

# HALLIBURTON

iCem<sup>®</sup> Service

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

**GP Cody FED 20E-15-4 Production**

Sincerely,

**Alexandria Dionigi**

## 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 **GP Cody FED 20E-15-4** 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 47 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**

<b>Sold To #:</b> 369404	<b>Ship To #:</b> 3987170	<b>Quote #:</b>	<b>Sales Order #:</b> 0906314156
<b>Customer:</b> EXTRACTION OIL & GAS-EBUS		<b>Customer Rep:</b> Manny Parris	
<b>Well Name:</b> GP CODY FED	<b>Well #:</b> 20E-15-4	<b>API/UWI #:</b> 05-123-50283-00	
<b>Field:</b> WATTENBERG	<b>City (SAP):</b> GREELEY	<b>County/Parish:</b> WELD	<b>State:</b> COLORADO
<b>Legal Description:</b> NE NE-20-5N-65W-706FNL-1305FEL			
<b>Contractor:</b> PATTERSON-UTI ENERGY		<b>Rig/Platform Name/Num:</b> PATTERSON 901	
<b>Job BOM:</b> 7523 7523			
<b>Well Type:</b> HORIZONTAL OIL			
<b>Sales Person:</b> HALAMERICA\H171328		<b>Svc Supervisor:</b> James Bunnell	

**Job**

<b>Formation Name</b>	
<b>Formation Depth (MD)</b>	<b>Top</b> <input type="text"/> <b>Bottom</b> <input type="text"/>
<b>Form Type</b>	BHST
<b>Job depth MD</b>	14475ft
<b>Water Depth</b>	<b>Wk Ht Above Floor</b> <input type="text"/>
<b>Perforation Depth (MD)</b>	<b>From</b> <input type="text"/> <b>To</b> <input type="text"/>

**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	1616		1616
Casing		5.5	4.892	17			0	14475		6975
Open Hole Section			8.5				1616	14476	1616	6975

**Tools and Accessories**

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	5.5			14473	Top Plug	5.5		HES
Float Shoe	5.5				Bottom Plug	5.5		HES
Float Collar	5.5			14424	SSR plug set	5.5		HES
Insert Float	5.5				Plug Container	5.5		HES
Stage Tool	5.5				Centralizers	5.5		HES

**Fluid Data**

<b>Stage/Plug #: 1</b>										
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	Tuned Prime Cement Spacer Base - RKS/SE	TUNED PRIME CEMENT SPACER SYS	50	bbl	12.5	2.73				

  

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
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2	Cap	ELASTICEM (TM) SYSTEM	570	sack	13.2	1.59	7.79	8	4440
<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 B1	GASSTOP (TM) SYSTEM	615	sack	13.2	1.56	7.61	8	4680
<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	1135	sack	13.2	1.56	7.62	8	8648
<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	40	bbl	8.33			8	
0.50 gal/bbl		MICRO MATRIX CEMENT RETARDER, 5 GAL PAIL (100003781)							
<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	295	bbl	8.33			8	
<b>Cement Left In Pipe</b>	<b>Amount</b>	<b>ft</b>	<b>Reason</b>				<b>Shoe Joint</b>		
<b>Mix Water:</b>	pH 7	<b>Mix Water Chloride:</b>	250 ppm	<b>Mix Water Temperature:</b>			65°F °C		
<b>Cement Temperature:</b>	°F °C	<b>Plug Displaced by:</b>	8.33 lb/gal	<b>Disp. Temperature:</b>			60 °F °C		
<b>Plug Bumped?</b>	Yes	<b>Bump Pressure:</b>	3100 psi	<b>Floats Held?</b>			Yes		
<b>Cement Returns:</b>	47 bbl	<b>Returns Density:</b>	## lb/gal kg/m3	<b>Returns Temperature:</b>			## °F °C		
<b>Comment</b> Halliburton pumped 50bbbls tuned spacer followed by 162bbbls cap cement, 170bbbls lead cement, 315bbbls tail cement, and 335bbbls fresh water displacement plug bumped floats held 4bbbls 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	Call Out	Call Out	2/18/2020	08:30:00	USER					CREW CALLED OUT AT 0830, REQUESTED ON LOCATION 1300. CREW PICKED UP CEMENT, CHEMICALS, AND PLUG CONTAINER FROM FT. LUPTON, CO. PUMP 11189145.
Event	2	Depart from Service Center or Other Site	Depart from Service Center or Other Site	2/18/2020	11:30:00	USER					CREW DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW.
Event	3	Arrive at Location from Service Center	Arrive at Location from Service Center	2/18/2020	12:15:00	USER					With all equipment and materials.
Event	4	Other	Other	2/18/2020	12:30:00	USER					SURFACE CASING- 9.625" 36 LB/FT @ 1616', 5.5" CASING: 17 LB/FT TOTAL 14475', 8.5" HOLE 1616-14476, 48 SHOE TRAC, TVD- 6975'. PUMP FRESH WATER DISPLACEMENT WITH MMCR FIRST 40 BBLS. Water tested good PH 7 Chlorides less than 400
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	2/18/2020	12:45:00	USER					HAZARD HUNT. DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH LOCATION, RIG UP, AND WEATHER.
Event	6	Rig-Up Completed	Rig-Up Completed	2/18/2020	14:00:00	USER	5.00	8.55	0.00	9.20	CREW STAGED EQUIPMENT AND RIGGED UP BULK, IRON AND WATER HOSES TO PERFORM JOB.
Event	7	Pre-Job Safety Meeting	Pre-Job Safety Meeting	2/18/2020	16:00:00	USER	11.00	8.56	0.00	9.20	SAFETY MEETING WITH HALLIBURTON, AND RIG PERSONNEL. CREW COMMUNICATED POTENTIAL SAFETY HAZARDS, AND JOB DETAILS

