

HALLIBURTON

iCem[®] Service

EXTRACTION OIL & GAS-EBUS

Date: Monday, December 31, 2018

Duck Club 12W-20-3N Production

Job Date: Tuesday, December 25, 2018

Sincerely,
Tyler Hill

Legal Notice

Disclaimer:

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Table of Contents

1.0	Cementing Job Summary	4
1.1	Executive Summary	4
2.0	Real-Time Job Summary	8
2.1	Job Event Log	8
3.0	Attachments.....	12
3.1	Duck Club 12W-20-3N Production.png	12

1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Duck Club 12W-20-3N** 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 35 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 Ft. Lupton

The Road to Excellence Starts with Safety

Sold To #: 369404	Ship To #: 3894509	Quote #:	Sales Order #: 0905366696
Customer: EXTRACTION OIL & GAS-EBUS		Customer Rep: Manny/ Larry	
Well Name: DUCK CLUB		Well #: 12W-20-3N	API/UWI #: 05-001-10166-00
Field: WATTENBERG	City (SAP): BARR LAKE	County/Parish: ADAMS	State: COLORADO
Legal Description: NW SW-12-1S-66W-2408FSL-686FWL			
Contractor: PATTERSON-UTI ENERGY		Rig/Platform Name/Num: PATTERSON 901	
Job BOM: 7523 7523			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA\HX38199		Srvc Supervisor: Thomas Haas	

Job

Formation Name			
Formation Depth (MD)	Top		Bottom
Form Type	BHST		
Job depth MD	17813ft	Job Depth TVD	7560
Water Depth		Wk Ht Above Floor	6
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		9.625	8.921	36			0	1637	0	1637
Casing		5.5	4.778	20			0	17893	0	7465
Open Hole Section			8.5				1637	17898	0	7465

Tools and Accessories

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe					Top Plug	5.5	1	KLX
Float Shoe	5.5	1	KLX	17893	Bottom Plug	5.5	1	KLX
Float Collar	5.5	1	KLX	17889	SSR plug set			
Insert Float					Plug Container	5.5	1	HES
Stage Tool					Centralizers			

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	11.5 lb/gal Tuned Spacer III	Tuned Spacer III	50	bbl	12.5	3.91	24.4	5	1762	
142.47 lbm/bbl		BARITE, BULK (100003681)								
0.50 gal/bbl		MUSOL(R) A, 5 GAL PAIL (100064220)								

34.70 gal/bbl		FRESH WATER								
0.50 gal/bbl		DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)								
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	608	sack	13.2	1.57	7.66	8	4657	
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	
3	GasStop	ELASTICEM (TM) SYSTEM	615	sack	13.2	1.56	7.61	8	4680	
0.75 %		SCR-100 (100003749)								
5.01 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	1600	sack	13.2	1.57	7.66	8	12256	
7.66 Gal		FRESH WATER								
0.75 %		SCR-100 (100003749)								
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, 1 GAL PAIL (100003780)								
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	377	bbl	8.33			8		
Cement Left In Pipe		Amount	5 ft		Reason SHOE TRACK			Shoe Joint		

Mix Water:	pH 7	Mix Water Chloride:	<300 ppm	Mix Water Temperature:	65 °F
Cement Temperature:	N/A	Plug Displaced by:	8.33 lb/gal F.W.	Disp. Temperature:	59 °F
Plug Bumped?	Yes	Bump Pressure:	2750 psi	Floats Held?	Yes
Cement Returns:	35 bbl	Returns Density:	N/A	Returns Temperature:	N/A
Comment Plug bumped at calculated displacement, final circulating pressure of 2360 psi, released pressure back to the truck, floats held, received 2.55 bbl back, cement returned to surface 360 bbl into displacement, 35 bbl cement back to surface.					

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>	Comments
Event	1	Call Out	Call Out	12/24/2018	12:00:00	USER				CREW CALLED OUT AT 12:00 12/24/2018, REQUESTED ON LOCATION 19:00 12/24/2018. CREW PICKED UP CEMENT, CHEMICALS (25 GAL MUSOL, 25 GAL DUAL SPACER B, 72 GAL D-AIR, 1538 GAL FDP LATEX, 20 GAL MMCR), 100 LBS SUGAR, AND PLUG CONTAINER FROM FORT LUPTON, CO. BULK 660: 11897002/11633846 Bulk 660: 11234500/10866947 SOFT SIDE: 12498388/12051673 PUMP ELITE: 11897034/11645460.
Event	2	Arrive At Loc	Arrive At Loc	12/24/2018	17:00:00	USER				END JOURNEY MANAGEMENT. MEET WITH CO. MAN TO DISCUSS JOB; SURFACE CASING: 9.625" 36# @ 1556', CASING: 5.5" 20# @ 14817', 5' SHOE JOINT, 8.5" OPEN HOLE, TVD @ 6936', 9.7 PPG WELL FLUID, FRESH WATER DISPLACEMENT.
Event	3	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	12/24/2018	17:10:00	USER				HAZARD HUNT. DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH LOCATION, RIG UP AND WEATHER.

