

# HALLIBURTON

iCem<sup>®</sup> Service

## Post Job Report

**ANADARKO PETROLEUM CORP - EBUS**

**For: Bob Porter**

Date: Wednesday, June 25, 2014

**Black Tiger 15C-27HZ - Surface Casing**

Sincerely,

Justin Wheeler and Crew

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### Job Times

	Date	Time	Time Zone
<b>Requested Time On Location</b>	6/25/14	0500	MT
<b>Called Out</b>	6/25/14	0630	MT
<b>On Location</b>	6/25/14	0845	MT
<b>Job Started</b>	6/25/14	0943	MT
<b>Job Completed</b>	6/25/14	1430	MT
<b>Departed Location</b>	6/25/14	1500	MT

## 1.1 Cementing Job Summary

<b>Sold To #:</b> 300466	<b>Ship To #:</b> 3476047	<b>Quote #:</b>	<b>Sales Order #:</b> 0901457511
<b>Customer:</b> ANADARKO PETROLEUM CORP - EBUS		<b>Customer Rep:</b> Bob Porter	
<b>Well Name:</b> BLACK TIGER	<b>Well #:</b> 15C-27HZ	<b>API/UWI #:</b> 05-123-39401-00	
<b>Field:</b> WATTENBERG	<b>City (SAP):</b> Ft. Lupton	<b>County/Parish:</b> WELD	<b>State:</b> COLORADO
<b>Legal Description:</b> SW SE-22-2N-67W-300FSL-1472FEL			
<b>Contractor:</b>		<b>Rig/Platform Name/Num:</b> MAJOR 42	
<b>Job BOM:</b> 7521			
<b>Well Type:</b> HORIZONTAL GAS			
<b>Sales Person:</b> HALAMERICA\HX23209		<b>Srvc Supervisor:</b> Justin Wheeler	
<b>Job</b>			

<b>Formation Name</b>													
<b>Formation Depth (MD)</b>		<b>Top</b>			<b>Bottom</b>								
<b>Form Type</b>					<b>BHST</b>								
<b>Job depth MD</b>		1731ft			<b>Job Depth TVD</b>								
<b>Water Depth</b>					<b>Wk Ht Above Floor</b>								
<b>Perforation Depth (MD)</b>		2.0 rom			<b>To</b>								
<b>Well Data</b>													
<b>3.0</b>	<b>Description</b>	<b>New / Used</b>	<b>Size in</b>	<b>ID in</b>	<b>Weight lbm/ft</b>	<b>Thread</b>	<b>Grade</b>	<b>Top MD ft</b>	<b>Bottom MD ft</b>	<b>Top TVD ft</b>	<b>Bottom TVD ft</b>		
	Casing		9.625	8.921	36		J-55	0	1731		0		
	Open Hole Section			13.5				0	1741		0		
<b>Tools and Accessories</b>													
<b>Type</b>	<b>Size in</b>	<b>Qty</b>	<b>Make</b>	<b>Depth ft</b>		<b>Type</b>	<b>Size in</b>	<b>Qty</b>	<b>Make</b>				
Guide Shoe	9.625	1		1731'		Top Plug	9.625	1	HES				
Float Shoe	9.625					Bottom Plug	9.625		HES				
Float Collar	9.625	1		1688'		SSR plug set	9.625		HES				
Insert Float	9.625					Plug Container	9.625	1	HES				
Stage Tool	9.625					Centralizers	9.625		HES				
<b>Miscellaneous Materials</b>													
<b>Gelling Agt</b>	<b>4.0</b>	<b>Conc</b>	<b>5.0</b>	<b>Surfactant</b>	<b>6.0</b>	<b>Conc</b>	<b>7.0</b>	<b>Acid Type</b>	<b>8.0</b>	<b>Qty</b>	<b>9.0</b>	<b>10.0</b>	<b>11.0</b>
Treatment Fld	12.0	Conc	13.0	14.0 Inhibi tor	15.0	16.0 onc	17.0	Sand Type	18.0	19.0 ize	20.0	21.0 ty	22.0
<b>Fluid Data</b>													
<b>Stage/Plug #: 1</b>													
<b>Fluid #</b>	<b>Stage Type</b>	<b>Fluid Name</b>			<b>Qty</b>	<b>Qty UoM</b>	<b>Mixing Density lbm/gal</b>	<b>Yield ft3/sack</b>	<b>Mix Fluid Gal</b>	<b>Rate bbl/min</b>	<b>Total Mix Fluid Gal</b>		
1	Mud Flush III (Powder)	Mud Flush III			12	bbl	8.4						

42 gal/bbl		23.0 FRESH WATER							
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
2	Lead Cement	SWIFTCEM (TM) SYSTEM	645	sack	14.2	1.5		6	7.64
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
3	Top-Out Cement	Class G Premium	60	sks	15.8	1.15	5		
24.0	<b>Cement Left In Pipe</b>	<b>Amount</b>	43 ft		25.0	<b>Reason</b>	26.0 Shoe Joint		
<b>Comment</b> 2 BBLS Cement to Surface, Cement Fell back 20', Topped-Out well with 60 sks Class G Premium									

