

Bayswater Exploration

G&D Hanks U-27-28HN

Intervals 1-47

Niobrara Formation

Weld County, CO

API: 05-123-46033

Prepared for: Robert Carney

October 28, 2018

Stimulation Treatment Post Job Report

Prepared By:

Kyle Hendrick

Daniel Stuck

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 U-27-28HN well in Weld County, CO. The G&D Hanks U-27-28HN was a 47 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
24,255,000 gallons of Proppant Laden Fluid
1,927,000 pounds of 100 Mesh
11,234,000 pounds of 30/50 White

The actual treatment fully completed 47 of 47 stages. During the treatment 0 stages were skipped, and 0 stages screened out or were otherwise cut short of design. The actual treatment consisted of:

24,609,887 gallons of FR Water
627,908 gallons of Fresh Water
15,500 gallons of 15% HCl Acid
21,569,385 gallons of Proppant Laden Fluid
1,927,000 pounds of 100 Mesh
11,234,000 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:

There were no intervals screened out, skipped, or cut short.

After discussion with on location customer representative, only half of the designed amount of acid was pumped on Intervals 24-32. Starting on Interval 33, no more acid was run except on an as-needed basis.

Had to come off line during interval 35 due to agitator issues. Had to come offline during Interval 37, because the forklift stopped working and no full boxes of sand could be placed on the sand structure.

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,

Eric Hesson
Technical Professional
Halliburton Energy Services

Kyle Hendrick
Associate Technical Professional
Halliburton Energy Services

Andrew Heft
Technical Professional
Halliburton Energy Services

Breanna Stranges
Technical Professional
Halliburton Energy Services

Nathan Colborn
Associate Technical Professional
Halliburton Energy Services

Katie Knapp
Associate Technical Professional
Halliburton Energy Services

Customer Bayswater Exploration
 Lease G&D Hanks U-27-28HN
 Formation Niobrara
 API 05-123-46033
 Date September 28, 2018



Wellbore Summary		
Tubular	Top MD	Bot MD
5.5" 20# Casing	0	18,195

Directional Data		
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KOP 6,987 *ft*
 Avg. TVD 7,269 *ft*
 Total MD 18,195 *ft*

18134 *ft* is depth for injection. 402 bbls flush.

