

The Road to Excellence Starts with Safety

Sold To #: 300466		Ship To #: 3798734		Quote #: 0022349710		Sales Order #: 0904294283	
Customer: ANADARKO PETROLEUM CORP-EBUS				Customer Rep: J. McKinley			
Well Name: RW			Well #: 15N-32HZ			API/UWI #: 05-123-44754-00	
Field: WATTENBERG		City (SAP): HUDSON		County/Parish: WELD		State: COLORADO	
Legal Description: SW SE-29-3N-65W-372FSL-1606FEL							
Contractor: Precision				Rig/Platform Name/Num: Precision 464			
Job BOM: 7523 7523							
Well Type: HORIZONTAL GAS							
Sales Person: HALAMERICA\HX41066				Srvc Supervisor: Bryce Muir			

Job

Formation Name			
Formation Depth (MD)	Top		Bottom
Form Type			BHST
Job depth MD	13284ft		Job Depth TVD 7101 FT
Water Depth			Wk Ht Above Floor 4 FT
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		J-55	0	1855	0	1855
Casing		5.5	4.778	20	LTC	HCP110	0	13284	0	0
Open Hole Section			7.875				1855	13294	0	7101

Tools and Accessories

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	5.5				Top Plug	5.5	1	WF
Float Shoe	5.5	1	WF	13284	Bottom Plug	5.5	1	WF
Float Collar	5.5	1	WF	13191	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	60	bbl	10.5	6.25			40.2	
88.91 lbm/bbl		BARITE, BULK (100003681)								
37.58 gal/bbl		FRESH WATER								
0.70 gal/bbl		DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)								

0.70 gal/bbl		MUSOL A, 330 GAL TOTE - (790828)									
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 - Cap Cement	ELASTICEM (TM) SYSTEM	150	sack	13.2	1.57		6	7.52		
7.52 Gal		FRESH WATER									
0.70 %		SCR-100 (100003749)									
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	ElastiCem	ELASTICEM (TM) SYSTEM	390	sack	13.2	1.57		6	7.54		
0.10 %		SUPER CBL, 50 LB PAIL (100003668)									
0.30 %		SCR-100 (100003749)									
7.54 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	EconoCem	ECONOCEM (TM) SYSTEM	800	sack	13.5	1.68		6	7.99		
7.99 Gal		FRESH WATER									
0.35 %		HR-5, 50 LB SK (100005050)									
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 and MMCR	Biocide Water and MMCR	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		
6	Biocide Water	Biocide Water	272	bbl	8.34						
Cement Left In Pipe		Amount	93 ft		Reason			Shoe Joint			

Comment: WE ARRIVED ON LOCATION AND SPOTTED IN OUR EQUIPMENT AND RIGGED UP TO THE RED ZONE. THE RIG WAS STILL RUNNING CASING WHEN WE ARRIVED. AFTER THE RIG WAS ON BOTTOM WITH CASING WE PRE LOADED THE TOP AND BOTTOM PLUGS AND RIGGED UP OUR PLUG CONTAINER FOR THE RIG TO CIRCULATE THROUGH. AS THE RIG CIRCULATED WE STARTED TO PRESSURIZE OUR BULK EQUIPMENT. A COMPRESSOR HOSE BURST AND WE HAD TO WAIT FOR ANOTHER HOSE TO BE HOT SHOTTED TO LOCATION. WE WAITED FOR APPROX 35 MINUTES TO REPLACE THE HOSE. AFTER THE HOSE WAS REPLACED WE STARTED OUR CEMENT JOB. WE PUMPED 60 BBLs OF TUNED SPACER (DROPPED THE BOTTOM PLUG ON THE FLY), 42 BBLs OF FIRST LEAD, 109 BBLs OF SECOND LEAD, AND 239 BBLs OF TAIL CEMENT. DROPPED THE TOP PLUG AND BEGAN TO PUMP OUR 292 BBLs OF DISPLACEMENT. THE FIRST 20 BBLs OF DISPLACEMENT WE ADDED MMCR AND THE REMAINING 272 BBLs WE ADDED BIO-CIDE. WE LANDED THE PLUG AT 2145 PSI AND PRESSURED UP TO 2654 PSI AND HELD FOR 3 MINUTES. FLOATS HELD AND WE GOT 3 BBLs BACK. CONDUCTED A 3000 PSI CASING TEST FOR 15 MINUTES.

