

# HALLIBURTON

iCem<sup>®</sup> Service

## **CONOCO/PHILLIPS COMPANY EBUSINESS**

Date: Wednesday, December 05, 2018

**Property Reserve 4-65 3-4 2CH Surface**

Job Date: Wednesday, November 07, 2018

Sincerely,

**Tyler Hill**

## Legal Notice

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## 1.0 Cementing Job Summary - Surface

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### 1.1 Executive Summary

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Halliburton appreciates the opportunity to perform the cementing services on the **Property Reserve 4-65 3-4 2CH** cement **Surface** 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 25 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 Ft. Lupton**

*The Road to Excellence Starts with Safety*

<b>Sold To #:</b> 352431		<b>Ship To #:</b> 3898771		<b>Quote #:</b> 0022487188		<b>Sales Order #:</b> 0905254816					
<b>Customer:</b> CONOCO/PHILLIPS COMPANY-EBUS				<b>Customer Rep:</b> .							
<b>Well Name:</b> PROPERTY RESERVE 4-65 3-4			<b>Well #:</b> 2CH		<b>API/UWI #:</b> 05-005-07380-00						
<b>Field:</b> WILDCAT		<b>City (SAP):</b> AURORA		<b>County/Parish:</b> ARAPAHOE		<b>State:</b> COLORADO					
<b>Legal Description:</b>											
<b>Contractor:</b>				<b>Rig/Platform Name/Num:</b> Nabors B16							
<b>Job BOM:</b> 7521 7521											
<b>Well Type:</b> HORIZONTAL OIL											
<b>Sales Person:</b> HALAMERICA\HB41307				<b>Srv Supervisor:</b> Nathaniel Moore/Lance Carpenter							
<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>		2190 ft		<b>Job Depth TVD</b>							
<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		16	15.25				0	100			
Casing		9.625	8.921	36	LTC	J-55	0	2179			
Open Hole Section			13.5				100	2190			
<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					Top Plug	9.625	1	HES		
Float Shoe	9.625			2179		Bottom Plug	9.625	1	HES		
Float Collar	9.625					SSR plug set	9.625		HES		
Insert Float	9.625					Plug Container	9.625		HES		
Stage Tool	9.625					Centralizers	9.625		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	10 lb/gal Tuned Spacer III	Tuned Spacer III			50	bbl	10	8.97			
38.40 gal/bbl		<b>FRESH WATER</b>									
63.66 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	SwiftCem	SWIFTCCEM (TM) SYSTEM	580	sack	12	2.57		6	15.14
94 lbm		TYPE I / II CEMENT, BULK (101439798)							
6 lbm		ENHANCER 923, BULK (101894003)							
2.30 %		ECONOLITE (100001580)							
2 %		CAL-SEAL 60, 50 LB BAG (101217146)							
0.20 %		VERSASET, 55 LB SK (101376573)							
15.12 Gal		FRESH WATER							
3	SwiftCem	SWIFTCCEM (TM) SYSTEM	255	sack	14.2	1.59		6	7.9
94 lbm		CMT - PREMIUM - CLASS G REG OR TYPE V, BULK (100003685)							
7.90 Gal		FRESH WATER							
0.20 %		VERSASET, 55 LB SK (101376573)							
6 lbm		ENHANCER 923, BULK (101894003)							
2 %		CAL-SEAL 60, 50 LB BAG (101217146)							
1.30 %		ECONOLITE (100001580)							
4	Displacement	Displacement	165	bbl	8.33			6	
Cement Left In Pipe									
Amount		45 ft			Reason			Shoe Joint	
Mix Water:	pH 7	Mix Water Chloride:	<300 ppm			Mix Water Temperature:	68 °F °C		
Cement Temperature:	## °F °C	Plug Displaced by:	Water			Disp. Temperature:	## °F °C		
Plug Bumped?	Yes/No	Bump Pressure:	600 to 1200 psi			Floats Held?	Yes		
Cement Returns:	25 bbl	Returns Density:	## lb/gal kg/m3			Returns Temperature:	## °F °C		
Comment 25 bbl cement to surface. Held casing pressure test for 30 minutes at 1800 psi.									

## HALLIBURTON

Rockies, Brighton

Lab Results- Lead

## Job Information

Request/Slurry	2512421/1	Rig Name	Nabors B16	Date	01/NOV/2018
Submitted By	Justin Lansdale	Job Type	Surface Casing	Bulk Plant	Brighton
Customer	ConocoPhillips	Location		Well	Property Reserve 4-65 3-4 2CH

## Well Information

Casing/Liner Size	9.625 in	Depth MD	2144 ft	BHST	35°C / 95°F
Hole Size	13.5 in	Depth TVD	2144 ft	BHCT	34°C / 93°F
Pressure	1279 psi				

