

HALLIBURTON

iCem[®] Service

EXTRACTION OIL & GAS-EBUS

Date: Sunday, January 19, 2020

GP CODY FED 20E-15-4 Surface

Job Date: Sunday, January 05, 2020

Sincerely,

SAM CARPENTER

Legal Notice

Disclaimer:

All information in this report is provided subject to the terms and conditions which govern the services provided by Halliburton. Halliburton personnel use their best efforts in gathering information and their best judgment in interpreting it, but any interpretation, research, analysis or recommendation furnished by Halliburton are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and empirical relationships and assumptions are not infallible, and with respect to which professionals in the industry may differ. iCem 3D Displacement results are used to understand how fluids intermix during a cement job. Simulation and 3D displacement results are not intended as and should not be used as a replacement for bond logs in determining top of cement. Current 3D model calculations are known to model more volume than the input volume for standard cases due to known calculation improvements required. For rotational cases, the modeled volume will be impacted by the same calculations impacting the standard cases, as well as additional constraints imposed to make the calculation time required operationally feasible. Therefore, until further notice, 3D displacement results should not be used for replacement of a bond log, or used as an identifier of top of cement. HALLIBURTON IS UNABLE TO GUARANTEE THE ACCURACY OF ANY CHART INTERPRETATION, RESEARCH ANALYSIS, OR JOB RECOMMENDATION and any interpretation or recommendation is not for use of or reliance upon by any third party. The customer has full responsibility for any of its decisions which are based on the information provided in this report.

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	EXTRACTION GP CODY FED 20E-15-4 SURFACE.png.....	9

1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **GP Cody Fed 20E-15-4** 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 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 Fort Lupton

The Road to Excellence Starts with Safety

Sold To #: 369404	Ship To #: 3987170	Quote #:	Sales Order #: 0906193451
Customer: EXTRACTION OIL & GAS -		Customer Rep:	
Well Name: GP CODY FED		Well #: 20E-15-4	API/UWI #: 05-123-50283-00
Field: WATTENBERG	City (SAP): GREELEY	County/Parish: WELD	State: COLORADO
Legal Description: NE NE-20-5N-65W-706FNL-1305FEL			
Contractor:		Rig/Platform Name/Num: CARTEL 15	
Job BOM: 7521 7521			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA/H171328		Srvc Supervisor: Lance Carpenter	

Job

Formation Name			
Formation Depth (MD)	Top	Bottom	
Form Type			BHST
Job depth MD	1598	Job Depth TVD	1598
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
Open hole		13.5					0	1598	0	1598
Casing		9.625		36			0	1598	0	1598

Tools and Accessories

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	9.625			1598	Top Plug	9.625	1	HES
Float Shoe	9.625				Bottom Plug	9.625		HES
Float Collar	9.625			1554	SSR plug set	9.625		HES
Insert Float	9.625				Plug Container	9.625		HES
Stage Tool	9.625				Centralizers	9.625		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	Red Dye Spacer	Red Dye Spacer	10	bbl	8.33				

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	SwiftCem	SWIFTCEM (TM) SYSTEM	590	sack	13.5	1.74		5	9.17
9.17 Gal		FRESH WATER							

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	Fresh Water	Fresh Water	120	bbl	8.33				

Cement Left In Pipe	Amount	Reason	Shoe Joint
Mix Water:	pH 7	Mix Water Chloride: 500 ppm	Mix Water Temperature: 57 °F
Cement Temperature:	## °F °C	Plug Displaced by: 8.4 lb/gal Water	Disp. Temperature: ## °F °C
Plug Bumped?	Yes	Bump Pressure: 580 psi	Floats Held? Yes
Cement Returns:	40 bbl	Returns Density: ## lb/gal kg/m ³	Returns Temperature: ## °F °C

Comment

JOB WENT WELL. NO ACCIDENT, INJURY OR SPILL. SLURRY WEIGHT VERIFIED BY PRESSURIZED MUD BALANCE AND VOLUME VERIFIED BY MIX WATER. PUMPED 10 BBL WATER SPACER WITH RED DYE THEN 183 BBL SWIFTCEM. DROPPED TOP PLUG. DISPLACED WITH WATER WASHING UP ON TOP OF THE PLUG. 40 BBL CEMENT TO SURFACE. BUMPED PLUG 3.5 BPM AT 580 PSI. TOOK TO 1182 PSI. FLOATS HELD WITH ½ BBL BACK.

