HALLIBURTON

Bayswater Exploration

G&D Hanks S-27-28HN

Intervals 1-47

Niobrara Formation

Weld County, CO

API: 05-123-46036

Prepared for: Robert Carney

October 29, 2018

Stimulation Treatment

Post Job Report

Prepared By:

Kyle Hendrick

Daniel Stuck

Silver Crew

HALLIBURTON

Engineering Executive Summary

On September 28, 2018 a stimulation treatment was performed in the Niobrara formation on the G&D Hanks S-27-28HN well in Weld County, CO. The G&D Hanks S-27-28HN was a 47 stage Horizontal Plug and Perf Design. The proposed treatment consisted of:

7,714,030	gallons of FR Water
25,000	gallons of 15% HCl Acid
6,186,530	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:

24,300,063	gallons of FR Water
614,796	gallons of Fresh Water
22,000	gallons of 15% HCl Acid
21,463,719	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 customer representative, started pumping half of the designed amount of acid on Interval 35 through the end of the well.

Had to come offline briefly during Interval 45, due to an issue with the sand structure. For more details, please see stage comments.

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 S-27-28HN
Formation Niobrara
API 05-123-46036
Date September 28, 2018

HALLIBURTON | Production Enhancement

Wellbore Summary		
Tubular	Top MD	Bot MD
5.5" 20# Casing	0	18,123

Directional Data	
KOP	6,987 *ft*
Avg. TVD	7,187 *ft*
Total MD	18,123 *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)**	**Number of Perf Clusters** *(count)*	**Cluster Spacing** *(ft)*	**Perf Gun Length** *(ft)*	**Perf Density** *(spf)*	**Total Perfs** *(count)*	**Phasing** *(deg)*	**Perf Diameter** *(in)*
1	16,573	395	17,794	17,977	9	23	1	3	40	360	0.33
2	16,373	390	17,579	17,762	9	23	1	3	40	360	0.33
3	16,172	385	17,364	17,547	9	23	1	3	40	360	0.33
4	15,972	380	17,149	17,332	9	23	1	3	40	360	0.33
5	15,772	376	16,934	17,117	9	23	1	3	40	360	0.33
6	15,572	371	16,719	16,902	9	23	1	3	40	360	0.33
7	15,371	366	16,504	16,687	9	23	1	3	40	360	0.33
8	15,171	361	16,289	16,472	9	23	1	3	40	360	0.33
9	14,971	356	16,074	16,257	9	23	1	3	40	360	0.33
10	14,771	352	15,859	16,042	9	23	1	3	40	360	0.33
11	14,570	347	15,644	15,827	9	23	1	3	40	360	0.33
12	14,370	342	15,429	15,612	9	23	1	3	40	360	0.33
13	14,170	337	15,214	15,397	9	23	1	3	40	360	0.33
14	13,970	333	14,999	15,182	9	23	1	3	40	360	0.33
15	13,769	328	14,784	14,967	9	23	1	3	40	360	0.33
16	13,569	323	14,569	14,752	9	23	1	3	40	360	0.33
17	13,369	318	14,354	14,537	9	23	1	3	40	360	0.33
18	13,169	314	14,139	14,322	9	23	1	3	40	360	0.33
19	12,968	309	13,924	14,107	9	23	1	3	40	360	0.33
20	12,768	304	13,709	13,892	9	23	1	3	40	360	0.33
21	12,568	299	13,494	13,677	9	23	1	3	40	360	0.33
22	12,368	294	13,279	13,462	9	23	1	3	40	360	0.33
23	12,167	290	13,064	13,247	9	23	1	3	40	360	0.33
24	11,967	285	12,849	13,032	9	23	1	3	40	360	0.33
25	11,767	280	12,634	12,817	9	23	1	3	40	360	0.33
26	11,567	275	12,419	12,602	9	23	1	3	40	360	0.33
27	11,366	271	12,204	12,387	9	23	1	3	40	360	0.33
28	11,166	266	11,989	12,172	9	23	1	3	40	360	0.33
29	10,966	261	11,774	11,957	9	23	1	3	40	360	0.33
30	10,766	256	11,559	11,742	9	23	1	3	40	360	0.33
31	10,565	252	11,344	11,527	9	23	1	3	40	360	0.33
32	10,365	247	11,129	11,312	9	23	1	3	40	360	0.33
33	10,165	242	10,914	11,097	9	23	1	3	40	360	0.33
34	9,965	237	10,699	10,882	9	23	1	3	40	360	0.33
35	9,764	232	10,484	10,667	9	23	1	3	40	360	0.33
36	9,564	228	10,269	10,452	9	23	1	3	40	360	0.33
37	9,364	223	10,054	10,237	9	23	1	3	40	360	0.33
38	9,164	218	9,839	10,022	9	23	1	3	40	360	0.33
39	8,968	214	9,628	9,807	9	23	1	3	40	360	0.33
40	8,763	209	9,409	9,592	9	23	1	3	40	360	0.33
41	8,563	204	9,194	9,377	9	23	1	3	40	360	0.33
42	8,363	199	8,979	9,162	9	23	1	3	40	360	0.33
43	8,162	194	8,764	8,947	9	23	1	3	40	360	0.33
44	7,962	190	8,549	8,732	9	23	1	3	40	360	0.33
45	7,762	185	8,334	8,517	9	23	1	3	40	360	0.33
46	7,562	180	8,119	8,302	9	23	1	3	40	360	0.33
47	7,361	175	7904	8087	9	23	1	3	40	360	0.33