## Cement Information - Lead Design

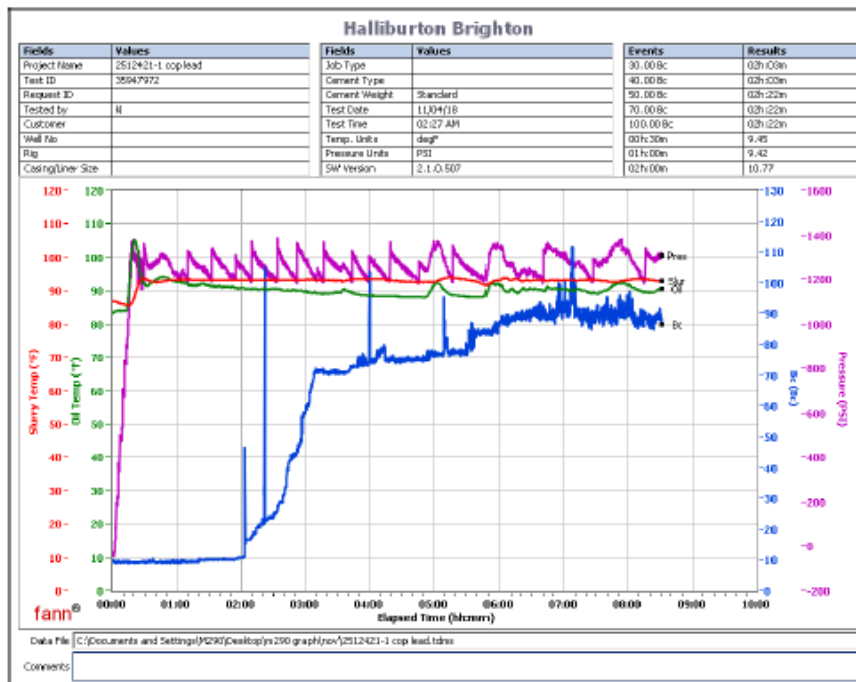
Conc	UOM	Cement/Additive	MP	Sample Type	Sample Date	Lot No.	Cement Properties
100	% BWOC	Cemex Type I-II					Slurry Density 12 lbm/gal
15.14	gal/sack	Field (Fresh) Water		Lab	09.10.18	8/19/2018	Slurry Yield 2.57 ft3/sack
2	% BWOC	Cal-Seal 60	PB				Water Requirement 15.14 gal/sack
2.3	% BWOC	Econolite (Powder - PB)	PB				
0.2	% BWOC	VERSASET (PB)	PB				
6	lb/sk	Mountain Enhancer 923	PB				

## Operation Test Results Request ID 2512421/1

Thickening Time, Request Test ID:35947972

05/NOV/2018

Temp (degF)	Pressure (psi)	Reached in (min)	Start BC	30 Bc (hh:mm)	40 Bc (hh:mm)	50 Bc (hh:mm)	70 Bc (hh:mm)
93	1297	18	10	2:22	2:47	2:58	3:06



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## HALLIBURTON

Rockies, Brighton

## Lab Results- Tail

## Job Information

Request/Slurry	2512422/1	Rig Name	Nabors B16	Date	01/NOV/2018
Submitted By	Justin Lansdale	Job Type	Surface Casing	Bulk Plant	Brighton
Customer	ConocoPhillips	Location		Well	Property Reserve 4-65 3-4 2CH

## Well Information

Casing/Liner Size	9.625 in	Depth MD	2144 ft	BHST	35°C / 95°F
Hole Size	13.5 in	Depth TVD	2144 ft	BHCT	34°C / 93°F
Pressure	1279 psi				

## Cement Information - Tail Design

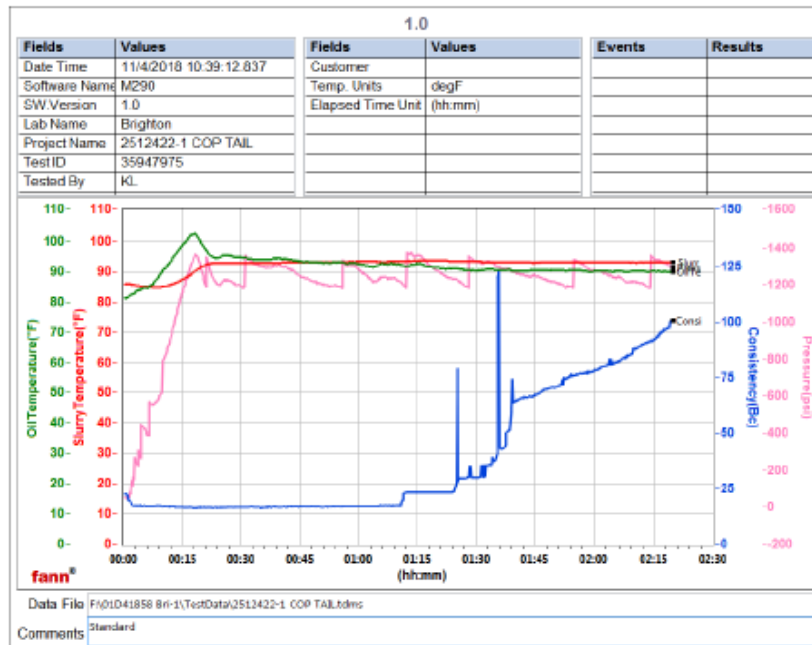
Conc	UOM	Cement/Additive	MP	Sample Type	Sample Date	Lot No.	Cement Properties		
100	% BWOC	Mountain G		Bulk Blend	05.11.18	6234x1	Slurry Density	14.2	lbm/gal
7.9	gal/sack	Field (Fresh) Water		Lab	09.10.18	8/19/2018	Slurry Yield	1.59	ft <sup>3</sup> /sack
2	% BWOC	Cal-Seal 60	PB	Bulk Blend	05.11.18		Water Requirement	7.9	gal/sack
1.3	% BWOC	Econolite (Powder - PB)	PB	Bulk Blend	05.11.18	u082018			
0.2	% BWOC	VERSASET (PB)	PB	Bulk Blend	05.11.18	2018-7-1			
6	lb/sk	Mountain Enhancer 923	PB	Bulk Blend	05.11.18				

