

Bayswater Exploration

G&D Hanks X-27-28HN

Intervals 1-53

Niobrara Formation

Weld County, CO

API: 05-123-46030

Prepared for: Robert Carney

December 15, 2018

Stimulation Treatment Post Job Report

Prepared By:

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Silver Crew

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Engineering Executive Summary

On November 01, 2018 a stimulation treatment was performed in the Niobrara formation on the G&D Hanks X-27-28HN well in Weld County, CO. The G&D Hanks X-27-28HN was a 53 stage Horizontal Plug and Perf Design. The proposed treatment consisted of:

28,037,000 gallons of FR Water
26,500 gallons of 15% HCl Acid
20,060,500 gallons of Proppant Laden Fluid
1,240,200 pounds of 100 Mesh
11,161,800 pounds of 30/50 White

The actual treatment fully completed 51 of 53 stages. During the treatment 0 stages were skipped, and 2 stages screened out or were otherwise cut short of design. The actual treatment consisted of:

27,138,015 gallons of FR Water
496,700 gallons of Fresh Water
25,500 gallons of 15% HCl Acid
19,061,105 gallons of Proppant Laden Fluid
1,242,600 pounds of 100 Mesh
11,116,600 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 6 and 11 were cut short due to pressure. Please see stage comments for more details.

Started DiverterPlus 1315 and 1325 diverter on Interval 5, per Bayswater. Utilized Halliburton's Prodigy AB technology on Intervals 16, 18 and 23. Pumped additional chemicals on these intervals to help optimize the technology. DiverterPlus 1300 powder diverter was pumped on Intervals 23, 24, and 25 instead of 1325 powder diverter. Starting on Interval 23 for the remainder of the well, no diverter was dropped on the second dirty sweep since no significant pressure response had been observed. Starting on Interval 30 there was a design change -- no longer pumped the clean sweep stage, and pumped the last dirty sweep at 0.50 ppg instead of 0.25 ppg concentration. Please see stage comments for more details.

Had difficulty getting some sleeves to shift on the sleeve intervals (Intervals 1-10). Had to come offline during Interval 8 because the pressure transducer on the suction pump of the blender froze and we started losing the blender tub. Wireline got stuck in the well while perforating for Interval 10, coiled tubing was called to location. Operations were shut down from 11/2 - 11/7 because of wellhead communication issues.

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 EC-1 setpoint was started at 0.75 gpt instead of 0.50 gpt for most intervals. The setpoint was adjusted on-the-fly for the remainder of the interval, based on pressure response. Optikleen setpoint was held at 0.50 ppt, as requested by customer rep. Starting from Interval 38, 250 gal (half of 500 gal as designed) of the 15% acid was used. Please see stage comments for additional details.

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 X-27-28HN
Formation Niobrara
API 05-123-46030
Date November 1, 2018