Customer Bayswater Exploration
Formation Niobrara
Lease G&D Hanks S-27-28HN
API 05-123-46036
Date September 28, 2018

Stage Summaries

									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
Interval	Pressure	Rate	Temp	pH	Pressure	Rate	psi	psi/ft	gal	bbl	gal	bbl	gal	bbl	gal	bbl	gal	bbl	lbs	lbs	lbs
1	7368	79.4	53	7.82	7637	79.6	4322	1.034	371,623	8,848	56,826	1,353	2,000	48	259,003	6,167	430,449	10,249	41,000	41,000	82,000
2	7236	78.7	51	8.11	7600	80.0	4401	1.045	573,657	13,659	21,672	516	500	12	475,322	11,317	595,829	14,186	41,000	206,000	247,000
3	7101	80.1	51	8.58	7838	80.9	4445	1.051	584,768	13,923	22,176	528	500	12	473,239	11,268	607,444	14,463	41,000	205,500	246,500
4	7074	80.5	49	8.57	7622	80.8	4614	1.075	556,144	13,242	18,690	445	500	12	472,968	11,261	575,334	13,698	41,000	205,500	246,500
5	7146	80.1	51	8.91	7856	80.4	4706	1.088	519,935	12,379	21,042	501	500	12	457,920	10,903	541,477	12,892	41,000	246,200	287,200
6	7345	76.7	53	9.19	7644	79.7	4861	1.109	517,713	12,326	20,580	490	500	12	454,488	10,821	538,793	12,828	41,000	246,100	287,100
7	7254	79.4	53	9.06	7581	80.0	4681	1.084	520,960	12,404	20,454	487	500	12	460,694	10,969	541,914	12,903	41,000	245,800	286,800
8	7219	80.1	52	9.24	7684	80.3	4632	1.077	523,442	12,463	19,404	462	500	12	460,303	10,960	543,346	12,937	41,000	246,700	287,700
9	7339	79.5	49	8.90	8085	80.0	4759	1.095	556,578	13,252	19,698	469	500	12	493,090	11,740	576,776	13,733	41,000	246,000	287,000
10	7461	77.3	50	8.90	7788	79.5	4729	1.091	519,498	12,369	20,286	483	500	12	458,957	10,928	540,284	12,864	41,000	245,600	286,600
11	7343	75.4	52	9.05	7718	78.2	4815	1.103	526,013	12,524	20,664	492	500	12	461,522	10,989	547,177	13,028	41,000	246,600	287,600
12	7227	78.5	50	8.95	7690	78.7	4862	1.109	520,909	12,403	18,900	450	500	12	461,818	10,996	540,309	12,864	41,000	246,200	287,200
13	7390	78.9	50	9.20	7805	80.2	4975	1.125	526,699	12,540	18,270	435	500	12	463,846	11,044	545,469	12,987	41,000	246,100	287,100
14	7178	76.9	49	8.87	7633	78.1	4841	1.107	525,346	12,508	17,388	414	500	12	460,230	10,958	543,234	12,934	41,000	245,800	286,800
15	7337	77.5	49	8.80	7704	79.6	4723	1.090	520,588	12,395	17,682	421	500	12	460,627	10,967	538,770	12,828	41,000	246,000	287,000
16	7404	79.1	49	8.78	7666	80.0	4927	1.119	522,532	12,441	16,212	386	500	12	461,761	10,994	539,244	12,839	41,000	246,000	287,000
17	7295	78.8	50	9.10	7625	80.1	4745	1.093	512,274	12,197	15,834	377	500	12	459,526	10,941	528,608	12,586	41,000	246,000	287,000
18	7262	79.8	49	8.79	7585	80.3	4767	1.096	525,387	12,509	15,834	377	500	12	460,898	10,974	541,721	12,898	41,000	245,800	286,800
19	7005	77.0	49	8.70	7426	80.1	4691	1.086	523,572	12,466	15,036	358	500	12	460,540	10,965	539,108	12,836	41,000	246,000	287,000
20	7150	79.5	49	8.84	7660	79.8	4773	1.097	519,938	12,379	13,482	321	500	12	460,696	10,969	533,920	12,712	41,000	245,500	286,500
21	7221	79.2	49	8.80	7695	80.0	4849	1.108	521,240	12,410	13,356	318	500	12	459,370	10,937	535,096	12,740	41,000	246,000	287,000
22	7015	79.4	50	8.96	7749	79.7	4758	1.095	515,467	12,273	12,138	289	500	12	459,049	10,930	528,105	12,574	41,000	245,800	286,800
23	7065	79.8	49	9.07	7472	80.1	4681	1.084	523,627	12,467	12,684	302	500	12	459,649	10,944	536,811	12,781	41,000	246,100	287,100
24	7605	78.8	50	9.10	7820	79.5	4800	1.101	514,194	12,243	11,844	282	500	12	458,079	10,907	526,538	12,537	41,000	246,000	287,000
