

The Road to Excellence Starts with Safety

Sold To #: 300466		Ship To #: 3752061		Quote #: 0022382148		Sales Order #: 0904488586					
Customer: ANADARKO PETROLEUM CORP-EBUS				Customer Rep: J McKinley							
Well Name: WAGNER			Well #: 27N-10HZ			API/UWI #: 05-123-43470-00					
Field: WATTENBERG		City (SAP): IONE		County/Parish: WELD		State: COLORADO					
Legal Description: SW NE-22-1N-67W-1722FNL-1529FEL											
Contractor: PRECISION DRLG				Rig/Platform Name/Num: PRECISION 464							
Job BOM: 7525 7525											
Well Type: HORIZONTAL GAS											
Sales Person: HALAMERICA\HX41066				Srv Supervisor: Steven Markovich							
Job											
Formation Name											
Formation Depth (MD)		Top				Bottom					
Form Type						BHST					
Job depth MD		15356ft				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	
Drill Pipe		4	3.34	14			0	5784	0	0	
Casing		7	6.276	26	LTC	HCP110	0	6018	0	0	
Casing		4.5	4	11.6	LTC	HCP110	5784	15356	0	0	
Open Hole Section			6.125				6018	15361	0	0	
Tools and Accessories											
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make		
Guide Shoe	4.5			15356		Top Plug	4.5		HES		
Float Shoe	4.5					Bottom Plug	4.5		HES		
Float Collar	4.5					SSR plug set	4.5		HES		
Insert Float	4.5					Plug Container	4.5		HES		
Stage Tool	4.5					Centralizers	4.5		HES		
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			

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	EconoCem	ECONOCHEM (TM) SYSTEM	575	sack	13.5	1.68		6	7.98
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	Displacement Fluid	Displacement Fluid	195	bbl	8.34				
Cement Left In Pipe		Amount	50 ft		Reason			Shoe Joint	
Mix Water:		pH ##	Mix Water Chloride:## ppm			Mix Water Temperature:## °F °C			
Cement Temperature:		## °F °C	Plug Displaced by:## lb/gal kg/m3 XXXX			Disp. Temperature:## °F °C			
Plug Bumped?		Yes/No	Bump Pressure:#### psi MPa			Floats Held?Yes/No			
Cement Returns:		## bbl m3	Returns Density:## lb/gal kg/m3			Returns Temperature:## °F °C			
Comment Bumped plug at 195bbbls away, final lift pressure was 1730psi. Brought pressure to 3000psi and held for 3 mis. During the backside test for 15 mins pressure went from 3072psi to 3025psi. Cleaned hole with 160bbbls. Spacer to surface at 74bbbls away, cement to surface at 134bbbls away. Hole was clean at 147 bringing 13bbbls of cement above the liner.									

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	Pass-Side Pump Pressure (psi)	Comments
Event	1	Call Out	Call Out	12/8/2017	17:30:00	USER				Job called out with an on location time of 23:20
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	12/8/2017	22:00:00	USER				JSA with HES crew on driving safety and route to location.
Event	3	Arrive at Location from Service Center	Arrive at Location from Service Center	12/8/2017	22:20:00	USER				Arrived on location, rig was still running DP approx 5000
Event	4	Assessment Of Location Safety Meeting	Assessment Of Location Safety Meeting	12/8/2017	22:30:00	USER				JSA and hazard hunt with HES crew.
Event	5	Rig-Up Equipment	Rig-Up Equipment	12/8/2017	22:45:00	USER				Rigged up HES lines and equipment.
Event	6	Safety Meeting - Pre Job	Safety Meeting - Pre Job	12/9/2017	04:00:00	USER	0.00	0.00	7.00	JSA with HES and rig crew on job procedure and safety.
Event	7	Start Job	Start Job	12/9/2017	04:15:02	COM4	8.54	0.00	39.00	TD 15361' TP 115356' FC 15306' DP 4" 14# 4353.5' HWDP 1438.3' Liner Top @ 5784.33' 4 1/2" 11.6# csg 9522' 7" 26# CSG @ 6018'
Event	8	Test Lines	Test Lines	12/9/2017	04:34:03	COM4	8.74	0.00	2891.00	Set kick outs to 500psi and check kick outs then bring pressure up to 4000psi and hold.
Event	9	Check Weight	Check Weight	12/9/2017	04:44:07	USER	8.39	0.00	3.00	Weight verified by pressurized scales.
Event	10	Pump Spacer	Pump Spacer	12/9/2017	04:47:35	USER	8.38	0.40	16.00	Pump 60bbbls of 10.5ppg 6.25yield Tuned Spacer. Added 42 gallons of both