## Operation Test Results Request ID 2512422/1

Thickening Time, Request Test ID:35947974

04/NOV/2018

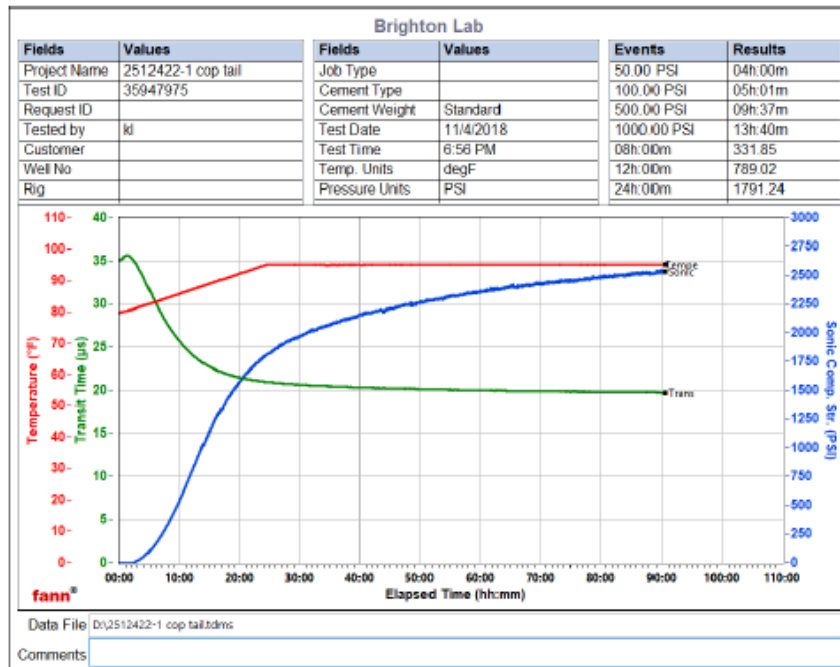
Temp (degF)	Pressure (psi)	Reached in (min)	Start BC	30 Bc (hh:mm)	40 Bc (hh:mm)	50 Bc (hh:mm)	70 Bc (hh:mm)	100 Bc (hh:mm)
93	1297	18	23	1:35	1:38	1:39	1:48	2:10



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UCA Comp. Strength, Request Test ID:35947975												08/NOV/2018
End Temp (degF)	Pressure (psi)	50 psi (hh:mm)	100 psi (hh:mm)	500 psi (hh:mm)	1000 psi (hh:mm)	8 hr CS (psi)	12 hr CS (psi)	16 hr CS (psi)	24 hr CS (psi)	48 hr CS (psi)	End CS (psi)	End Time (hrs)
95	800	4:00	5:01	9:37	13:40	331	789	1249	1791	2245	2532	90



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## 2.0 Real-Time Job Summary - Surface

## 2.1 Job Event Log

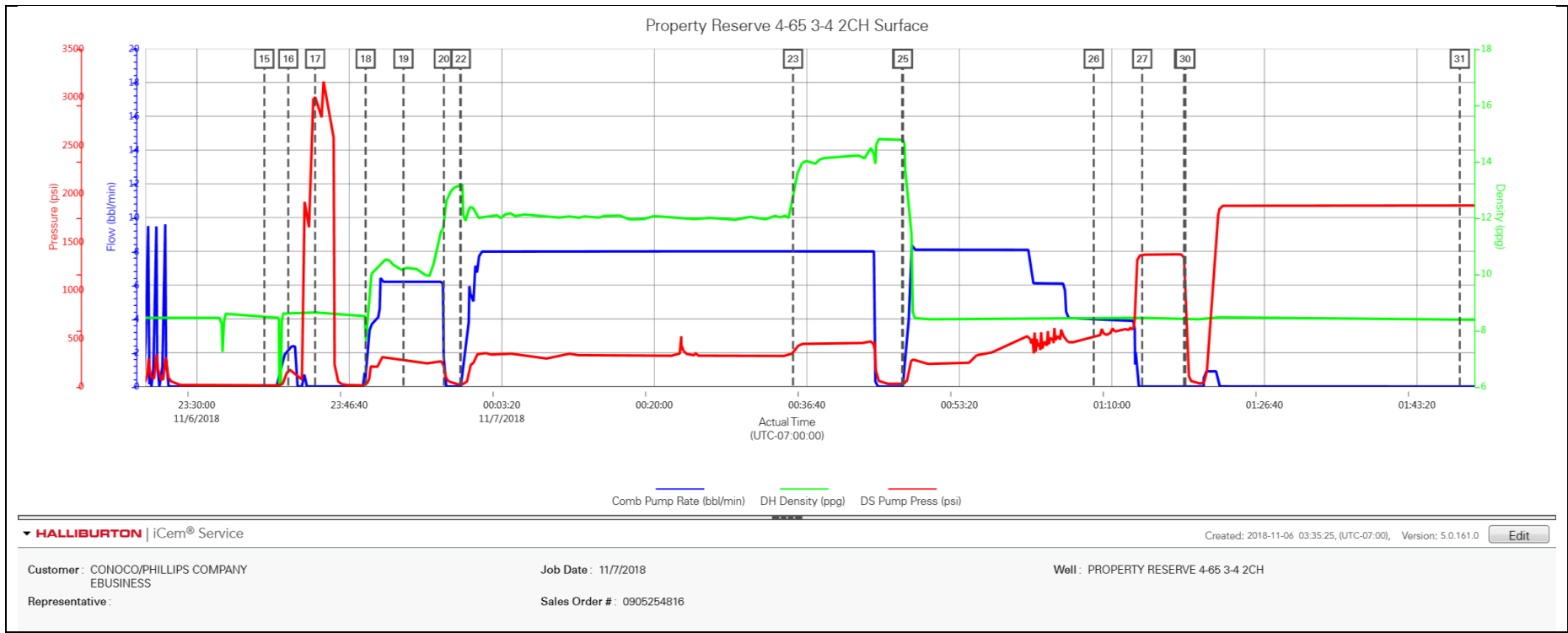
Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	DS Pump Press (psi)	Comments
Event	1	Check Floats	Call Out	11/5/2018	11:30:00	USER				CREW CALLED OUT FOR JOB
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	11/5/2018	15:30:00	USER				CREW HAS JOURNEY MANAGEMENT SAFETY MEETING
Event	3	Arrive At Loc	Arrive At Loc	11/5/2018	17:30:00	USER				CREW ARRIVES AT LOCATION
Event	4	Standby - Other - see comments	Standby - Other - see comments	11/5/2018	18:00:00	USER				HOLE ISSUES. RIG HAVING DIFFICULTY POOH.
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	11/5/2018	18:15:00	USER				WITH PERMISSION TO SPOT IN CREW HAS PRE RIG UP SAFETY MEETING
Event	6	Rig-Up Equipment	Rig-Up Equipment	11/5/2018	18:30:00	USER				CREW SPOTS EQUIPMENT AND RIGS UP TO THE RED ZONE
Event	7	Comment	Comment	11/6/2018	01:00:00	USER				DRILL PIPE OUT OF HOLE AND RIG STARTS BACK IN FOR REAMER RUN
Event	8	Comment	Comment	11/6/2018	08:30:00	USER				HOLE PACKS OFF AND LOSS OF CIRCULATION
Event	9	Comment	Comment	11/6/2018	09:00:00	USER				CUSTOMER RELEASES CREW FROM LOCATION. EQUIPMENT CHECKED AND LEFT ON SITE RIGGED UP.
Event	10	Call Out	Call Out	11/6/2018	12:00:00	USER				CREW CALLED BACK TO LOCATION. ON LOCATION TIME 1530
Event	11	Depart Yard Safety	Depart Yard Safety	11/6/2018	13:45:00	USER				CREW CONFIRMS NEW

