

HALLIBURTON

iCem[®] Service

EXTRACTION OIL & GAS

DUCK CLUB 12W-20-7N Production

Sincerely,
Meghan Jacobs

Legal Notice

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Table of Contents

1.0	Cementing Job Summary	4
1.1	Executive Summary	4
2.0	Real-Time Job Summary	7
2.1	Job Event Log	7
3.0	Attachments.....	9
3.1	Duck Club 12W-20-7N Production – Job Chart with Events	9
3.2	Duck Club 12W-20-7N Production – Job Chart without Events.....	10

1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Duck Club 12W-20-7N** 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 Fort Lupton

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Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 369404		Ship To #: 3894420		Quote #:		Sales Order #: 0905327491					
Customer: EXTRACTION OIL & GAS-EBUS				Customer Rep: DANNY							
Well Name: DUCK CLUB			Well #: 12W-20-7N		API/UWI #: 05-001-10167-00						
Field: WATTENBERG		City (SAP): BARR LAKE		County/Parish: ADAMS		State: COLORADO					
Legal Description: NW SW-12-1S-66W-2436FSL-687FWL											
Contractor: PATTERSON-UTI ENERGY				Rig/Platform Name/Num: PATTERSON 901							
Job BOM: 7523 7523											
Well Type: HORIZONTAL OIL											
Sales Person: HALAMERICA\HX38199				Srvc Supervisor: Lance Carpenter							
Job											
Formation Name											
Formation Depth (MD)		Top			Bottom						
Form Type					BHST						
Job depth MD		17700ft			Job Depth TVD		7465				
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		9.625	8.921	36			0	1593		1593	
Casing		5.5	4.778	20			0	17687		7465	
Open Hole Section			8.5				1614	17700		7465	
Tools and Accessories											
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make		
Guide Shoe	5.5			17687		Top Plug	5.5	1	HES		
Float Shoe	5.5					Bottom Plug	5.5		HES		
Float Collar	5.5			17679		SSR plug set	5.5		HES		
Insert Float	5.5					Plug Container	5.5	1	HES		
Stage Tool	5.5					Centralizers	5.5		HES		
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	11.5 lb/gal Tuned Spacer III	Tuned Spacer III			50	bbl	11.5	3.73		6	
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
2	ElastiCem	ELASTICEM (TM) SYSTEM			582	sack	13.2	1.57		8	7.66

last updated on 12/10/2018 2:45:10 PM

Page 1 of 3

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Cementing Job Summary

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
3	GasStop	ELASTICEM (TM) SYSTEM	615	sack	13.2	1.56		8	7.61
4	ElastiCem	ELASTICEM (TM) SYSTEM	1605	sack	13.2	1.57		8	7.66
5	MMCR Displacement	MMCR Displacement	10	bbl	8.33			8	
0.50 gal/bbl		MICRO MATRIX CEMENT RETARDER, 1 GAL PAIL (100003780)							
6	Displacement	Displacement	392	bbl	8.33			8	
Cement Left In Pipe		Amount	ft		Reason			Shoe Joint	
Mix Water:		pH 7	Mix Water Chloride: 100 ppm		Mix Water Temperature: 58 °F				
Cement Temperature:		30 °F	Plug Displaced by: 8.34 lb/gal		Disp. Temperature: 54 °F				
Plug Bumped?:		Yes	Bump Pressure: 2200 psi MPa		Floats Held?:			Yes	
Cement Returns:		35 bbl	Returns Density: 13.2 lb/gal		Returns Temperature: ## °F °C				
<p>Comment JOB WENT WELL WITH GOOD RETURNS THROUGHOUT. NO NOTICABLE PRESSURE WHEN BOTTOM PLUG WENT THROUGH SUB. DISPLACEMENT PRESSURES WERE GOOD. CAUGHT PRESSURE AT 53 AWAY. ALL 50 BBL SPACER RETURNS. 35 BBL CEMENT TO SURFACE. FINAL CIRCULATING PRESSURE 2200. 3.5 BBL BACK AND FLOATS HELD. DISC RUPTURED AT 2650 AND PUMPED 5 BBL AFTER. FLOATS HELD 3 BBL BACK.</p>									