TOP OF CEMENT – SURFACE WITH 40 BBL BACK

SPACER – ALL 10 BBL BACK

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	PS Pump Press <i>(psi)</i>	DH Density <i>(ppg)</i>	Comb Pump Rate <i>(bbl/min)</i>	Pump Stg Tot <i>(bbl)</i>	Comments
Event	1	Comment	Comment	1/5/2020	08:30:00	USER					CREW STAYED FROM PREVIOUS JOB. RIG TD'S WELL
Event	2	Safety Meeting	Safety Meeting	1/5/2020	15:00:00	USER	0.00	0.04	0.00	2.40	CREW HAS PRE JOB SAFETY MEETING DISCUSSING ROLES, RED ZONES, STOP WORK, MUSTER AREAS, LINE OF FIRE, TUGGER OPERATIONS, RIG OPERATIONS, CONTINGENCIES, COMMUNICATION, PINCH POINTS, HAND PLACEMENT, SLIPS TRIPS FALLS AND THE JOB PROCEEDURE
Event	3	Comment	Start Job	1/5/2020	15:07:14	COM4	-1.00	8.40	0.00	8.40	START FLEX ON PUMP
Event	4	Casing on Bottom	Casing on Bottom	1/5/2020	15:30:00	USER	0.00	8.38	0.00	8.40	CASING ON BOTTOM. RIG CREW RIGS DOWN CASING EQUIPMENT AND RIGS UP HES LINES
Event	5	Test Lines	Test Lines	1/5/2020	15:49:30	COM4	3225.00	8.46	0.00	11.50	FILL LINES WITH 3 BBL WATER. PRESSURE TEST HES LINES TO 3000 PSI AND HOLD FOR A FEW MINUTES. TEST GOOD
Event	6	Pump Spacer 1	Pump Spacer 1	1/5/2020	15:51:27	COM4	43.00	8.39	0.00	0.00	PUMP 10 BBL RED DYE SPACER

Event	7	Pump Cement	Pump Cement	1/5/2020	15:54:59	COM4	118.00	8.42	3.20	0.00	PUMP 183 BBL SWIFTCEM 13.5# 1.74 YIELD 9.17 GAL 590 SACKS
Event	8	Shutdown	Shutdown	1/5/2020	16:24:00	USER	125.00	13.55	1.40	219.00	SHUTDOWN
Event	9	Drop Top Plug	Drop Top Plug	1/5/2020	16:26:20	COM4	-36.00	19.36	0.00	219.00	DROP TOP PLUG
Event	10	Pump Displacement	Pump Displacement	1/5/2020	16:27:32	COM4	-29.00	19.29	0.00	219.00	PUMP 120 BBL WATER DISPLACEMENT WASHING UP ON TOP OF THE PLUG WITH THE FIRST 10 BBL
Event	11	Bump Plug	Bump Plug	1/5/2020	16:46:41	COM4	1016.00	8.38	0.00	124.60	BUMP PLUG AT 3.5 BPM AT 580 PSI. TOOK TO 1182 PSI AND HELD FOR A FEW MINUTES
Event	12	Comment	Comment	1/5/2020	16:47:56	USER	463.00	8.38	0.00	124.70	FLOATS HELD WITH 1/2 BBL BACK
Event	13	End Job	End Job	1/5/2020	16:52:37	COM4	-3.00	8.32	4.20	125.40	END JOB
Event	14	Safety Meeting	Safety Meeting	1/5/2020	17:00:00	USER					CREW HAS PRE RIG DOWN SAFETY MEETING DISCUSSING COMMUNICATION, RED ZONES, RIG OPERATIONS, SLIP TRIPS FALLS, LINE OF FIRE, PINCH POINTS, TEAM LIFTING, HAND PLACEMENT
Event	15	Depart Location	Depart Location	1/5/2020	19:00:00	USER					CREW IS RIGGED DOWN AND READY TO DEPART. CREW HAS JOURNEY MANAGEMENT SAFETY MEETING DISCUSSING ROUTE, CONVOY ORDER, FOLLOWING DISTANCE, WALK AROUNDS, STOPS, HOURS OF SERVICE, COMMUNICATION AND DEPART FROM LOCATION

3.0 Attachments

3.1 EXTRACTION GP CODY FED 20E-15-4 SURFACE.png