		Meeting	Meeting							VOLUMES OF CEMENT AND HAS JOURNEY MANAGEMENT SAFETY MEETING
Event	12	Arrive At Loc	Arrive At Loc	11/6/2018	15:15:00	USER				CREW ARRIVES AT LOCATION. RIG RUNNING CASING. TIGHT SPOT AT 900'. CASING RIH SLOWLY
Event	13	Casing on Bottom	Casing on Bottom	11/6/2018	22:00:00	USER				CASING ON BOTTOM. RIG BEGINS CIRCULATION THROUGH CEMENT PLUG CONTAINER
Event	14	Safety Meeting - Pre Job	Safety Meeting - Pre Job	11/6/2018	23:00:00	USER	0.33	0.00	7.00	CREW, COMPANY REPRESENTATIVE AND RIG CREW HAVE PRE JOB SAFETY MEETING TO DISCUSS HAZARDS AND JOB PROCEDURES
Event	15	Start Job	Start Job	11/6/2018	23:37:23	COM6	8.50	0.00	9.00	
Event	16	Rig-up Lines	Rig-up Lines	11/6/2018	23:40:00	USER	8.63	2.20	188.00	RIG FINISHED CIRCULATING AND CREW RIGS UP LINES TO PLUG CONTAINER AND LOADS PLUGS
Event	17	Test Lines	Test Lines	11/6/2018	23:42:56	COM6	8.63	0.00	3008.00	FILL LINES 3 BBLs WATER AND PRESSURE TEST TO 3000 PSI FOR 3 MINUTES
Event	18	Pump Spacer 1	Pump Spacer 1	11/6/2018	23:48:27	COM6	7.84	0.90	18.00	PUMP 50 BBL TUNED SPACER 10# 8.97 YIELD 61.4 GAL 32 SKS
Event	19	Check Weight	Check Weight	11/6/2018	23:52:35	COM6	10.19	6.20	270.00	MUD SCALES
Event	20	Shutdown	Shutdown	11/6/2018	23:57:00	USER	11.65	0.10	193.00	SHUTDOWN TO DROP BOTTOM PLUG
Event	21	Drop Bottom Plug	Drop Bottom Plug	11/6/2018	23:58:47	COM6	13.12	0.00	21.00	DROP BOTTOM PLUG
Event	22	Pump Lead Cement	Pump Lead Cement	11/6/2018	23:58:51	COM6	13.11	0.00	21.00	PUMP 265 BBL LEAD

										CEMENT 12# 2.57 YIELD 15.14 GAL 580 SKS
Event	23	Pump Tail Cement	Pump Tail Cement	11/7/2018	00:35:09	COM6				PUMP 72 BBL TAIL CEMENT 14.2# 1.59 YIELD 7.9 GAL 255 SKS
Event	24	Drop Top Plug	Drop Top Plug	11/7/2018	00:47:04	COM6	14.76	0.00	25.00	SHUTDOWN AND DROP TOP PLUG
Event	25	Pump Displacement	Pump Displacement	11/7/2018	00:47:10	COM6	14.76	0.00	25.00	PUMP 165 BBL WATER DISPLACEMENT WASHING UP ON TOP OF PLUG
Event	26	Cement Returns to Surface	Cement Returns to Surface	11/7/2018	01:08:00	USER	8.41	4.00	530.00	CEMENT RETURNS TO SURFACE AT 140 BBL AWAY
Event	27	Bump Plug	Bump Plug	11/7/2018	01:13:18	COM6				BUMP PLUG. FINAL CIRCULATING PRESSURE 606. TOOK TO 1200 PSI AND HELD FOR 5 MINUTES
Event	28	Check Floats	Check Floats	11/7/2018	01:17:52	USER	8.40	0.00	1344.00	CHECK FLOATS. 1.5 BBL BACK. FLOATS HELD
Event	29	Shut In Well	Shut In Well	11/7/2018	01:18:00	COM6	8.39	0.00	1043.00	CASING TEST 1800 PSI FOR 30 MINUTES
Event	30	Pressure Test	Pressure Test	11/7/2018	01:18:00	USER	8.39	0.00	1043.00	CASING TEST 1800 PSI FOR 30 MINUTES
Event	31	Bleed Casing	Bleed Casing	11/7/2018	01:48:00	USER	8.38	0.00	1870.00	BLEED OFF CASING TEST. 1.5 BBL BACK
Event	32	Safety Meeting - Pre Rig-Down	Safety Meeting - Pre Rig- Down	11/7/2018	01:55:00	USER				CREW HAS PRE RIG DOWN SAFETY MEETING
Event	33	Rig Down Lines	Rig Down Lines	11/7/2018	02:10:00	USER				
Event	34	Depart Location Safety Meeting	Depart Location Safety Meeting	11/7/2018	02:45:00	USER				CREW HAS JOURNEY MANAGEMENT SAFETY MEETING
Event	35	Depart Location	Depart Location	11/7/2018	03:00:00	USER				