Event	4	Rig-Up Equipment	Rig-Up Equipment	12/24/2018	17:20:00	USER				CREW STAGED EQUIPMENT AND RIGGED UP BULK, IRON, AND WATER HOSES TO PERFORM JOB.
Event	5	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	12/24/2018	18:15:00	USER				DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW
Event	6	Crew Leave Yard	Crew Leave Yard	12/24/2018	18:30:00	USER				STARTED JOURNEY MANAGEMENT.
Event	7	Pre-Job Safety Meeting	Pre-Job Safety Meeting	12/25/2018	02:15:00	USER	0.00	0.00	-3.00	MEETING WITH HALLIBURTON AND RIG PERSONNEL. COMMUNICATED POTENTIAL SAFETY HAZARDS AND JOB DETAILS.
Event	8	Start Job	Start Job	12/25/2018	02:46:59	COM4	0.00	0.00	0.00	START JOB DATA RECORDING.
Event	9	Drop Bottom Plug	Drop Bottom Plug	12/25/2018	02:47:33	USER	10.46	0.00	71.00	PLUG LEFT LANDING JOINT, VERIFIED BY COMPANY MAN.
Event	10	Test Lines	Test Lines	12/25/2018	02:49:19	COM4	8.81	0.00	96.00	PRESSURE TESTED IRON TO 4850 PSI. KICKOUTS SET @ 500 PSI, KICKED OUT @ 900 PSI, 5TH GEAR STALL OUT @ 2250 PSI.
Event	11	Pump Spacer 1	Pump Spacer 1	12/25/2018	02:53:37	COM4	8.76	0.00	15.00	PUMP 50 BBLS OF TUNED SPACER @ 12.5 LB/GAL, ADDED 25 GAL MUSOL A, 25 GAL DUAL SPACER B, 10 GAL D-AIR, DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	12	Pump Cap Cement	Pump Cap Cement	12/25/2018	03:05:43	COM4	13.18	5.50	336.00	PUMP 608 SKS OF ELASTICEM @ 13.2 LB/GAL, 1.57 YIELD, 7.66 GAL/SK, 170 BBLS, CALCULATED TOC

										@ SURFACE, DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	13	Pump Lead Cement	Pump Lead Cement	12/25/2018	03:32:08	COM4	12.93	1.80	58.00	PUMP 615 SKS OF GASSTOP @ 13.2 LB/GAL, 1.56 YIELD, 7.61 GAL/SK, 171 BBLs, CALCULATED TOL @ 2763', MIX WATER MIXED WITH 1538 GAL OF LATEX AND 62 GAL D-AIR, DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	14	Pump Tail Cement	Pump Tail Cement	12/25/2018	03:55:47	COM4	13.06	8.20	648.00	PUMP 16 SKS OF ELASTICEM @ 13.2 LB/GAL, 1.57 YIELD, 7.66 GAL/SK, 447 BBLs, CALCULATED TOT @ 6930', DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	15	Shutdown	Shutdown	12/25/2018	04:53:50	COM4	14.04	0.00	117.00	SHUTDOWN TO DROP TOP PLUG, CLEAN PUMPS, AND LINES.
Event	16	Drop Top Plug	Drop Top Plug	12/25/2018	05:03:05	COM4	-0.47	0.00	5.00	PLUG LEFT PLUG CONTAINER, FERIFIED BY COMPANY MAN.
Event	17	Pump Displacement	Pump Displacement	12/25/2018	05:03:10	COM4	-0.48	0.00	5.00	BEGIN PUMPING CALCULATED DISPLACEMENT OF 395 BBL FRESH WATER, FIRST 20 BBL WITH 10 GAL MMCR.
Event	18	Cement Returns to Surface	Cement Returns to Surface	12/25/2018	05:41:35	USER	8.21	8.90	3060.00	CEMENT RETURNED TO SURFACE 335 BBL INTO DISPLACEMENT, 35 BBL CEENT TO SURFACE.
Event	19	Bump Plug	Bump Plug	12/25/2018	05:46:32	COM4	8.20	0.00	2997.00	PLUG BUMPED AT CALCULATED DISPLACEMENT, FINAL

Event	Seq	Type	Description	Date	Time	User	Rate	Hours	Amount	Notes
										CIRCULATING PRESSURE OF 2750 PSI.
Event	20	Other	Burst Disk	12/25/2018	05:48:30	USER	8.18	1.10	3055.00	PRESSURE UP TO BURST WET SHOE DISK, DISK BURST AT 4066 PSI.
Event	21	Other	Wet Shoe	12/25/2018	05:49:31	USER	8.17	4.70	2393.00	PUMP 5 BBL FRESH WATER, WET SHOE.
Event	22	Check Floats	Check Floats	12/25/2018	05:50:21	USER	8.18	4.50	2377.00	RELEASED PRESSURE BACK TO THE TRUCK, FLOATS HELD, RECIEVED 2.5 BBL BACK.
Event	23	End Job	End Job	12/25/2018	05:51:49	COM4	8.07	0.00	19.00	END JO B DATA RECORDING.
Event	24	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	12/25/2018	06:00:00	USER	8.07	10.10	190.00	DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH WEATHER, LOCATION AND RIGGING DOWN IRON AND HOSES.
Event	25	Rig-Down Completed	Rig-Down Completed	12/25/2018	07:00:00	USER				ALL HALLIBURTON ITEMS WERE STOWED FOR TRAVEL.
Event	26	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	12/25/2018	07:15:00	USER				DISCUSSED ROUTES HAZARDS AND COMMUNICATION WITH CREW.
Event	27	Crew Leave Location	Crew Leave Location	12/25/2018	07:30:00	USER				THANK YOU FOR USING HALLIBURTON - THOMAS HAAS AND CREW.

3.0 Attachments

3.1 Duck Club 12W-20-3N Production.png

