

# HALLIBURTON

iCem<sup>®</sup> Service

## **EXTRACTION OIL & GAS-EBUS**

Date: Sunday, December 09, 2018

### **Duck Club 12W-20-12C Production**

Job Date: Wednesday, November 28, 2018

Sincerely,  
**Tyler Hill**

## Legal Notice

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### Disclaimer:

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## 1.0 Cementing Job Summary

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### 1.1 Executive Summary

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Halliburton appreciates the opportunity to perform the cementing services on the **Duck Club 12W-20-12C** 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 40 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 #: 3894417	Quote #:	Sales Order #: 0905299916
Customer: EXTRACTION OIL & GAS-EBUS		Customer Rep: Manny Parras	
Well Name: DUCK CLUB	Well #: 12W-20-12C	API/UWI #: 05-001-10158-00	
Field: WATTENBERG	City (SAP): BARR LAKE	County/Parish: ADAMS	State: COLORADO
Legal Description: NW SW-12-1S-66W-2296FSL-680FWL			
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	18060ft	Job Depth TVD	7617
Water Depth		Wk Ht Above Floor	5'
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	1643	0	1643
Casing	0	5.5	4.778	20			0	18060	0	7617
Open Hole Section			8.5				1643	18064	1643	7617

**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	18060	Bottom Plug			
Float Collar	5.5	1	KLX	18057	SSR plug set			
Insert Float					Plug Container	5.5		HES
Stage Tool					Centralizers			

**Fluid Data**

Stage/Plug #: 1										
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal	
1	11.5 lb/gal Tuned Spacer III	Tuned Spacer III	50	bbl	11.5	3.91	24.4	5	1752	
142.47 lbm/bbl		<b>BARITE, BULK (100003681)</b>								
0.50 gal/bbl		<b>MUSOL(R) A, 5 GAL PAIL (100064220)</b>								

34.70 gal/bbl		<b>FRESH WATER</b>							
0.50 gal/bbl		<b>DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)</b>							
<b>Fluid #</b>	<b>Stage Type</b>	<b>Fluid Name</b>	<b>Qty</b>	<b>Qty UoM</b>	<b>Mixing Density lbm/gal</b>	<b>Yield ft3/sack</b>	<b>Mix Fluid Gal</b>	<b>Rate bbl/min</b>	<b>Total Mix Fluid Gal</b>
2	ElastiCem	ELASTICEM (TM) SYSTEM	568	sack	13.2	1.57	7.66	8	4351
0.65 %		<b>SCR-100 (100003749)</b>							
7.66 Gal		<b>FRESH WATER</b>							
<b>Fluid #</b>	<b>Stage Type</b>	<b>Fluid Name</b>	<b>Qty</b>	<b>Qty UoM</b>	<b>Mixing Density lbm/gal</b>	<b>Yield ft3/sack</b>	<b>Mix Fluid Gal</b>	<b>Rate bbl/min</b>	<b>Total Mix Fluid Gal</b>
3	GasStop	ELASTICEM (TM) SYSTEM	615	sack	13.2	1.56	7.61	8	4680
0.65 %		<b>SCR-100 (100003749)</b>							
5.01 Gal		<b>FRESH WATER</b>							
<b>Fluid #</b>	<b>Stage Type</b>	<b>Fluid Name</b>	<b>Qty</b>	<b>Qty UoM</b>	<b>Mixing Density lbm/gal</b>	<b>Yield ft3/sack</b>	<b>Mix Fluid Gal</b>	<b>Rate bbl/min</b>	<b>Total Mix Fluid Gal</b>
4	ElastiCem	ELASTICEM (TM) SYSTEM	1644	sack	13.2	1.57	7.66	8	12593
7.66 Gal		<b>FRESH WATER</b>							
0.65 %		<b>SCR-100 (100003749)</b>							
<b>Fluid #</b>	<b>Stage Type</b>	<b>Fluid Name</b>	<b>Qty</b>	<b>Qty UoM</b>	<b>Mixing Density lbm/gal</b>	<b>Yield ft3/sack</b>	<b>Mix Fluid Gal</b>	<b>Rate bbl/min</b>	<b>Total Mix Fluid Gal</b>
5	MMCR Displacement	MMCR Displacement	20	bbl	8.33			8	
0.50 gal/bbl		<b>MICRO MATRIX CEMENT RETARDER, 1 GAL PAIL (100003780)</b>							
<b>Fluid #</b>	<b>Stage Type</b>	<b>Fluid Name</b>	<b>Qty</b>	<b>Qty UoM</b>	<b>Mixing Density lbm/gal</b>	<b>Yield ft3/sack</b>	<b>Mix Fluid Gal</b>	<b>Rate bbl/min</b>	<b>Total Mix Fluid Gal</b>
6	Displacement	Displacement	381	bbl	8.33			8	
Cement Left In Pipe	<b>Amount</b>	NONE		Reason WET SHOE				<b>Shoe Joint</b>	