3.0 Attachments - Surface

3.1 Property Reserve 4-65 3-4 2CH Surface.png



## 4.0 Cementing Job Summary - Production

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### 4.1 Executive Summary

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Halliburton appreciates the opportunity to perform the cementing services on the **Property Reserve 4-65 3-4 2CH** 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 33 bbls of spacer 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> 352431		<b>Ship To #:</b> 3898771		<b>Quote #:</b> 0022508351		<b>Sales Order #:</b> 0905301597				
<b>Customer:</b> CONOCO/PHILLIPS COMPANY-EBUS				<b>Customer Rep:</b> Erich Ovellette						
<b>Well Name:</b> PROPERTY RESERVE 4-65 3-4			<b>Well #:</b> 2CH		<b>API/UWI #:</b> 05-005-07380-00					
<b>Field:</b> WILDCAT		<b>City (SAP):</b> WATKINS		<b>County/Parish:</b> ARAPAHOE		<b>State:</b> COLORADO				
<b>Legal Description:</b> SE NE-3-4S-65W-2308FNL-465FEL										
<b>Contractor:</b>				<b>Rig/Platform Name/Num:</b> Nabors B16						
<b>Job BOM:</b> 7523 7523										
<b>Well Type:</b> HORIZONTAL OIL										
<b>Sales Person:</b> HALAMERICA\HB41307				<b>Srvc Supervisor:</b> Kendall Broom - H194727						
<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>		17762ft				<b>Job Depth TVD</b>				
<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	STC	J-55	0	2179		0
Casing		5.5	4.67	23	TXP-BTC	P-110	0	17738		0
Open Hole Section			8.5				2144	17762		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			17738		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		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	10.5 lb/gal Tuned Spacer III	Tuned Spacer III	60	bbl	10.5	6.7				
0.70 gal/bbl		<b>MUSOL(R) A, 5 GAL PAIL (100064220)</b>								
0.10 gal/bbl		<b>D-AIR 3000L, 5 GAL PAIL (101007444)</b>								

35.70 gal/bbl		FRESH WATER							
83.48 lbm/bbl		BARITE, BULK (100003681)							
0.70 gal/bbl		DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)							
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	825	sack	13.2	1.57		8	7.54
24.50 lbm		POZMIX A FLYASH (100003690)							
0.20 %		HALAD(R)-344, 50 LB (100003670)							
61.10 lbm		TYPE I / II CEMENT, BULK (101439798)							
0.10 %		SA-1015, 50 LB SACK (102077046)							
7.54 Gal		FRESH WATER							
0.40 %		SCR-100 (100003749)							
5 lbm		WELLIFE 708 - 2000 LB BAG (807637)							
1 lbm		SILICALITE, COMPACTED - 2200 LB (870283)							
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	EconoCem	ECONOCEM (TM) SYSTEM	1515	sack	13.5	1.79		8	8.73
0.30 %		HR-5, 50 LB SK (100005050)							
8.73 Gal		FRESH WATER							
0.80 %		HALAD(R)-344, 50 LB (100003670)							
25 %		SS-200 - BULK (102240841)							
24.50 lbm		POZMIX A FLYASH (100003690)							
0.10 %		SA-1015, 50 LB SACK (102077046)							
61.10 lbm		TYPE I / II CEMENT, BULK (101439798)							
0.20 %		HALAD(R)-413, 50 LB (100003738)							
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	Water	353	bbl	8.33				



Cement Left In Pipe	Amount	85 ft		Reason	Shoe Joint	
Mix Water:	pH 7	Mix Water Chloride:	0 ppm	Mix Water Temperature:	#70°F °C	
Plug Bumped?	Yes			Floats Held?	Yes	
Comment						

## HALLIBURTON

## Rockies, Brighton

## Lab Results- Lead

## Job Information

Request/Slurry	2517320/3	Rig Name	Nabors B16	Date	24/NOV/2018
Submitted By	Bryce Hinsch	Job Type	Production Casing	Bulk Plant	Brighton
Customer	ConocoPhillips	Location	Weld	Well	Property Reserve 4-65 3-4 2CH

## Well Information

Casing/Liner Size	5.5 in	Depth MD	17959 ft	BHST	104°C / 219°F
Hole Size	8.5 in	Depth TVD	7886 ft	BHCT	104°C / 219°F
Pressure	4554 psi				

