

# HALLIBURTON

iCem<sup>®</sup> Service

## **NOBLE ENERGY INC-EBUS**

### **Johnson C32-725**

Production Casing

Job Date: Saturday, October 29, 2022

Sincerely,

**Brandon Parker**

## Legal Notice

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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 Johnson C32-725 production casing. 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 bbl. of spacer 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> 345242		<b>Ship To #:</b> 3932130		<b>Quote #:</b>		<b>Sales Order #:</b> 0908203439				
<b>Customer:</b> NOBLE ENERGY INC-EBUS					<b>Customer Rep:</b> Mike Duncan					
<b>Well Name:</b> JOHNSON			<b>Well #:</b> C32-725			<b>API/UWI #:</b> 05-123-49291-00				
<b>Field:</b> WATTENBERG		<b>City (SAP):</b> KERSEY		<b>County/Parish:</b> WELD			<b>State:</b> COLORADO			
<b>Contractor:</b> H & P DRLG				<b>Rig/Platform Name/Num:</b> H & P 517						
<b>Job BOM:</b> 7523										
<b>Well Type:</b> HORIZONTAL OIL										
<b>Sales Person:</b> HALAMERICA\HX41066					<b>Srvc Supervisor:</b> Brandon Parker					
<b>Job</b>										
<b>Job depth MD</b>		17471ft			<b>Job Depth TVD</b>		6797ft			
<b>Well Data</b>										
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	1939	0	1939
Casing	0	5.5	4.892	17			0	17471	0	6797
Open Hole Section			8.5				1938	17483	1938	6797
<b>Tools and Accessories</b>										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
Float Shoe	5.5	1	Citadel	17471		Bottom Plug	5.5	4	Citadel	
Float Collar	5.5	1	Citadel	17468		Centralizers	5.5	208	Summit	
Ball Seat	5.5	1	Citadel	17454						

Fluid Data										
<b>Stage #: 1</b>										
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	Spacer	Tuned Prime Spacer	120	bbl	11.5	3.88	24.45	6	2934	
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	Cap Cement	EconoCem™	140	sack	13.2	1.58	7.99	6	1119	
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	Lead Cement	ElastiCem™	766	sack	13.2	1.67	8.03	9	6151	
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	Tail Cement	NeoCem™	1133	sack	13.2	2.04	9.79	9	11092	
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	Displacement	Fresh Water with MMCR	20	bbl	8.33	0	0	10	830	
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	Treated Fresh Water	385	bbl	8.33	0	0	10-7	16148	
<b>Cement Left In Pipe</b>										
<b>Amount</b>		0 ft			<b>Reason</b>			Wet Shoe		
<b>Mix Water:</b>		pH 6		<b>Mix Water Chloride:</b>		0 ppm		<b>Mix Water Temperature:</b>		66°F
<b>Plug Bumped?</b>		Yes		<b>Plug Displaced by:</b>		8.33 lb/gal Treated Water		<b>Disp. Temperature:</b>		66°F
<b>Cement Returns:</b>		0 bbl.		<b>Bump Pressure:</b>		2180 psi		<b>Floats Held?</b>		Yes
<b>Comment:</b> 35 bbl. of spacer to surface, floats held 5.5 bbl. back										

2.0 Real-Time Job Summary

2.1 Job Event Log

Seq. No.	Activity	Date	Time	Comments
1	Call Out	10/28/2022	20:00:00	hes crew called out to Chevron 5.5" production. On location time 03:00hrs. 1 elite pump trk 12632040, 1 pickup 12992454, 1 660 11398321 loaded with 140sks cap cmt 120bbls spacer, 3 silos on location.
2	Pre-Convoy Safety Meeting	10/29/2022	01:15:00	meeting with all HES personnel to discuss route of travel and safety/hazards associated with traveling to location. also discussed cmt volumes on bulk trks, confirmed silo packet volumes.
3	Depart from Service Center or Other Site	10/29/2022	01:30:00	crew convoyed to location
4	Arrive at Location from Service Center	10/29/2022	02:30:00	arrived location. met with Kyle Renton and went over job numbers, water sources and iron placement. Rig was sending landing joint up when crew arrived.
5	Assessment Of Location Safety Meeting	10/29/2022	02:31:00	checked silos for required cmt volumes, checked air compressors for fuel, started unit to make sure everything was good, checked water upright volumes and tested water in all three uprights. chlo 0, water temp 66 deg, ph 6. TD 17483, TP 17470.8, FC 17467.5, SP 1938, SJ 7.04FT, Ball Seat 17454.1, TVD 6797, KOP 6369, EOB 7601, 5.5" 17# Casing, 9.625 36# Surface Casing, MW 9.9 OBM, OH 8.5", CNT used 208, (17389 to 980ft) Citadel plugs(4bottom), Citadel float equipment.
6	Safety Meeting - Pre Rig-Up	10/29/2022	02:45:00	meeting with HES personnel to discuss safety/hazards associated with rigging up hes equipment
7	Casing on Bottom	10/29/2022	02:50:00	rig landed casing.
8	Rig-Up Equipment	10/29/2022	02:51:00	hes rigged up bulk, iron and water hoses. spotted pump, primmed pumping unit.
9	Circulate Well	10/29/2022	03:15:00	rig began circulating well at 9.5bpm, 13500 strokes and average psi 925.
10	Pre-Job Safety Meeting	10/29/2022	04:25:00	meeting with all personnel on location to discuss safety/hazards associated with job. also covered job procedures, all personnel signed jsa

