

**APOLLO OPERATING
1538 WAZEE ST #200
DENVER, Colorado**

JWHS
JWHS 31-2D

Ensign/Ensign/226

Post Job Summary **Cement Production Casing**

Date Prepared: 05/21/2013
Version: 1

Service Supervisor: BARRAS, JOSEPH

Submitted by: MCKAY, ADAM

HALLIBURTON

HALLIBURTON

Wellbore Geometry

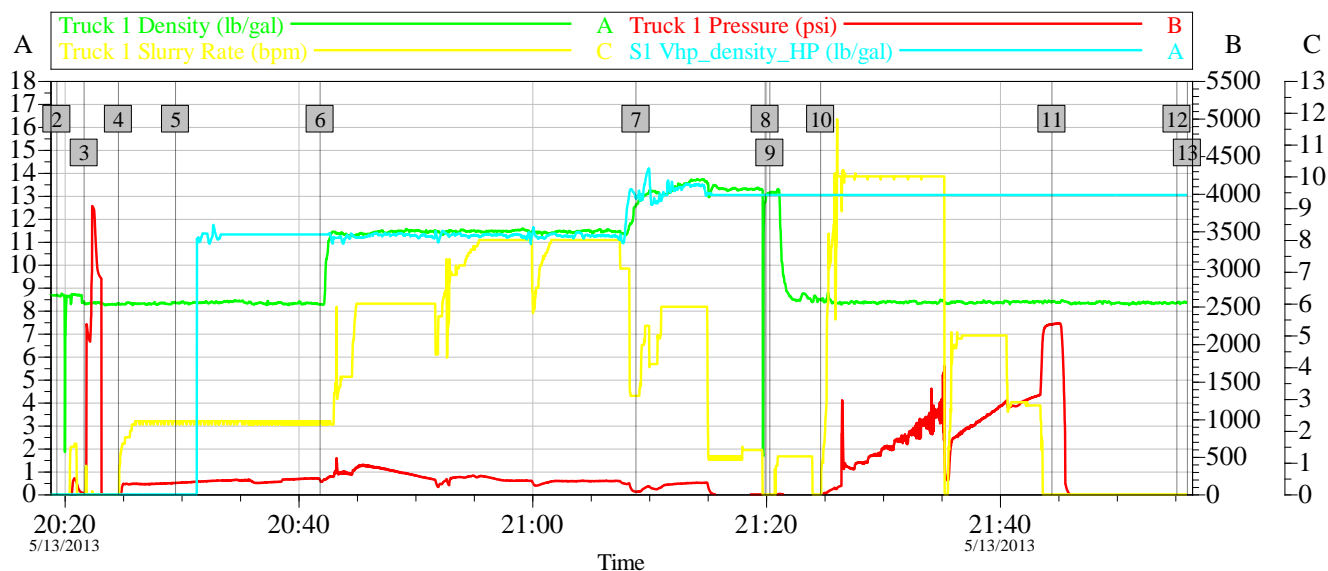
Job Tubulars					MD		Shoe Joint Length ft
Type	Description	Size in	ID in	Wt lbm/ft	Top ft	Bottom ft	
Casing	8 5/8" Surface Casing	8.63	8.097	24.00	0.00	955.00	
Open Hole Section	7 7/8" Open Hole Section		7.875		955.00	7,850.00	
Casing	4 1/2" Production Casing	4.50	4.000	11.60	0.00	7,850.00	43.00

Pumping Schedule

Stage /Plug #	Fluid #	Fluid Type	Fluid Name	Surface Density lbm/gal	Avg Rate bbl/min	Surface Volume	Downhole Volume
1	1	Spacer	Fresh Water Spacer	8.33	3.00	20.0 bbl	20.0 bbl
1	2	Spacer	Mud Flush III	8.40	3.00	24.0 bbl	24.0 bbl
1	3	Cement Slurry	EXTENDACEM B1	11.30	7.00	445.0 sacks	445.0 sacks
1	4	Cement Slurry	FracCem B2	13.50	6.00	126.0 sacks	126.0 sacks

