

HALLIBURTON

iCem[®] Service

EXTRACTION OIL & GAS-EBUS

INTERCHANGE A S16-20-19C

Surface

Sincerely,

Andrew McIntosh

Legal Notice

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Table of Contents

1.0 Cementing Job Summary 4

 1.1 Executive Summary4

2.0 Real-Time Job Summary 7

 2.1 Job Event Log7

3.0 Attachments..... 11

 3.1 EXTRACTION INTERCHANGE A S16-20-19C-Custom Results.png11

1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **INTERCHANGE A S16-20-19C** cement **SURFACE** 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.

20 BBLs OF CEMENT 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 #: 3901277		Quote #:		Sales Order #: 0905986323					
Customer: EXTRACTION OIL & GAS -					Customer Rep: HANS / JUSTIN						
Well Name: INTERCHANGE A			Well #: S16-20-19C			API/UWI #: 05-014-20770-00					
Field: WATTENBERG		City (SAP): BROOMFIELD		County/Parish: BROOMFIELD			State: COLORADO				
Legal Description: SW NW-10-1S-68W-2109FNL-921FWL											
Contractor: ENSIGN DRLG				Rig/Platform Name/Num: ENSIGN 147							
Job BOM: 7521 7521											
Well Type: HORIZONTAL OIL											
Sales Person: HALAMERICA\HX38199				Srv Supervisor: Nikolaus Kornafel							
Job											
Formation Name											
Formation Depth (MD)		Top			Bottom						
Form Type				BHST							
Job depth MD		1634ft		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	1634	0	1634	
OH		13.5					0	1634	0	1634	
Tools and Accessories											
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make		
						Top Plug	9.625	1	HES		
Float Shoe	9.625	1		1634							
Float Collar	9.625	1		1592							
						Plug Container	9.625	1	HES		
						Centralizers	9.625	2	N/A		
Fluid Data											
Stage/Plug #: 1											
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
1	Red Dye Spacer	Red Dye Spacer			10	bbl	8.33				420

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	SwiftCem	SWIFTCM (TM) SYSTEM	550	sack	13.5	1.74	9.17	5	5,043
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	Fresh Water	Fresh Water	124	bbl	8.33			8	
Cement Left In Pipe		Amount	41 ft		Reason			Shoe Joint	
Mix Water:	pH 7	Mix Water Chloride:	0 ppm			Mix Water Temperature:	62 °F		
Cement Temperature:	N/A	Plug Displaced by:	8.33 lb/gal			Disp. Temperature:	62 °F		
Plug Bumped?	Yes	Bump Pressure:	478 psi			Floats Held?	Yes		
Cement Returns:	20 bbl	Returns Density:	N/A			Returns Temperature:	N/A		
Comment – Once the rig was done circulating they handed it over to Halliburton. We pumped a 10 BBL water spacer with red dye in it. Followed by 170.44 BBL'S of our swift cem cement at 13.5 #/Gal . We shut down after cement was pumped to drop the top plug, followed by 124 BBL'S of displacement. Bumped plug at calculated displacement. Checked floats 1 BBL back to the truck. Floats held.									

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DS Pump Press (psi)	DH Density (ppg)	Comb Pump Rate (bbl/min)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	Call Out	9/18/2019	06:00:00	USER					CREW CALLED OUT AT 06:00, REQUESTED ON LOCATION 12:00. CREW PICKED UP CEMENT, CHEMICALS, AND PLUG CONTAINER FROM FT. LUPTON, CO. BULK 660 10025030, BULK 660 10867415, AND PUMP 11368474
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	9/18/2019	10:15:00	USER					CREW DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW.
Event	3	Crew Leave Yard	Crew Leave Yard	9/18/2019	10:30:00	USER					STARTED JOURNEY MANAGEMENT.
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	9/18/2019	11:00:00	USER					MEET WITH CO. MAN TO DISCUSS JOB; SURFACE CASING- 9.625" 36 LB/FT @ 1,634', 13.5" OPEN HOLE 1,634', SHOE TRAC- 41', MUD WEIGHT 8.4 LB/GAL PUMP FRESH WATER DISPLACEMENT 123 BBLS. CASING LANDED @ 18:30 9/18/2019. RIG CIRCULATED BOTTOMS UP AT 357 GPM AT 94 PSI.
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	9/18/2019	11:15:00	USER					HAZARD HUNT. DISCUSSED POSSIBLE HAZARDS