2.0 Real-Time Job Summary

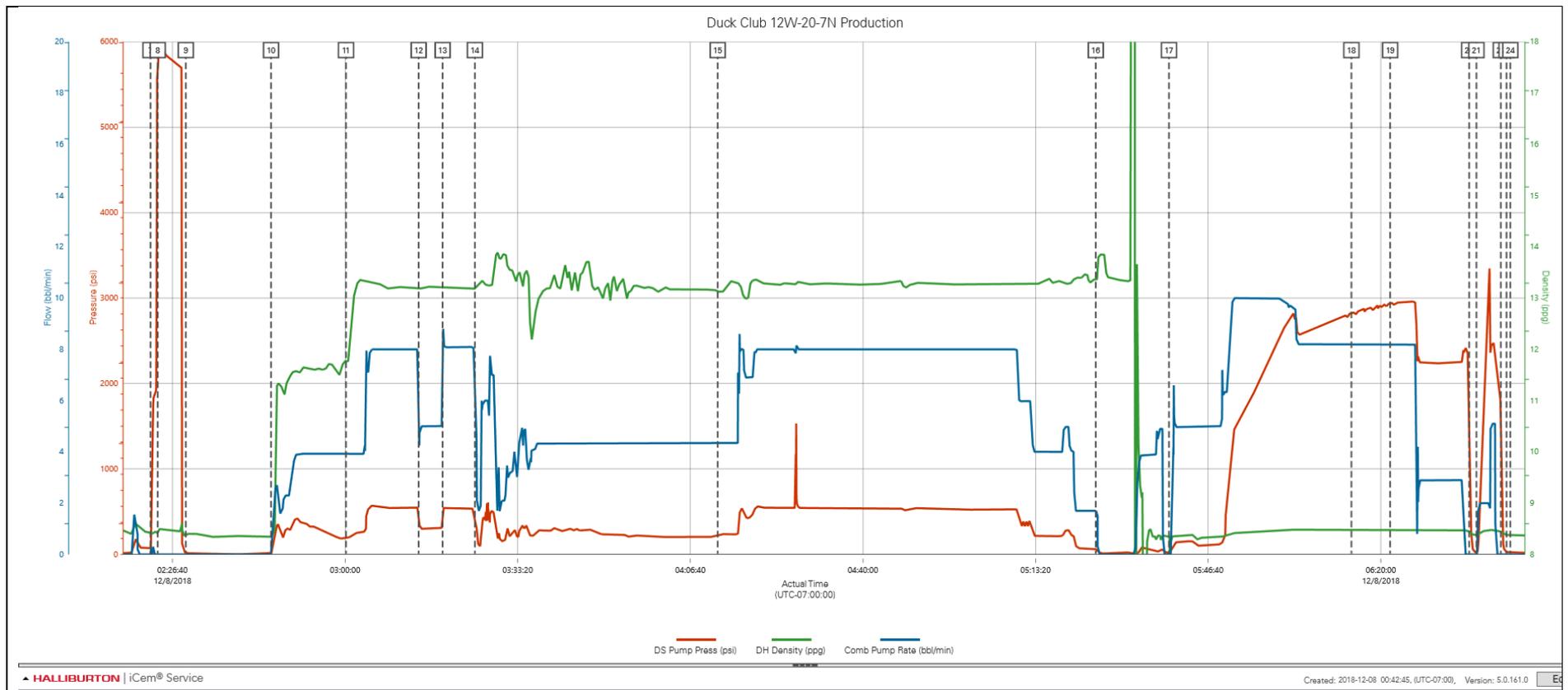
2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DS Pump Press <i>(psi)</i>	DH Density <i>(ppg)</i>	Comb Pump Rate <i>(bbl/min)</i>	Comments
Event	1	Call Out	Call Out	12/7/2018	17:00:00	USER				CREW CALLED OUT FOR JOB. ON LOCATION TIME 2300
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	12/7/2018	19:00:00	USER				CREW HAS PRE CONVOY SAFETY MEETING DISCUSSING ROUTES, CONVOY ORDER, FOLLOWING DISTANCES AND HAZARDS
Event	3	Depart Shop for Location	Depart Shop for Location	12/7/2018	19:15:00	USER				CREW DEPARTS FOR LOCATION
Event	4	Arrive At Loc	Arrive At Loc	12/7/2018	20:00:00	USER				CREW ARRIVES AT LOCATION. CHECKS CEMENT, WATER AND EQUIPMENT SPOTING. RIG RUNNING CASING, 2000' FROM BOTTOM.
Event	5	Pre-Job Safety Meeting	Pre-Job Safety Meeting	12/8/2018	02:00:00	USER	0.00	8.30	0.10	
Event	6	Bump Plug	Comment	12/8/2018	02:14:36	USER	0.00	8.26	0.10	FILL LINES. LEAK IN ONE OF THE LINES. BLED PSI AND TIGHTENED
Event	7	Start Job	Start Job	12/8/2018	02:22:26	COM6	74.00	8.40	0.00	
Event	8	Pressure Test	Pressure Test	12/8/2018	02:23:50	USER	5750.00	8.49	0.00	PRESSURE TEST TO 6000 PSI.
Event	9	Other	Other	12/8/2018	02:29:15	USER	20.00	8.43	0.00	FINISH ADDING WATER TO LATEX WATER AND WEIGHING UP SPACER AFTER
Event	10	Pump Spacer	Pump Spacer	12/8/2018	02:45:42	USER	14.00	8.34	0.00	PUMP SPACER 4 BBL/MIN 50 BBLS 11.5# 3.73 YIELD 23.4 GAL
Event	11	Pump Cap Cement	Pump Cap Cement	12/8/2018	03:00:10	USER	202.00	11.78	3.90	PUMP CAP CEMENT 8 BBL/MIN 13.2# 1.57 YIELD 7.66 GAL 582 SKS
Event	12	Other	Other	12/8/2018	03:14:12	USER	429.00	13.19	6.60	SLOWED RATE TO 5 BBL/MIN 10 BBL BEFORE PLUG PASSES THROUGH SUB
Event	13	Other	Other	12/8/2018	03:18:50	USER	308.00	13.20	5.50	PLUG HAS PASSED THROUGH SUB SO PICKED RATE BACK UP TO 8 BBL/MIN

