

# HALLIBURTON

iCem<sup>®</sup> Service

**CONOCO/PHILLIPS COMPANY EBUSINESS**

**For:**

Date: Sunday, July 06, 2014

**Reserve 3-65 34-35 1H**

Case 1

Sincerely,

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## 1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Well Name and Number** cement **Job Type** 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.

This space is provided to enter in a brief summary of the job. Below are some important items to discuss"

1. Quality of circulation before and during the job
2. The final circulating pressure
3. Whether or not any of the fluids that Halliburton pumped were returned to surface during the job
4. Whether or not a flare was present at any point during the job
5. A brief explanation any abnormalities on the job chart
6. If we deviated from the original job plan, a brief explanation why we did so

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 [Brighton]

Job Times

	Date	Time	Time Zone
Called Out	7/5/14	1330	
On Location	7/5/14	1830	
Job Started	7/5/14	2230	
Job Completed	7/6/14	0120	
Departed Location	7/6/14	0230	

## 1.2 Cementing Job Summary

<b>Sold To #:</b> 352431		<b>Ship To #:</b> 3468479		<b>Quote #:</b>		<b>Sales Order #:</b> 0901486399				
<b>Customer:</b> CONOCO/PHILLIPS COMPANY EBUSINESS				<b>Customer Rep:</b> Mike Johnson						
<b>Well Name:</b> RESERVE 3-65 34-35			<b>Well #:</b> 1H		<b>API/UWI #:</b> 05-001-09805-00					
<b>Field:</b> WILDCAT		<b>City (SAP):</b> WATKINS		<b>County/Parish:</b> ADAMS		<b>State:</b> COLORADO				
<b>Legal Description:</b> NE NE-35-3S-65W-660FNL-400FEL										
<b>Contractor:</b>				<b>Rig/Platform Name/Num:</b> H&P 280						
<b>Job BOM:</b> 7521										
<b>Well Type:</b> VERTICAL OIL										
<b>Sales Person:</b> HALAMERICA/HX38199				<b>Srvc Supervisor:</b> Devin Birchell						
<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>		2038ft		<b>Job Depth TVD</b>						
<b>Water Depth</b>				<b>Wk Ht Above Floor</b>						
<b>Perforation Depth (MD)</b>				<b>To</b>						
<b>Well Data</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		16	15.5				0	100		
Casing		9.625	8.921	36	STC	J-55	0	2028		0
Open Hole Section			13.5				100	2038		
<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	9.625	1				Top Plug	9.625	1	Weath	
Float Shoe	9.625	1		2021		Bottom Plug	9.625	1	Weath	
Float Collar	9.625	1		1976		SSR plug set	9.625		HES	
Insert Float	9.625	1				Plug Container	9.625	1	HES	
	9.625	1				Centralizers	9.625	15	HES	
<b>Miscellaneous Materials</b>										
<b>Gelling Agt</b>		<b>Conc</b>		<b>Surfactant</b>		<b>Conc</b>		<b>Acid Type</b>	<b>Qty</b>	
<b>Treatment Fld</b>		<b>Conc</b>				<b>Conc</b>		<b>Sand Type</b>		
<b>Fluid Data</b>										
<b>Stage/Plug #: 1</b>										



Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
1	Clean Spacer III	CLEANSPECER III	50	bbl	10.5	3.86	35.1	5	
35.10 gal/bbl									
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
2	SwiftCem B1	SWIFTCER (TM) SYSTEM	440	sack	12	2.56		6	15.09
15.09 Gal									
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
3	SwiftCem B1	SWIFTCER (TM) SYSTEM	200	sack	13	2.01		6	10.99
10.99 Gal									
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
4	Displacement		153	bbl	8.5				
Amount		45 ft							
Comment									

**1.4 Planned Pumping Schedule**

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**1. Fill Lines with Water**

- a. Density = 8.3
- b. Volume = 2

**2. Pressure Test Lines to 3000psi****3. Pump Clean Spacer**

- a. Density = 10.5 lb/gal
- b. Volume = 50 bbl
- c. Rate = 5 bpm

**4. Drop Bottom Plug****5. Pump X (Lead)**

- a. Density = 12
- b. Yield = 2.56
- c. Water Requirement = 15.09
- d. Volume = 440 sks (200 bbls)
- e. Rate = 8 bpm

