HALLIBURTON

iCem® Service

EXTRACTION OIL & GAS-EBUS

Date: Thursday, September 19, 2019

Interchange A S22-30-4C Surface

Job Date: Friday, September 20, 2019

Sincerely,

Bryce Hinsch

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 **Interchange A S22-30-4C** 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.

Approximately 15 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 #:** 3901400	**Quote #:**	**Sales Order #:** 0905986436
Customer: EXTRACTION OIL & GAS -		**Customer Rep:** HANS	
Well Name: INTERCHANGE A	**Well #:** S22-30-4C		**API/UWI #:** 05-014-20769-00
Field: WATTENBERG	**City (SAP):** BROOMFIELD	**County/Parish:** BROOMFIELD	**State:** COLORADO
Legal Description: SW NW-10-1S-68W-2140FNL-903FWL			
Contractor: ENSIGN DRLG		**Rig/Platform Name/Num:** ENSIGN 147	
Job BOM: 7521 7521			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA\HX38199		**Srvc Supervisor:** Nikolaus Kornafel	

Job

Formation Name				
Formation Depth (MD)	**Top**		**Bottom**	
Form Type			**BHST**	
Job depth MD	1631ft		**Job Depth TVD**	1631
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	1631	**0**	**1631**
OH		13.5					0	1631	0	1631

Tools and Accessories

Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make
Guide Shoe	9.625	1	N/A	1631		**Top Plug**	9.625	1	HES
Float Collar	9.625	1	N/A	1588					
						Plug Container	9.625	1	HES
						Centralizers	9.625	N/A	HES

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	SPACER	Red Dye Spacer	10	bbl	8.33			5	

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	CEMENT	SWIFTCEM (TM) SYSTEM	550	sack	13.5	1.74	9.17	8	5048

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	DISPLACEMENT	Fresh Water	123	bbl	8.33			8	

Cement Left In Pipe	**Amount**	42 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:**	474 psi	Floats Held?	**Yes**
Cement Returns:	15 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 BBL'S of our swiftcem cement at 13.5 Lb/Gal . We shut down after cement was pumped to drop the top plug, followed by 123 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	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	1/19/2019	17:15:00	USER					CREW DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW.
Event	2	Call Out	Call Out	9/19/2019	16:00:00	USER					CREW CALLED OUT AT 16:00, REQUESTED ON LOCATION 19:30. CREW PICKED UP CEMENT, CHEMICALS, AND PLUG CONTAINER FROM FT. LUPTON, CO. BULK 660 10025030, BULK 660 10867415, AND PUMP 11826999.
Event	3	Crew Leave Yard	Crew Leave Yard	9/19/2019	17:30:00	USER					STARTED JOURNEY MANAGEMENT.

Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	9/19/2019	18:30:00	USER					MET WITH CO. MAN TO DISCUSS JOB; SURFACE CASING- 9.625" 36 LB/FT @ 1,631', 13.5" OPEN HOLE 1,636', SHOE TRAC- 41', MUD WEIGHT 8.4 LB/GAL PUMP FRESH WATER DISPLACEMENT 123 BBLS. CASING LANDED @ 20:00 9/19/2019. RIG CIRCULATED BOTTOMS UP At 366 GPM at 166 PSI.
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	9/19/2019	18:45:00	USER					HAZARD HUNT. DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH LOCATION, RIG UP, AND WEATHER.
Event	6	Rig-Up Equipment	Rig-Up Equipment	9/19/2019	19:00:00	USER					CREW STAGED EQUIPTMENT AND RIGGED UP BULK, IRON AND WATER HOSES TO PERFORM JOB.
Event	7	Pre-Job Safety Meeting	Pre-Job Safety Meeting	9/19/2019	20:45:00	USER	-2.00	8.41	0.00	5.60	SAFETY MEETING WITH HALLIBURTON, AND RIG PERSONNEL. CREW COMMUNICATED POTENTIAL SAFETY HAZARDS, AND JOB DETAILS.
Event	8	Start Job	Start Job	9/19/2019	21:12:32	COM11	5.00	8.50	0.00	0.00	BEGIN RECORDING JOB DATA.
Event	9	Test Lines	Test Lines	9/19/2019	21:13:49	COM11	73.00	8.32	0.00	2.20	PRESSURE TESTED IRON TO 2,500 PSI. KICKOUTS SET @ 500 PSI, KICKED OUT @ 780 PSI, 5TH GEAR STALL OUT @

