

# HALLIBURTON

iCem<sup>®</sup> Service

## **AXIS EXPLORATION**

**Jamaso 4-65 5-6-12**

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 **Jamaso 4-65 5-6-12** cement production casing 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 56 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> 3891820		<b>Quote #:</b>		<b>Sales Order #:</b> 0905825903				
<b>Customer:</b> AXIS EXPLORATION				<b>Customer Rep:</b> Colby Hansen						
<b>Well Name:</b> JAMASO 4-65			<b>Well #:</b> 5-6-12		<b>API/UWI #:</b> 05-005-07374-00					
<b>Field:</b> WILDCAT		<b>City (SAP):</b> AURORA		<b>County/Parish:</b> ARAPAHOE		<b>State:</b> COLORADO				
<b>Legal Description:</b> SW NW-4-4S-65W-2449FNL-1256FWL										
<b>Contractor:</b> PATTERSON-UTI ENERGY				<b>Rig/Platform Name/Num:</b> PATTERSON 340						
<b>Job BOM:</b> 7523 7523										
<b>Well Type:</b> HORIZONTAL OIL										
<b>Sales Person:</b> HALAMERICA\HX38199				<b>Srv Supervisor:</b> Michael Loughran						
<b>Job</b>										
<b>Formation Name</b>										
<b>Formation Depth (MD)</b>		<b>Top</b>		<b>Bottom</b>						
<b>Form Type</b>				<b>BHST</b>						
<b>Job depth MD</b>		18293 ft		<b>Job Depth TVD</b>		7990				
<b>Water Depth</b>				<b>Wk Ht Above Floor</b>						
<b>Perforation Depth (MD)</b>		<b>From</b>		<b>To</b>						
<b>Well Data</b>										
<b>Description</b>	<b>New / Used</b>	<b>Size in</b>	<b>ID in</b>	<b>Weight lbm/ft</b>	<b>Thread</b>	<b>Grade</b>	<b>Top MD ft</b>	<b>Bottom MD ft</b>	<b>Top TVD ft</b>	<b>Bottom TVD ft</b>
Casing	0	9.625	8.921	36			0	2700	0	2700
Casing	0	5.5	4.892	17	BTC	P-110	0	18293	0	7990
Open Hole Section			8.75				2700	18308	0	0
<b>Tools and Accessories</b>										
<b>Type</b>	<b>Size in</b>	<b>Qty</b>	<b>Make</b>	<b>Depth ft</b>		<b>Type</b>	<b>Size in</b>	<b>Qty</b>	<b>Make</b>	
<b>Guide Shoe</b>	5.5					<b>Top Plug</b>	5.5	1	Citadel	
<b>Float Shoe</b>	5.5			18293		<b>Bottom Plug</b>	5.5	1	Citadel	
<b>Wet Shoe Sub</b>	5.5			18279		<b>SSR plug set</b>	5.5		HES	
<b>Insert Float</b>	5.5					<b>Plug Container</b>	5.5	1	HES	
<b>Fluid Data</b>										
<b>Stage/Plug #:</b> 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	FDP-C1337-18	SBM FDP-C1337-18 CEMENT SPACER SYS	50	bbl	12.5	2.74		6	
5 lbm/bbl		<b>SEM-94P, 35 LB SACK - (1023987)</b>							
205.22 lbm/bbl		<b>BARITE, BULK (100003681)</b>							
5 lbm/bbl		<b>SEM-93P, 35 LB SACK - (1023977)</b>							
1 lbm/bbl		<b>FE-2 (100001615)</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
2	ElastiCem	ELASTICEM (TM) SYSTEM	585	sack	13.2	1.57		8	7.66
0.75 %		<b>SCR-100 (100003749)</b>							
7.62 Gal		<b>FRESH WATER</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
3	GasStop	ELASTICEM (TM) SYSTEM	615	sack	13.2	1.56		8	7.69
0.75 %		<b>SCR-100 (100003749)</b>							
5.19 Gal		<b>FRESH WATER</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
4	ElastiCem	ELASTICEM (TM) SYSTEM	1750	sack	13.12	1.56		8	7.65
7.65 Gal		<b>FRESH WATER</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
5	MMCR Displacement	MMCR Displacement	20	bbl	8.33			8	
0.50 gal/bbl		<b>MICRO MATRIX CEMENT RETARDER, 5 GAL PAIL (100003781)</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
6	Displacement	Displacement	404	bbl	8.33			8	
Cement Left In Pipe		Amount	0 ft			Reason		Wet Shoe Joint	

Mix Water:	pH 7	Mix Water Chloride:	Less 200 ppm	Mix Water Temperature:	70 °F
Cement Temperature:		Plug Displaced by:	8.33lb/gal	Disp. Temperature:	
Plug Bumped?	Yes	Bump Pressure:	2700 psi	Floats Held?	Yes/No
Cement Returns:		Returns Density:		Returns Temperature:	
<b>Comment</b> Good returns through out job, Plug bumped, 5 bbl wet shoe, Floats held, 3 bbl. Back, 56 bbl cap cement to surface,					

## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	DS Pump Press (psi)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	Call Out	7/14/2019	23:00:00	USER					Crew called out for on location time of 0500 hrs. 7/15/2019
Event	2	Arrive At Loc	Arrive At Loc	7/15/2019	04:30:00	USER					Arrive at location, Rig running casing, Meet with customer, TP 18293 17# P-110, TD 18308, 8.50 Hole, WSS 18279, TVD 7990, PC 2700' 9.625 J-55 36#, WF 9.9 OBM, 3rd Party (Citadel)Top and Bottom plug provided by customer, Water 70 Deg., PH 7, Chlorides and sulfates less than 200 ppm
Event	3	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	7/15/2019	04:35:00	USER					Pre rig up safety meeting
Event	4	Rig-Up Equipment	Rig-Up Equipment	7/15/2019	04:40:00	USER					Rig up all service lines and iron to buffer zone
Event	5	Start Job	Start Job	7/15/2019	07:02:16	COM4	8.30	0.00	1.00	23.40	Circulate Latex
Event	6	Pre-Job Safety Meeting	Pre-Job Safety Meeting	7/15/2019	07:30:00	USER	8.29	0.00	3.00	23.40	Discuss job procedures, Discuss job hazards and hazards of Halliburton Equipment.
Event	7	Start Job	Start Job	7/15/2019	08:01:09	COM4	8.29	0.00	0.00	0.00	Begin recording data
Event	8	Drop Bottom Plug	Drop Bottom Plug	7/15/2019	08:02:12	USER	8.31	0.00	36.00	0.00	Bottom plug provided and verified by Colby
Event	9	Test Lines	Test Lines	7/15/2019	08:04:50	COM4	8.37	0.00	255.00	2.40	Test lines 4800 psi



Event	10	Pump Spacer 1	Pump Spacer 1	7/15/2019	08:11:16	COM4	8.39	0.00	1.00	2.40	FDP-C1337-18 Spacer, 50 bbl. 12.5 ppg, 2.74 yield, 16.6 gal/sack
Event	11	Pump Cap Cement	Pump Cap Cement	7/15/2019	08:21:15	USER	13.21	8.00	1052.00	58.40	585 sacks ElastiCem Cap Cement, 163.58 bbl., 13.2 ppg, 1.57 yield, 7.66 gal/sack
Event	12	Pump Lead Cement	Pump Lead Cement	7/15/2019	08:43:23	COM4	13.07	8.00	626.00	0.10	615 sacks ElastiCem Lead cement, 170.87 bbl. 13.2 ppg, 1.56 yield, 7.69 gal/sack, 1537.5 gal Latex
Event	13	Pump Tail Cement	Pump Tail Cement	7/15/2019	09:06:25	COM4	13.05	7.80	773.00	0.10	1750 sacks ElastiCem, 486.21 bbl., 13.2 ppg, 1.56 yield, 7.65 gal/sack
Event	14	Shutdown	Shutdown	7/15/2019	10:20:15	USER	13.52	4.10	74.00	547.60	Shutdown
Event	15	Clean Lines	Clean Lines	7/15/2019	10:22:34	USER	17.17	0.00	40.00	547.80	Wash pumps and Lines
Event	16	Drop Top Plug	Drop Top Plug	7/15/2019	10:28:02	COM4	3.82	0.00	50.00	564.00	Drop top plug, verified by Colby
Event	17	Pump Displacement	Pump Displacement	7/15/2019	10:28:18	COM4	1.97	0.00	27.00	564.00	424 bbl. fresh water displacement. First 20 bbl. add 10 gallons Micro Matrix Retarder. See spacer 319 into displace. See cement 369 into displace. 56 bbl. Cap cement to surface. Top tail 6384, Top Lead 2270, Top cap cement = Surface
Event	18	Bump Plug	Bump Plug	7/15/2019	11:29:23	COM4	8.24	2.80	2313.00	432.30	Final circ pressure 2300 @ 3 bpm, Bump plug to 2700 psi,
Event	19	Pump Water	Pump Water	7/15/2019	11:30:20	USER	8.23	2.30	2151.00	433.40	Pump 5 bbl. wet shoe @ 3 bpm at 2380 psi
Event	20	Check Floats	Check Floats	7/15/2019	11:32:11	USER	8.24	0.90	2355.00	438.80	Floats hold, 3 bbl. back
Event	21	End Job	End Job	7/15/2019	11:33:37	COM4	8.17	0.00	16.00	438.80	Stop recording data

Event	22	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	7/15/2019	11:40:00	USER	8.19	3.40	29.00	445.10	JSA safe Rig-Down
Event	23	Rig-Down Equipment	Rig-Down Equipment	7/15/2019	11:45:00	USER	-0.08	0.00	19.00	447.80	Rig down equipment
Event	24	Crew Leave Location	Crew Leave Location	7/15/2019	14:00:00	USER					Thanks for choosing Halliburton Energy Services!

3.0 Attachments

3.1 Jamaso 4-65 5-6-12-Custom Results.png