										Musol A and Dual Spacer B on the fly. Pumped at 2.5bbl/min 500psi
Event	11	Pump Lead Cement	Pump Lead Cement	12/9/2017	05:05:33	COM4	11.49	3.20	488.00	Pump 172bbls (575sks) of 13.5ppg 1.68yield Cement. Pumped at 5bbl/min 950psi.
Event	12	Check Weight	Check weight	12/9/2017	05:06:57	COM4	13.38	4.90	1032.00	Weight verified by pressurized scales.
Event	13	Shutdown	Shutdown	12/9/2017	05:41:44	COM4	13.61	0.00	30.00	Shutdown and clean pumps and lines.
Event	14	Drop Top Plug	Drop Top Plug	12/9/2017	05:52:28	COM4	8.07	0.00	-44.00	Plug loaded and dropped in front of Company Rep.
Event	15	Pump Displacement	Pump Displacement	12/9/2017	05:52:34	COM4	8.07	0.00	-44.00	Pump 195bbls of H2O. First 20bbls with MMCR. Pumped at 5bbl/min, slowed to 3bbl/min at 45bbls away for dart to go through tool. Dart went through tool at 53.5bbls away. Picked rate back up to 5bbl/min.
Event	16	Other	Other	12/9/2017	06:05:59	USER	8.26	2.90	1635.00	Dart passed through tool at 53.5bbls away and pressured up to 1635psi.
Event	17	Bump Plug	Bump Plug	12/9/2017	06:35:17	COM4	8.35	3.00	1712.00	Bumped plug at 195bbls away. Final lift pressure was 1730psi. Brought pressure up to 3000psi and held for 3 mins.
Event	18	Other	Other	12/9/2017	06:54:51	COM4	8.21	0.00	9.00	Lined up to pump down the back side. Pumped 3bbls at 2bbl/min till we got flow. Shut down to test backside.
Event	19	Test Lines	Test Lines	12/9/2017	06:57:09	COM4	8.27	0.00	21.00	Set kick outs to 3000psi for 15 min backside test. Test went from 3072psi to 3025psi in the 15 min

										timeframe.
Event	20	Other	Other	12/9/2017	07:05:06	USER	8.33	0.00	2888.00	During backside test pressure fell 2000psi and then held solidly for the remainder of test. Rig showed pressure was 3025psi as a check valve was in place and we didnt loose any pressure on the backside.
Event	21	Other	Other	12/9/2017	07:20:05	USER	8.23	0.20	19.00	Pumped 5bbls of water through backside to make sure we still had flow.
Event	22	Other	Other	12/9/2017	07:23:49	USER	8.26	0.30	22.00	Applied 700psi on DP to sting out tool.
Event	23	Clean Hole	Clean Hole	12/9/2017	07:27:51	COM4	8.27	1.80	721.00	Pumped 160bbls of water to clean hole. Spacer to surface at 74bbls away, cement to surface at 134 away and hole was clean at 147 which gives us 13bbls of cement above the liner.
Event	24	End Job	End Job	12/9/2017	07:56:00	COM4	8.25	0.00	-2.00	Thank you Steve Markovich and crew.

3.0 Job Chart

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