

# HALLIBURTON

iCem<sup>®</sup> Service

## **SYNERGY RESOURCES CORPORATION**

**For: Danny Showers**

Date: Wednesday, June 20, 2016

**Fagerberg 3C-18-M**

Production

Job Date: Friday, June 17, 2016

Sincerely,  
**Derek Trier**

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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 **Fagerberg 3C-18M** 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 [Ft. Lupton]

**Job Times**

	<b>Date</b>	<b>Time</b>	<b>Time Zone</b>
Called Out Time:	6/17/2016	0001	MTN
Arrived On Location At:		0500	
Job Started At:		1325	
Job Completed At:		1826	
Departed Location At:		2000	

Sold To #: 359915		Ship To #: 3741113		Quote #:		Sales Order #: 0903363609				
Customer: SYNERGY RESOURCES CORPORATION				Customer Rep: Kevin Brakovec						
Well Name: FAGERBERG			Well #: 3C-18-M		API/UWI #: 05-123-43184-00					
Field: WATTENBERG		City (SAP): EATON		County/Parish: WELD		State: COLORADO				
Legal Description: SW SW-12-6N-66W-1251FSL-235FWL										
Contractor: PRECISION DRLG				Rig/Platform Name/Num: PRECISION 462						
Job BOM: 7523										
Well Type: HORIZONTAL OIL										
Sales Person: HALAMERICA\HX38199				Srv Supervisor: Vaughn Oteri						
Job										
Formation Name										
Formation Depth (MD)		Top		Bottom						
Form Type				BHST						
Job depth MD		15611ft		Job Depth TVD						
Water Depth				Wk Ht Above Floor						
Perforation Depth (MD)		From		To						
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	LTC	J-55	0	1752		1752
Casing		5.5	4.892	17		P-110	0	15544	0	0
Open Hole Section			8.5				1752	15562	1752	0
Tools and Accessories										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
Guide Shoe	5.5					Top Plug	5.5	1	Weatherford	
Float Shoe	5.5			15544		Bottom Plug	5.5	1	Weatherford	
Float Collar	5.5			15495		SSR plug set	5.5			
Insert Float	5.5					Plug Container	5.5	1	HES	
Stage Tool	5.5					Centralizers	5.5			
Fluid Data										
Stage/Plug #: 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	Tuned Spacer III	Tuned Spacer III		40	bbl	11.5	3.76		6	
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	1175	sack	13.2	1.57		8	7.52
7.52 Gal		FRESH WATER							
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	NeoCem TM	1017	sack	13.2	2.078		8	9.99
9.99 Gal		FRESH WATER							
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	20	bbl	8.34				
0.50 gal/bbl		MICRO MATRIX CEMENT RETARDER, 5 GAL PAIL (100003781)							
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	Water/BE3/Clay-web	Water/BE3/Clay-web	340	bbl	8.33				
Cement Left In Pipe		Amount	42 ft		Reason			Shoe Joint	
Comment 30bbl of cement back surface									

