

HALLIBURTON

Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 345242		Ship To #: 3697143		Quote #:		Sales Order #: 0903229717	
Customer: NOBLE ENERGY INC - EBUS				Customer Rep: Dave Nielson			
Well Name: WELLS RANCH			Well #: AA22-625			API/UWI #: 05-123-42269-00	
Field: WATTENBERG		City (SAP): GILL		County/Parish: WELD		State: COLORADO	
Legal Description: SW SW-22-6N-63W-1008FSL-80FWL							
Contractor: H & P DRLG				Rig/Platform Name/Num: H & P 321			
Job BOM: 392189							
Well Type: HORIZONTAL OIL							
Sales Person: HALAMERICA\HB61755				Srv Supervisor: Nathaniel Moore			
Job							

Formation Name			
Formation Depth (MD)	Top		Bottom
Form Type			BHST 230 degF
Job depth MD	6846ft		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
Casing	0	9.625	8.921	36			0	1871	0	1881
Casing	0	5.5	4.778	20			0	11940	0	6648
Open Hole Section			8.5				1881	11940	1871	6648

Tools and Accessories

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	5.5				Top Plug	5.5	1	Packers
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			6845.8	Centralizers	5.5		HES

Fluid Data

Stage/Plug #: 1

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
1	12.5 lb/gal Tuned Spacer III	Tuned Spacer III	40	bbl	12.5	2.75			
0.40 gal/bbl		MUSOL A, 330 GAL TOTE - (790828)							
0.40 gal/bbl		DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)							
203.65 lbm/bbl		BARITE, BULK (100003681)							
34.60 gal/bbl		FRESH WATER							

HALLIBURTON

Cementing Job Summary

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	12.5 lb/gal Tuned Spacer III	Tuned Spacer III	40	bbl	12.5	2.75			
34.60 gal/bbl		FRESH WATER							
203.65 lbm/bbl		BARITE, BULK (100003681)							
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 B1	ELASTICEM (TM) SYSTEM	610	sack	13.6	1.88		5	8.57
0.45 %		HR-5, 50 LB SK (100005050)							
8.57 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	Displacement	Displacement	151.3	bbl	8.33				
Cement Left In Pipe			Amount		Reason			Shoe Joint	
Fluid Data									
Stage/Plug #: 2									
Cement Left In Pipe			Amount		Reason			Shoe Joint	

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Pass-Side Pump Pressure (psi)	Downhole Density (ppg)	Combined Pump Rate (bbl/min)	Comments
Event	1	Call Out	Call Out	4/6/2016	02:00:00	USER				OL time 0600. Verify equipment and materials in the yard
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	4/6/2016	04:00:00	USER				Journey management conducted with crew
Event	3	Assessment Of Location Safety Meeting	Assessment Of Location Safety Meeting	4/6/2016	05:30:00	USER				Sign in and give copy of JSA to Noble safety representative. Rig had a few sticks of casing left to run then set packers and began circulating.
Event	4	Other	Meet with customer rep	4/6/2016	05:40:00	USER				Packers Plus DV tool at 6845.8' 5.5" 20# P-110 casing. Surface casing 9.625" 36 # J-55 set at 1871'. Mud weight 9.8 ppg. Open hole 8.5"
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	4/6/2016	05:45:00	USER				Discuss spotting equipment and rig up procedure
Event	6	Pre-Job Safety Meeting	Pre-Job Safety Meeting	4/6/2016	10:00:00	USER	-75.00	0.00	0.00	Rig circulated 300 bbl at 8 bpm. Safety meeting with HES and third party crew members to discuss job procedure
Event	7	Start Job	Start Job	4/6/2016	10:42:55	COM1	-3.00	0.00	0.00	Fill lines with 3 bbl fresh water. Water tested PH 7 Chlorides 0 Sulfates <200 Temp 58 degrees F
Event	8	Test Lines	Test Lines	4/6/2016	10:47:20	COM1	4939.00	8.43	0.00	Low pressure kickout function test followed by 4939 psi pressure test. Test held.
Event	9	Check Weight	Check weight Spacer	4/6/2016	10:55:09	COM1	-4.00	8.33	0.00	12.3 ppg. Reset recirculating densometer and then re-scaled at 12.5 ppg
Event	10	Pump Spacer 1	Pump Tuned spacer 1	4/6/2016	10:57:24	COM1	-4.00	8.34	0.00	40 bbl tuned spacer with surfactant and solvent. Density: 12.5 ppg Yield: 2.75 ft3/sk Water Requirement: 17 gal/sk
Event	11	Check Weight	Check weight spacer	4/6/2016	10:57:45	COM1	18.00	11.78	1.60	12.5 ppg
Event	12	Pump Spacer 2	Pump Tuned Spacer 2	4/6/2016	11:07:35	COM1	118.00	12.45	5.10	40 bbl tuned spacer without surfactants

Event	13	Check Weight	Check Weight Cement	4/6/2016	11:18:00	USER	0.00	12.08	0.00	13.7 ppg
Event	14	Pump Cement	Pump Cement 204 bbl	4/6/2016	11:20:05	COM1	0.00	12.07	0.00	204 bbls. 610 sks. Density: 13.6 ppg Yield: 1.88 ft3/sk Water Requirement: 8.57 gal/sk
Event	15	Check Weight	Check weight cement	4/6/2016	11:30:00	USER	418.00	13.34	7.90	13.6 ppg
Event	16	Shutdown	Shutdown	4/6/2016	11:57:41	COM1	45.00	13.64	0.00	Blow cement out of lines with air from rig floor
Event	17	Clean Lines	Clean Lines	4/6/2016	12:01:57	COM1	-25.00	13.66	0.00	
Event	18	Drop Top Plug	Drop Top Plug	4/6/2016	12:06:47	COM1	-38.00	7.53	0.00	Plug drop witnessed and verified by company rep and packers plus
Event	19	Pump Displacement	Pump Displacement	4/6/2016	12:07:25	COM1	-42.00	8.11	0.00	151.3 bbl fresh water displacement. Maintained 12 bpm until derate. Caught cement at 40 bbl into displacement.
Event	20	Bump Plug	Bump Plug	4/6/2016	12:24:54	COM1	3345.00	8.23	0.00	Bumped plug at 6 bpm 2050 psi circulating pressure. Pressured up to 3360 psi.
Event	21	Other	Pressure up well	4/6/2016	12:26:26	COM1	4022.00	8.25	0.00	Increased pressure to 4000 psi and held for 5 minutes.
Event	22	Other	Check floats	4/6/2016	12:30:31	COM1	4168.00	8.23	0.00	2 bbl back to the truck
Event	23	Pressure Up Well	Pressure Up Well	4/6/2016	12:33:43	COM1	3009.00	8.27	0.00	Pressure up to 3000 psi for 2 minutes
Event	24	Other	Check floats	4/6/2016	12:36:13	COM1	-8.00	8.20	0.00	1.5 bbl back to the truck.
Event	25	End Job	End Job	4/6/2016	12:36:19	COM1	-18.00	8.20	0.00	
Event	26	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	4/6/2016	12:40:00	USER	-28.00	8.18	0.00	Safety meeting with crew
Event	27	Depart Location Safety Meeting	Depart Location Safety Meeting	4/6/2016	14:00:00	USER				Journey management conducted with crew.