											1,730 PSI. AND THEN BROUGHT IT UP AND KICKED OUT @ 2464 PSI.
Event	10	Pump Spacer 1	Pump Spacer 1	9/19/2019	21:17:14	COM11	3.00	8.34	0.00	2.20	PUMP 10 BBLS OF RED DYE SPACER AT PUMP RATE 5 BBLS/MIN @ 130 PSI.
Event	11	Pump Cement	Pump Cement	9/19/2019	21:23:38	COM11	64.00	8.29	2.10	0.00	PUMPED 550 SKS OF SWIFTCEM LEAD CEMENT @ 13.5 LB/GAL, 1.74 FT3/SK, 9.17 GAL/SK. 170 BBLS, TOP OF CEMENT @ SURFACE. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 8 BBLS/MIN @ 380 PSI.
Event	12	Check Weight	Check Weight	9/19/2019	21:30:04	COM11	371.00	13.36	8.20	45.30	DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	13	Check Weight	Check Weight	9/19/2019	21:36:26	COM11	380.00	13.62	8.20	97.70	DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	14	Check Weight	Check Weight	9/19/2019	21:41:39	COM11	367.00	13.30	8.20	140.60	DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	15	Shutdown	Shutdown	9/19/2019	21:46:19	COM11	85.00	14.95	0.00	177.70	SHUT DOWN TO WASH UP
Event	16	Drop Top Plug	Drop Top Plug	9/19/2019	21:49:31	COM11	-1.00	14.89	0.00	177.70	PLUG LEFT CONTAINER, VERIFIED BY CO. MAN.
Event	17	Pump Displacement	Pump Displacement	9/19/2019	21:49:35	COM11	-1.00	14.89	0.00	0.00	BEGIN CALCULATED DISPLACEMENT OF 123 BBLS WITH FRESH WATER. 10 BBLS OF RED DYE SPACER TO SURFACE AND 15 BBLS OF CEMENT TO SURFACE.
Event	18	Displ Reached Cement	Displ Reached Cement	9/19/2019	21:57:09	COM11	422.00	7.97	10.10	54.80	40 BBLS INTO DISPLACEMENT WE CAUGHT CEMENT.

Event	19	Bump Plug	Bump Plug	9/19/2019	22:08:58	COM11	1152.00	8.01	0.00	124.40	BUMPED THE PLUG AT CALCULATED DISPLACEMENT, 3 BPM WITH A PRESSURE OF 474 PSI. BROUGHT PRESSURE 500 OVER FINAL CIRCULATING PRESSURE.
Event	20	Other	Other	9/19/2019	22:09:10	COM11	1155.00	8.01	0.00	124.40	CHECKED FLOATS AND GOT 1 BBL BACK TO THE TRUCK. FLOATS HELD.
Event	21	End Job	End Job	9/19/2019	22:10:39	COM11	-4.00	7.99	0.00	0.00	STOPPED RECORDING DATA.
Event	22	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	9/19/2019	22:15:00	USER					DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH WEATHER, LOCATION AND RIGGING DOWN IRON AND HOSES.
Event	23	Rig-Down Completed	Rig-Down Completed	9/19/2019	22:45:00	USER					ALL HALLIBURTON ITEMS WERE STOWED FOR TRAVEL, AND LOCATION WAS CLEAN.
Event	24	Safety Meeting - Departing Location	Safety Meeting - Departing Location	9/19/2019	23:30:00	USER					CREW DISCUSSED ROUTES HAZARDS AND COMMUNICATION WITH CREW.
Event	25	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	9/19/2019	23:45:00	USER					THANK YOU FOR USING HALLIBURTON – NICK KORNAFEL AND CREW.

3.0 Attachments

3.1 EXTRACTION INTERCHANGE A S22-30-4C SURFACE-Custom Results.png