

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

JWHS 32-2D

Ensign 226

Post Job Summary **Cement Production Casing**

Prepared for: WHITE, JESSE
Date Prepared: 5/21/2013
Version: 1

Service Supervisor: PICKELL, CHRISTOPHER

Submitted by: PLIENESS, RYAN

HALLIBURTON

HALLIBURTON

Wellbore Geometry

Job Tubulars					MD		TVD		Excess	Shoe Joint Length
Type	Description	Size in	ID in	Wt lbm/ft	Top ft	Bottom ft	Top ft	Bottom ft	%	ft
Casing	8 5/8" Surface Casing	8.63	8.097	24.00	0.00	670.00				
Open Hole Section	7 7/8" Open Hole Section		7.875		670.00	7,664.00				
Casing	4 1/2" Production Casing	4.50	4.000	11.60	0.00	7,623.00				43.00

HALLIBURTON

Pumping Schedule

Stage / Plug #	Fluid #	Fluid Type	Fluid Name	Surface Density lbm/gal	Fluid Volume
1	1	Spacer	Fresh Water Spacer	8.33	20.0 bbl
1	2	Spacer	Mud Flush III	8.40	24.0 bbl
1	3	Cement Slurry	ExtendaCem B1	11.30	435.0 sacks
1	4	Cement Slurry	FracCem B2	13.50	135.0 sacks

Fluids Pumped

Stage/Plug # 1 Fluid 1: Fresh Water Spacer
DUMMY MUD / FLUSH / SPACER SBC MATERIAL

Fluid Density: 8.33 lbm/gal
Fluid Volume: 20.00 bbl

Stage/Plug # 1 Fluid 2: Mud Flush III
MUD FLUSH III - SBM (528788)

Fluid Density: 8.40 lbm/gal
Fluid Volume: 24.00 bbl

Stage/Plug # 1 Fluid 3: ExtendaCem B1
EXTENDACEM (TM) SYSTEM

Fluid Weight: 11.30 lbm/gal
Slurry Yield: 2.46 ft³/sack
Total Mixing Fluid: 14.10 Gal
Surface Volume: 435.0 sacks
Sacks: 435.0 sacks
Calculated Fill: 3,900.00 ft
Calculated Top of Fluid: 3,000.00 ft

Stage/Plug # 1 Fluid 4: FracCem B2
FRACCEN (TM) SYSTEM

Fluid Weight: 13.50 lbm/gal
Slurry Yield: 1.74 ft³/sack
Total Mixing Fluid: 8.30 Gal
Surface Volume: 135.0 sacks
Sacks: 135.0 sacks
Calculated Fill: 850.00 ft
Calculated Top of Fluid: 6,900.00 ft