Wellbore Summary		
Tubular	Top MD	Bot MD
5.5" 20# Casing	0	18,352

Directional Data		
KOP	7,093 ft	
Avg. TVD	7,279 ft	
Total MD	18,352 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	16,807	400	18,045	18,235	1	MULTISTAGE SLEEVE						
2	16,587	395	17,809	17,998	2	MULTISTAGE SLEEVE						
3	16,367	390	17,572	17,762	3	MULTISTAGE SLEEVE						
4	16,147	384	17,336	17,525	4	MULTISTAGE SLEEVE						
5	15,927	379	17,100	17,289	5	MULTISTAGE SLEEVE						
6	15,706	374	16,863	17,053	6	MULTISTAGE SLEEVE						
7	15,485	369	16,626	16,816	7	MULTISTAGE SLEEVE						
8	15,266	363	16,390	16,579	8	MULTISTAGE SLEEVE						
9	15,045	358	16,153	16,342	9	MULTISTAGE SLEEVE						
10	14,824	353	15,916	16,105	10	MULTISTAGE SLEEVE						
11	14,621	348	15,698	15,852	11	9	23	1	3	40	360	0.33
12	14,453	344	15,518	15,672	12	9	23	1	3	40	360	0.33
13	14,286	340	15,338	15,492	13	9	23	1	3	40	360	0.33
14	14,118	336	15,158	15,312	14	9	23	1	3	40	360	0.33
15	13,951	332	14,978	15,132	15	9	23	1	3	40	360	0.33
16	13,783	328	14,798	14,952	16	9	23	1	3	40	360	0.33
17	13,615	324	14,618	14,772	17	9	23	1	3	40	360	0.33
18	13,448	320	14,438	14,592	18	9	23	1	3	40	360	0.33
19	13,280	316	14,258	14,412	19	9	23	1	3	40	360	0.33
20	13,112	312	14,078	14,232	20	9	23	1	3	40	360	0.33
21	12,945	308	13,898	14,052	21	9	23	1	3	40	360	0.33
22	12,777	304	13,718	13,872	22	9	23	1	3	40	360	0.33
23	12,609	300	13,538	13,692	23	9	23	1	3	40	360	0.33
24	12,442	296	13,358	13,512	24	9	23	1	3	40	360	0.33
25	12,274	292	13,178	13,332	25	9	23	1	3	40	360	0.33
26	12,106	288	12,998	13,152	26	9	23	1	3	40	360	0.33
27	11,939	284	12,818	12,972	27	9	23	1	3	40	360	0.33
28	11,771	280	12,638	12,792	28	9	23	1	3	40	360	0.33
29	11,603	276	12,458	12,612	29	9	23	1	3	40	360	0.33
30	11,436	272	12,278	12,432	30	9	23	1	3	40	360	0.33
31	11,268	268	12,098	12,252	31	9	23	1	3	40	360	0.33
32	11,100	264	11,918	12,072	32	9	23	1	3	40	360	0.33
33	10,933	260	11,738	11,892	33	9	23	1	3	40	360	0.33
34	10,765	256	11,558	11,712	34	9	23	1	3	40	360	0.33
35	10,597	252	11,378	11,532	35	9	23	1	3	40	360	0.33
36	10,430	248	11,198	11,352	36	9	23	1	3	40	360	0.33
37	10,262	244	11,018	11,172	37	9	23	1	3	40	360	0.33
38	10,095	240	10,838	10,992	38	9	23	1	3	40	360	0.33
39	9,927	236	10,658	10,812	39	9	23	1	3	40	360	0.33
40	9,759	232	10,478	10,632	40	9	23	1	3	40	360	0.33
41	9,592	228	10,298	10,452	41	9	23	1	3	40	360	0.33
42	9,424	224	10,118	10,272	42	9	23	1	3	40	360	0.33
43	9,256	220	9,938	10,092	43	9	23	1	3	40	360	0.33
44	9,089	216	9,758	9,912	44	9	23	1	3	40	360	0.33
45	8,921	212	9,578	9,732	45	9	23	1	3	40	360	0.33
46	8,753	208	9,398	9,552	46	9	23	1	3	40	360	0.33
47	8,586	204	9,218	9,372	47	9	23	1	3	40	360	0.33
48	8,418	200	9,038	9,192	48	9	23	1	3	40	360	0.33
49	8,250	196	8,858	9,012	49	9	23	1	3	40	360	0.33
50	8,083	192	8,678	8,832	50	9	23	1	3	40	360	0.33
51	7,915	188	8,498	8,652	51	9	23	1	3	40	360	0.33
52	7,747	184	8,318	8,472	52	9	23	1	3	40	360	0.33
53	7,580	180	8,138	8,292	53	9	23	1	3	40	360	0.33

Customer Bayswater Exploration
Formation Niobrara
Lease G&D Hanks X-27-28HN
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Stage Summaries