Zone #	Displacement to Sleeve/Top Perf (gal)	Displacement to Sleeve/Top Perf (bbl)	Sleeve / Perf Depth (ft)		Zone #	Perforation Data						
			Top MD (ft)	Btm MD (ft)		Number of Perf Clusters (count)	Cluster Spacing (ft)	Perf Gun Length (ft)	Perf Density (spf)	Total Perfs (count)	Phasing (deg)	Perf Diameter (in)
1	16,657	397	17,884	18,067	1	9	23	1	3,4,6	40	360	0.33
2	16,457	392	17,669	17,852	2	9	23	1	3,4,6	40	360	0.33
3	16,257	387	17,454	17,637	3	9	23	1	3,4,6	40	360	0.33
4	16,056	382	17,239	17,422	4	9	23	1	3,4,6	40	360	0.33
5	15,856	378	17,024	17,207	5	9	23	1	3,4,6	40	360	0.33
6	15,656	373	16,809	16,992	6	9	23	1	3,4,6	40	360	0.33
7	15,456	368	16,594	16,777	7	9	23	1	3,4,6	40	360	0.33
8	15,255	363	16,379	16,562	8	9	23	1	3,4,6	40	360	0.33
9	15,055	358	16,164	16,347	9	9	23	1	3,4,6	40	360	0.33
10	14,855	354	15,949	16,132	10	9	23	1	3,4,6	40	360	0.33
11	14,655	349	15,734	15,917	11	9	23	1	3,4,6	40	360	0.33
12	14,454	344	15,519	15,702	12	9	23	1	3,4,6	40	360	0.33
13	14,254	339	15,304	15,487	13	9	23	1	3,4,6	40	360	0.33
14	14,054	335	15,089	15,272	14	9	23	1	3,4,6	40	360	0.33
15	13,854	330	14,874	15,057	15	9	23	1	3,4,6	40	360	0.33
16	13,653	325	14,659	14,842	16	9	23	1	3,4,6	40	360	0.33
17	13,453	320	14,444	14,627	17	9	23	1	3,4,6	40	360	0.33
18	13,253	316	14,229	14,412	18	9	23	1	3,4,6	40	360	0.33
19	13,053	311	14,014	14,197	19	9	23	1	3,4,6	40	360	0.33
20	12,852	306	13,799	13,982	20	9	23	1	3,4,6	40	360	0.33
21	12,652	301	13,584	13,767	21	9	23	1	3,4,6	40	360	0.33
22	12,452	296	13,369	13,552	22	9	23	1	3,4,6	40	360	0.33
23	12,252	292	13,154	13,337	23	9	23	1	3,4,6	40	360	0.33
24	12,051	287	12,939	13,122	24	9	23	1	3,4,6	40	360	0.33
25	11,851	282	12,724	12,907	25	9	23	1	3,4,6	40	360	0.33
26	11,651	277	12,509	12,692	26	9	23	1	3,4,6	40	360	0.33
27	11,451	273	12,294	12,477	27	9	23	1	3,4,6	40	360	0.33
28	11,250	268	12,079	12,262	28	9	23	1	3,4,6	40	360	0.33
29	11,050	263	11,864	12,047	29	9	23	1	3,4,6	40	360	0.33
30	10,850	258	11,649	11,832	30	9	23	1	3,4,6	40	360	0.33
31	10,650	254	11,434	11,617	31	9	23	1	3,4,6	40	360	0.33
32	10,449	249	11,219	11,402	32	9	23	1	3,4,6	40	360	0.33
33	10,249	244	11,004	11,187	33	9	23	1	3,4,6	40	360	0.33
34	10,049	239	10,789	10,972	34	9	23	1	3,4,6	40	360	0.33
35	9,849	234	10,574	10,757	35	9	23	1	3,4,6	40	360	0.33
36	9,648	230	10,359	10,542	36	9	23	1	3,4,6	40	360	0.33
37	9,448	225	10,144	10,327	37	9	23	1	3,4,6	40	360	0.33
38	9,248	220	9,929	10,112	38	9	23	1	3,4,6	40	360	0.33
39	9,048	215	9,714	9,897	39	9	23	1	3,4,6	40	360	0.33
40	8,847	211	9,499	9,682	40	9	23	1	3,4,6	40	360	0.33
41	8,647	206	9,284	9,467	41	9	23	1	3,4,6	40	360	0.33
42	8,447	201	9,069	9,252	42	9	23	1	3,4,6	40	360	0.33
43	8,247	196	8,854	9,037	43	9	23	1	3,4,6	40	360	0.33
44	8,046	192	8,639	8,822	44	9	23	1	3,4,6	40	360	0.33
45	7,846	187	8,424	8,607	45	9	23	1	3,4,6	40	360	0.33
46	7,646	182	8,209	8,392	46	9	23	1	3,4,6	40	360	0.33
47	7,446	177	7,994	8,177	47	9	23	1	3,4,6	40	360	0.33

