

HALLIBURTON

iCem[®] Service

EXTRACTION OIL & GAS

Date: Sunday, July 14, 2019

Livingston S19-25-4N Production

Job Date: Wednesday, July 10, 2019

Sincerely,
Bryce Hinsch

Legal Notice

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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 S19-25-4N** 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 63 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 #: 3883699	Quote #:	Sales Order #: 0905804219
Customer: EXTRACTION OIL & GAS-EBUS		Customer Rep: Manuel Parrus	
Well Name: LIVINGSTON	Well #: S19-25-4N	API/UWI #: 05-014-20756-00	
Field: WATTENBERG	City (SAP): BROOMFIELD	County/Parish: BROOMFIELD	State: COLORADO
Legal Description: NW SE-7-1S-68W-2332FSL-1474FEL			
Contractor: PATTERSON-UTI ENERGY		Rig/Platform Name/Num: PATTERSON 901	
Job BOM: 7523 7523			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA/HX38199		Srvc Supervisor: Michael Loughran	

Job

Formation Name	
Formation Depth (MD)	Top Bottom
Form Type	BHST
Job depth MD	21363ft Job Depth TVD
Water Depth	Wk Ht Above Floor 4
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	1637	0	1637
Casing	0	5.5	4.892	17	BTC	P-110	0	21245	0	8058
Open Hole Section			8.75				1637	9455	1637	8058
Open Hole Section			8.50				9455	21250	8058	8058

Tools and Accessories

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	5.5				Top Plug	5.5	1	3 rd party
Float Shoe	5.5			21245	Bottom Plug	5.5	1	3 rd Party
Float Collar	5.5			21240	SSR plug set	5.5		
Insert Float	5.5				Plug Container	5.5	1	HES
Stage Tool	5.5				Centralizers	5.5		

Fluid Data

Stage/Plug #: 1									
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /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	
5 lbm/bbl		SEM-94P, 35 LB SACK - (1023987)							

205.22 lbm/bbl		BARITE, BULK (100003681)							
5 lbm/bbl		SEM-93P, 35 LB SACK - (1023977)							
1 lbm/bbl		FE-2 (100001615)							
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	585	sack	13.2	1.6		8	7.75
0.75 %		SCR-100 (100003749)							
7.75 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	1.6		8	7.71
0.75 %		SCR-100 (100003749)							
5.21 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	2237	sack	13.2	1.57		8	7.66
0.75 %		SCR-100 (100003749)							
7.66 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	50	bbl	8.33			8	
0.50 gal/bbl		MICRO MATRIX CEMENT RETARDER, 5 GAL PAIL (100003781)							
1 gal/bbl		D-AIR 3000L, 5 GAL PAIL (101007444)							
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	442.7	bbl	8.33			8	
Cement Left In Pipe		Amount	ft	Reason			Wet Shoe Joint		

Mix Water:	pH 7	Mix Water Chloride:	Less 200 ppm	Mix Water Temperature:	78 °F
Cement Temperature:		Plug Displaced by:	8.33 lb/gal	Disp. Temperature:	
Plug Bumped?	No	Bump Pressure:		Floats Held?	Yes
Cement Returns:		Returns Density:		Returns Temperature:	
Comment approx. 63 bbls cement to surface, good returns throughout job, Pump calculated displacement plus 5 bbls. Floats hold, 3.5 bbl back					