Interval	Average				Max		ISIP		FR Water		Fresh Water		Fluids		Proppant Laden Fluid		Total Fluid		100 Mesh Ticket Weight	Proppants	
	Pressure	Rate	Temp	pH	Pressure	Rate	psi	psi/ft	gal	bbl	gal	bbl	gal	bbl	gal	bbl	gal	bbl	lbs	lbs	lbs
1	7445	67.3	54	8.37	7798	73.0	4573	1.061	637,298	15,174	0		2,000	48	384,735	9,160	639,298	15,221	23,400	210,600	234,000
2	7420	63.1	57	7.90	8400	76.1	4710	1.080	562,702	13,398	0		500	12	386,655	9,206	563,202	13,410	23,400	210,600	234,000
3	7612	66.8	53	8.02	8076	75.1	4668	1.074	544,501	12,964	0		500	12	389,327	9,270	545,001	12,976	23,400	210,600	234,000
4	7400	66.0	48	7.95	8011	72.0	4729	1.083	604,980	14,404	0		1,000	24	405,535	9,656	605,980	14,428	23,350	202,980	226,330
5	7458	67.3	50	8.14	8018	74.6	4714	1.081	691,654	16,468	0		1,000	24	390,836	9,306	692,654	16,492	23,300	210,200	233,500
6	7417	61.3	64	8.03	8245	69.5	4624	1.068	664,724	15,827	0		1,000	24	364,723	8,684	665,724	15,851	23,700	173,800	197,500
7	7207	57.5	60	8.9	8119	64.5	4799	1.092	546,229	13,005	0		500	12	385,081	9,169	546,729	13,017	23,200	210,800	234,000
8	6501	50.5	50	7.77	8051	67.4	4752	1.086	554,211	13,196	0		500	12	386,737	9,208	554,711	13,207	23,100	217,300	240,400
9	7272	62.4	55	7.78	8136	72.8	4756	1.086	537,562	12,799	0		500	12	381,988	9,095	538,062	12,811	23,100	209,600	232,700
10	7439	67.9	54	7.82	8245	72.4	4854	1.100	539,752	12,851	23,310	555	500	12	383,489	9,131	563,562	13,418	23,300	211,020	234,320
11	6954	67.4	54	8.09	7781	76.0	4854	1.100	540,111	12,860	38,018	905	500	12	385,665	9,183	578,629	13,777	23,500	202,200	225,700
12	6894	66.8	54	8.02	7725	76.4	4826	1.096	537,051	12,787	19,656	468	500	12	385,417	9,177	557,207	13,267	23,400	211,500	234,900
13	7104	69.1	52	8.02	7688	75.6	4951	1.113	541,336	12,889	17,430	415	500	12	383,044	9,120	559,266	13,316	23,400	211,500	234,900
14	7175	66.9	53	8.05	7963	72.6	4760	1.087	545,045	12,977	18,438	439	500	12	382,446	9,106	563,983	13,428	23,400	210,800	234,200
15	7052	67.2	53	8.00	7572	76.6	4838	1.098	535,905	12,760	16,716	398	500	12	383,752	9,137	553,121	13,170	23,000	210,600	233,600
16	7280	68.6	58	7.57	8018	72.5	4930	1.110	536,962	12,785	17,304	412	500	12	384,469	9,154	554,766	13,209	23,300	209,000	232,300
17	7048	69.3	57	7.58	7796	74.8	4898	1.106	559,534	13,322	15,456	368	500	12	382,974	9,118	575,490	13,702	23,500	211,500	235,000
18	6976	70.6	53	7.63	7782	75.8	4930	1.110	538,648	12,825	14,742	351	500	12	384,387	9,152	553,890	13,188	23,700	212,100	235,800
19	7258	71.2	52	7.61	7853	75.8	4900	1.106	534,141	12,718	13,986	333	500	12	383,302	9,126	548,627	13,063	23,600	211,500	235,100
20	7085	70.9	53	7.73	7949	76.1	4783	1.090	535,939	12,760	15,624	372	500	12	384,816	9,162	552,063	13,144	23,700	210,000	233,700
21	7303	75.7	53	7.81	7846	80.7	4819	1.095	537,211	12,791	15,120	360	500	12	384,060	9,144	552,831	13,163	23,000	212,100	235,100
22	7241	70.3	52	7.71	7933	74.9	4761	1.087	540,701	12,874	13,062	311	500	12	384,824	9,162	554,263	13,197	23,500	211,000	234,500
23	7426	74.4	52	7.75	8007	80.5	4830	1.097	535,226	12,743	11,802	281	500	12	384,182	9,147	547,528	13,036	23,000	210,000	233,000
24	7423	78.1	53	7.73	7825	84.2	4886	1.104	536,511	12,774	12,936	308	500	12	384,711	9,160	549,947	13,094	23,700	211,300	235,000
25	7344	72.9	50	7.92	7905	76.9	4935	1.111	533,323	12,698	13,062	311	500	12	385,168	9,171	546,885	13,021	23,800	210,500	234,300
26	7365	72.8	53	7.24	7914	76.5	4955	1.114	532,568	12,680	13,356	318	500	12	382,694	9,112	546,424	13,010	23,500	211,000	234,500
