

# HALLIBURTON

iCem<sup>®</sup> Service

## **EXTRACTION OIL & GAS-EBUS**

Ft. Lupton District, COLORADO

**Northwest B S20-25-18N Production**

Job Date: Sunday, October 03, 2021

Sincerely,

**Meghan Van Zyl**

## Legal Notice

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### Disclaimer:

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## 1.0 Cementing Job Summary

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### 1.1 Executive Summary

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Halliburton appreciates the opportunity to perform the cementing services on the **Northwest B S20-25-18N** cement **Production** casing job. A pre-job safety meeting was held before the job where details of the job were discussed, potential safety hazards were reviewed, and environmental compliance procedures were outlined.

**Approximately 51 bbls of cement were returned to surface.**

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.

Respectfully,

**Halliburton Fort Lupton**

<b>Sold To #:</b> 369404		<b>Ship To #:</b> 9008034		<b>Quote #:</b>		<b>Sales Order #:</b> 0907416013	
<b>Customer:</b> EXTRACTION OIL & GAS-EBUS				<b>Customer Rep:</b> Manny			
<b>Well Name:</b> NORTHWEST B			<b>Well #:</b> S20-25-18N		<b>API/UWI #:</b> 05-014-20854-00		
<b>Field:</b> WATTENBERG		<b>City (SAP):</b> BROOMFIELD		<b>County/Parish:</b> BROOMFIELD		<b>State:</b> COLORADO	
<b>Legal Description:</b> NE NW-9-1S-68W-1149FNL-1629FWL							
<b>Contractor:</b> ENSIGN DRLG				<b>Rig/Platform Name/Num:</b> ENSIGN 161			
<b>Job BOM:</b> 7523 7523							
<b>Well Type:</b> HORIZONTAL OIL							
<b>Sales Person:</b> HALAMERICA\HX41066				<b>Srvc Supervisor:</b> Kyle Bath			

**Job**

<b>Formation Name</b>			
<b>Formation Depth (MD)</b>	<b>Top</b>		<b>Bottom</b>
<b>Form Type</b>			<b>BHST</b>
<b>Job depth MD</b>	21100ft		<b>Job Depth TVD</b>
<b>Water Depth</b>			<b>Wk Ht Above Floor</b>
<b>Perforation Depth (MD)</b>	<b>From</b>		<b>To</b>

**Well Data**

Description	New / Used	Size in	ID in	Weight lbm/ft	Thread	Grade	Top MD ft	Bottom MD ft	Top TVD ft	Bottom TVD ft
Casing		9.625	8.921	36			0	1629		0
Casing	0	5.5	4.892	17			0	21100		8003
Open Hole Section			8.75				1629	9298	0	8003
Open Hole Section			8.5				9298	21115	0	8003

**Tools and Accessories**

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	5.5			21100	Top Plug	5.5	1	
Float Shoe	5.5				Bottom Plug	5.5	1	
Float Collar	5.5			21095	SSR plug set	5.5		HES
Insert Float	5.5				Plug Container	5.5	1	HES
Stage Tool	5.5				Centralizers	5.5	352	

**Fluid Data**

<b>Stage/Plug #: 1</b>									
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
1	Tuned Prime	TUNED PRIME CEMENT SPACER SYS	50	bbl	12.5	2.73			

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
2	Cap	ELASTICEM (TM) SYSTEM	566	sack	13	1.66		8	8.3

0.45 %		<b>SCR-100, 1200 LB BAG - (1126328)</b>							
8.30 Gal		<b>FRESH WATER</b>							
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
3	FDP-C1371 SYS	SBM CEM FDP-C1371 SYS	933	sack	13	1.56		6	7.25
7.25 Gal		<b>FRESH WATER</b>							
5 %		<b>CHANNELFIX, 44 LB BAG - (1107429)</b>							
0.33 %		<b>SCR-100, 1200 LB BAG - (1126328)</b>							
1 lbm		<b>BRIDGEMAKER II LCM, 50 LB SACK - (1062609)</b>							
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
4	ElastiCem	ELASTICEM (TM) SYSTEM	1868	sack	13.2	1.59		8	7.75
0.75 %		<b>HR-5, 50 LB SK (100005050)</b>							
7.75 Gal		<b>FRESH WATER</b>							
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
5	Displacement	Displacement	489	bbl	8.33			8	
0.20 gal/bbl		<b>MICRO MATRIX CEMENT RETARDER, 5 GAL PAIL (100003781)</b>							
Cement Left In Pipe	Amount	5 ft			Reason			Shoe Joint	
Mix Water:	pH 6	Mix Water Chloride:	0 ppm			Mix Water Temperature:	68 °F		
Cement Temperature:	## °F	Plug Displaced by:	8.4 lb/gal			Disp. Temperature:	68 °F		
Plug Bumped?	Yes/No	Bump Pressure:	#### psi			Floats Held?	Yes/No		
Cement Returns:	## bbl	Returns Density:	## lb/gal			Returns Temperature:	## °F		
<b>Comment</b>									

## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

Seq No.	Activity	Graph Label	Date	Time	Cmb Pump Rate (bbl/min)	Cmb Stg Total (bbl)	Pump A Pressure (psi)	Rrcr Density (ppg)	Comments
1	Call Out	Call Out	10/2/2021	19:00:00					CREW CALLED OUT, REQUESTED ON LOCATION 06:00 BEFORE RD RESTRICTIONS, 0900 ON LOC
2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	10/2/2021	19:30:00					PRE CONVOY SAFETY MEETING WITH ALL HES EE
3	Crew Leave Yard	Crew Leave Yard	10/2/2021	20:00:00					CREW DEPART YARD FOR LOCATION
4	Arrive At Loc	Arrive At Loc	10/2/2021	22:00:00					ARRIVE ON LOCATION, RECIEVED NUMBERS FROM CO REP, TD 21115, TP 21100, FC 21095, CSG 5.5 17#, PREV CSG 9 5/8 36# @ 1629, HOLE 8.5, MUD 10.2, TVD 8003, 352 CENTALIZERS, WATER TEST, TEMP 68, CHLORIDES 0, PH 7
5	Assessment Of Location Safety Meeting	Assessment Of Location Safety Meeting	10/3/2021	06:30:00					SAFETY MEETING WITH ALL HES EE TO ASSESS ALL HAZARDS
6	Safety Meeting - Pre Rig-Up	Safety Meeting - Pre Rig-Up	10/3/2021	06:45:00					PRE RIG UP SAFETY MEETING WITH ALL HES EE
7	Safety Meeting - Pre Job	Safety Meeting - Pre Job	10/3/2021	09:40:00	0.00	0.00	-14.98	8.32	PRE JOB SAFETY MEETING WITH RIG CREW AND CO REP
8	Start Job	Start Job	10/3/2021	10:09:09	0.00	0.00	-17.94	8.48	START RECORDING DATA

9	Drop Bottom Plug	Drop Bottom Plug	10/3/2021	10:24:05	0.00	0.00	-19.86	12.46	LAUNCH BOTTOM PLUG
10	Test Lines	Test Lines	10/3/2021	10:25:36	0.00	1.30	254.55	12.45	TEST LINES TO 4250 PSI
11	Pump Spacer 1	Pump Spacer 1	10/3/2021	10:29:21	0.00	0.00	170.92	12.47	PUMP 50 BBLS TUNED PRIME SPACER 12.5 PPG 6 BPM 550 PSI
12	Pump Cap Cement	Pump Cap Cement	10/3/2021	10:41:29	5.91	0.05	409.39	13.04	MIX AND PUMP 566 SKS 167 BBLS CAP CEMENT 13 PPG, 1.66 FT3/SK, 8.3 GAL/SK 9 BPM 500 PSI, CALCULATED TOCC SURFACE
13	Check Weight	Check Weight	10/3/2021	11:00:51	10.71	170.75	451.25	13.02	VERIFY WEIGHT ON PRESSURIZED MUD SCALES
14	Pump Lead Cement	Pump Lead Cement	10/3/2021	11:05:29	7.51	0.12	162.72	12.84	MIX AND PUMP 933 SKS 259 BBLS LEAD CEMENT 13 PPG, 1.56 FT3/SK, 7.25 GAL/SK 9 BPM 450 PSI, CALCULATED TOLC 2484
15	Check Weight	Check Weight	10/3/2021	11:14:55	12.01	104.79	611.87	13.01	VERIFY WEIGHT ON PRESSURIZED MUD SCALES
16	Pump Tail Cement	Pump Tail Cement	10/3/2021	11:35:43	9.17	0.08	135.08	13.64	MIX AND PUMP 1868 SKS 529 BBLS TAIL CEMENT 13.2 PPG, 1.59 FT3/SK, 7.75 GAL/SK 9 BPM 600 PSI, CALCULATED TOTC 8244
17	Check Weight	Check Weight	10/3/2021	11:43:25	12.48	88.41	550.71	13.18	VERIFY WEIGHT ON PRESSURIZED MUD SCALES
18	Shutdown	Shutdown	10/3/2021	12:34:20	0.03	714.86	11.56	10.29	SHUTDOWN, WASH PUMPS AND LINES TO TANK
19	Drop Top Plug	Drop Top Plug	10/3/2021	12:42:43	0.00	14.36	-19.66	8.35	LAUNCH TOP PLUG AND 2 FOAM BALLS
20	Pump Displacement	Pump Displacement	10/3/2021	12:42:47	0.00	0.00	-19.75	8.35	PUMP 489 BBLS MMCR DISPLACEMENT 10 BPM PSI, RECIEVED 50 BBLS TUNED PRIME SPACER AND 51 BBLS CEMENT TO SURFACE
21	Bump Plug	Bump Plug	10/3/2021	13:45:50	0.00	507.85	3458.29	8.30	BUMP PLUG AT 2600 PSI TOOK TO 3490 PSI
22	Other	Other	10/3/2021	13:47:14	0.00	507.85	3370.23	8.30	CHECK FLOATS, FLOATS HELD TOOK 6 BBLS BACK
23	End Job	End Job	10/3/2021	13:49:35	0.00	0.00	-15.63	8.30	STOP RECORDING DATA

24	Safety Meeting - Pre Rig-Down	Safety Meeting - Pre Rig-Down	10/3/2021	13:53:00	PRE RIG DOWN SAFETY MEETING WITH ALL HES EE
25	Depart Location Safety Meeting	Depart Location Safety Meeting	10/3/2021	14:30:00	PRE DEPARTURE SAFETY MEETING WITH ALL HES EE
26	Crew Leave Location	Crew Leave Location	10/3/2021	15:00:00	THANK YOU FOR USING HALLIBURTON, KYLE BATH AND CREW

3.0 Attachments

3.1 Real Time iCem Job Chart