25	7292	75.9	50	9.00	7710	77.4	4763	1.096	521,664	12,421	11,592	276	500	12	459,545	10,942	533,756	12,708	41,000	246,000	287,000
26	7339	78.7	47	8.92	8060	79.5	4591	1.072	520,403	12,391	11,214	267	500	12	461,704	10,993	532,117	12,669	41,000	245,900	286,900
27	7122	80.0	48	9.27	7727	80.3	4607	1.074	516,904	12,307	10,668	254	500	12	461,443	10,987	528,072	12,573	41,000	245,800	286,800
28	7088	78.8	48	8.80	7416	79.8	4758	1.095	514,872	12,259	11,634	277	500	12	461,067	10,978	527,006	12,548	41,000	246,000	287,000
29	6892	80.0	49	8.88	8015	80.3	4668	1.083	518,563	12,347	10,878	259	500	12	454,374	10,818	529,941	12,618	41,000	246,100	287,100
30	6753	80.4	49	8.50	7343	80.6	4652	1.080	513,864	12,235	9,030	215	500	12	459,720	10,946	523,394	12,462	41,000	246,000	287,000
31	6772	80.0	50	8.94	7729	80.2	4596	1.072	512,710	12,207	8,946	213	500	12	458,327	10,913	522,156	12,432	41,000	245,800	286,800
32	6640	79.7	49	8.99	7401	80.1	4702	1.087	514,264	12,244	8,652	206	500	12	460,152	10,956	523,416	12,462	41,000	246,000	287,000
33	6636	79.9	49	8.89	7455	80.1	4577	1.070	512,093	12,193	8,190	195	500	12	459,037	10,929	520,783	12,400	41,000	246,000	287,000
34	6741	79.8	49	8.88	7593	80.1	4750	1.094	512,910	12,212	7,266	173	500	12	459,461	10,940	520,676	12,397	41,000	246,000	287,000
35	6604	79.5	49	8.88	7613	79.7	4572	1.069	516,371	12,295	7,098	169	250	6	463,868	11,044	523,719	12,470	41,000	246,000	287,000
36	6535	79.8	52	9.16	7618	80.7	4468	1.055	514,709	12,255	6,216	148	250	6	461,303	10,983	521,175	12,409	41,000	246,000	287,000
37	6553	79.8	52	8.99	7336	80.0	4583	1.071	513,520	12,227	6,342	151	250	6	460,775	10,971	520,112	12,384	41,000	246,000	287,000
38	6719	78.8	52	8.90	7769	80.4	4665	1.082	512,887	12,212	5,796	138	250	6	462,114	11,003	518,933	12,356	41,000	246,000	287,000
39	6735	80.1	51	9.10	7282	80.4	4610	1.074	510,055	12,144	5,418	129	250	6	460,538	10,965	515,723	12,279	41,000	246,000	287,000
40	6793	79.8	51	9.00	7591	80.0	4624	1.076	500,331	11,913	5,166	123	250	6	458,499	10,917	505,747	12,042	41,000	246,000	287,000
41	6618	79.3	51	9.00	7817	80.3	4671	1.083	507,523	12,084	4,074	97	250	6	459,973	10,952	511,847	12,187	41,000	246,000	287,000
42	6561	80.0	51	9.00	7190	80.3	4567	1.068	503,508	11,988	4,158	99	250	6	459,284	10,935	507,916	12,093	41,000	246,000	287,000
43	6786	79.6	50	9.00	7662	80.4	4631	1.077	499,462	11,892	3,318	79	250	6	463,879	11,045	503,030	11,977	41,000	246,000	287,000
44	6890	78.6	50	8.90	7522	80.6	4715	1.089	497,986	11,857	3,318	79	250	6	462,322	11,008	501,554	11,942	41,000	246,000	287,000
45	6703	79.5	50	8.80	7238	80.2	4772	1.097	536,849	12,782	2,898	69	250	6	463,920	11,046	539,997	12,857	41,000	246,000	287,000
46	6652	80.0	50	8.89	7290	80.3	4612	1.075	471,848	11,234	2,772	66	500	12	416,506	9,917	475,120	11,312	41,000	246,000	287,000
47	6636	79.5	50	8.89	7312	80.0	4783	1.099	514,665	12,254	0		250	6	462,313	11,007	514,915	12,260	41,000	244,100	285,100

									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									7,714,030	183,667	0	0	25,000	595	6,186,530	147,298	7,739,030	184,263	1,927,000	11,234,000	13,161,000
Recorded	7023	79.1	50	8.89	8085	80.9	4687	1.085	24,300,063	578,573	614,796	14,638	22,000	524	21,463,719	511,041	24,936,859	593,735	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)