500	12	461,951	10,999	563,800	13,424	41,000	246,300	287,300
13	7235	79.6	50	9.20	7730	80.1	4610	1.081	543,276	12,935	18,354	437	500	12	461,225	10,982	562,130	13,384	41,000	245,900	286,900
14	7346	79.8	49	8.90	7874	80.3	4531	1.069	534,361	12,723	30,030	715	500	12	459,248	10,934	564,891	13,450	41,000	246,800	287,800
15	7327	78.3	49	8.90	7815	80.0	4670	1.089	538,500	12,821	18,060	430	500	12	459,541	10,941	557,060	13,263	41,000	246,000	287,000
16	7385	70.1	50	8.86	8127	79.8	4483	1.063	571,551	13,608	15,414	367	500	12	488,204	11,624	587,465	13,987	41,000	245,800	286,800
17	6933	79.8	49	8.92	7396	80.0	4609	1.080	513,881	12,235	16,296	388	500	12	460,338	10,960	530,677	12,635	41,000	245,100	286,100
18	6860	78.8	45	9.10	7460	80.0	4430	1.055	520,782	12,400	15,414	367	500	12	462,409	11,010	536,696	12,778	41,000	246,000	287,000
19	6816	79.8	49	8.87	7413	80.2	4519	1.068	522,139	12,432	17,556	418	500	12	460,779	10,971	540,195	12,862	41,100	247,000	288,100
20	6870	79.5	49	8.80	7208	79.9	4617	1.082	522,143	12,432	12,516	298	0		461,426	10,986	534,659	12,730	41,000	246,000	287,000
21	6792	79.4	49	8.74	7511	80.3	4676	1.090	512,546	12,203	13,608	324	0		453,367	10,794	526,154	12,527	41,000	246,500	287,500
22	6742	79.7	49	8.70	7275	80.1	4593	1.078	522,660	12,444	13,356	318	0		465,616	11,086	536,016	12,762	41,000	246,000	287,000
23	6754	79.8	49	8.91	7161	80.0	4584	1.077	526,260	12,530	11,508	274	0		461,739	10,994	537,768	12,804	41,000	246,000	287,000
24	7350	78.4	49	9.20	8070	79.9	4660	1.088	531,615	12,658	13,314	317	0		465,712	11,088	544,929	12,975	41,000	246,000	287,000
25	7266	79.1	47	9.05	7803	79.6	4681	1.091	582,807	13,876	11,466	273	500	12	459,352	10,937	594,773	14,161	41,000	245,800	286,800
26	7155	79.6	47	8.80	7618	79.9	4634	1.084	517,429	12,320	12,138	289	0		459,339	10,937	529,567	12,609	41,000	246,000	287,000
27	7063	79.8	47	9.18	7619	80.4	4571	1.075	514,009	12,238	9,744	232	0		460,730	10,970	523,753	12,470	41,000	245,700	286,700
28	6747	80.0	47	8.90	7394	80.2	4620	1.082	515,113	12,265	10,626	253	0		461,499	10,988	525,739	12,518	41,000	246,000	287,000
29	6648	80.0	49	8.71	7599	80.4	4397	1.051	521,625	12,420	8,736	208	0		463,296	11,031	530,361	12,628	41,000	248,000	289,000
30	6465	79.7	49	8.80	7167	79.9	4500	1.065	514,813	12,257	8,190	195	0		459,730	10,946	523,003	12,452	41,000	246,000	287,000
31	6557	79.9	50	9.25	7248	80.1	4461	1.060	513,977	12,238	8,190	195	0		458,442	10,915	522,167	12,433	41,000	248,000	289,000
32	6524	79.9	50	9.00	7232	80.4	4545	1.071	524,741	12,494	7,308	174	0		462,379	11,009	532,049	12,668	41,000	246,000	287,000
33	6432	79.9	50	8.99	6737	81.3	4769	1.103	520,273	12,387	7,308	174	0		464,268	11,054	527,581	12,561	41,000	264,000	305,000
34	6610	79.9	51	9.16	7423	80.4	4466	1.060	511,509	12,179	7,308	174	0		460,798	10,971	518,817	12,353	41,000	246,000	287,000
35	6328	79.8	53	9.28	7004	81.2	4467	1.060	516,018	12,286	6,384	152	0		462,612	11,015	522,402	12,438	41,000	246,000	287,000
36	6674	79.8	53	9.35	7888	80.1	4484	1.063	514,526	12,251	5,922	141	0		461,542	10,989	520,448	12,392	41,000	245,800	286,800
37	6436	80.3	52	8.99	6919	80.6	4652	1.086	512,239	12,196	5,460	130	0		461,726	10,993	517,699	12,326	41,000	246,000	287,000
38	6442	79.4	52	8.90	6884	80.1	4631	1.084	513,513	12,227	5,250	125	0		462,153	11,004	518,763	12,352	41,000	246,000	287,000
39	6405	80.0	55	8.95	7264	80.4	4411	1.053	511,585	12,181	5,418	129	0		459,658	10,944	517,003	12,310	41,000	246,000	287,000
40	6521	79.8	49	9.01	7042	80.7	4791	1.106	508,352	12,104	4,032	96	0		460,206	10,957	512,384	12,200	41,000	246,000	287,000
41	6606	79.9	50	9.00	7641	80.4	4578	1.076	511,823	12,186	3,612	86	0		460,562	10,966	515,435	12,272	41,000	246,000	287,000
42	6410	79.7	50	9.00	7563	80.0	4498	1.065	511,199	12,171	1,764	42	0		459,636	10,944	512,963	12,213	41,000	246,000	287,000
43	6702	79.7	50	9.00	7569	80.4	4625	1.083	533,058	12,692	2,646	63	0		466,526	11,108	535,704	12,755	41,000	246,000	287,000
44	7021	78.4	50	9.00	7952	80.2	4753	1.101	546,212	13,005	3,066	73	500	12	458,361	10,913	549,778	13,090	41,000	246,000	287,000
45	6576	79.3	48	9.22	7344	80.1	4642	1.085	510,599	12,157	2,856	68	250	6	461,969	10,999	513,705	12,231	41,000	246,000	287,000
46	6496	79.7	50	8.99	7145	80.4	4891	1.120	512,593	12,205	16	0	250	6	465,534	11,084	512,859	12,211	41,900	219,500	261,400