Event	14	Pump Lead Cement	Pump Lead Cement	12/8/2018	03:25:04	USER	327.00	13.19	6.00	PUMP LATEX LEAD CEMENT 172 BBLs 13.2# 1.57 YIELD 7.61 GAL 615 SACKS AT 4 BBL/MIN
Event	15	Pump Tail Cement	Pump Tail Cement	12/8/2018	04:11:57	USER	220.00	13.12	4.30	PUMP TAIL CEMENT 448 BBL 13.2# 1.57 YIELD 7.66 GAL 1605 SACKS. SLOW THE FIRST 20 BBLs AS BOTTOM PLUG LANDED THEN CONTINUED AT 8 BBL/MIN
Event	16	Shutdown	Shutdown	12/8/2018	05:24:56	USER	62.00	13.36	1.70	SHUTDOWN. LINES UP VALVES TO BLOW DOWN HES LINES. WASHUP PUMP TO THE PIT
Event	17	Pump Displacement	Pump Displacement	12/8/2018	05:39:05	USER	11.00	8.35	0.00	PUMP 372 BBL WATER DISPLACEMENT 8.34# AVERAGE 6 BBL/MIN. MMCR IN FIRST 10 BBL.
Event	18	Other	Other	12/8/2018	06:14:19	USER	2835.00	8.48	8.20	SPACER RETURNS TO SURFACE. ALL 50 BBL SPACER BACK
Event	19	Other	Other	12/8/2018	06:21:48	USER	2917.00	8.49	8.20	CEMENT RETURNS TO SURFACE. 35 BBL GOOD CEMENT BACK
Event	20	Bump Plug	Bump Plug	12/8/2018	06:37:03	USER	1898.00	8.45	0.00	BUMP PLUG. FINAL CIRCULATING PRESSURE 2200 PSI. CHECK FLOATS, 3.5 BBL BACK. FLOATS HELD
Event	21	Other	Other	12/8/2018	06:38:27	USER	22.00	8.38	0.00	PRESSURE UP TO RUPTURE DISC. DISC RUPTURED AT 2650 PSI. PUMPED 5 BBL WATER FOR WET SHOE
Event	22	Other	Other	12/8/2018	06:43:10	USER	1621.00	8.44	0.00	CHECK FLOATS. GOT 3 BBL BACK. FLOATS HELD
Event	23	End Job	End Job	12/8/2018	06:44:15	COM6	26.00	8.38	0.00	CREW, RIG CREW AND COMPANY REP HAVE PRE JOB SAFETY MEETING DISCUSSING JOB PROCEEDURES, CONTINGENSIES, ROLES AND HAZARDS
Event	24	Post-Job Safety Meeting (Pre Rig-Down)	Post-Job Safety Meeting (Pre Rig-Down)	12/8/2018	06:45:00	USER	21.00	8.38	0.00	CREW HAS PRE RIG DOWN SAFETY MEETING AND BEGINS RIGGING DOWN EQUIPMENT
Event	25	Depart Location Safety Meeting	Depart Location Safety Meeting	12/8/2018	08:50:00	USER				CREW HAS JOURNEY MANAGEMENT SAFETY MEETING DISCUSSING ROUTE, CONVOY ORDER, HAZARDS
Event	26	Depart Location	Depart Location	12/8/2018	09:00:00	USER				DEPART LOCATION

3.0 Attachments

3.1 Duck Club 12W-20-7N Production – Job Chart with Events



3.2 Duck Club 12W-20-7N Production – Job Chart without Events