HALLIBURTON

Job Summary

Job Information

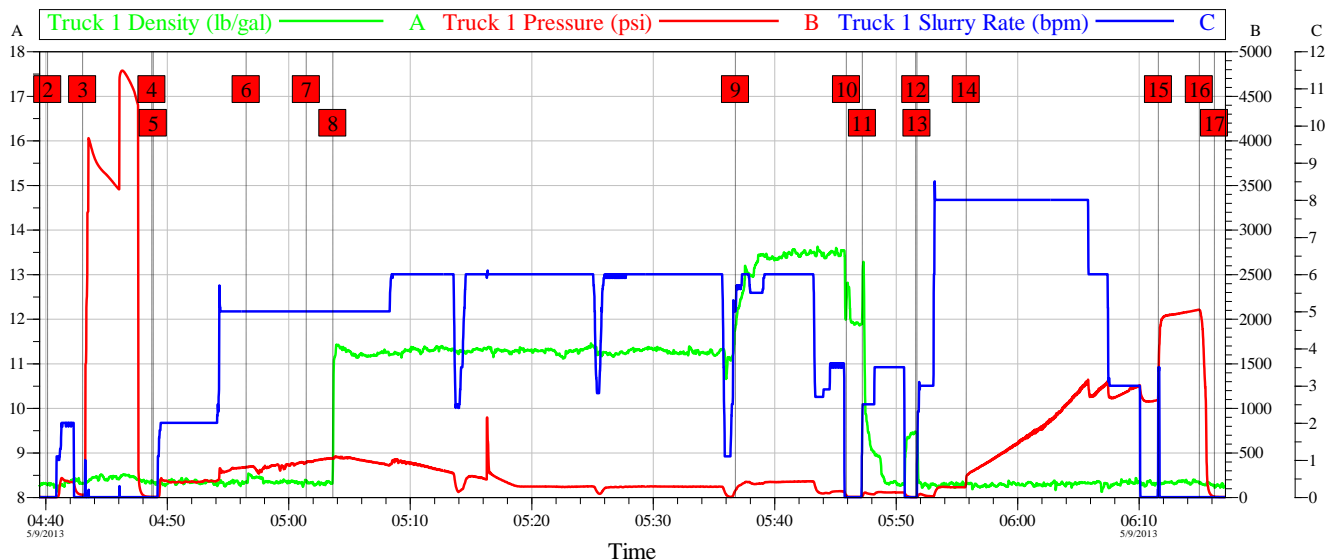
Job Start Date	5/9/2013 4:40:00 AM	Time From End Mud Circ. to Job Start	15.00 minute
Job MD	7,700.0 ft	Pipe Movement During Cementing	None
Job TVD	7,700.0 ft	Calculated Displacement	117.50 bbl
Height of Plug Container/Swage Above Rig Floor	5.0 ft	Job Displaced by (rig/halco)	Cement Unit HP Pumps
Surface Temperature at Time of Job	45 degF	Annular flow Before Job? (Water/Gas)	Unknown
Mud Type	Water Based Mud	Annular flow After Job? (Water/Gas)	Unknown
Actual Mud Density	9 lbm/gal	Length of Rat Hole	7.00 ft
Time Circulated before job	1.50 hour(s)		
Pipe Movement During Hole Circulation	Reciprocated		

Cementing Equipment

Pipe Centralization	Through Production Intervals	Plug set used?	Yes
Brand of Float Equipment Used	HALLIBURTON	Brand of Plug set used?	Halliburton
Did Float Equipment Hold?	Yes	Did Plugs Bump?	Yes
		Calculated Pressure to Bump Plugs	1,006.0 psig
		Did Stage Cementing Tool Open Properly?	Unknown

Data Acquisition

JWHS 32-2D APOLLO OPERATING



Global Event Log

Intersection	T1P	Intersection	T1P	Intersection	T1P
2 Start Job	04:40:11 0.000	3 Test Lines	04:43:03 27.00	4 Drop Bottom Plug	04:48:46 4.000
5 Pump Water	04:48:52 4.000	6 Pump Mudflush	04:56:31 335.9	7 Pump Water	05:01:28 383.0
8 Pump Extendacem 11.3#	05:03:39 435.3	9 Pump Fraccem 13.5#	05:36:48 75.12	10 Shutdown	05:45:56 19.52
11 Clean Lines	05:47:15 8.133	12 Drop Top Plug	05:51:39 1.000	13 Pump Displacement	05:51:45 1.041
14 Displ Reached Cmmt	05:55:48 192.2	15 Bump Plug	06:11:37 1175	16 Check Floats	06:14:59 2103
17 End Job	06:16:14 6.294				

Customer: Apollo Operating
Well Description: JWHS 32-2d
Service Supervisor: Christopher Pickell