		Fluids																Proppants				
		Average				Max		ISIP		FR Water		Fresh Water		15% HCl Acid		Proppant Laden Fluid		Total Fluid		100 Mesh Ticket Weight	30/50 Ticket Weight	Total Proppant Ticket Weight
		Pressure	Rate	Temp	pH	Pressure	Rate	psi	psi/ft	gal	bbl	gal	bbl	gal	bbl	gal	bbl	gal	bbl	lbs	lbs	Total
Planned									24,255,000	577,500	0	0	25,000	595	6,186,530	147,298	7,739,030	184,263	1,886,000	10,988,000	12,874,000	
Recorded	6928	77.1	50	8.92	10770	81.3	4576	1.076	24,158,619	575,205	409,180	9,742	14,000	333	21,034,804	500,829	24,612,207	586,005	1,886,000	10,944,800	12,830,800	
Weight Tickets																			1,886,000		10,944,800	12,830,800

** IFS numbers for proppant are taken from software calculations based on multiple variables
** Proppant is billed from Weight Ticket volumes

3.1 Procedure

3.1.1 Job Fluids

Slick Water

Job Volume: 24255000.0 (Gal)

Base Fluid	FRESH WATER 1000.00 (gal/Mgal)	24255000 (Gal)	Friction Reducer	FIGHTR EC-1, BULK 0.50 (gal/Mgal)	12128.00 (Gal)
Breaker	Optikleen-WF 0.50 (lbm/Mgal)	12128.00 (lbm)			

15% HCL Acid

Job Volume: 25000.0 (Gal)

Base Fluid	HCL ACID 1000.00 (gal/Mgal)	25000 (Gal)	Surfactant	Losurf-300D 2.00 (gal/Mgal)	50.00 (Gal)
Corrosion Inhibitor	HAI-404M 6.00 (gal/Mgal)	150.00 (Gal)	Mixing Fluid	FRESH WATER 603.38 (gal/Mgal)	15085.00 (Gal)
Additive Material	HYDROCHLORIC ACID 535.00 (gal/Mgal)	13375.00 (Gal)			

3.1.2 Job Totals

Fluids

Friction Reducer	FIGHTR EC-1, BULK	12128(Gal)	Breaker	Optikleen-WF	12128.00(lbm)
Surfactant	Losurf-300D	50(Gal)	Corrosion Inhibitor	HAI-404M	150(Gal)

Proppants

	Designed Qty	Requested
Premium White-30/50	11922030 (lbm)	11922030(lbm)
Common White-100 Mesh, SSA-2	1727970 (lbm)	1727970(lbm)

Customer Supplied Items

	Designed Qty	Tank Bottom	Requested with Tank Bottom
FRESH WATER	24255000 (Gal)	0 (Gal)	24255000(Gal)