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DS Pump Press <i>(psi)</i>	DH Density <i>(ppg)</i>	Comb Pump Rate <i>(bbl/min)</i>	Comments
Event	1	Call Out	Call Out	9/14/2017	04:00:00	USER				CREW CALLED OUT FOR PRODUCTION. LOAD UP ALL REQUIRED MATERIALS AND EQUIPMENT TO COMPLETE JOB.
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	9/14/2017	04:10:00	USER				DISCUSS HAZARDS ASSOCIATED WITH DRIVING TRUCKS TO LOCATION. IDENTIFY ROUTE OF TRAVEL, CONVOY ORDER, AND PLACES TO STOP IF NEEDED.
Event	3	Depart from Service Center or Other Site	Depart from Service Center or Other Site	9/14/2017	04:20:00	USER				
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	9/14/2017	04:40:00	USER				
Event	5	Other	Other	9/14/2017	04:45:00	USER				ARRIVED AT LOCATION EARLY AND STAGED EQUIPMENT ON LOCATION NEXT TO WORK LOCATION. ON LOCATION TIME WAS 0900.
Event	6	Assessment Of Location Safety Meeting	Assessment Of Location Safety Meeting	9/14/2017	08:00:00	USER				ASSESS LOCATION TO IDENTIFY THE BEST WAY TO SPOT EQUIPMENT, POTENTIAL HAZARDS, AND LAY DOWN CONTAINMENT.
Event	7	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	9/14/2017	08:30:00	USER				DISCUSS HAZARDS ASSOCIATED WITH RIGGING AND PACKING IRON ON

										LOCATION. IDENTIFIED RED ZONE SINCE RIG CREW WAS STILL RUNNING CASING.
Event	8	Rig-Up Equipment	Rig-Up Equipment	9/14/2017	09:00:00	USER				
Event	9	Other	Other	9/14/2017	10:00:00	USER				WAIT FOR RIG CREW TO FINISH RUNNING CASING.
Event	10	Rig-Up Equipment	Rig-Up Equipment	9/14/2017	13:00:00	USER				RIGGED UP PLUG CONTAINER SO THE RIG COULD CIRCULATE THROUGH OUR PLUG CONTAINER AND MANIFOLD. RIGGED UP REMAINDER OF THE IRON TO THE STAND PIPE.
Event	11	Other	Other	9/14/2017	13:30:00	USER				RIG ON BOTTOM WITH CASING AND STARTED TO CIRCULATE. CIRCULATED WELL AT 290 GPM 800 PSI AND 2600 UNITS OF GAS.
Event	12	Other	Other	9/14/2017	14:20:00	USER				AIRING UP AND GETTING BULK EQUIPMENT READY ONE OF THE COMPRESSORS BLEW A HOSE. MADE PROPER CALLS TO GET HOSE HOT SHOTTED OUT TO LOCATION TO FIX IT. WE NEEDED THE HOSE SINCE WE COULDN'T AIR UP THE PODS DUE TO THE AIR LEAKING OUT OF THE RUPTURED HOSE. INFORMED COMPANY MAN OF SITUATION.
Event	13	Pre-Job Safety Meeting	Pre-Job Safety Meeting	9/14/2017	15:10:00	USER	6.30	8.35	0.00	DISCUSS HES SAFETY AND JOB PROCEDURES WITH RIG CREW AND COMPANY MAN. IDENTIFIED CLOSEST HOSPITAL, MUSTE AREAS,

AND FIRST AID LOCATION.
DISCUSSED JOB ORDER AND
HOW MUCH SPACER
WOULD RETURN TO
SURFACE.

