

HALLIBURTON

## Cementing Job Summary

## The Road to Excellence Starts with Safety

Sold To #: 300466	Ship To #: 3825683	Quote #: 0022406487	Sales Order #: 0904641299
Customer: ANADARKO PETROLEUM CORP-EBUS		Customer Rep: Josh Johnson	
Well Name: SPEAK FED	Well #: 32N2-5HZ	API/UWI #: 05-123-45461-00	
Field: WATTENBERG	City (SAP): IONE	County/Parish: WELD	State: COLORADO
Legal Description: NE SE-2-1N-67W-1781FSL-315FEL			
Contractor: PRECISION DRLG		Rig/Platform Name/Num: PRECISION 464	
Job BOM: 7523 7523			
Well Type: HORIZONTAL GAS			
Sales Person: HALAMERICA\HX41066		Srv Supervisor: Nicholas Peterson	
Job			

Formation Name		Bottom	
Formation Depth (MD)	Top	BHST	
Form Type		Job Depth TVD	7,352'
Job depth MD	18,582'	Wk Ht Above Floor	5'
Water Depth		To	
Perforation Depth (MD)	From		

Well Data									
Description	New / Used	Size in	ID in	Weight lbm/ft	Thread	Grade	Top MD ft	Bottom MD ft	Top TVD ft
Casing		9.625	8.921	36		J-55	0	1873	0
Casing	0	5.5	4.892	17	LTC	HCP110	0	18582	0
Open Hole Section			8.5				1873	18591	0

Tools and Accessories									
Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make	
Guide Shoe	5.5	1	WEATH	18,582	Top Plug	5.5	1	WEATH	
					Bottom Plug	5.5	1	WEATH	
Wet Shoe Sub	5.5	1	WEATH	18,570.5	Plug Container	5.5	1	HES	
					Centralizers	5.5	241	WEATH	

Fluid Data									
Stage/Plug #: 1									
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	Tuned Spacer III	Tuned Spacer III	80	bbl	10.5	6.32	40.6	4	3,248
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	ElastiCem Lead	ELASTICEM (TM) SYSTEM	780	sack	13.2	1.57	7.53	8	5,873

last updated on 2/18/2018 11:39:22 PM

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(v. 4.2.393)

Created: Monday, March 05, 2018

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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 Tail	ECONOCEM (TM) SYSTEM	1,790	sack	13.5	1.68	7.99	8	14,302
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	Biocide Water and MMCR	Biocide Water and MMCR	20	bbl	8.34		42	10	840
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	Biocide Water	Biocide Water	411	bbl	8.34		42	8	
Cement Left In Pipe		Amount	0 ft		Reason			Wet Shoe	
Mix Water: pH 7.0		Mix Water Chloride: 0 ppm		Mix Water Temperature: 62 °F					
Cement Temperature: °F		Plug Displaced by: 8.33 lb/gal		Disp. Temperature: 62 °F					
Plug Bumped? Yes		Bump Pressure: 2,530 psi		Floats Held? Yes					
Cement Returns: 51 bbls		Returns Density: 13.2 lb/gal		Returns Temperature: °F					
Comment: Pumped 80 bbls Spacer 218 bbls Lead, 536 bbls Tail, 411 bbls Displacement. 80 bbls spacer to surface, 51 bbls cement to surface.									

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## 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	2/18/2018	09:00:00	USER	CREW CALLED OUT AT 09:00, REQUESTED ON LOCATION 15:00. CREW PICKED UP CEMENT, CHEMICALS, AND PLUG CONTAINER FROM FT. LUPTON, CO. BULK 660 11527037, 10867439, 10867521, AND PUMP 11189145.
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	2/18/2018	14:00:00	USER	CREW DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW.
Event	3	Crew Leave Yard	Crew Leave Yard	2/18/2018	14:30:00	USER	STARTED JOURNEY MANAGEMENT.
Event	4	Arrive At Loc	Arrive At Loc	2/18/2018	15:00:00	USER	END JOURNEY MANAGEMENT. MEET WITH CO. MAN TO DISCUSS JOB; SURFACE CASING- 9.625" 36 LB/FT @ 1,873', 5.5" CASING: 17 LB/FT TOTAL 18,581.51', 8.5" HOLE, TD 18,591', SHOE TRAC- 14.62', TVD- 7,352'. PUMP FRESH WATER DISPLACEMENT WITH MMCR FIRST 10 BBLS. CASING LANDED @ 17:30 02/18/2018. RIG CIRCULATED 2 BOTTOMS UP.
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	2/18/2018	16:00:00	USER	HAZARD HUNT. DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH LOCATION, RIG UP, AND WEATHER.
Event	6	Rig-Up Equipment	Rig-Up Equipment	2/18/2018	16:15:00	USER	CREW STAGED EQUIPMENT AND RIGGED UP BULK, IRON AND WATER HOSES TO PERFORM JOB.
Event	7	Rig-Up Completed	Rig-Up Completed	2/18/2018	17:30:00	USER	WAITED ON RIG TO FINISH RUNNING CASING.
Event	8	Pre-Job Safety Meeting	Pre-Job Safety Meeting	2/18/2018	19:30:00	USER	SAFETY MEETING WITH HALLIBURTON, AND RIG PERSONNEL. CREW COMMUNICATED POTENTIAL SAFETY

