

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

Markham 44-32D

Ensign 226

## **Post Job Summary** **Cement Production Casing**

Prepared for:  
Date Prepared: 4/29/2013  
Version: 1

Service Supervisor: VIGIL, NICHOLAS

Submitted by: FINNEY, SEAN

**HALLIBURTON**

# HALLIBURTON

## ***Wellbore Geometry***

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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	720.00	
Open Hole Section	7 7/8" Open Hole Section		7.875		720.00	7,659.00	
Casing	4 1/2" Production Casing	4.50	4.000	11.60	0.00	7,655.00	41.00

# HALLIBURTON

## 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	4.50	24.0	24.0
1	2	Spacer	Mud Flush III	8.40	4.50	20.0	20.0
1	3	Cement Slurry	EXTENDACEM B1	11.30	10.00	435.0 sacks	435.0 sacks
1	4	Cement Slurry	FracCem B2	13.50	7.20	135.0 sacks	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  
Pump Rate: 4.50 bbl/min

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

Fluid Density: 8.40 lbm/gal  
Pump Rate: 4.50 bbl/min

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

Fluid Weight: 11.30 lbm/gal  
Slurry Yield: 2.46 ft<sup>3</sup>/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  
FRACCEM (TM) SYSTEM

Fluid Weight: 13.50 lbm/gal  
Slurry Yield: 1.74 ft<sup>3</sup>/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

## Service Supervisor Reports

### Job Log

Date/Time	Chart #	Activity Code	Pump Rate	Cum Vol	Pump		Pressure (psig)	Comments
04/26/2013 11:30		Arrive At Loc						Well site assesment,Hazard hunt,Water test,Rig up safety meeting,Waited for rig to finish running casing
04/26/2013 16:14		Start Job						Pre job safety meeting
04/26/2013 16:16		Test Lines						Pressure tested lines to 3500 psi
04/26/2013 16:18		Pump Spacer 1	4.5	20			245.0	Water
04/26/2013 16:23		Pump Spacer 2	4.5	24			250.0	Mud Flush
04/26/2013 16:28		Pump Lead Cement	10	190			195.0	11.3 ppg ExtendaCem (435 SKS), weight verified by scale
04/26/2013 16:50		Pump Tail Cement	7.2	41			203.0	13.5 ppg FracCem (135 SKS), weight verified by scale
04/26/2013 16:57		Shutdown						
04/26/2013 16:57		Clean Lines						
04/26/2013 17:01		Drop Top Plug						Plug was pre loaded
04/26/2013 17:02		Pump Displacement	12	60			969.0	Rig water
04/26/2013 17:16		Bump Plug	3.5	118			1422.0	Calculated pressure to land was 1024 psi + 1000 over
04/26/2013 17:17		Check Floats						Floats held
04/26/2013 17:18		End Job						Rig down safety meeting

## The Road to Excellence Starts with Safety

Sold To #: 353960	Ship To #: 2994994	Quote #:	Sales Order #: 900393808
Customer: APOLLO OPERATING		Customer Rep: Lunt, Mark	
Well Name: Markham		Well #: 44-32D	API/UWI #: 05-123-37072
Field:	City (SAP): MEAD	County/Parish: Weld	State: Colorado
Lat: N 40.266 deg. OR N 40 deg. 15 min. 57.96 secs.		Long: W 105.018 deg. OR W -106 deg. 58 min. 53.976 secs.	
Job Purpose: Cement Production Casing			
Well Type: Development Well		Job Type: Cement Production Casing	
Sales Person: FLING, MATTHEW	Srvc Supervisor: VIGIL, NICHOLAS		MBU ID Emp #: 443481

## Job Personnel

HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #
CHISLUM, DENNIS	0.0	512130	MEADOWS, DANIEL Graham	0.0	500668	OTERI, VAUGHN Steeves	0.0	443828
Reynolds, Scott	0.0	522540	VIGIL, NICHOLAS Joseph	0.0	443481			

## Equipment

HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way
10866497C	30 mile	11398490	30 mile	11562570C	30 mile	11764737	30 mile
12010168	30 mile	5707C	30 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							
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## Job

Formation Name					Date	Time	Time Zone
Formation Depth (MD)	Top		Bottom		Called Out	26 - Apr - 2013	08:00 MST
Form Type	BHST				On Location		
Job depth MD	7658. ft		Job Depth TVD	7658. ft	Job Started	26 - Apr - 2013	16:14 MST
Water Depth			Wk Ht Above Floor	3. ft	Job Completed	26 - Apr - 2013	17:18 MST
Perforation Depth (MD)	From		To		Departed Loc	26 - Apr - 2013	18:00 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				720.	7659.		
4 1/2" Production Casing	Unknown		4.5	4.	11.6			.	7655.		
8 5/8" Surface Casing	Unknown		8.625	8.097	24.			.	720.		