**6. Pump X (Tail)**

- a. Density = 13
- b. Yield = 2.01
- c. Water Requirement = 10.99
- d. Volume = 200 sks (71 bbls)
- e. Rate = 7 bpm

**7. Drop Top Plug****8. Start Displacement****9. Pump Displacement Water**

- a. Density = 8.3 lb/gal
- b. Volume = 153 bbls
- c. Rate = 8.5 bpm

**10. Land Plug – Anticipated Final Circulation Pressure 690 psi**

**Calculated Total Displacement = 153 bbls**

**1.5 Job Overview**

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		Units	Description
1	Surface temperature at time of job	°F	79
2	Mud type (OBM, WBM, SBM, Water, Brine)	-	Wbm
3	Actual mud density	lb/gal	8.6
4	Time circulated before job	HH:MM	3
5	Mud volume circulated	Bbls	2000
6	Rate at which well was circulated	Bpm	8
7	Pipe movement during hole circulation	Y/N	N
8	Rig pressure while circulating	Psi	398
9	Time from end mud circulation to start of job	HH:MM	20
10	Pipe movement during cementing	Y/N	N
11	Calculated displacement	Bbls	153
12	Job displaced by	Rig/HES	Hes
13	Annular before job)?	Y/N	N
14	Annular flow after job	Y/N	N
15	Length of rat hole	Ft	10
16	Units of gas detected while circulating	Units	0
17	Was lost circulation experienced at any time ?	Y/N	n

**Lost Circulation Details**

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**Squeeze Job Information**

		Units	Description
1	Was the well full prior to cementing?	Y/N	
2	Injection Rate #1 & Pressure	psi/bpm	
3	Injection Rate #2 & Pressure	psi/bpm	
4	Injection Rate #2 & Pressure	psi/bpm	
5	Initial ISIP	psi	
6	Final ISIP	psi	

**Plug Job Information**

		Units	Description
1	Density of well fluid exiting well prior to job	lb/gal	
2	Density of well fluid entering well prior to job	lb/gal	
3	Was the well full prior to cementing?	Y/N	
4	How many joints of workstring pulled wet?	# Joints	
5	Depth of workstring for circulation after the plug?	ft	
6	Calculated Plug Height	ft	



## 1.6 Water Field Test

Item	Recorded Test Value	Units	Max. Acceptable Limit	Potential Problems in Exceeding Limit
pH	7	----	6.0 - 8.0	Chemicals in the water can cause severe retardation
Chlorides	0	ppm	3000 ppm	Can shorten thickening time of cement
Sulfates	0	ppm	1500 ppm	Will greatly decrease the strength of cement
Total Hardness	0	ppm	500 mg/L	High concentrations will accelerate the set of the cement
Calcium	0	ppm	500 ppm	High concentrations will accelerate the set of the cement
Total Alkalinity		ppm	1000 ppm	Cement is greatly retarded to the point where it may not set up at all (typically occurs @ pH $\geq$ 8.3).
Bicarbonates		ppm	1000 ppm	Cement is greatly retarded to the point where it may not set up at all
Potassium		ppm	5000 ppm	High concentrations will shorten the pump time of cement (indicates the presence of chlorides, therefore if Potassium levels are measured as high, so should the chlorides)
Iron	0	ppm	300 ppm	High concentrations will accelerate the set of the cement
Temperature	65	°F	50-80 °F	High temps will accelerate; Low temps may risk freezing in cold weather

