

HALLIBURTON

iCem[®] Service

EXTRACTION OIL & GAS-EBUS

Livingston S19-25-5C

Sincerely,

Alexandria Dionigi

Legal Notice

Disclaimer:

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1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Livingston S19-25-5C** 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 0 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

The Road to Excellence Starts with Safety

Sold To #: 369404	Ship To #: 3883619	Quote #:	Sales Order #: 0905867865
Customer: EXTRACTION OIL & GAS-EBUS		Customer Rep: Manny P	
Well Name: LIVINGSTON	Well #: S19-25-5C	API/UWI #: 05-014-20755-00	
Field: WATTENBERG	City (SAP): BROOMFIELD	County/Parish: BROOMFIELD	State: COLORADO
Legal Description: NW SE-7-1S-68W-2332FSL-1456FEL			
Contractor: PATTERSON-UTI ENERGY		Rig/Platform Name/Num: PATTERSON 901	
Job BOM: 7523 7523			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA/HX38199		Srvc Supervisor: Adam Covington	

Job

Formation Name			
Formation Depth (MD)	Top		Bottom
Form Type	BHST		
Job depth MD	21454ft	Job Depth TVD	
Water Depth			Wk Ht Above Floor
Perforation Depth (MD)	From		To

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	0	9.625	8.921	36			0	1626	0	1626
Casing	0	5.5	4.892	17	BTC	P-110	0	21454	0	0
Open Hole Section			8.75				1626	9250	0	1626
Open Hole Section			8.5				9250	21457	0	0

Tools and Accessories

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	5.5			21454	Top Plug	5.5		HES
Float Shoe	5.5				Bottom Plug	5.5		HES
Float Collar	5.5				SSR plug set	5.5		HES
Insert Float	5.5				Plug Container	5.5	1	HES
Stage Tool	5.5				Centralizers	5.5		HES

Fluid Data

Stage/Plug #: 1									
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft/sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
1	FDP-C1337-18	SBM FDP-C1337-18 CEMENT SPACER SYS	50	bbl	12.5	2.74		6	

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
2	ElastiCem	ELASTICEM (TM) SYSTEM	578	sack	13.2	1.59		8	7.92
0.85 %		SCR-100 (100003749)							
7.92 Gal		FRESH WATER							
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
3	GasStop	ELASTICEM (TM) SYSTEM	615	sack	13.2	1.59		8	7.89
0.85 %		SCR-100 (100003749)							
5.39 Gal		FRESH WATER							
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
4	ElastiCem	ELASTICEM (TM) SYSTEM	2428	sack	13.2	1.59		8	7.89
7.89 Gal		FRESH WATER							
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
5	MMCR Displacement	MMCR Displacement	20	bbl	8.33			8	
0.50 gal/bbl		MICRO MATRIX CEMENT RETARDER, 5 GAL PAIL (100003781)							
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
6	Displacement	Displacement	478	bbl	8.33			8	
Cement Left In Pipe									
Amount		8 ft			Reason			Shoe Joint	
Mix Water:		pH 7	Mix Water Chloride: 0 ppm			Mix Water Temperature: 70 °F			
Cement Temperature:		70°F	Plug Displaced by: 8.33 lb/gal			Disp. Temperature: 70 °F			
Plug Bumped?		Yes	Bump Pressure: 2500 psi			Floats Held? Yes			
Cement Returns:		0 bbl	Returns Density: 8.33 lb/gal			Returns Temperature:			
Comment OH-8 3/4" 9250' OH-8 1/2" 21454 TP-21454' 5.5" 17#, TVD-8365' PC-1626' MUD-11.2# NO CEMENT OR SPACER TO SURFACE									