Event	14	Other	Other	9/14/2017	15:30:00	USER	6.30	8.35	0.00	WAIT FOR HOSE TO ARRIVE TO FIX BULK COMPRESSOR.
Event	15	Rig-Up Equipment	Rig-Up Equipment	9/14/2017	16:05:00	USER	6.30	8.37	0.00	RIG UP IRON TO MANIFOLD AND GET READY TO PUMP CEMENT.
Event	16	Start Job	Start Job	9/14/2017	16:19:47	COM6	13.30	8.34	0.00	
Event	17	Other	Other	9/14/2017	16:20:00	USER	16.30	8.34	0.00	PUMP 3 BBLS FRESH WATER TO FILL PUMPS AND LINES.
Event	18	Test Lines	Test Lines	9/14/2017	16:23:27	COM6	135.30	8.26	0.00	CONDUCT A LOW PRESSURE TEST TO 500 PSI TO TEST RCM PRESSURE KICKOUTS. AFTER KICKOUTS FUNCTIONED PROPERLY WE PERFORMED OUR HIGH PRESSURE TEST TO 4500 PSI. HELD FOR FEW MINUTES MONITORING PRESSURE LOSS.
Event	19	Pump Spacer 1	Pump Spacer 1	9/14/2017	16:29:16	COM6	-6.70	8.28	0.00	PUMPED 60 BBLS OF TUNED SPACER. 10.5 #/GAL 6.25 CUFT/SK 40.2 GAL/SK. PUMPED SPACER AT 3 BPM AT 420 PSI. GOOD CIRCULATION.
Event	20	Drop Bottom Plug	Drop Bottom Plug	9/14/2017	16:34:30	COM6	382.30	10.60	3.00	DROPPED 5.5" BOTTOM PLUG. BOTTOM PLUG DROPPED BY BRYCE MUIR AND WITNESSED BY THE COMPANY MAN. PLUG DROPPED ON THE FLY AFTER THE FIRST 10 BBLS OF DISPLACEMENT

Event	ID	Description	Material	Date	Time	Code	Weight	Volume	Rate	Notes
										PUMPED.
Event	21	Pump Lead Cement	Pump Lead Cement	9/14/2017	16:49:23	COM6	107.30	12.87	0.00	PUMPED 42 BBLs OF FIRST LEAD CEMENT. 150 SACKS @ 13.2 #/GAL 1.57 CUFT/SK 7.52 GAL/SK. WE HAD SOME MINOR ISSUES WHEN WE SWAPPED TO FIRST LEAD WITH IT MIXING. TOOK A FEW MINUTES TO LINE OUT THE DENSITY.
Event	22	Check Weight	Check weight	9/14/2017	16:55:48	COM6	1071.30	13.32	4.60	WEIGHT VERIFIED BY PRESSURIZED MUD BALANCE.
Event	23	Check Weight	Check weight	9/14/2017	16:58:03	COM6	618.30	11.87	6.50	WEIGHT VERIFIED BY PRESSURIZED MUD BALANCE.
Event	24	Pump Cement	Pump Cement	9/14/2017	16:59:45	COM6	207.30	12.14	6.50	PUMPED 109 BBLs OF SECOND LEAD CEMENT. 390 SACKS @ 13.2 #/GAL 1.57 CUFT/SK 7.54 GAL/SK. SECOND LEAD PUMPED AT 8 BPM AT 590 PSI. GOOD CIRCULATION.
Event	25	Check Weight	Check weight	9/14/2017	17:01:28	COM6	811.30	13.51	7.00	WEIGHT VERIFIED BY PRESSURIZED MUD BALANCE.
Event	26	Check Weight	Check weight	9/14/2017	17:07:01	COM6	633.30	13.55	8.00	WEIGHT VERIFIED BY PRESSURIZED MUD BALANCE.
Event	27	Pump Tail Cement	Pump Tail Cement	9/14/2017	17:13:51	COM6	621.30	13.37	8.00	PUMPED 239 BBLs OF TAIL CEMENT. 800 SACKS @ 13.5 #/GAL 1.68 CUFT/SK 7.99 GAL/SK. TAIL CEMENT PUMPED AT 8 BPM AT 680 PSI. WE HAD GOOD CIRCULATION.
Event	28	Check Weight	Check weight	9/14/2017	17:17:21	COM6	446.30	13.49	8.10	WEIGHT VERIFIED BY