Mix Water:	pH 7	Mix Water Chloride:	<300 ppm	Mix Water Temperature:	<b>64 °F</b>
Cement Temperature:	N/A	Plug Displaced by:	8.33 lb/gal F.W.	Disp. Temperature:	<b>58 °F</b>
Plug Bumped?	Yes	Bump Pressure:	2600 psi	Floats Held?	<b>Yes</b>
Cement Returns:	40 bbl	Returns Density:	N/A	Returns Temperature:	<b>N/A</b>
<b>Comment</b> Plug bumped at calculated displacement, final circulating pressure of 2600 psi, wet shoe disk ruptured at 3843 psi, pumped a 5 bbl wet shoe at 5 bbl a min, released pressure back to the truck, floats held, 3 bbl back. 40 bbl of cement returned 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>	Pump Stg Tot <i>(bbl)</i>	Comments
Event	1	Call Out	Call Out	11/27/2018	10:00:00	USER					CREW CALLED OUT AT 10:00 11/27/2018, REQUESTED ON LOCATION 16:00 11/27/2018. 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: 10804591/11633846 Bulk 660: 11005806/11527037 BULK 660: 11562570/10924982, IORN TRUCK: 12100996 SOFT SIDE: 11139326/12051673 PUMP ELITE: 11897034/11645460.
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	11/27/2018	14:15:00	USER					DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW
Event	3	Crew Leave Yard	Crew Leave Yard	11/27/2018	14:30:00	USER					STARTED JOURNEY MANAGEMENT.
Event	4	Arrive At Loc	Arrive At Loc	11/27/2018	15:00:00	USER					END JOURNEY MANAGEMENT. MEET WITH CO. MAN TO DISCUSS JOB; SURFACE CASING: 9.625" 36# @ 1643', CASING: 5.5" 20# @ 18060',

											3' SHOE JOINT, 8.5" OPEN HOLE, TVD @ 7617', 9.5 PPG WELL FLUID, FRESH WATER DISPLACEMENT.
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	11/27/2018	15:15:00	USER					HAZARD HUNT. DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH LOCATION, RIG UP AND WEATHER.
Event	6	Rig-Up Equipment	Rig-Up Equipment	11/27/2018	15:20:00	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	11/27/2018	22:16:20	USER	8.41	0.00	-1.00	0.00	MEETING WITH HALLIBURTON AND RIG PERSONNEL. COMMUNICATED POTENTIAL SAFETY HAZARDS AND JOB DETAILS.
Event	8	Start Job	Start Job	11/27/2018	22:23:08	COM4	8.48	0.00	-4.00	0.00	START JOB DATA RECORDING.
Event	9	Test Lines	Test Lines	11/27/2018	22:25:22	COM4	12.66	0.00	78.00	2.20	PRESSURE TESTED IRON TO 4950 PSI. KICKOUTS SET @ 500 PSI, KICKED OUT @ 1000 PSI, 5TH GEAR STALL OUT @ 1950 PSI.
Event	10	Pump Spacer 1	Pump Spacer 1	11/27/2018	22:32:15	COM4	12.52	0.00	13.00	0.00	PUMP 50 BBLS OF TUNED SPACER @ 11.5 LB/GAL, ADDED 25 GAL MUSOL A, 25 GAL DUAL SPACER B, 10 GAL D-AIR, DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	11	Pump Cap Cement	Pump Cap Cement	11/27/2018	22:43:25	COM4	13.21	5.00	439.00	0.00	PUMP 568 SKS OF ELASTICEM @ 13.2 LB/GAL, 1.57 YIELD, 7.66 GAL/SK, 159 BBLS, CALCULATED TOC