27	7369	77.3	53	7.82	7879	80.9	4967	1.115	535,918	12,760	13,398	319	500	12	384,922	9,165	549,816	13,091	23,400	211,200	234,600
28	7205	66.4	53	7.92	7941	72.8	4934	1.111	529,797	12,614	13,188	314	500	12	383,309	9,126	543,485	12,940	23,000	211,000	234,000
29	7349	65.1	52	7.57	7904	77.7	4951	1.113	533,226	12,696	12,810	305	500	12	383,993	9,143	546,536	13,013	23,400	210,700	234,100
30	7323	69.5	53	7.66	7938	78.2	4953	1.113	467,528	11,132	11,550	275	500	12	403,936	9,618	479,578	11,419	23,500	211,200	234,700
31	7275	69.2	54	7.70	7865	73.6	5017	1.122	462,596	11,014	13,398	319	500	12	401,112	9,550	476,494	11,345	23,200	211,400	234,600
32	7254	65.7	50	7.72	8032	70.6	5054	1.127	460,748	10,970	10,374	247	500	12	398,877	9,497	471,622	11,229	23,600	208,700	232,300
33	7499	64.8	52	7.69	7894	67.5	5103	1.134	461,685	10,993	9,912	236	500	12	399,904	9,522	472,097	11,240	23,800	206,400	230,200
34	6907	68.5	54	7.73	7801	71.5	5005	1.121	461,854	10,997	10,542	251	500	12	400,195	9,528	472,896	11,259	23,500	210,500	234,000
35	7309	74.2	50	7.74	7765	76.0	4896	1.106	457,244	10,887	9,030	215	500	12	310,101	7,383	466,774	11,114	23,500	210,500	234,000
36	7026	78.8	52	7.80	7676	82.9	4869	1.102	459,335	10,937	10,080	240	500	12	311,033	7,406	469,915	11,188	23,800	211,200	235,000
37	7262	75.1	50	7.87	7998	80.9	4913	1.108	461,416	10,986	9,072	216	500	12	312,262	7,435	470,988	11,214	23,400	210,700	234,100
38	7664	76.3	50	7.65	7883	80.4	4949	1.113	459,939	10,951	7,182	171	250	6	310,833	7,401	467,371	11,128	23,600	212,400	236,000
39	7285	72.4	52	7.68	7905	77.7	5010	1.121	457,493	10,893	7,938	189	250	6	312,181	7,433	465,681	11,088	23,500	210,800	234,300
40	7282	73.3	51	7.56	7848	75.5	5051	1.127	458,197	10,909	7,518	179	250	6	310,032	7,382	465,965	11,094	23,400	210,100	233,500
41	7406	69.7	65	7.71	7850	72.2	5024	1.123	460,034	10,953	6,006	143	250	6	311,514	7,417	466,290	11,102	23,100	209,700	232,800
42	7273	73.3	51	7.69	7796	82.9	4914	1.108	459,184	10,933	9,912	236	250	6	311,800	7,424	469,346	11,175	23,400	210,400	233,800
43	7392	71.8	50	7.69	7904	75.1	5057	1.128	460,739	10,970	6,804	162	250	6	311,405	7,414	467,793	11,138	23,500	210,800	234,300
44	7309	71.1	57	7.51	8214	77.1	5037	1.125	459,664	10,944	4,914	117	250	6	310,726	7,398	464,828	11,067	23,400	212,400	235,800
45	7207	68.2	51	7.61	7918	70.6	4880	1.103	456,669	10,873	6,594	157	250	6	310,726	7,398	463,513	11,036	23,300	210,700	234,000
46	7362	71.2	52	7.61	7939	75.4	4916	1.108	458,263	10,911	5,124	122	250	6	309,592	7,371	463,637	11,039	23,200	209,800	233,000
47	7195	70.1	52	7.55	8136	72.6	4953	1.113	456,410	10,867	4,410	105	250	6	309,938	7,379	461,070	10,978	23,300	211,800	235,100
48	7447	68.7	49	7.61	8064	70.9	4973	1.116	453,531	10,798	3,948	94	250	6	306,098	7,288	457,729	10,898	23,300	210,000	233,300
49	7561	70.3	51	7.54	7981	80.7	4901	1.106	459,398	10,938	3,360	80	250	6	311,753	7,423	463,008	11,024	23,500	209,800	233,300
50	7480	65.7	50	7.50	8125	69.6	4873	1.102	474,199	11,290	3,318	79	250	6	312,856	7,449	477,767	11,375	23,300	210,100	233,400
51	7453	69.3	53	7.53	8177	72.8	4822	1.095	455,764	10,852	2,772	66	250	6	309,269	7,364	458,786	10,923	23,300	210,900	234,200
52	7443	68.0	51	7.60	8194	74.2	4875	1.103	456,710	10,874	3,528	84	250	6	309,558	7,370	460,488	10,964	23,350	209,800	233,150
53	7726	74.6	50	7.55	8196	76.7	4793	1.091	410,749	9,780	0		250	6	308,163	7,337	410,999	9,786	25,800	209,500	235,300