## Cement Information - Lead Design

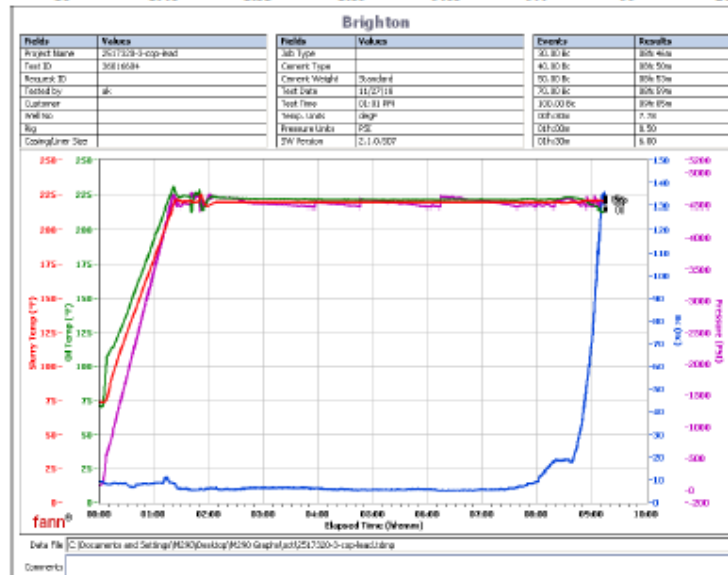
Conc	UOM	Cement/Additive	MP	Sample Type	Sample Date	Lot No.	Cement Properties	
35	%	> Boral Craig Pozmix		Bulk Blend	27.11.18		Slurry Density	13.2 lbm/gal
65	%	> Cemex Type I-II		Bulk Blend	27.11.18	B1 of 4 NTN	Slurry Yield	1.57 ft <sup>3</sup> /sack
100	% BWOC	Cement Blend					Water Requirement	7.54 gal/sack
7.54	gal/sack	Field (Fresh) Water		Lab	09.10.18	8/19/2018	Total Mix Fluid	7.54 gal/sack
5	lb/sk	WellLife 708 (PB)	PB	Bulk Blend	27.11.18	9.26.2018		
0.1	% BWOC	SA-1015 (PB)	PB	Bulk Blend	27.11.18	8d3351w	Water Source	Field (Fresh) Water
0.4	% BWOC	SCR-100 (PB)	PB	Bulk Blend	27.11.18	ctrl5101001	Water Chloride	
1	lb/sk	Silicalite - Compacted	PB	Bulk Blend	27.11.18	6.27.2018		
0.2	% BWOC	HALAD-344 (PB)	PB	Bulk Blend	27.11.18	20180910		

## Operation Test Results Request ID 2517320/3

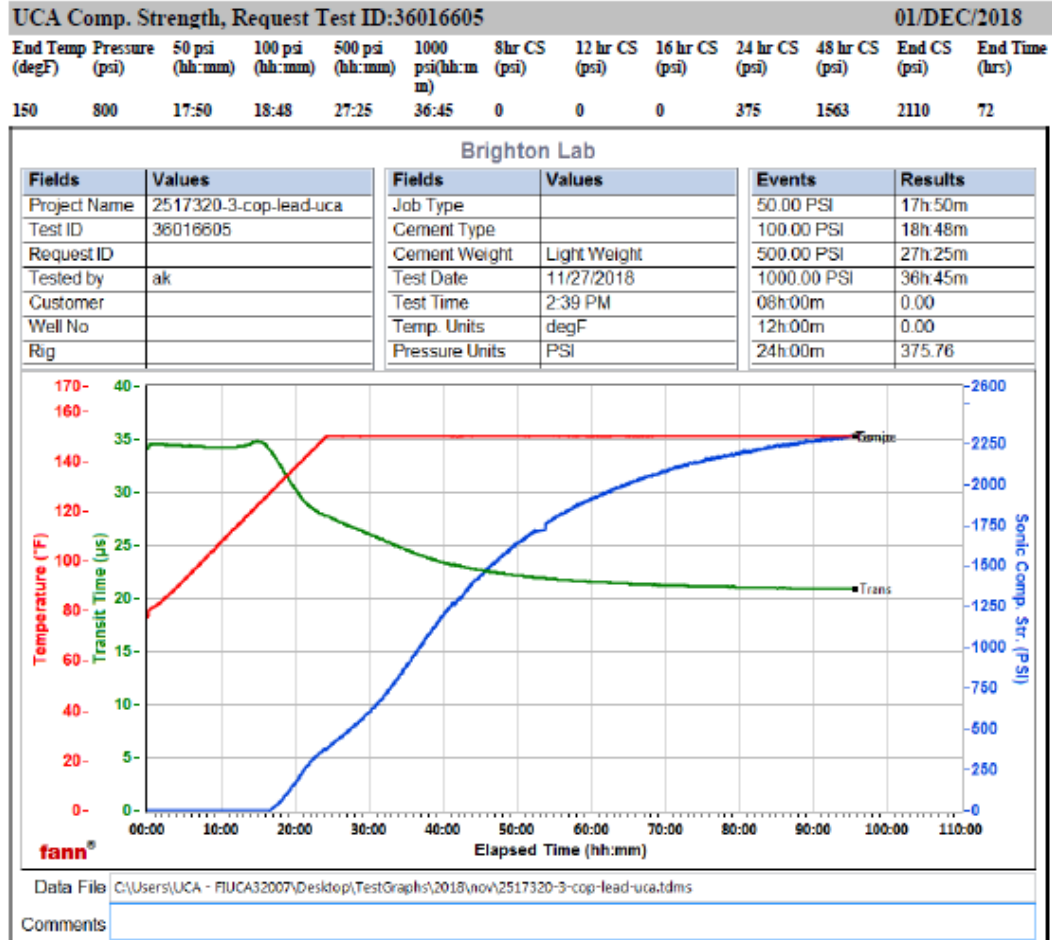
## Thickening Time - ON-OFF-ON, Request Test ID:36016604