Data Acquisition

APPOLO JWHS 4.5 " PRODUCTION



Global Event Log					
Intersection	T1P	Intersection	T1P	Intersection	T1P
1 Starting Job	19:36:12 -15.00	2 Start Job	20:19:20 -7.000	3 Test Lines	20:21:40 18.22
4 Pump Spacer 1	20:24:36 -6.000	5 Pump Spacer 2	20:29:29 153.6	6 Pump Lead Cement	20:41:51 188.3
7 Pump Tail Cement	21:08:52 38.00	8 Shutdown	21:19:55 -8.247	9 Drop Top Plug	21:20:19 -6.000
10 Pump Displacement	21:24:40 -12.00	11 Bump Plug	21:44:27 2263	12 End Job	21:55:08 -7.000
13 Ending Job	21:56:02 -7.000				

Customer:	Job Date: 13-May-2013	Sales Order #: 900434732
Well Description:	UWI:	

OptiCem v6.4.10
13-May-13 21:58

Service Supervisor Reports

Job Log

Date/Time	Chart #	Activity Code	Pump Rate	Cum Vol	Pump	Pressure (psig)	Comments
05/13/2013 20:19		Start Job					
05/13/2013 20:21		Test Lines	1.5			3175.0	TEST LINES TO 3500 NO VISIBLE LEAKS
05/13/2013 20:24		Pump Spacer 1	1.5	20		145.0	RIG WATER
05/13/2013 20:29		Pump Spacer 2	2.5	24		173.0	RIG WATER WITH MUD FLUSH
05/13/2013 20:41		Pump Lead Cement	7.5	194.9		245.0	MIXED WITH RIG WATER @ 11.3 PPG /445 SKS OF EXTEND
05/13/2013 21:08		Pump Tail Cement	6	39		240.0	MIXED WITH RIG WATER @ 13.5 PPG /126 SKS OF FRACCEM
05/13/2013 21:19		Shutdown					
05/13/2013 21:20		Drop Top Plug					WITNESSED BY COMPANYMAN
05/13/2013 21:24		Pump Displacement	8	121		2110.0	PUMPED RIG WATER PLUG LANDED @ 1445
05/13/2013 21:44		Bump Plug	3			1445.0	
05/13/2013 21:45		Check Floats					
05/13/2013 21:55		End Job					

HALLIBURTON

The Road to Excellence Starts with Safety

Sold To #: 353960	Ship To #: 2997294	Quote #:	Sales Order #: 900434732
Customer: APOLLO OPERATING		Customer Rep: Lunt, Mark	
Well Name: JWHS	Well #: 31-2D	API/UWI #: 05-123-35822	
Field: WATTENBERG	City (SAP): MEAD	County/Parish: Weld	State: Colorado
Lat: N 40.257 deg. OR N 40 deg. 15 min. 26.1 secs.		Long: W 104.973 deg. OR W -105 deg. 1 min. 38.388 secs.	
Contractor: Ensign		Rig/Platform Name/Num: Ensign 226	
Job Purpose: Cement Production Casing			
Well Type: Development Well		Job Type: Cement Production Casing	
Sales Person: PLIENESS, RYAN		Srvc Supervisor: BARRAS, JOSEPH	MBU ID Emp #: 405168

Job Personnel

HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #
BARNES, BRIAN L	0.0	485204	BARRAS, JOSEPH Corey	0.0	405168	REED, FRED Marlon	0.0	504496
ROMERO, JOSEPH M	0.0	512137	SIMS, DENNIS A	0.0	158880			

Equipment

HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way
10982754C	32 mile	11338223	32 mile	11518548	32 mile	11527037	32 mile
11764052	32 mile	11812069C	32 mile				