11	Ko Mud Pumps	10/29/2022	05:11:00	ko rig mud pumps. blow down crt, rig up hes lines
12	Rig-Up Floor	10/29/2022	05:17:00	rig up hoses on rig floor, hes cmt plug container was not used. pumped cmt job through CRT
13	Start Job	10/29/2022	05:24:00	
14	Fill Lines FW	10/29/2022	05:25:07	pumped 4bbls of fw at 3bpm and top psi was 357
15	Test Lines	10/29/2022	05:27:46	test eko on both pumps, 5th gear stall and tested lines to 7460, psi lined out to 5psi/1sec. final psi 7420
16	Test IBOP	10/29/2022	05:35:10	closed ibop, hes tested ibop to 1833, psi held. confirmed by Mr. Kyle Renton
17	Drop Bottom Plug	10/29/2022	05:39:00	loaded bottom plug into the 5.5casing after filling lines and psi test. 1000psi plug was loaded by Kyle Renton with Chevron and witnessed by HES supervisor
18	Pump Tuned Prime	10/29/2022	05:39:18	pumped 120bbls of tuned prime 11.5ppg, 3.88 yield and 24.45 gal/sk. pumped at 6bpm and average psi was 350. calculated 75bbls of spacer to surface. weight confirmed using pressurized mud scales.
19	Check Weight	10/29/2022	05:43:51	
20	Shutdown	10/29/2022	05:59:49	HES shutdown to drop second bottom plug. 1000psi
21	Drop Bottom Plug	10/29/2022	06:04:38	second bottom plug(1000psi) loaded by Mr. Kyle Renton with Chevron and witnessed by HES supervisor. plug departed
22	Pump Cap Cement	10/29/2022	06:04:46	pumped cap cmt, 140sks, 39.4bbls, 13.2ppg, 1.58 yield, 7.99gal/sk pumped at 6bpm and average psi was 450. weight confirmed using pressurized mud scales, weight confirmed by hes supervisor and operator. wet and dry sample left on location. calculated top of cap cmt at 938.05ft. MW 1119, 70BC 6:10hrs
23	Pump Lead Cement	10/29/2022	06:10:51	pumped lead cmt, 766sks, 227.8bbls, 13.2ppg, 1.67 yield, 8.03 gal/sk pumped at 9bpm and average psi was 900. weight confirmed using pressurized mud scales. wet and dry samples left on location. calculated top of lead cmt at 1760.55. MW 6151, 70BC 6:11hrs
24	Check Weight	10/29/2022	06:15:03	
25	Slow Rate	10/29/2022	06:32:59	slow rate from 9bpm to 6bpm to assure lead silo was mt