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density <i>(ppg)</i>	Comb Pump Rate <i>(bbl/min)</i>	DS Pump Press <i>(psi)</i>	Pump Stg Tot <i>(bbl)</i>	Comments
Event	1	Call Out	Call Out	7/10/2019	07:30:00	USER					Crew called out for on location time of 1300 hrs 7/10/2019
Event	2	Arrive At Loc	Arrive At Loc	7/10/2019	12:30:00	USER					Arrive at location, Rig running casing, Meet with customer, TP 21245 17# P-110, TD 21250, 8.75 Hole 8100-9455, 8.50 hole 9455-21250, WSS 21240, TVD 8100, PC 1637' 9.625 J-55 36#, WF 10# OBM, 3rd party Top and Bottom plug provided by customer, Water 78 Deg, PH 7, Chlorides and sulfates less than 200 ppm
Event	3	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	7/10/2019	12:40:00	USER					Pre rig up safety meeting
Event	4	Rig-Up Equipment	Rig-Up Equipment	7/10/2019	12:50:00	USER					Rig up all service lines and iron to buffer zone
Event	5	Pre-Job Safety Meeting	Pre-Job Safety Meeting	7/10/2019	16:20:00	USER	8.20	0.00	59.00	18.10	Discuss job procedures, Discuss job hazards and hazzards of Halliburton Equipment.
Event	6	Start Job	Start Job	7/10/2019	16:34:23	COM4	8.20	0.00	60.00	0.00	
Event	7	Start Job	Start Job	7/10/2019	16:56:26	USER	8.19	0.00	57.00	0.00	Begin recording data
Event	8	Test Lines	Test Lines	7/10/2019	16:58:27	COM4	8.17	0.00	16.00	1.50	Test lines to 4700 psi
Event	9	Drop Bottom Plug	Drop Bottom Plug	7/10/2019	17:02:07	COM4	8.23	0.00	-32.00	1.50	Verified by Manny

Event	10	Pump Spacer 1	Pump Spacer 1	7/10/2019	17:02:33	COM4	8.23	0.00	4.00	0.00	50 bbl. FDP-C1337-18 Spacer, 12.5 ppg, 2.74 yield, 16.6 gal/sack
Event	11	Pump Cap Cement	Pump Cap Cement	7/10/2019	17:12:19	COM4	13.01	8.00	635.00	54.60	585 sacks ELASTICEM Cap cement, 13.2 ppg, 1.6 yield, 7.75 gal/sack
Event	12	Pump Lead Cement	Pump Lead Cement	7/10/2019	17:34:36	COM4	13.21	8.00	585.00	0.10	615 sacks Gas Stop ELASTICEM Lead with 1538 gal Latex. 175.25 bbl, 13.2 ppg, 1.6 yield, 7.71 gal/sack
Event	13	Pump Tail Cement	Pump Tail Cement	7/10/2019	17:59:45	COM4	13.14	6.00	395.00	177.90	2237 sacks Elasticem Tail cement, 625.50 bbl, 13.2 ppg, 1.57 yield, 7.66 gal/sack
Event	14	Shutdown	Shutdown	7/10/2019	19:36:31	COM4	0.47	0.00	56.00	713.10	Shutdown
Event	15	Clean Lines	Clean Lines	7/10/2019	19:39:44	USER	0.12	0.00	15.00	713.10	Wash pumps and Lines
Event	16	Drop Top Plug	Drop Top Plug	7/10/2019	19:46:43	COM4	8.22	0.00	-9.00	732.80	Verified by Manny
Event	17	Pump Displacement	Pump Displacement	7/10/2019	19:46:46	COM4	8.22	0.00	-9.00	732.80	493 bbl fresh water displacement with Micro Matrix retarder in first 50 bbls. See spacer at 380 bbl into displace. see cement at 430 into displace. 63 bbl cement to surface. Plug did not bump at calculated 493 bbls using strap. Pump 5 more bbls. per Manny. Plug did not bump
Event	18	Check Floats	Check Floats	7/10/2019	21:17:02	USER	8.38	3.00	2376.00	528.30	Release pressure, Check floats, Floats hold, 3.5 bbl back
Event	19	End Job	End Job	7/10/2019	21:23:04	COM4	8.34	0.00	-5.00	529.40	Stop recording data
Event	20	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	7/10/2019	21:30:00	USER	8.34	0.00	-6.00	529.40	JSA safe Rig-Down

Event	21	Rig-Down Equipment	Rig-Down Equipment	7/10/2019	21:35:00	USER	0.07	0.00	-11.00	529.40	Rig down equipment
Event	22	Crew Leave Location	Crew Leave Location	7/10/2019	23:50:00	USER					Thanks for choosing Halliburton Energy Services!

3.0 Attachments

3.1 Extraction Livingston S19-25-4N Production Chart