27/NOV/2018

Test Temp (degF)	Pressure (psi)	Reached in (min)	30 Bc (hh:mm)	50 Bc (hh:mm)	70 Bc (hh:mm)	100 Bc (hh:mm)	Start Bc	Stirring before stop (mins)	Static Period (min)	Peak reading (BC)
219	4554	80	8:46	8:53	8:59	9:05	9.4	99	10	7



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## HALLIBURTON

Rockies, Brighton

Lab Results- Tail

## Job Information

Request/Slurry	2517321/1	Rig Name	Nabors B16	Date	24/NOV/2018
Submitted By	Bryce Hirsch	Job Type	Production Casing	Bulk Plant	Brighton
Customer	ConocoPhillips	Location	Weld	Well	Property Reserve 4-65 3-4 2CH

## Well Information

Casing/Liner Size	5.5 in	Depth MD	17959 ft	BHST	104°C / 219°F
Hole Size	8.5 in	Depth TVD	7886 ft	BHCT	104°C / 219°F
Pressure	4554 psi				

## Cement Information - Tail Design

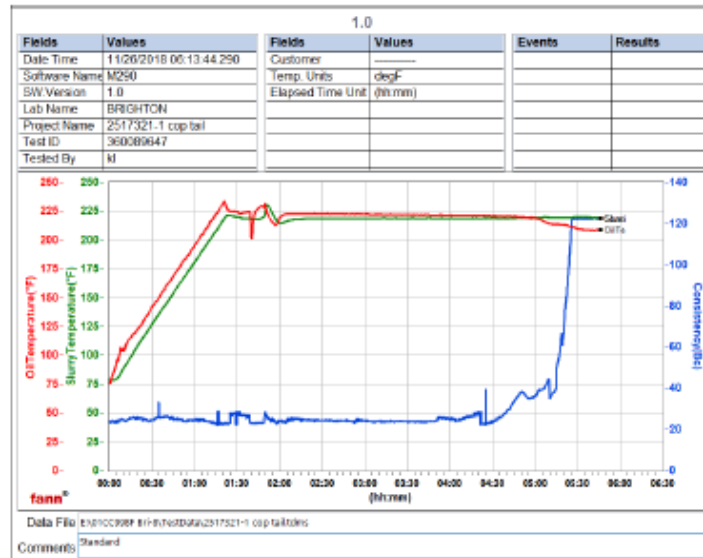
Conc	UOM	Cement/Additive	MP	Sample Type	Sample Date	Lot No.	Cement Properties		
35	%	> Boral Craig Pozmix		Bulk Blend	26.11.18		Slurry Density	13.5	lbm/gal
65	%	> Cemex Type I-II		Bulk Blend	26.11.18	6234x2	Slurry Yield	1.79	ft <sup>3</sup> /sack
100	% BWOC	Cement Blend					Water Requirement	8.73	gal/sack
8.73	gal/sack	Field (Fresh) Water		Lab	09.10.18	8/19/2018	Total Mix Fluid	8.73	gal/sack
25	% BWOC	SS-200 silica flour	PB	Bulk Blend	26.11.18				
0.1	% BWOC	SA-1015 (PB)	PB	Bulk Blend	26.11.18	8d3551w	Water Source	Field (Fresh) Water	
0.3	% BWOC	HR-5 (PB)	PB	Bulk Blend	26.11.18	1180115			
0.8	% BWOC	HALAD-344 (PB)	PB	Bulk Blend	26.11.18	20180910	Water Chloride		
0.2	% BWOC	HALAD-413 (PB)	PB	Bulk Blend	26.11.18				

## Operation Test Results Request ID 2517321/1

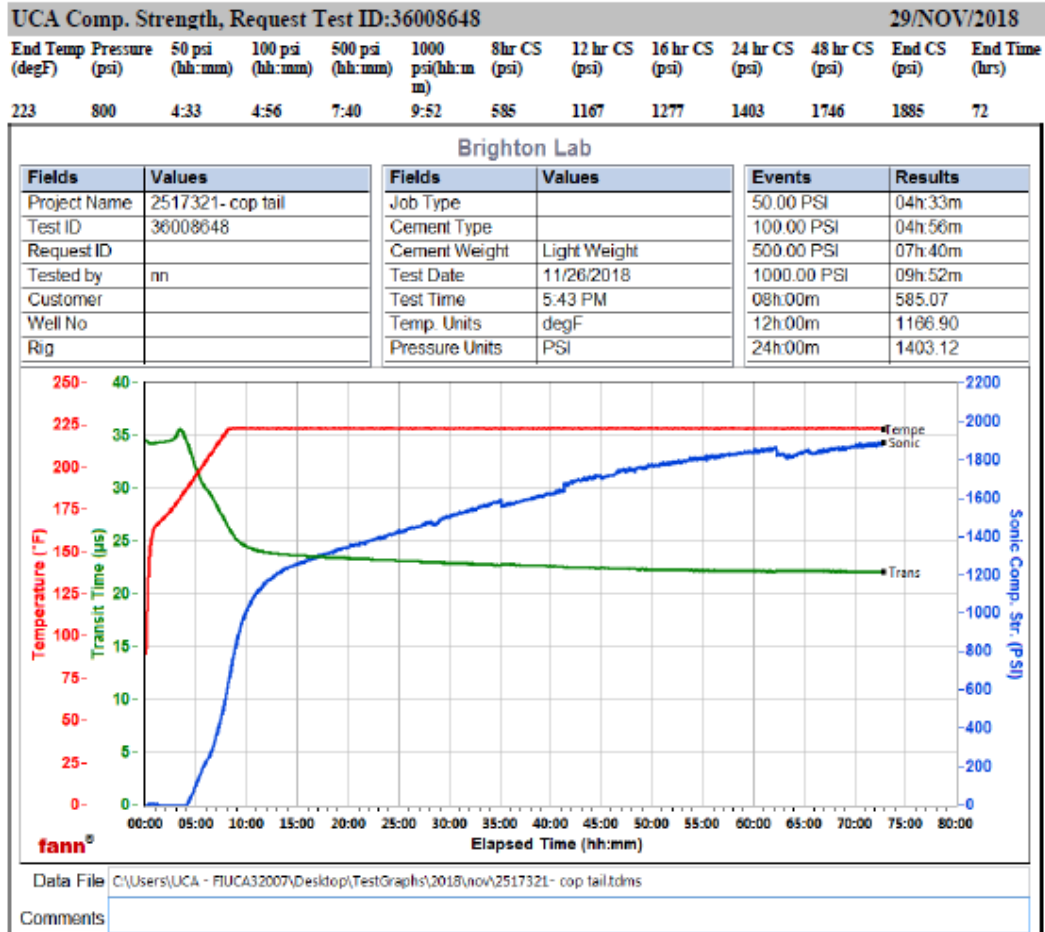
Thickening Time - ON-OFF-ON, Request Test ID:36008646