											ASSOCIATED WITH LOCATION, RIG UP, AND WEATHER.
Event	6	Rig-Up Equipment	Rig-Up Equipment	9/18/2019	11:30:00	USER					CREW STAGED EQUIPMENT AND RIGGED UP BULK, IRON AND WATER HOSES TO PERFORM JOB.
Event	7	Pre-Job Safety Meeting	Pre-Job Safety Meeting	9/18/2019	18:35:00	USER					SAFETY MEETING WITH HALLIBURTON, AND RIG PERSONNEL. CREW COMMUNICATED POTENTIAL SAFETY HAZARDS, AND JOB DETAILS.
Event	8	Start Job	Start Job	9/18/2019	19:14:03	COM11	22.00	7.66	0.00	7.30	BEGAN RECORDING JOB DATA.
Event	9	Test Lines	Test Lines	9/18/2019	19:15:20	COM11	82.00	8.35	0.00	9.50	PRESSURE TESTED IRON TO 2500 PSI. HELD WITH NO LEAKS.
Event	10	Pump Spacer 1	Pump Spacer 1	9/18/2019	19:21:30	COM11	2.00	7.63	1.20	0.00	PUMPED 10 BBLS OF RED DYE SPACER AT 5 BPM WITH A PRESSURE OF 140 PSI.
Event	11	Check Weight	Check Weight	9/18/2019	19:26:34	COM11	68.00	8.35	1.90	9.40	DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	12	Pump Lead Cement	Pump Lead Cement	9/18/2019	19:27:19	COM11	46.00	8.36	0.00	0.00	PUMPED 550 SACKS OF SWIFT CEM CEMENT, AT 13.5 LB/GAL , 1.74 FT3/SK, 9.17 GAL/SK. 170 BBLS. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMPED AT 8 BPM WITH A PRESSURE OF 380 PSI.
Event	13	Check Weight	Check Weight	9/18/2019	19:35:11	COM11	297.00	13.50	8.10	44.20	DENSITY VERIFIED BY PRESSURIZED MUD SCALES.

Event	14	Check Weight	Check Weight	9/18/2019	19:39:21	COM11	292.00	13.52	8.10	78.10	DENSITY VERIFIED BY PRESSURIZED MUD SCALES
Event	15	Shutdown	Shutdown	9/18/2019	19:51:05	COM11	91.00	12.97	0.00	172.70	SHUTDOWN PUMPS
Event	16	Drop Top Plug	Drop Top Plug	9/18/2019	19:53:09	COM11	4.00	16.14	0.00	172.70	TOP PLUG LEFT THE PLUG CONTAINER, VERIFIED BY CO. MAN.
Event	17	Pump Displacement	Pump Displacement	9/18/2019	19:53:37	COM11	3.00	16.26	0.00	0.00	PUMPED 123 BBLS OF FRESH WATER DISPLACEMENT, AT 8 BPM, WITH A PRESSURE OF 500 PSI. GOT 10 BBLS OF RED DYE SPACER AND 20 BBLS OF CEMENT BACK TO SURFACE.
Event	18	Bump Plug	Bump Plug	9/18/2019	20:14:24	COM11	1006.00	8.14	0.00	125.50	BUMPED PLUG AT CALCULATED DISPLACEMENT, FINAL CIRCULATING PRESSURE 478 PSI, AT 3 BPM. BROUGHT PRESSURE UP TWO 1100 PSI
Event	19	Other	Other	9/18/2019	20:15:21	COM11	37.00	8.10	0.00	125.50	CHECKED FLOATS AND RECIEVED 1 BBL BACK TO THE TRUCK. FLOATS HELD.
Event	20	End Job	End Job	9/18/2019	20:15:52	COM11	-4.00	8.11	0.00	125.50	STOP RECORDING JOB DATA
Event	21	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	9/18/2019	20:19:00	USER	217.00	8.13	10.40	130.90	DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH WEATHER, LOCATION AND RIGGING DOWN IRON AND HOSES.
Event	22	Rig-Down Completed	Rig-Down Completed	9/18/2019	20:55:00	USER					ALL HALLIBURTON ITEMS WERE STOWED FOR TRAVEL, AND LOCATION WAS CLEAN.
Event	23	Safety Meeting - Departing Location	Safety Meeting - Departing Location	9/18/2019	22:00:00	USER					CREW DISCUSSED ROUTES HAZARDS AND

COMMUNICATION WITH
CREW.

3.0 Attachments

3.1 EXTRACTION INTERCHANGE A S16-20-19C-Custom Results.png