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

Interval	Average				Max		ISIP		Fluids										Proppants		
									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	lbs
1	7384	74.2	53	7.50	7808	76.7	4325	1.028	378,157	9,004	61,194	1,457	1,250	30	264,910	6,307	440,601	10,491	41,000	41,000	82,000
2	7365	79.5	50	8.67	7886	80.9	4581	1.063	623,189	14,838	21,420	510	500	12	475,526	11,322	645,109	15,360	41,000	205,500	246,500
3	7260	80.0	49	8.55	7759	80.2	4521	1.055	560,203	13,338	19,908	474	500	12	476,939	11,356	580,611	13,824	41,000	205,200	246,200
4	7179	80.1	50	8.66	7861	80.5	4579	1.063	559,583	13,323	20,286	483	500	12	476,431	11,344	580,369	13,818	41,000	205,100	246,100
5	7061	80.1	51	8.91	7509	80.3	4694	1.079	529,061	12,597	20,580	490	500	12	460,489	10,964	550,141	13,099	41,000	246,000	287,000
6	7258	79.4	54	9.18	7592	80.4	4747	1.086	522,112	12,431	20,412	486	500	12	459,234	10,934	543,024	12,929	41,000	245,900	286,900
7	7292	79.8	55	9.00	7600	80.0	4662	1.074	520,251	12,387	19,530	465	500	12	457,510	10,893	540,281	12,864	41,000	247,000	288,000
8	7206	80.0	53	9.14	7662	80.2	4659	1.074	521,368	12,414	20,034	477	500	12	457,745	10,899	541,902	12,902	41,000	246,200	287,200
9	7112	77.5	51	9.00	7446	80.4	4579	1.063	516,634	12,301	19,992	476	500	12	460,026	10,953	537,126	12,789	41,000	246,300	287,300
10	7201	78.8	51	9.15	7529	80.5	4754	1.087	527,224	12,553	18,858	449	500	12	460,283	10,959	546,582	13,014	41,000	246,500	287,500
11	7545	78.9	48	9.28	7719	80.3	4628	1.070	522,645	12,444	18,606	443	500	12	462,074	11,002	541,751	12,899	41,000	246,200	287,200
12	7340	79.0	51	9.10	7750	80.4	4740	1.085	524,032	12,477	19,446	463	500	12	460,140	10,956	543,978	12,952	41,000	246,700	287,700
13	7227	79.3	50	9.00	7726	80.2	4912	1.109	562,413	13,391	16,926	403	500	12	472,566	11,252	579,839	13,806	41,000	245,900	286,900
14	7475	77.8	46	9.10	7845	80.5	4955	1.115	548,868	13,068	17,556	418	500	12	461,023	10,977	566,924	13,498	41,000	246,900	287,900
15	7293	79.4	49	8.87	7686	79.9	4723	1.083	524,139	12,480	16,590	395	500	12	461,674	10,992	541,229	12,886	41,000	246,100	287,100
16	7079	77.7	49	8.87	7772	80.2	4644	1.072	517,975	12,333	16,212	386	500	12	459,254	10,935	534,687	12,731	41,000	246,000	287,000
17	7316	79.1	49	8.83	7755	80.1	4624	1.069	516,163	12,290	29,862	711	500	12	459,205	10,933	546,525	13,013	41,000	245,000	286,000
18	6930	78.7	49	9.00	7325	80.0	4480	1.049	523,104	12,455	14,994	357	500	12	460,677	10,969	538,598	12,824	41,000	246,000	287,000
19	7187	79.6	48	8.77	7690	80.0	4469	1.048	524,284	12,483	18,774	447	500	12	459,746	10,946	543,558	12,942	41,000	245,000	286,000
20	7031	79.3	50	8.80	7907	79.9	4727	1.083	519,292	12,364	12,894	307	500	12	459,432	10,939	532,686	12,683	41,000	246,000	287,000
21	6912	77.9	48	8.76	7387	78.3	4482	1.050	529,012	12,596	13,104	312	500	12	461,448	10,987	542,616	12,919	41,000	245,900	286,900
22	7015	79.3	49	8.70	7652	80.2	4641	1.071	518,444	12,344	12,768	304	500	12	460,150	10,956	531,712	12,660	41,000	246,000	287,000
23	6885	80.0	50	8.96	7548	80.2	4475	1.049	520,984	12,404	13,398	319	500	12	459,214	10,934	534,882	12,735	41,000	245,800	286,800
24	7255	75.6	51	9.00	7690	78.0	4710	1.081	537,314	12,793	13,104	312	250	6	478,802	11,400	550,668	13,111	41,000	246,000	287,000
25	7024	79.8	46	9.19	7616	80.3	4623	1.069	520,600	12,395	11,634	277	250	6	459,459	10,940	532,484	12,678	41,000	245,900	286,900