							HAZARDS, AND JOB DETAILS.
Event	9	Start Job	Start Job	2/18/2018	20:01:33	COM5	BEGIN RECORDING JOB DATA.
Event	10	Test Lines	Test Lines	2/18/2018	20:06:01	COM5	PRESSURE TESTED IRON TO 6,000 PSI. KICKOUTS SET @ 500 PSI, KICKED OUT @ 700 PSI, 5TH GEAR STALL OUT @ 1,730 PSI.
Event	11	Pump Spacer 1	Pump Spacer 1	2/18/2018	20:13:12	COM5	PUMP 80 BBLS OF TUNED SPACER @ 11.5 LB/GAL, 20 GALLONS D-AIR, 55 GALS DUAL SPACER B, 55 GALS MUSOL A. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 4 BBLS/MIN @ 370 PSI.
Event	12	Drop Bottom Plug	Drop Bottom Plug	2/18/2018	20:29:54	USER	PLUG LEFT CONTAINER, VERIFIED BY CO. MAN.
Event	13	Pump Lead Cement	Pump Lead Cement	2/18/2018	20:33:35	COM5	PUMPED 780 SKS OF ELASTICEM WITH CBL @ 13.2 LB/GAL, 1.57 FT3/SK, 7.53 GAL/SK. 218.10 BBLS, HOL CALCULATED @ 5,084.01', TOL CALCULATED @ 370.49. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 8 BBLS/MIN 370 PSI.
Event	14	Pump Tail Cement	Pump Tail Cement	2/18/2018	21:03:01	COM5	PUMP 1,790 SKS OF ECONOCEM @ 13.5 LB/GAL, 1.68 FT3/SK, 7.99 GAL/SK, 535.58 BBLS. HOT CALCULATED @ 13,126.96', TOT CALCULATED @ 5,454.55'. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 8 BBLS/MIN @ 565 PSI.
Event	15	Clean Lines	Clean Lines	2/18/2018	22:14:44	USER	CLEANED PUMPS AND LINES BLOWING AIR BACK AND PUMPING 10 BBLS FRESH WATER.
Event	16	Drop Top Plug	Drop Top Plug	2/18/2018	22:23:15	COM5	PLUG LEFT CONTAINER, VERIFIED BY CO. MAN.
Event	17	Pump Displacement	Pump Displacement	2/18/2018	22:25:00	COM5	BEGIN CALCULATED DISPLACEMENT OF 431 BBLS WITH FRESH WATER. PUMPED THE FIRST 20 BBLS WITH MMCR, PUMPED 411 BBLS WITH 5 GALS BIOCID. SPACER TO SURFACE @ 330 BBLS AWAY, CEMENT

							TO SURFACE @ 380 AWAY 51 BBLS CEMENT TO SURFACE.
Event	18	Slow Rate	Slow Rate	2/18/2018	23:24:26	USER	SLOWED RATE TO 3 BBLS/MIN TO BUMP PLUG.
Event	19	Bump Plug	Bump Plug	2/18/2018	23:27:48	COM5	PLUG BUMPED AT CALCULATED DISPLACEMENT. 2,530 PSI PRESSURED 500 PSI OVER BUMP TO 3,000 PSI FOR 15 MIN CASING PRESSURE TEST.
Event	20	Shift Tool Lower	Shift Tool Lower	2/18/2018	23:40:15	USER	SHIFTED WET SHOE SUB @ 4,643 AND PUMPED 3 BBL WET SHOE.
Event	21	Check Floats	Check Floats	2/18/2018	23:42:50	USER	RELEASED PRESSURE, FLOATS HELD, 4 BBLS BACK.
Event	22	End Job	End Job	2/18/2018	23:43:36	COM5	STOP RECORDING JOB DATA.
Event	23	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	2/18/2018	23:50:00	USER	DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH WEATHER, LOCATION AND RIGGING DOWN IRON AND HOSES.
Event	24	Rig-Down Equipment	Rig-Down Equipment	2/19/2018	00:00:00	USER	RIG DOWN BULK AND MIXING EQUIPMENT.
Event	25	Rig-Down Completed	Rig-Down Completed	2/19/2018	01:00:00	USER	ALL HALLIBURTON ITEMS WERE STOWED FOR TRAVEL, AND LOCATION WAS CLEAN.
Event	26	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	2/19/2018	01:15:00	USER	CREW DISCUSSED ROUTES HAZARDS AND COMMUNICATION WITH CREW.
Event	27	Crew Leave Location	Crew Leave Location	2/19/2018	01:30:00	USER	THANK YOU FOR USING HALLIBURTON – NICK PETERSON AND CREW.

## 3.0 Attachments

### 3.1 Job Chart