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DS Pump Press <i>(psi)</i>	DH Density <i>(ppg)</i>	Comb Pump Rate <i>(bbl/min)</i>	Comb Pump Total <i>(bbl)</i>	Comments
Event	1	Other	Call Out	8/4/2019	10:00:00	USER					CREW WAS CALLED OUT FOR AN O/L TIME OF 1600 BUT WAS CHANGED TO 1800
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	8/4/2019	17:20:00	USER					MET WITH ALL HES CREW MEMBERS AND DISCUSSED FOLLOWING DISTANCES, DISTRACTED DRIVING AND STRICT DRIVING DIRECTIONS.
Event	3	Crew Leave Yard	Crew Leave Yard	8/4/2019	17:30:00	USER					CREW LEFT FOR LOCATION.
Event	4	Arrive At Loc	Arrive At Loc	8/4/2019	18:10:00	USER					CREW ARRIVE AT LOCATION AT REQUESTED TIME AND AFTER DRIVING RESTRICTION ON THE ROAD WAS LIFTED.
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	8/4/2019	18:20:00	USER					MET WITH CREW DISCUSSED RED ZONES, HAMMER SWINGS AND PROPER LIFTING TECHNIQUES.
Event	6	Pre-Job Safety Meeting	Pre-Job Safety Meeting	8/4/2019	22:10:00	USER	-3.00	9.30	0.00	0.00	MET WITH ALL RIG AND HES CREW MEMBERS AND DISCUSSED PRESSURES, SAFETY PROCEDURES AND PUMP SCHEDULE.
Event	7	Other	Check Weight	8/4/2019	22:19:56	COM13	-2.00	9.23	0.00	0.00	USED PRESSURIZED MUD SCALES TO WEIGH UP

SPACER. SPACER WEIGHED UP AT 12.5#											
Event	8	Start Job	Start Job	8/4/2019	22:33:05	COM13	-3.00	9.30	0.00	0.00	FILLED LINES WITH 4 BBLS OF FRESH WATER. 2 BPM, 60 PSI.
Event	9	Test Lines	Test Lines	8/4/2019	22:40:42	COM13	18.00	8.23	0.00	3.90	PERFORMED A 500 PSI KICKOUT TEST AND A 5TH GEAR STALL OUT. THEN WENT INTO A 5000 PSI PRESSURE TEST. HAD TO BLEED OFF DUE TO A LEAK IN THE LINE. FIXED LEAK AND PRESSURED UP AGAIN. NO LEAKS.
Event	10	Drop Bottom Plug	Drop Bottom Plug	8/4/2019	22:54:09	USER	4.00	8.21	0.00	4.20	ADAM COVINGTON DROPPED NON HALLIBURTON 5.5" BOTTOM LATCH DOWN PLUG. CO. MAN WITNESSED.
Event	11	Pump Spacer 1	Pump Spacer 1	8/4/2019	22:55:26	COM13	3.00	8.22	0.00	4.20	PUMPED 50 BBLS OF 12.5#, 2.74y, 16.6wr TUNED PRIME SPACER AT 7 BPM, 400 PSI. FULL RETURNS.
Event	12	Check Weight	Check Weight	8/4/2019	22:58:31	COM13	11.00	12.89	0.00	9.20	USED PRESSURIZED MUD SCALES TO WEIGH UP CEMENT. CEMENT WEIGHED UP AT 13.2#.
Event	13	Check Weight	Check Weight	8/4/2019	23:04:30	COM13	74.00	9.49	2.90	21.00	USED PRESSURIZED MUD SCALES TO WEIGH UP CEMENT. CEMENT WEIGHED UP AT 13.2#.
Event	14	Pump Cement	Pump Cement	8/4/2019	23:09:54	COM13	1009.00	13.15	8.00	55.80	PUMPED 164 BBLS (578 SKS) OF 13.2#, 1.59y, 7.92wr CAP CEMENT AT 8 BPM, 717 PSI. FULL RETURNS.