Sales/Rental/3<sup>rd</sup> Party (HES)

Description	Qty	Qty uom	Depth	Supplier
SHOE,FLT,4-1/2 8RD,2-3/4 SSII	1	EA		
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		
Description	Qty	Qty uom	Depth	Supplier
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		

### Fluid Data

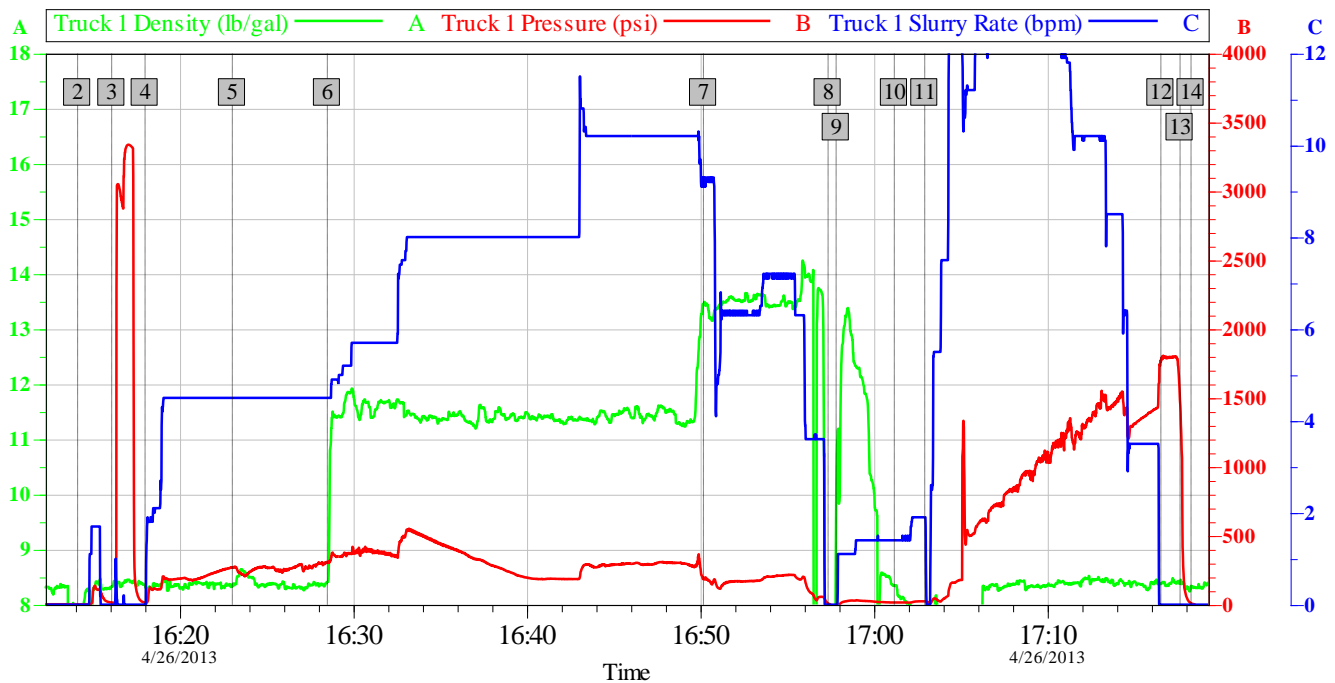
#### Stage/Plug #: 1

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			bbl	8.33	.0	.0	.0	
2	Mud Flush III	MUD FLUSH III - SBM (528788)		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	FRACCEM (TM) SYSTEM (452963)	135.0	sacks	13.5	1.74	8.3		8.3
	8.298 Gal	FRESH WATER							

<i>The Information Stated Herein Is Correct</i>	<b>Customer Representative Signature</b>
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# HALLIBURTON

## Data Acquisition



### Global Event Log

2 Start Job	16:14:07	3 Test Lines	16:16:05	4 Water	16:18:01
5 MudFlush	16:23:02	6 11.3 ppg ExtendaCem	16:28:31	7 13.5 ppg FracCem	16:50:11
8 Shutdown	16:57:22	9 Clean Lines	16:57:50	10 Drop Top Plug	17:01:11
11 Pump Displacement	17:02:56	12 Bump Plug	17:16:33	13 Check Floats	17:17:39
14 End Job	17:18:17				

Customer: Apollo  
Well Description: Markham 44-32D

Job Date: 26-Apr-2013  
Job Type: Production

Sales Order #: 900393808  
Supervisor: N. VIGIL

OptiCem v6.4.10  
26-Apr-13 17:24