Job Date: 09-May-2013
Service Operator: William Jewell

Sales Order #: 900426777

OptiCem v6.4.10
09-May-13 06:34

Service Supervisor Reports

Job Log

Date/Time	Chart #	Activity Code	Pump Rate	Cum Vol	Pump		Pressure (psig)		Comments
05/08/2013 04:40		Start Job							
05/08/2013 04:43		Test Lines	1	2				3500.0	PRESSURE TEST LINES TO 3500 PSI. CHECK FOR VISIBLE LEAKS AND PRESSURE LOSS
05/08/2013 04:48		Drop Bottom Plug							PLUG PRELOADED IN CASING. WITNESSED BY COMPANY MAN
05/08/2013 04:48		Pump Spacer 1	5	20				250.0	PUMP WATER SPACER
05/08/2013 04:56		Pump Spacer 2	5	24				400.0	PUMP MUDFLUSH
05/08/2013 05:01		Pump Spacer 1	5	10				500.0	PUMP WATER SPACER
05/08/2013 05:03		Pump Lead Cement	6	190.5				150.0	PUMP EXTENDACEM CEMENT 435 SKS 11.3 PPG 2.46 CUFT/SK 14.12 GAL/SK MIXED WITH RIG WATER
05/08/2013 05:36		Pump Tail Cement	6	42				120.0	PUMP FRACCEM CEMENT 135 SKS 13.5 PPG 1.74 CUFT/SK 8.30 GAL/SK MIXED WITH RIG WATER
05/08/2013 05:45		Shutdown							
05/08/2013 05:47		Clean Lines							WASH PUMPS AND LINES
05/08/2013 05:51		Drop Top Plug							PLUG PRELOADED. WITNESSED BY COMPANY MAN
05/08/2013 05:51		Pump Displacement	8	117.5				1350.0	PUMP DISPLACEMENT USING RIG WATER
05/08/2013 05:55		Displ Reached Cmmt							DISPLACEMENT REACHED CEMENT WITH 24 BBL AWAY
05/08/2013 06:11		Bump Plug	3					1175.0	CALCULATED PRESSURE TO LAND WAS 1006. PLUG LANDED WITH 1175 PSI GOING 500 PSI OVER FINAL LIFT
05/08/2013 06:14		Check Floats							PRESSURE WAS HELD FOR 3 MINUTES THEN RELEASED. FLOATS HELD. 1 BBL BACK TO TANKS
05/09/2013 06:16		End Job							

The Road to Excellence Starts with Safety

Sold To #: 353960		Ship To #: 2997295		Quote #:		Sales Order #: 900426777	
Customer: APOLLO OPERATING				Customer Rep: Lunt, Mark			
Well Name: JWHS		Well #: 32-2D		API/UWI #: 05-123-35825			
Field: WATTENBERG		City (SAP): MEAD		County/Parish: Weld		State: Colorado	
Lat: N 40.257 deg. OR N 40 deg. 15 min. 25.884 secs.				Long: W 104.973 deg. OR W -105 deg. 1 min. 38.352 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: FLING, MATTHEW		Srvc Supervisor: PICKELL, CHRISTOPHER			MBU ID Emp #: 396838		
Job Personnel							
HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs
BROOM, KENDALL L	0.0	524682	DODSON, RICHARD Bryan	0.0	518192	JEWELL, WILLIAM Uris	0.0
PICKELL, CHRISTOPHER Lee	0.0	396838					
Equipment							
HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way
10982754C	24 mile	11527037	24 mile	11562546C	24 mile	11566182	24 mile
11605597	24 mile	11667703C	24 mile				
Job Hours							
Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours	Date	On Location Hours
TOTAL		Total is the sum of each column separately					
Job				Job Times			
Formation Name				Date			
Formation Depth (MD) Top				Time			
Bottom				Time Zone			
Form Type				Called Out			
Job depth MD				On Location			
Water Depth				Job Started			
Perforation Depth (MD) From				Job Completed			
To				Departed Loc			
Well Data							
Description	New / Used	Max pressure psig	Size in	ID in	Weight lbm/ft	Thread	Grade
7 7/8" Open Hole Section				7.875			
4 1/2" Production Casing	Unknown		4.5	4.	11.6		
8 5/8" Surface Casing	Unknown		8.625	8.097	24.		
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		
KIT,HALL WELD-A	2	EA		
PLUG,CMTG,BOT,4 1/2,HWE,3.65 MIN/4.14 MA	1	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	.0	.0	.0	
2	Mud Flush III	MUD FLUSH III - SBM (528788)	24.00	bbl	8.4	.0	.0	.0	
3	ExtendaCem B1	EXTENDACEM (TM) SYSTEM (452981)	435.0	sacks	11.3	2.46	14.1		14.1
	14.101 Gal	FRESH WATER							
4	FracCem B2	FRACCEN (TM) SYSTEM (452963)	135.0	sacks	13.5	1.74	8.3		8.3
	8.298 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
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