Planned Recorded	Average				Max		ISIP		FR Water		Fresh Water		Fluids		Proppant Laden Fluid	
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3.1 Procedure

3.1.1 Job Fluids

Slick Water

Job Volume: 28037000.0 (Gal)

Base Fluid	FRESH WATER 1000.00 (gal/Mgal)	28037000 (Gal)	Friction Reducer	FIGHTR EC-1, BULK 0.50 (gal/Mgal)	14019.00 (Gal)
Breaker	Optikleen-WF 0.50 (lbm/Mgal)	14019.00 (lbm)			

15% HCL Acid

Job Volume: 26500.0 (Gal)

Base Fluid	HCL ACID 1000.00 (gal/Mgal)	26500 (Gal)	Surfactant	Losurf-300D 2.00 (gal/Mgal)	53.00 (Gal)
Corrosion Inhibitor	HAI-404M 6.00 (gal/Mgal)	159.00 (Gal)			

3.1.2 Job Totals

Fluids

Friction Reducer	FIGHTR EC-1, BULK	14019(Gal)	Breaker	Optikleen-WF	14019.00(lbm)
Surfactant	Losurf-300D	53(Gal)	Corrosion Inhibitor	HAI-404M	159(Gal)

Proppants

	Designed Qty	Requested
Common White-100 Mesh, SSA-2	1240200 (lbm)	1240200(lbm)
Premium White-30/50	11161800 (lbm)	11161800(lbm)

Customer Supplied Items

	Designed Qty	Tank Bottom	Requested with Tank Bottom
FRESH WATER	28037000 (Gal)	0 (Gal)	28037000(Gal)