Job Hours

Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours
TOTAL								

Total is the sum of each column separately

Job

Job Times

Formation Name	Formation Depth (MD)	Top	Bottom	Form Type	Job depth MD	Job Depth TVD	Water Depth	Perforation Depth (MD)	From	To	Called Out	Date	Time	Time Zone
				BHST	7850. ft	7850. ft		Wk Ht Above Floor		4. ft	13 - May - 2013	13 - May - 2013	11:30	MST
											On Location	13 - May - 2013	17:00	MST
											Job Started	13 - May - 2013	20:19	MST
											Job Completed	13 - May - 2013	21:55	MST
											Departed Loc	13 - May - 2013	23:10	MST

Well Data

Description	New / Used	Max pressure psig	Size in	ID in	Weight lbm/ft	Thread	Grade	Top MD ft	Bottom MD ft	Top TVD ft	Bottom TVD ft
7 7/8" Open Hole Section				7.875				955.	7850.		
4 1/2" Production Casing	Unknown		4.5	4.	11.6			.	7850.		
8 5/8" Surface Casing	Unknown		8.625	8.097	24.			.	955.		

Sales/Rental/3rd Party (HES)

Description	Qty	Qty uom	Depth	Supplier
SHOE,FLT,4-1/2 8RD,2-3/4 SSII	1	EA		
Description	Qty	Qty uom	Depth	Supplier
CLR,FLT,4-1/2 8RD,9.5-13.5PPF,2-3/4	1	EA		
CTRZR ASSY,TURBO,API,4 1/2 CSG X 7 7/8	30	EA		
CLAMP - LIMIT - 4-1/2 - HINGED -	3	EA		
PLUG,CMTG,TOP,4 1/2,HWE,3.65 MIN/4.14 MA	1	EA		

HALLIBURTON

KIT,HALL WELD-A	2	EA		
BSKT,CEM,4 1/2 CSG X 6 1/4,8 3/4 H	2	EA		
MILEAGE FOR CEMENTING CREW,ZI	56	MI		
ZI FUEL SURCHG-CARS/PICKUPS<1 1/2TON	56	MI		

Tools and Accessories

Type	Size	Qty	Make	Depth	Type	Size	Qty	Make	Depth	Type	Size	Qty	Make
Guide Shoe					Packer					Top Plug			
Float Shoe					Bridge Plug					Bottom Plug			
Float Collar					Retainer					SSR plug set			
Insert Float										Plug Container			
Stage Tool										Centralizers			

Miscellaneous Materials

Gelling Agt		Conc		Surfactant		Conc		Acid Type		Qty		Conc	%
Treatment Fld		Conc		Inhibitor		Conc		Sand Type		Size		Qty	

Fluid Data

Stage/Plug #: 1

Fluid #	Stage Type	Fluid Name	Qty	Qty uom	Mixing Density lbm/gal	Yield ft3/sk	Mix Fluid Gal/sk	Rate bbl/min	Total Mix Fluid Gal/sk
1	Fresh Water Spacer		20.00	bbl	8.33				
2	Mud Flush III	MUD FLUSH III - SBM (528788)	24.00	bbl	8.4				
3	EXTENDACEM B1	EXTENDACEM (TM) SYSTEM (452981)	445.0	sacks	11.3	2.46	14.1		14.1
	14.101 Gal	FRESH WATER							
4	FracCem B2	FRACCCEM (TM) SYSTEM (452963)	126.0	sacks	13.5	1.74	8.3		8.3
	8.3 Gal	FRESH WATER							

Calculated Values

Pressures

Volumes

Displacement		Shut In: Instant		Lost Returns		Cement Slurry		Pad	
Top Of Cement		5 Min		Cement Returns		Actual Displacement		Treatment	
Frac Gradient		15 Min		Spacers		Load and Breakdown		Total Job	

Rates

Circulating				Mixing				Displacement				Avg. Job			
Cement Left In Pipe			Amount	43 ft	Reason		Shoe Joint								
Frac Ring # 1 @		ID		Frac ring # 2 @		ID		Frac Ring # 3 @		ID		Frac Ring # 4 @		ID	

The Information Stated Herein Is Correct	Customer Representative Signature
--	-----------------------------------