Submitted Respectfully by: \_\_\_\_\_

## 1.7 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Truck 1 Pr (psi)	Truck 1 Dens (ppg)	Truck 1 Stry Rt (bbl/min)	Comment
Event	1	Call Out	Call Out	7/5/2014	13:30:12	USER				called cement crew for conoco phillips reserve 3-65- 34-35 1h surface
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	7/5/2014	17:15:02	USER				discussed route weather other traffic and following distance
Event	3	Depart from Service Center or Other Site	Depart from Service Center or Other Site	7/5/2014	17:30:25	USER				called journey, gate checked and departed for location
Event	4	Arrive At Loc	Arrive At Loc	7/5/2014	18:30:14	USER				ended journey, talked with company rep on rates pressures volumes and depths
Event	5	Safety Meeting - Assessment of Location	Safety Meeting - Assessment of Location	7/5/2014	19:20:14	USER				discussed where to spot equipment where to rig up land guides
Event	6	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	7/5/2014	19:30:12	USER				discussed hand placement team lifting job assignments
Event	7	Rig-Up Equipment	Rig-Up Equipment	7/5/2014	19:35:45	USER				spot pump spot and rig up bulk trucks rigged up water lines and iron
Event	8	Pre-Job Safety Meeting	Pre-Job Safety Meeting	7/5/2014	21:30:21	USER	18.00	9.46	0.00	discussed job procedures with rig and cement crews job assignments
Event	9	Rig-Up Completed	Rig-Up Completed	7/5/2014	22:26:14	USER	18.00	9.47	0.00	loaded and rigged up cement head rigged up hard line to head
Event	10	Prime Pumps	Prime Pumps	7/5/2014	22:28:45	USER	17.00	9.43	0.00	primed pump and lines for pressure test
Event	11	Test Lines	Test Lines	7/5/2014	22:31:11	COM1	18.00	8.32	0.00	pressured pump and lines to 3000 psi
Event	12	Pump Spacer 1	Pump Spacer 1	7/5/2014	22:43:31	COM1	18.00	8.30	0.00	pumped 50 bbls 10.5 ppg clean spacer

Event	13	Drop Bottom Plug	Drop Bottom Plug	7/5/2014	22:56:48	COM1	19.00	9.58	0.00	dropped bottom plug with company rep witnessing
Event	14	Pump Lead Cement	Pump Lead Cement	7/5/2014	22:58:26	COM1	17.00	9.59	0.00	pump 200 bbls (440 sks) 12 ppg lead, y:2.56 ft3/sk w: 15.09 gal/sk
Event	15	Pump Tail Cement	Pump Tail Cement	7/5/2014	23:49:00	COM1	140.00	12.78	6.40	pump 71 bbls (200 sks) 13 ppg tail, y:2.01 ft3/sk w: 10.99 gal/sk
Event	16	Cement Returns to Surface	Cement Returns to Surface	7/6/2014	00:00:30	USER	218.00	13.03	7.00	with 10 bbls left of tail cement returns to surface (163 bbls)
Event	17	Shutdown	Shutdown	7/6/2014	00:06:08	COM1	18.00	1.09	0.00	shutdown to wash pump and lines and to drop top plug
Event	18	Clean Lines	Clean Lines	7/6/2014	00:06:16	COM1	18.00	1.12	0.00	cleaned up pump and lines
Event	19	Drop Top Plug	Drop Top Plug	7/6/2014	00:08:11	COM1	19.00	1.09	0.00	dropped plug with company rep witnessing and washed up on plug
Event	20	Pump Displacement	Pump Displacement	7/6/2014	00:08:18	COM1	19.00	1.09	0.00	pump 153 bbls fresh water displacement
Event	21	Bump Plug	Bump Plug	7/6/2014	00:35:52	COM1	845.00	8.22	0.00	bumped plug with 657 psi and took pressure to 985 psi
Event	22	Check Floats	Check Floats	7/6/2014	00:38:31	USER	380.00	8.20	0.00	checked floats, floats held with 1.5 bbls back to trick
Event	23	Other	Casing Test	7/6/2014	00:41:56	COM1	1465.00	8.23	0.30	pressure test casing to 1500 psi and hold for 30 minutes
Event	24	Release Casing Pressure	Release Casing Pressure	7/6/2014	01:15:09	USER	1029.00	8.27	0.00	released all pressure from casing and lines
Event	25	Post-Job Safety Meeting (Pre Rig-Down)	Post-Job Safety Meeting (Pre Rig-Down)	7/6/2014	01:20:12	USER	-11.00	-0.10	0.00	discussed team lifting and placement swing path pinch points
Event	26	End Job	End Job	7/6/2014	01:24:30	COM1	10.00	8.16	1.70	
Event	27	Rig-Down Equipment	Rig-Down Equipment	7/6/2014	01:25:41	USER	15.00	8.21	1.70	rig down iron bulk and water hoses
Event	28	Rig-Down Completed	Rig-Down Completed	7/6/2014	02:20:12	USER				walk around to make sure everything is properly put