Event	15	Check Weight	Check Weight	8/4/2019	23:10:00	COM13	950.00	13.20	8.00	56.60	USED PRESSURIZED MUD SCALES TO WEIGH UP CEMENT. CEMENT WEIGHED UP AT 13.2#.
Event	16	Shutdown	Shutdown	8/4/2019	23:17:10	USER	148.00	13.29	0.10	113.40	HAD TO SHUTDOWN DUE TO THE SLIPS NOT HOLDING THE CASING. AS WE PUMPED THE CASING KEPT FALLING, SO THE RIG HAD US STOP PUMPING SO THEY COULD RESET THEIR SLIPS.
Event	17	Other	Other	8/4/2019	23:23:36	USER	259.00	13.22	4.50	114.50	STARTED TO PUMP AGAIN. WE WERE DOWN FOR APPROXIMATELY 12 MINUTES.
Event	18	Check Weight	Check Weight	8/4/2019	23:28:27	COM13	705.00	13.25	8.00	153.10	USED PRESSURIZED MUD SCALES TO WEIGH UP CEMENT. CEMENT WEIGHED UP AT 13.2#.
Event	19	Pump Lead Cement	Pump Lead Cement	8/4/2019	23:39:33	COM13	670.00	13.27	8.00	241.60	PUMPED 174 BBLS (615 SKS) 13.2#, 1.59y, 7.89wr. AT 8 BPM, 786 PSI. FULL RETURNS.
Event	20	Pump Tail Cement	Pump Tail Cement	8/5/2019	00:08:18	COM13	751.00	13.18	8.00	438.60	PUMPED 687.5 BBLS (2428 SKS) OF 13.2#, 1.59y, 7.89wr. TAIL CEMENT AT 8 BPM, 680 PSI. FULL RETURNS.
Event	21	Check Weight	Check Weight	8/5/2019	00:12:54	COM13	747.00	13.06	8.20	472.90	USED PRESSURIZED MUD SCALES TO WEIGH UP CEMENT. CEMENT WEIGHED UP AT 13.2#
Event	22	Shutdown	Shutdown	8/5/2019	01:39:26	COM13	30.00	13.54	0.00	1141.10	SHUTDOWN TO DROP PLUG AND WASH UP.
Event	23	Drop Top Plug	Drop Top Plug	8/5/2019	01:53:53	COM13	32.00	8.38	0.90	1155.70	ADAM COVINGTON DROPPED NON HALLIBURTON 5.5" TOP

											LATCH DOWN PLUG. CO. MAN WITNESSED.
Event	24	Pump Displacement	Pump Displacement	8/5/2019	01:53:56	COM13	28.00	8.44	0.90	1155.70	PUMPED 498 BBLS OF FRESH WATER DISPLACEMENT. WITH THE FIRST 20 HAVING 10 GALLONS OF MMCR DISPERSED THROUGHOUT. 2276 PSI. 8 BPM.
Event	25	Bump Plug	Bump Plug	8/5/2019	03:14:51	COM13	2837.00	8.35	1.40	1667.10	BUMPED PLUG AT 5 BPM, FCP-2550 PSI, TOOK TO 3100 PSI. NO CEMENT OR SPACER TO SURFACE. SLEEVE SHIFTED AT THE SAME TIME.
Event	26	Other	Other	8/5/2019	03:17:43	USER	1885.00	8.34	0.80	1667.60	SHOE SHIFTED AT 3100 PSI. PUMPED 5 BBL WET SHOE AT 3 BPM. 2150 PSI. NO CEMENT OR SPACER TO SURFACE.
Event	27	End Job	End Job	8/5/2019	03:30:27	COM13	2.00	8.31	0.00	1674.90	OH-8 3/4" 9250' OH-8 1/2" 21454 TP-21454' 5.5" 17#, TVD-8365' PC-1626' MUD-11.2# NO CEMENT OR SPACER TO SURFACE.
Event	28	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	8/5/2019	03:45:00	USER	0.00	8.21	0.00	1674.90	MET WITH ALL THE HES CREW MEMBERS AND DISCUSSED SWINGS, TEAM LIFTS AND SLIPS TRIPS AND FALLS.
Event	29	Depart Location Safety Meeting	Depart Location Safety Meeting	8/5/2019	04:50:00	USER					DISCUSSED DIRECTIONS, HOURS AND FOLLOWING DISTANCES.
Event	30	Depart Location	Depart Location	8/5/2019	05:00:00	USER					THANK YOU FOR CHOOSING HALLIBURTON CEMENT.

3.0 Attachments

3.1 Livingston S19-25-5C-Custom Results.png

