

# HALLIBURTON

iCem<sup>®</sup> Service

## **SYNERGY RESOURCES CORPORATION**

Date: Sunday, October 22, 2017

### **Falken 32C-9-L Production**

Job Date: Tuesday, September 26, 2017

Sincerely,

**Justin Lansdale**

## 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 **Falken 32C-9-L 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.

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> 359915		<b>Ship To #:</b> 3815825		<b>Quote #:</b>		<b>Sales Order #:</b> 0904309269					
<b>Customer:</b> SYNERGY RESOURCES CORPORATION				<b>Customer Rep:</b> Tim Jones							
<b>Well Name:</b> FALKEN			<b>Well #:</b> 32C-9-L		<b>API/UWI #:</b> 05-123-45115-00						
<b>Field:</b> WATTENBERG		<b>City (SAP):</b> GREELEY		<b>County/Parish:</b> WELD		<b>State:</b> COLORADO					
<b>Legal Description:</b> NE SE-11-6N-66W-1904FSL-276FEL											
<b>Contractor:</b> PRECISION DRLG				<b>Rig/Platform Name/Num:</b> PRECISION 562							
<b>Job BOM:</b> 7523 7523											
<b>Well Type:</b> HORIZONTAL OIL											
<b>Sales Person:</b> HALAMERICA\HB41307				<b>Srv Supervisor:</b> Bradley Hinkle							
<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>		19099ft		<b>Job Depth TVD</b>		7281ft					
<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		9.625	8.921	36	LTC	J-55	0	1809	0	0	
Casing		5.5	4.778	20		P-110	0	19099	0	0	
Open Hole Section			8.5				1809	19120	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>		
Guide Shoe	5.5					Top Plug	5.5	1	Weatherford		
Float Shoe	5.5	1	FMC	19099		Bottom Plug	5.5	1	Weatherford		
Float Collar	5.5	1	FMC	19054		SSR plug set	5.5		HES		
Insert Float	5.5					Plug Container	5.5	1	HES		
Wet Shoe Sub	5.5	1	FMC	18995		Centralizers	5.5		HES		
<b>Fluid Data</b>											
<b>Stage/Plug #: 1</b>											
<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>
1	Tuned Spacer III	Tuned Spacer III			40	bbl	11.5	3.8		4.5	

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	Lead	ELASTICEM		1122	sack	13.2	1.57		8	7.52
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	Tail	NEOCEM		1575	sack	13.2	2.09		8	10.08
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	Displacement	MMCR Water		20	bbl	8.34			9	
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	Cla Web & Biocide Water		400	bbl	8.33			7.5	
Cement Left In Pipe		Amount	0 ft			Reason			Wet Shoe by Design	
<b>Comment</b> Cement increased to reflect 15% excess for both lead and tail. 40 bbls Tuned Spacer and 150 bbls cement to surface. Floats didn't hold. Shut in well with cement head with approximately 1800 PSI on well for 6 hours.										

## 2.0 Real-Time Job Summary

## 2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Comments
Event	1	Call Out	Call Out	9/25/2017	06:00:00	USER	Crew called for an on location of 1200. Customer called later and requested the crew on location at 1400. Crew was Bradley Hinkle, James Bunnell, Luis Ramirez, Martin Schmidt and Kenneth Hulse.
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	9/25/2017	10:30:00	USER	Pre-journey safety meeting.
Event	3	Arrive at Location from Service Center	Arrive at Location from Service Center	9/25/2017	11:45:00	USER	Sign in, perform a site assessment and pre rig-up safety meeting. Approximately 3000 feet of casing to run.
Event	4	Other	Job Numbers	9/25/2017	14:33:17	USER	TD: 19109. TP: 19099. FC: 19054. Wet Shoe Sub: 18995. TVD: 7281. 5.5" 20# casing inside a 8.5" OH. SC: 1809 9.625" 36#. Mud weight 9.7 ppg.
Event	5	Casing on Bottom	Casing on Bottom	9/26/2017	03:15:00	USER	Casing on bottom. Rig up cement head to circulate well. Rig seeing solids pile up on shakers while circulating.
Event	6	Start Job	Start Job	9/26/2017	09:35:45	COM4	
Event	7	Other	Other	9/26/2017	11:00:00	USER	Due to circulation, customer requested more cement on location. Request was to increase excess from 5% to 15% resulting in an additional 77 sacks of lead cement and 146 sacks of tail. Mud weight increased to 10.2 ppg and rig circulated a total of four bottoms up.