											@ SURFACE, DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	12	Pump Lead Cement	Pump Lead Cement	11/27/2018	23:04:54	COM4	13.16	2.60	129.00	0.00	PUMP 615 SKS OF GASSTOP @ 13.2 LB/GAL, 1.56 YIELD, 7.61 GAL/SK, 171 BBLs, CALCULATED TOL @ 2604', MIX WATER MIXED WITH 1538 GAL OF LATEX AND 62 GAL D-AIR, DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	13	Pump Tail Cement	Pump Tail Cement	11/27/2018	23:30:30	COM4	13.07	8.10	858.00	196.60	PUMP 1644 SKS OF ELASTICEM @ 13.2 LB/GAL, 1.57 YIELD, 7.66 GAL/SK, 460 BBLs, CALCULATED TOT @ 6793', DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	14	Shutdown	Shutdown	11/28/2018	00:36:49	COM4	13.11	0.00	29.00	486.20	SHUTDOWN TO CLEAN PUMPS/LINES AND DROP TOP PLUG.
Event	15	Drop Top Plug	Drop Top Plug	11/28/2018	00:48:20	COM4	-0.43	0.00	-1.00	502.70	PLUG LEFT PLUG CONTAINER, VERIFIED BY COMPANY HAND.
Event	16	Pump Displacement	Pump Displacement	11/28/2018	00:48:27	COM4	-0.43	0.00	-2.00	0.00	BEGIN CALCULATED DISPLACEMENT OF 401 BBL FRESH WATER, FIRST 20 BBL WITH 10 GAL MMCR.
Event	17	Cement Returns to Surface	Cement Returns to Surface	11/28/2018	01:32:23	USER	8.33	8.10	3112.00	379.00	CEMENT RETURNED TO SURFACE 361 BBL INTO DISPLACEMENT, 40 BBL OF CEMENT TO SURFACE.
Event	18	Bump Plug	Bump Plug	11/28/2018	01:37:06	USER	8.32	5.00	2660.00	405.80	PLUG BUMPED AT CALCULATED DISPLACEMENT, FINAL CIRCULATING PRESSURE OF

											2600 PSI.
Event	19	Other	Rupture Disk	11/28/2018	01:38:48	USER	8.32	2.10	3263.00	407.90	PRESSURED UP TO RUPTURE WET SHOE DISK, DISK RUPTURED AT 3843 PSI.
Event	20	Other	Wet Shoe	11/28/2018	01:39:43	USER	8.31	5.00	2582.00	410.10	PUMP A 5 BBL WET SHOE.
Event	21	Check Floats	Check Floats	11/28/2018	01:40:46	USER	8.30	0.00	2275.00	414.20	RELEASED PREEASURE BACK TO TRUCK, FLOATS HELD, RECIEVED 3 BBL BACK.
Event	22	End Job	End Job	11/28/2018	01:41:46	COM4	8.22	0.00	21.00	0.00	END JOB DATA RECORDING.
Event	23	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	11/28/2018	07:00:00	USER					DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH WEATHER, LOCATION AND RIGGING DOWN IRON AND HOSES.
Event	24	Rig-Down Completed	Rig-Down Completed	11/28/2018	07:10:00	USER					ALL HALLIBURTON ITEMS WERE STOWED FOR TRAVEL.
Event	25	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	11/28/2018	07:20:00	USER					DISCUSSED ROUTES HAZARDS AND COMMUNICATION WITH CREW.
Event	26	Crew Leave Location	Crew Leave Location	11/28/2018	07:30:00	USER					THANK YOU FOR USING HALLIBURTON - THOMAS HAAS AND CREW.

## 3.0 Attachments

### 3.1 Duck Club 12W-20-12C Production.png

