

# HALLIBURTON

iCem<sup>®</sup> Service

## **SYNERGY RESOURCES CORPORATION**

United States of America, CO

Date: Tuesday, October 24, 2017

### **Ag 31C-31-L Production**

Job Date: Sunday, September 24, 2017

Sincerely,

**Bryce Hinsch**

## 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 **Ag 31C-31-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.

**Approximately 100 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> 359915		<b>Ship To #:</b> 3801264		<b>Quote #:</b>		<b>Sales Order #:</b> 0904312055				
<b>Customer:</b> SYNERGY RESOURCES CORPORATION				<b>Customer Rep:</b>						
<b>Well Name:</b> AG			<b>Well #:</b> 31C-31-L		<b>API/UWI #:</b> 05-123-44881-00					
<b>Field:</b> WATTENBERG		<b>City (SAP):</b> GREELEY		<b>County/Parish:</b> WELD		<b>State:</b> COLORADO				
<b>Legal Description:</b> NE NE-32-6N-66W-965FNL-531FEL										
<b>Contractor:</b> Synergy				<b>Rig/Platform Name/Num:</b> Precision 462						
<b>Job BOM:</b> 7523 7523										
<b>Well Type:</b> HORIZONTAL OIL										
<b>Sales Person:</b> HALAMERICA\HB41307				<b>Srv Supervisor:</b> Robert Davis						
<b>Job</b>										
<b>Formation Name</b>										
<b>Formation Depth (MD)</b>		<b>Top</b>		1762		<b>Bottom</b>		18600		
<b>Form Type</b>				BHST						
<b>Job depth MD</b>		18454ft		<b>Job Depth TVD</b>		7041				
<b>Water Depth</b>				<b>Wk Ht Above Floor</b>		4				
<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	1759	0	1759
Casing		5.5	4.778	20		P-110	0	18440	0	6848
Open Hole Section			8.5				1759	18454	1759	6848
<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			18440		Top Plug	5.5		HES	
Float Shoe	5.5					Bottom Plug	5.5		HES	
Float Collar	5.5					SSR plug set	5.5		HES	
Insert Float	5.5					Plug Container	5.5	1	HES	
Stage Tool	5.5					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		6		
35.10 gal/bbl		<b>FRESH WATER</b>								
0.50 gal/bbl		<b>DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)</b>								
0.50 gal/bbl		<b>MUSOL A, 330 GAL TOTE - (790828)</b>								

147.42 lbm/bbl		<b>BARITE, BULK (100003681)</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 Lead	ELASTICEM (TM) SYSTEM	1010	sack	13.2	1.57		8	7.52		
7.52 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	NeoCem Tail	NeoCem TM	1375	sack	13.2	2.09		8	10.08		
0.30 %		<b>SCR-100 (100003749)</b>									
10.08 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	MMCR Displacement	MMCR Displacement	40	bbl	8.34			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		
5	Cla Web Displacement	Cla Web Displacement	369	bbl	8.33			8			
Cement Left In Pipe		Amount	106 ft		Reason			Shoe Joint			
Mix Water:		pH 7	Mix Water Chloride:		200 ppm		Mix Water Temperature:		60 °F °C		
Cement Temperature:		## °F °C		Plug Displaced by:		8.33lb/gal kg/m3 XXXX		Disp. Temperature:		## °F °C	
Plug Bumped?		Yes		Bump Pressure:		#### psi MPa		Floats Held?		NO	
Cement Returns:		## bbl m3		Returns Density:		## lb/gal kg/m3		Returns Temperature:		## °F °C	
<b>Comment</b> BUMPED PLUG @ CACULATED DISPLACEMENT @ 2600 PSI TOOK TO 3300 PSI FLOATS DID NOT HOLD, SHUT IN WELL											

## 2.0 Real-Time Job Summary

## 2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Comb Pump Rate (bbl/min)	DH Density (ppg)	DS Pump Press (psi)	Comments
Event	1	Call Out	Call Out	9/24/2017	05:00:00	USER				CALLED OUT FROM FT. LUPTON COLORADO
Event	2	Depart from Service Center or Other Site	Depart from Service Center or Other Site	9/24/2017	07:00:00	USER				LEAVE YARD AFTER SAFTEY MEETING
Event	3	Arrive at Location from Service Center	Arrive at Location from Service Center	9/24/2017	08:30:00	USER				ARRIVED ON LOCATION AND TALKED TO COMPANY MAN ABOUT JOB FIGURES AND THE SPOTTING OF OUR EQUIPMENT
Event	4	Assessment Of Location Safety Meeting	Assessment Of Location Safety Meeting	9/24/2017	08:40:00	USER				ASSESSED LOCATION AN TOOK WATER SAMPLE
Event	5	Rig-Up Equipment	Rig-Up Equipment	9/24/2017	08:45:00	USER				SPOTTED EQUIPMENT AND RIGGED UP TO FLOOR RIG IS RUNNING CASING
Event	6	Other	Other	9/24/2017	08:50:00	USER				Water test=pH: _7___, Cl: _150___, temp 60___degrees Tannin-Lignin: _NEG.____; Sulfate: _200___
Event	7	Other	Other	9/24/2017	09:00:00	USER				Rig Circulation: ___ bbls Circulation Rate: ___ bbl/min Mud Density 10.5___ lb/gal Mud YP/PV: _____
Event	8	Other	Other	9/24/2017	09:15:00	USER				Spacer: _40___ bbl TOS ___0___ Lead Cement: _282___ bbl, _1010___ sks, TOC ___0___ Tail Cement:

										_511_ bbl, _1375_ sks, TOC_6084_ Displacement: _409_ bblCMT left in Pipe_1_ Reason____SHOE____
Event	9	Other	Other	9/24/2017	09:30:00	USER				TD: _18600_ , TP _18584_ , SJ: _51_ OH: _8.5_ , Casing: Size/Weight/Grade: _5.5/20#/P110_ , Previous Casing Shoe: _1762_
Event	10	Rig-Up Completed	Rig-Up Completed	9/24/2017	10:15:00	USER	0.00	0.00	-171.00	RIG UP COMPLETE SAFETY MEETING WITH RIG HANDS AND HALLIBURTON ABOUT THE DANGERS OF OUR EQUIPMENT AND WENT OVER JOB FIGURES. READY TO TEST LINES
Event	11	Start Job	Start Job	9/24/2017	10:48:31	COM4	0.00	0.00	4.00	
Event	12	Test Lines	Test Lines	9/24/2017	11:11:23	COM4	0.00	8.14	80.00	FLOOD LINES WITH 2 BBLS OF WATER, LOW TEST TO 500 PSI, HIGH TEST TO 6000 PSI
Event	13	Pump Spacer 1	Pump Spacer 1	9/24/2017	11:11:26	COM4	0.00	8.14	84.00	TUNED SPACER WITH SURFACTANTS, 40 BBLS @ 11.5 PPG, PUMPED @ 6 BPM @ 650 PSI, TOS-0
Event	14	Drop Bottom Plug	Drop Bottom Plug	9/24/2017	11:18:20	COM4	1.30	11.55	152.00	WEATHERFORD BOTTOM PLUG
Event	15	Pump Lead Cement	Pump Lead Cement	9/24/2017	11:18:24	COM4	1.30	11.55	151.00	ELASTICEM, 1010 SKS @ 13.2 PPG, YEILD @ 1.57, GAL/SK @ 7.53, 1585.7 FT3, 282 BBLS, 180 BBLS OF WATER TO MIX, PUMPED @ 8 BPM @ 420 PSI, HOL-6084



										FT, TOL-0
Event	16	Pump Tail Cement	Pump Tail Cement	9/24/2017	12:00:38	COM4	8.00	13.40	412.00	NEOCEM, 1375 SKS @ 13.2PPG, YEILD @ 2.09, GAL/SK @ 10.08, 2873.75 FT3, 511 BBLS, 330 BBLS OF WATER TO MIX, PUMPED @ 8 BPM @ 520 PSI, HOT-12500 FT, TOT-6084 FT
Event	17	Clean Lines	Clean Lines	9/24/2017	13:14:36	COM4	5.90	8.32	211.00	
Event	18	Drop Top Plug	Drop Top Plug	9/24/2017	13:16:00	COM4	0.00	8.34	25.00	WEATHERFORD TOP PLUG
Event	19	Pump Displacement	Pump Displacement	9/24/2017	13:16:02	COM4	0.00	8.32	21.00	409 BBLS, FIRST 20 BBLS MMCR WATER, THE REST CLAYWEB WATER, PUMPED @ 8 BPM @ 2900 PSI FOR THE FIRST 250 BBLS, THE SLOWED DOWN TO 7 BMP PERCUSTOMER @ 2700 PSI, 40 BBLS OF SPACER AND 100 BBLS OF CEMENT RETURNS TO SURFACE
Event	20	Other	Other	9/24/2017	14:11:09	COM4	4.00	8.41	2369.00	SLOWED RATE LAST 20 BBLS TO 4 BPM @ 2300 PSI
Event	21	Bump Plug	Bump Plug	9/24/2017	14:13:09	COM4	0.00	8.43	3047.00	BUMPED PLUG 500 OVER BUMPED @ 2600 PSI TOOK TO 3300 PSI THEN HELD BUT PRESSURE BLEED OFF
Event	22	Other	Other	9/24/2017	14:14:39	COM4	1.50	8.40	2057.00	PUMP 6 BBLS WET SHOE @ 3 BPM @ 2950 PSI, THE CHECK FLOATS GOT 9 BBLS BACK THE SHUT BACK IN, FLOATS DID NOT HOLD
Event	23	Other	Other	9/24/2017	14:22:11	COM4	1.50	8.37	1567.00	PUMP THE 9 BBLS BACK INTO THE WELL AND SHUT IN WELL
Event	24	End Job	End Job	9/24/2017	14:30:09	COM4				

Event	25	Safety Meeting - Pre Rig-Down	Safety Meeting - Pre Rig-Down	9/24/2017	14:45:00	USER	SAFETY MEETING OVER RIGGING DOWN
Event	26	Rig-Down Equipment	Rig-Down Equipment	9/24/2017	15:00:00	USER	RIG DOWN EQUIPMENT AND HOSES
Event	27	Rig-Down Completed	Rig-Down Completed	9/24/2017	16:00:00	USER	RIG DOWN COMPLETE
Event	28	Safety Meeting - Departing Location	Safety Meeting - Departing Location	9/24/2017	16:15:00	USER	SAFETY MEETING OVER DEPARTURE AND JOURNEY HOME
Event	29	Depart Location for Home	Depart Location for Home	9/24/2017	16:30:00	USER	LEAVE LOCATION

3.0 Attachments

3.1 Synergy Ag 31C-31-L Production Job Chart