26	Pump Tail Cement	10/29/2022	06:34:29	pumped tail cmt, 1133sks, 411.6bbls 13.2ppg, 2.04 yield, 9.79 gal/sk pumped at 9bpm and average psi was 1200. weight confirmed using pressurized mud scales, weight confirmed by hes supervisor and operator. calculated top of tail cmt 7312.95ft. MW 11092, 70BC 4:20hrs
27	Check Weight	10/29/2022	06:43:11	
28	Slow Rate	10/29/2022	06:47:19	slow rate from 9bpm to 6bpm to assure tail silo was mt
29	Slow Rate	10/29/2022	07:19:39	slow rate from 9bpm to 5bpm to assure last tail silo was mt and to maintain 13.2ppg density at the end of the job
30	Shutdown	10/29/2022	07:23:43	done pumping cmt
31	Clean Lines	10/29/2022	07:26:58	sting out with crt, rig up wash up pup to clean lines and pumps to 4sided tank. pumped 22bbls of fw
32	Shutdown	10/29/2022	07:36:44	
33	Pump Green Dye	10/29/2022	07:41:54	pumped green dye/mmcr water until green dye was verified at wash up tank. total 4.25bbls.
34	Shutdown	10/29/2022	07:43:00	driller closed ibop
35	Drop Top Plug	10/29/2022	07:44:53	top plug loaded by Mr. Mike Duncan and witnessed by HES supervisor. 1500psi Citadel Plug, 3rd plug
36	Pump Displacement	10/29/2022	07:44:57	pumped 3bbls of greendye/mmcr water displacement. FC set at 17467.5 X .0232= 405.2bbls. pumped at 2bpm psi 48
37	Shutdown	10/29/2022	07:46:31	shutdown, closed ibop, sting out and load 4th plug 3000psi
38	Drop Top Plug	10/29/2022	07:48:14	top plug loaded by Mr. Mike Duncan with Chevron and witnessed by HES supervisor. 3000psi Non-Rupture Citadel Plug
39	Resume FW Displacement	10/29/2022	07:48:17	pumped the remaining 402.2bbls of fw treated with 10gal of MMCR in the first 20bbls of displacement, 5 gallons of D-Air and 10 gallons MC MX 820-6 and 20 gallons Bellacide 300W. FC set at 17467.5 X .0232 (5.5" 17# casing factor)= 405.2bbls
40	Other	10/29/2022	07:50:05	caught cmt 18bbls out
41	Hit KO	10/29/2022	08:28:23	hit kickouts three times, kickouts set at 3400, pump kicked out at 2840

42	Slow Rate	10/29/2022	08:33:53	slow rate from 5bpm, 2500psi to 2bpm 2150psi
43	Bump Plug	10/29/2022	08:44:48	bumped 1500psi plug at calculated volume 405.2bbbls. fcp 2180psi ko pump at 2680, psi climbed to 3035 and held. plug bump verified by MR. Mike with Chevron and HES supervisor
44	Check Floats	10/29/2022	08:50:03	Citadel floats held, 5.5bbbls back. confirmed by Mr. Mike and hes supervisor
45	Resume Pumping	10/29/2022	08:54:08	hes came back on line to rupture 1500psi plug. pumped the 5bbbls back in at 1bpm, plus an additional 1bbl to psi up, (6.5bbbls) plug ruptured at 3507psi
46	Rupture/Wet Shoe	10/29/2022	09:01:03	ruptured disc on third plug at 3507psi, pumped 3bbbls after rupture. confirmed my Mr. Mike and HES supervisor
47	Monitor Flow Back	10/29/2022	09:03:00	monitor flow back for 30 minutes. gain .25bbbls. 5.25bbbl before plus the .25bbbl= 5.5bbbls back
48	Bump Plug	10/29/2022	09:03:04	citadel 3000psi plug bumped right at the 3bbl wet shoe mark. fcp 2150, kicked out pumps at 2650psi climbed to 2795 and held solid. held psi for 5 minutes. confirmed by Mr. Mike and HES supervisor
49	Check Floats	10/29/2022	09:08:58	citadel floats held 5.25bbbls back to the pump truck. after 30m monitor flow back was 5.5bbbls total
50	Other	10/29/2022	09:33:18	end of monitoring flow back
51	End Job	10/29/2022	09:33:37	job complete
52	Spacer Returns to Surface	10/29/2022	09:34:00	rig took back 35bbbl of tuned prime spacer
53	Pre-Rig Down Safety Meeting	10/29/2022	09:36:00	meeting with all hes personnel to discuss safety/hazards associated with rigging down hes equipment
54	Rig-Down Equipment	10/29/2022	09:37:00	
55	Pre-Convoy Safety Meeting	10/29/2022	10:30:00	meeting with all hes personnel to discuss safety/hazards associated with traveling to call center
56	Depart Location for Service Center or Other Site	10/29/2022	10:45:00	
57	Other	10/29/2022	10:46:00	Thank You for Choosing Halliburton Cement. Parker and Crew. (970)397-4969

3.0 Attachments

3.1 Job Chart