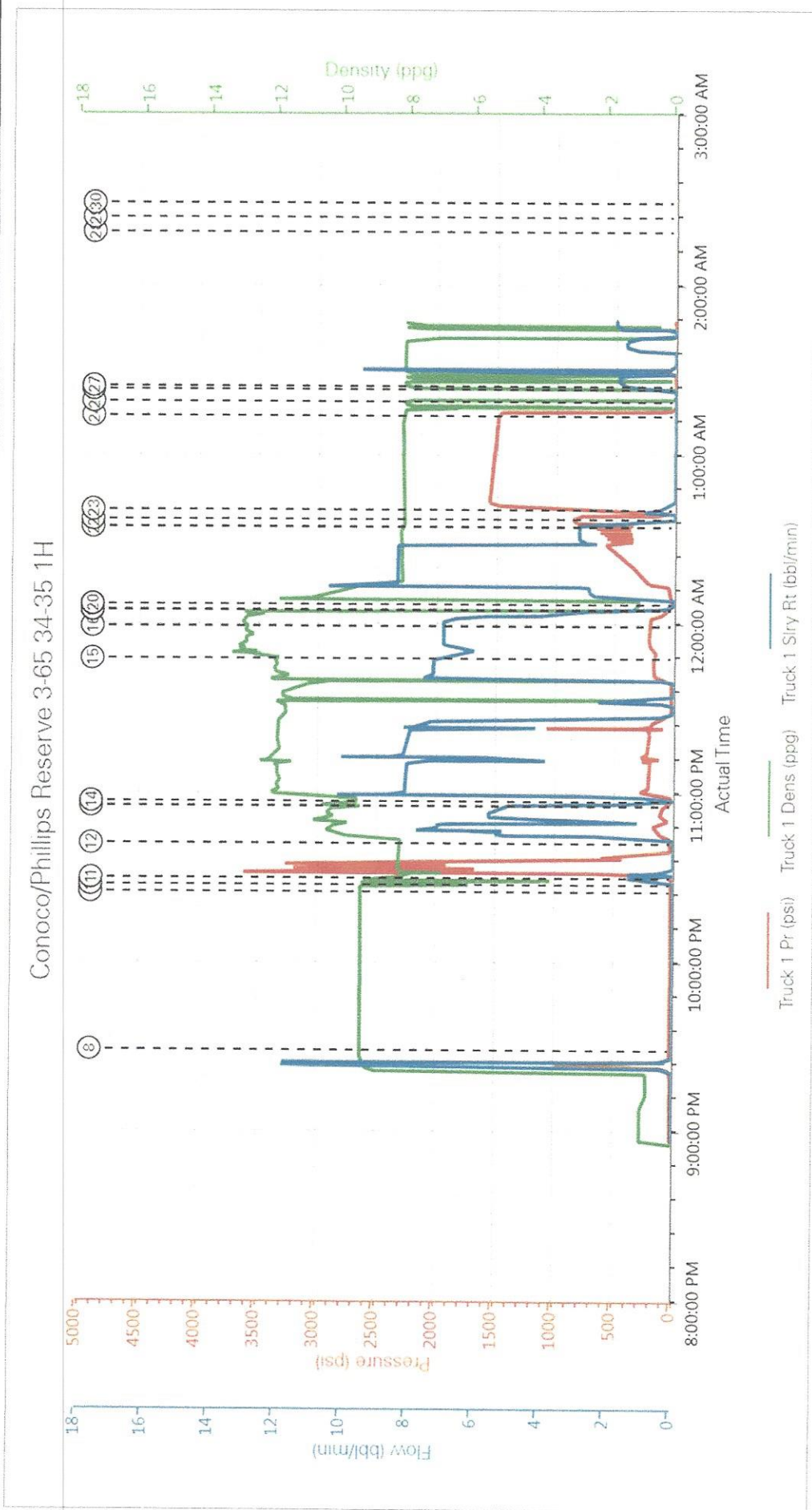


		away			
Event	29	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	7/6/2014 02:25:14	USER
		discussed route weather other traffic and fallowing distance			
Event	30	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	7/6/2014 02:30:12	USER
		thank you for using halliburton energy services			



## 2.0 Custom Graphs

### 2.1 Custom Graph



Insert Planned Pump Schedule from Proposal or actual Job Procedure built for job