26/NOV/2018

Test Temp (degF)	Pressure (psi)	Reached in (min)	30 Bc (hh:mm)	50 Bc (hh:mm)	70 Bc (hh:mm)	100 Bc (hh:mm)	Start Bc	Stirring before stop (mins)	Static Period (min)	Peak reading (BC)
219	4554	80	4:42	5:15	5:20	5:21	24	99	10	26



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## 5.0 Real-Time Job Summary - Production

## 5.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Comb Pump Rate (bbl/min)	DH Density (ppg)	DS Pump Press (psi)	Pump Stg Tot (bbl)	Cmnt Valve Psn (%)	Comments
Event	1	Call Out	Call Out	11/29/2018	10:30:00	USER						Called crew out to be on location at 1600
Event	2	Depart Shop for Location	Depart Shop for Location	11/29/2018	14:30:00	USER						Held a safety meeting before leaving for location
Event	3	Rig-up Lines	Rig-up Lines	11/29/2018	15:00:00	USER						Held a hazard hunt before spotting in trucks and rigging up
Event	4	Arrive At Loc	Arrive At Loc	11/29/2018	15:30:00	USER						Arrive at location and met with the company man
Event	5	Safety Meeting	Safety Meeting	11/29/2018	21:00:00	USER	0.00	8.41	-3.00	0.00	0.00	Held a safety meeting with the rig to discuss the operation and safety
Event	6	Start Job	Start Job	11/29/2018	21:26:07	COM5	0.00	8.38	-1.00	0.00	0.00	Filled line with 2 bbls water
Event	7	Test Lines	Test Lines	11/29/2018	21:27:59	COM5	0.00	8.58	256.00	2.00	0.00	Test lines to 5500 psi with a 500 kick out and a 5th gear stall
Event	8	Pump Spacer 1	Pump Spacer 1	11/29/2018	21:34:15	COM5	0.00	8.52	20.00	2.00	0.00	Pumped 60 bbls Tuned Spacer. Dual Spacer and Musol were added on the fly
Event	9	Pump Lead Cement	Pump Lead Cement	11/29/2018	21:54:36	COM5	4.30	13.23	553.00	48.50	22.30	Pumped 230 bbls Elasticem. 825 sks, 13.2#, 1.57 yield, 7.54 gal/sks. Pumped at 8 bpm and 442 psi. calculated TOLC is at 568 ft.
Event	10	Check Weight	Check Weight	11/29/2018	22:00:56	COM5	7.40	13.24	710.00	39.60	34.51	Verified weight with the pressurized scale

Event	11	Pump Tail Cement	Pump Tail Cement	11/29/2018	22:26:36	COM5	6.90	13.56	318.00	1.30	48.60	Pumped 482 bbls. Econocem. 1515sks, 13.5#, 1.79 yield, 8.73 gal/sks. Shut down when cement got heavy and rescaled it. Adjust the weight and went down hole. Pumped at 6 bpm and 400 psi. Calculated TOTC 7223ft.
Event	12	Drop Top Plug	Drop Top Plug	11/30/2018	00:18:10	COM5	0.00	7.89	22.00	555.40	0.00	Dropped top plug, loaded and witnessed by the company man.
Event	13	Pump Displacement	Pump Displacement	11/30/2018	00:18:14	COM5	0.00	7.89	22.00	555.40	0.00	Pumped 373 bbls water, 1st 20 bbls had MMCR and additional chemicals added on the fly. Got 33 bbls spacer back to surface
Event	14	Bump Plug	Bump Plug	11/30/2018	01:10:32	COM5	0.00	8.37	4057.00	366.50	0.00	Bumped plug at 373 bbls away. 2990 psi final lift and kicked out at 4000 psi. Held the pressure for 10 mins. released pressure and got 5.5 bbls back on the truck. Floats held.
Event	15	End Job	End Job	11/30/2018	01:17:56	COM5	0.00	8.32	16.00	366.50	0.00	
Event	16	Rig Down Lines	Rig Down Lines	11/30/2018	01:30:00	USER						Held a safety meeting before rigging down lines.
Event	17	Depart Location	Depart Location	11/30/2018	02:45:00	USER						Held a safety huddle before leaving location

## 6.0 Attachments - Production

### 6.1 Conoco Property Reserve 4-65 3-4 2CH Production Job Chart