Event	8	Comment	Comment	9/26/2017	15:40:00	USER	Cement arrived on location. Hand notified of hazards on location and truck spotted into position.
Event	9	Safety Meeting - Pre Job	Safety Meeting - Pre Job	9/26/2017	16:00:00	USER	Pre-job safety meeting with all personnel on location.
Event	10	Start Job	Start Job	9/26/2017	16:30:39	COM4	
Event	11	Test Lines	Test Lines	9/26/2017	16:32:47	COM4	Pressure test lines with a 500 PSI electronic kick-out test.
Event	12	Pump Spacer 1	Pump Spacer 1	9/26/2017	16:39:16	COM4	Pump 40 bbls Tuned Spacer mixed at 11.5 ppg with surfactants added throughout. Density verified by pressurized scales.
Event	13	Drop Bottom Plug	Drop Bottom Plug	9/26/2017	16:52:10	USER	Bottom plug preloaded. Witnessed by customer, driller and tool pusher.
Event	14	Pump Lead Cement	Pump Lead Cement	9/26/2017	16:52:13	COM4	Pump 313 bbls (1122 sacks) ElastiCem mixed at 13.2 ppg. Density verified by pressurized scales.
Event	15	Comment	Comment	9/26/2017	17:04:47	USER	Due to extra cement, not enough fittings were available to tie in truck with extra cement. Had to slow rate, bleed off pressure and swap out with lead truck already used.
Event	16	Pump Tail Cement	Pump Tail Cement	9/26/2017	17:46:50	COM4	Pump 586 bbls (1575 sacks) NeoCem mixed at 13.2 ppg. Density verified by pressurized scales.
Event	17	Shutdown	Shutdown	9/26/2017	19:15:54	COM4	
Event	18	Clean Lines	Clean Lines	9/26/2017	19:17:14	COM4	Wash pumps and lines until clean.



Event	19	Drop Top Plug	Drop Top Plug	9/26/2017	19:24:07	COM4	Top plug preloaded and witnessed by customer.
Event	20	Pump Displacement	Pump Displacement	9/26/2017	19:24:11	COM4	Pump 20 bbls MMCR water and another 400 bbls with cla-web and biocide added throughout for a total of 420 bbls. Good returns throughout. 40 bbls Tuned Spacer and 150 bbls cement to surface.
Event	21	Bump Plug	Bump Plug	9/26/2017	20:22:29	COM4	Bump plug at 2200 PSI and increased to 2700 PSI. Held for 10 minutes for a casing test.
Event	22	Check Floats	Check Floats	9/26/2017	20:35:34	USER	6 bbls back. Floats didn't hold.
Event	23	Other	Other	9/26/2017	20:41:17	COM4	Pressure up to bump plug again and see if floats hold. Floats didn't hold.
Event	24	Other	Other	9/26/2017	20:46:36	COM4	Pressure up to burst plug. Plug burst at 4880 PSI and pump 6 bbls at 4 bbls/ minute for wet shoe.
Event	25	Check Floats	Check Floats	9/26/2017	20:51:50	USER	3 bbls back and flow slowed but continued to flow. Shut in release valve and pressure began to build.
Event	26	Pump Water	Pump Water	9/26/2017	20:56:37	USER	Pump 3 bbls back into well to assure wet shoe was sufficient and shut in cement head on floor to allow cement to cure (6 hours) before bleeding off pressure. Well was shut in with approximately 1800 PSI on it.
Event	27	Comment	Comment	9/26/2017	21:01:47	USER	Bleed pressure off iron once well was shut in.
Event	28	End Job	End Job	9/26/2017	21:05:55	COM4	

Event	29	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	9/26/2017	21:10:00	USER	Pre-rig down safety meeting.
Event	30	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	9/26/2017	22:00:00	USER	Pre-journey safety meeting.

## 3.0 Attachments

### 3.1 SRC ENERGY FALKEN 32C-9-L.png