										PRESSURIZED MUD BALANCE.
Event	29	Check Weight	Check weight	9/14/2017	17:29:14	COM6	686.30	13.38	8.00	WEIGHT VERIFIED BY PRESSURIZED MUD BALANCE.
Event	30	Shutdown	Shutdown	9/14/2017	17:48:03	COM6	6.30	12.87	0.00	WASH PUMPS AND LINES.
Event	31	Drop Top Plug	Drop Top Plug	9/14/2017	17:58:30	COM6	-22.70	8.28	0.00	DROPPED 5.5" TOP PLUG. PLUG DROPPED BY BRYCE MUIR AND WITNESSED BY THE COMPANY MAN.
Event	32	Pump Displacement	Pump Displacement	9/14/2017	17:59:09	COM6	-22.70	8.29	0.00	PUMP 292 BBLS OF FRESH WATER DISPLACEMENT. THE FIRST 20 BBLS WE ADDED MMCR TO THE TANKS. THE REMAINING 272 BBSL WE ADDED BIO- CIDE TO THE DISPLACEMENT.
Event	33	Displ Reached Cement	Displ Reached Cmnt	9/14/2017	18:06:24	COM6	364.30	8.17	7.90	WE CAUGHT THE PLUG AFTER PUMPING 52 BBLS OF DISPLACEMENT. WE GOT GOOD SPACER TO SURFACE AFTER PUMPING 280 BBLS OF DISPLACEMENT. WE GOT 12 BBLS OF TUNED SPACER TO SURFACE. CALCULATED TOP OF LEAD CEMENT IS AT 999 FEET. CALCULATED TOP OF TAIL IS AT 5420 FFET.
Event	34	Bump Plug	Bump Plug	9/14/2017	18:38:14	COM6	2345.30	8.29	2.60	LANDED PLUG AT 2145 PSI AND PRESSURED UP 500 PSI OVER FINAL CIRCULATING PRESSURE TO 2654 PSI. WE HELD TO FOR 3 MINUTES.
Event	35	Check Floats	Check Floats	9/14/2017	18:41:00	USER	2663.30	8.30	0.00	FLOATS HELD. WE GOT 3 BBLS BACK TO THE RCM.

Event	36	Other	Other	9/14/2017	18:43:48	COM6	840.30	8.25	1.90	PRESSURED BACK UP ON THE WELL FOR A CASING TEST.
Event	37	Other	Other	9/14/2017	18:44:55	COM6	2929.30	8.31	0.00	CONDUCTED A 15 MINUTE 3000 PSI CASING TEST.
Event	38	End Job	End Job	9/14/2017	19:02:40	COM6				
Event	39	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	9/14/2017	19:20:00	USER				DISCUSS HAZARDS ASSOCIATED WITH RIGGING DOWN AND PACKING IRON ON LOCATION.
Event	40	Rig-Down Equipment	Rig-Down Equipment	9/14/2017	19:35:00	USER				
Event	41	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	9/14/2017	20:35:00	USER				DISCUSS HAZARDS ASSOCIATED WITH DRIVING TRUCKS BACK TO THE SERVICE CENTER. DISCUSSED ROUTE OF TRAVEL, CONVOY ORDER, AND WHERE TO FUEL TRUCKS.
Event	42	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	9/14/2017	20:50:00	USER				JOB WAS COMPLETED SAFELY BY BRYCE MUIR AND CREW. THANK YOU AND STAY SAFE.

3.0 Attachments

3.1 Anadarko RW 15N-32HZ Production Job Chart