## 2.0 Real-Time Job Summary

## 2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	PS Pump Press (psi)	DH Density (ppg)	PS Pump Rate (bbl/min)	DS Pump Rate (bbl/min)	Comments
Event	1	Call Out	Call Out	6/17/2016	00:00:00	USER					Call out from Arc hud
Event	2	Arrive At Loc	Arrive At Loc	6/17/2016	05:00:00	USER					Requested on location @0700 Arrived on location @0500 met with company rep to discuss job process and concerns advised that they had about 1000 feet of casing left to run and then would be ready
Event	3	Other	Other	6/17/2016	05:01:00	USER					Casing 5.5 17# TD-15562 TP-15544 FC-15495 Surf -1752 9.65 36#
Event	4	Start Job	Start Job	6/17/2016	13:25:29	COM4	1.00	0.07	0.00	0.00	Held pre-job safety meeting with all hands on location to discuss job process and hazards
Event	5	Prime Pumps	Prime Pumps	6/17/2016	13:25:34	COM4	1.00	0.07	0.00	0.00	Prime pumps and lines with fresh water
Event	6	Test Lines	Test Lines	6/17/2016	14:45:47	COM4	11.00	8.30	0.00	0.00	Pressure tested pumps and lines found no leaks and pressure held good 5052psi
Event	7	Pump Spacer 1	Pump Spacer 1	6/17/2016	14:50:20	COM4	15.00	8.32	0.00	0.00	Pumped 20bbl of fresh water with Red Tracer Dye at 3.0bpm 510psi
Event	8	Check Weight	Check weight	6/17/2016	14:52:30	COM4	431.00	8.29	1.50	1.50	Confirm weight of 11.5ppg on scales
Event	9	Pump Spacer 1	Pump Spacer 1	6/17/2016	14:58:47	COM4	483.00	8.48	1.50	1.50	Mixed 40bbl of 11.5ppg Tuned Spacer III at 3.0bpm 490psi
Event	10	Drop Bottom Plug	Drop Bottom Plug	6/17/2016	15:10:03	COM4	361.00	11.46	0.00	1.50	Released plug witnessed by company rep and Weatherford tool hand
Event	11	Pump Lead Cement	Pump Lead Cement	6/17/2016	15:11:25	COM4	359.00	12.89	0.00	1.50	Mixed 1175sk or 328bbl of 13.2ppg Y-1.57 g/sk-7.52 Elasticem at 8.0bpm 269psi
Event	12	Check Weight	Check weight	6/17/2016	15:12:39	COM4	707.00	13.17	4.00	1.50	Confirm weight of 13.2ppg on scales
Event	13	Pump Tail Cement	Pump Tail Cement	6/17/2016	15:55:18	COM4	348.00	13.17	4.00	4.00	Mixed 1017sk or 374bbl of 13.2ppg Y-2.07 g/sk-9.99 NeoCem at 8.0bpm 384psi

Event	14	Check Weight	Check weight	6/17/2016	16:13:45	COM4	387.00	13.18	4.00	4.00	Confrim weight of 13.2ppg on scales
Event	15	Shutdown	Shutdown	6/17/2016	16:43:25	COM4	100.00	13.03	0.00	0.00	
Event	16	Drop Top Plug	Drop Top Plug	6/17/2016	16:43:32	COM4	51.00	16.34	0.00	0.00	Released plug witnessed by company rep and Weatherford tool hand
Event	17	Clean Lines	Clean Lines	6/17/2016	16:43:38	COM4	29.00	16.61	0.00	0.00	Washed pumps and lines with fresh water
Event	18	Pump Displacement	Pump Displacement	6/17/2016	16:53:28	COM4					Pumped 360bbl of treated water with MMCR,Biocide and Clayweb
Event	19	Displ Reached Cmnt	Displ Reached Cmnt	6/17/2016	16:56:28	COM4					Caught cement at 26bbl away
Event	20	Other	Kicked out	6/17/2016	16:57:43	USER	1173.00	8.22	5.00	5.00	Pump was kicking out, trying to keep rate up and pressure below 2000psi
Event	21	Other	Kicked out	6/17/2016	17:01:12	USER	1036.00	8.26	0.00	5.00	Pump was kicking out, trying to keep rate up and pressure below 2000psi
Event	22	Other	Kicked out	6/17/2016	17:06:01	USER	1133.00	8.27	0.00	0.00	Pump was kicking out, trying to keep rate up and pressure below 2000psi
Event	23	Other	Kicked out	6/17/2016	17:08:09	USER	1648.00	8.25	3.00	6.20	Pump was kicking out, trying to keep rate up and pressure below 2000psi
Event	24	Other	Kicked out	6/17/2016	17:12:18	USER	1819.00	8.25	4.50	2.00	Pump was kicking out, trying to keep rate up and pressure below 2000psi
Event	25	Other	Slowed rate	6/17/2016	17:13:37	USER	1369.00	8.24	1.50	2.00	Slowed rate and raised kick outs per tool hand and company rep
Event	26	Bump Plug	Bump Plug	6/17/2016	17:53:34	COM4					Bumped plug 250psi over final pump pressure due to pressure limts set by Weatherford tool hand
Event	27	Other	Other	6/17/2016	18:03:41	COM4					Released pressure back to pump truck to check floats, floats held good 3.0bbl back
Event	28	Pressure Up Well	Pressure Up Well	6/17/2016	18:05:25	COM4					Pressure up well to blow disc and pump 5bbl for wet shoe per company rep and Weatherford tool hand, disc blew at 4234psi
Event	29	End Job	End Job	6/17/2016	18:26:40	COM4					30bbl of cement back to surface



## 3.0 Attachments

### 3.1 Case 1-Custom Results.png