Event	8	Start Job	Start Job	2/18/2020	16:39:24	COM4	14.00	8.55	0.00	9.20	Start recording data.
Event	9	Check Weight	Check Weight	2/18/2020	16:39:44	COM4	14.00	8.55	0.00	9.20	Batch up spacer.
Event	10	Test Lines	Test Lines	2/18/2020	16:46:58	COM4	94.00	8.86	0.00	14.20	Tested to 4700psi
Event	11	Pump Spacer 1	Pump Spacer 1	2/18/2020	16:52:04	COM4	19.00	8.76	2.00	14.50	50bbls Tuned Spacer 12.5ppg 2.73yd 16.57gl/sk verified with pressurized scales.
Event	12	Pump Cap Cement	Pump Cap Cement	2/18/2020	16:59:42	COM4	235.00	12.25	6.50	45.10	570sks 162bbbls 13.2ppg 1.59yd 7.79gl.sk verified with pressurized scales. 47bbbls return to surface.
Event	13	Check Weight	Check Weight	2/18/2020	17:06:26	COM4	665.00	13.25	8.40	43.10	
Event	14	Pump Lead Cement	Pump Lead Cement	2/18/2020	17:20:41	COM4	639.00	13.12	8.40	162.40	615sks 170bbbls 13.2ppg 1.55yd 7.62gl.sk verified with pressurized scales. TOL 2611'
Event	15	Check Weight	Check Weight	2/18/2020	17:21:54	COM4	692.00	13.35	8.40	10.20	
Event	16	Pump Tail Cement	Pump Tail Cement	2/18/2020	17:43:06	COM4	613.00	12.87	7.90	186.70	1135sks 315bbbls 13.2ppg 1.56yd 7.63gl.sk verified with pressurized scales. TOT 6777'
Event	17	Check Weight	Check Weight	2/18/2020	17:48:23	COM4	658.00	13.10	8.40	30.10	
Event	18	Shutdown	Shutdown	2/18/2020	18:30:33	COM4	5.00	-0.01	0.50	322.60	Shut down to drop plug.
Event	19	Drop Top Plug	Drop Top Plug	2/18/2020	18:34:28	COM4	9.00	8.73	0.00	338.30	
Event	20	Pump Displacement	Pump Displacement	2/18/2020	18:34:42	COM4	5.00	8.74	0.00	338.30	335bbbls fresh water 20MMCR in first 40. 47bbbls CMT back to surface.
Event	21	Bump Plug	Bump Plug	2/18/2020	19:18:50	COM4					Land plug Check floats 4bbbls back floats held.
Event	22	End Job	End Job	2/18/2020	19:22:06	COM4	13.00	8.24	0.00	0.00	Stop recording data.
Event	23	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	2/18/2020	19:30:00	USER	167.00	8.11	10.00	9.60	DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH WEATHER, LOCATION AND RIGGING DOWN IRON AND HOSES.

Event	24	Rig-Down Completed	Rig-Down Completed	2/18/2020	20:45:00	USER	ALL HALLIBURTON ITEMS WERE STOWED FOR TRAVEL, AND LOCATION WAS CLEAN.
Event	25	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	2/18/2020	20:50:00	USER	CREW DISCUSSED ROUTES HAZARDS AND COMMUNICATION WITH CREW.
Event	26	Other	Other	2/18/2020	20:55:00	USER	Thank you from Halliburton and crew.

3.0 Attachments

3.1 Case 1-Custom Results .png