26	7330	78.8	47	8.81	7988	79.9	4612	1.067	517,469	12,321	10,626	253	250	6	460,467	10,964	528,345	12,580	41,000	246,000	287,000
27	7136	79.8	47	8.88	7616	80.4	4340	1.030	514,799	12,257	11,012	262	250	6	461,122	10,979	526,061	12,525	41,000	246,000	287,000
28	6918	80.0	52	8.88	7764	80.3	4562	1.061	515,635	12,277	9,786	233	250	6	459,696	10,945	525,671	12,516	41,000	246,000	287,000
29	6860	79.8	49	8.82	7539	80.1	4513	1.054	515,994	12,286	9,240	220	250	6	460,948	10,975	525,484	12,512	41,000	245,800	286,800
30	6719	80.1	50	8.96	7981	80.4	4459	1.046	515,529	12,275	8,988	214	250	6	460,355	10,961	524,767	12,494	41,000	245,800	286,800
31	6465	79.6	50	8.99	7359	79.7	4465	1.047	513,048	12,215	8,442	201	250	6	460,536	10,965	521,740	12,422	41,000	246,000	287,000
32	6607	80.0	50	9.14	7821	80.4	4447	1.045	515,035	12,263	8,568	204	250	6	461,172	10,980	523,853	12,473	41,000	245,900	286,900
33	6685	80.1	52	9.24	7540	80.4	4526	1.056	513,840	12,234	7,812	186	0		460,068	10,954	521,652	12,420	41,000	245,800	286,800
34	6376	80.1	51	8.95	6820	80.4	4481	1.049	515,851	12,282	7,350	175	0		462,344	11,008	523,201	12,457	41,000	246,000	287,000
35	6369	80.1	41	9.34	7599	81.1	4576	1.063	556,412	13,248	6,846	163	0		466,834	11,115	563,258	13,411	41,000	246,000	287,000
36	6414	79.7	42	9.10	7686	80.5	4749	1.086	537,903	12,807	6,720	160	0		461,649	10,992	544,623	12,967	41,000	246,000	287,000
37	6626	80.0	45	8.88	7433	80.6	4941	1.113	536,672	12,778	6,090	145	0		460,590	10,966	542,762	12,923	41,000	246,000	287,000
38	6506	79.8	45	8.89	7249	80.1	4703	1.080	511,755	12,185	5,880	140	0		460,865	10,973	517,635	12,325	41,000	246,000	287,000
39	6505	79.5	52	8.80	7322	80.4	4683	1.077	510,443	12,153	6,300	150	0		461,297	10,983	516,743	12,303	41,000	246,000	287,000
40	6386	79.9	51	8.90	7217	80.4	4589	1.064	512,465	12,202	4,788	114	0		460,078	10,954	517,253	12,316	41,000	246,000	287,000
41	6363	79.3	51	8.80	7419	80.4	4704	1.080	500,211	11,910	6,006	143	0		461,214	10,981	506,217	12,053	41,000	246,000	287,000
42	6012	79.9	50	9.10	6936	80.1	4584	1.064	519,871	12,378	3,486	83	0		461,096	10,978	523,357	12,461	41,000	246,000	287,000
43	6462	79.9	50	9.10	7182	80.9	4787	1.092	514,326	12,246	3,570	85	0		460,852	10,973	517,896	12,331	41,000	246,000	287,000
44	6329	79.9	50	8.90	7450	80.3	4682	1.077	511,711	12,184	3,696	88	0		460,728	10,970	515,407	12,272	41,000	246,000	287,000
45	6605	79.6	50	8.95	7286	79.9	4795	1.093	514,542	12,251	2,562	61	0		459,976	10,952	517,104	12,312	41,000	246,000	287,000
46	7000	78.3	50	8.99	8104	78.8	4553	1.059	569,291	13,555	2,058	49	500	12	497,645	11,849	571,849	13,615	41,000	246,000	287,000
47	6457	79.3	50	9.01	7186	80.4	4614	1.068	510,034	12,144	0	0	500	12	465,896	11,093	510,534	12,156	41,000	244,600	285,600

									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	gal	bbl	lbs	lbs	Total
Planned								24,255,000	577,500	0	0	25,000	595	24,255,000	577,500	7,739,030	184,263	1,927,000	11,234,000	13,161,000		
Recorded	6914	79.2	49	8.92	8104	81.1	4623	1.07	24,609,887	585,950	627,908	14,950	15,500	369	21,569,385	513,557	25,254,009	601,286	1,927,000	11,234,000	13,161,000	
Weight Tickets																		1,927,000	11,234,000	13,161,000		

** 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)			

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)