## **26.1** Planned Pumping Schedule

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Anadarko

Black Tiger 15C-27HZ

S.O. 901457511

Pressure Test Lines to 2500 PSI

Pump 10 bbls Fresh Water

Pump 12 bbls Mud Flush

Pump 10 bbls Fresh Water

Mix and Pump 172.3 bbls Cement @ 14.2 lb/gal (1.54 yield, 7.64 gal/sk) (645 sks)

Shut-Down, Drop Top Plug

Pump 130.5 bbls Fresh Water Displacement (Shoe Jt. Capacity 3.3 bbls)

Land Plug @ +/- 515 PSI (+500 Over)

Pressure to Lift Pipe 747 PSI

Check Floats

(18 BBLs Possible Cement to Surface)

320 bbls H2O for Job

## 26.2 Job Overview

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		Units	Description
1	Surface temperature at time of job	°F	85 deg
2	Mud type (OBM, WBM, SBM, Water, Brine)	-	wbm
3	Actual mud density	lb/gal	9.2
4	Actual mud Plastic Viscosity (PV)	cP	
5	Actual mud Yield Point (YP)	lb <sub>f</sub> /100ft <sup>2</sup>	
6	Actual mud 30 min Gel Strength	lb <sub>f</sub> /100ft <sup>2</sup>	
7	Time circulated before job	HH:MM	2 hr
8	Mud volume circulated	Bbls	> 2 Bottoms Up
9	Rate at which well was circulated	Bpm	6 BPM
10	Pipe movement during hole circulation	Y/N	No
11	Rig pressure while circulating	Psi	100 PSI
12	Time from end mud circulation to start of job	HH:MM	00:15
13	Pipe movement during cementing	Y/N	No

14	Calculated displacement	Bbls	130.5
15	Job displaced by	Rig/HES	HES
16	Annular flow before job	Y/N	Yes
17	Annular flow after job	Y/N	Yes
18	Length of rat hole	Ft	10'
19	Units of gas detected while circulating	Units	0
20	Was lost circulation experienced at any time?	Y/N	No

## Lost Circulation Details

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**26.3 Water Field Test**

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Item	Recorded Test Value	Units	Max. Acceptable Limit	Potential Problems in Exceeding Limit
pH	8	----	6.0 - 8.0	Chemicals in the water can cause severe retardation
Chlorides	0	ppm	3000 ppm	Can shorten thickening time of cement
Sulfates	<200	ppm	1500 ppm	Will greatly decrease the strength of cement
Total Hardness		ppm	500 mg/L	High concentrations will accelerate the set of the cement
Calcium		ppm	500 ppm	High concentrations will accelerate the set of the cement
Total Alkalinity		ppm	1000 ppm	Cement is greatly retarded to the point where it may not set up at all (typically occurs @ pH ≥ 8.3).
Bicarbonates		ppm	1000 ppm	Cement is greatly retarded to the point where it may not set up at all
Potassium		ppm	5000 ppm	High concentrations will shorten the pump time of cement (indicates the presence of chlorides, therefore if Potassium levels are measured as high, so should the chlorides)
Iron		ppm	300 ppm	High concentrations will accelerate the set of the cement
Temperature	65	°F	50-80 °F	High temps will accelerate; Low temps may risk freezing in cold weather

*Submitted Respectfully by: \_\_\_\_\_Justin Wheeler\_\_\_\_\_*

## 26.4 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Density (ppg)	Driv-Side Pump Pressure (psi)	Combined Pump Rate (bbl/min)	Comment
Event	1	Call Out	Call Out	6/25/2014	06:30:00	USER				Crew Called at 0630 due to Coordinator Mistake (Requested on Location @ 0500)
Event	2	Safety Meeting - Service Center or other Site	Safety Meeting - Service Center or other Site	6/25/2014	08:20:00	USER				Journey Management Meeting With HES Crew Prior to Departing Yard
Event	3	Arrive At Loc	Arrive At Loc	6/25/2014	08:45:00	USER				Arrive at Location @ 0845, Rig Waiting
Event	4	Safety Meeting - Pre Rig-Up	Safety Meeting - Pre Rig-Up	6/25/2014	08:50:00	USER				Safety Meeting With HES Crew Prior to Rigging Up
Event	5	Safety Meeting - Pre Job	Safety Meeting - Pre Job	6/25/2014	09:30:00	USER	12.92	2.93	0.00	Safety Meeting With HES Crew, and All 3rd Party EE's
Event	6	Start Job	Start Job	6/25/2014	09:43:53	COM5	12.90	1.95	0.00	Top Plug Pre-Loaded in Plug Container (Witnessed By Customer Rep.)
Event	7	Test Lines	Test Lines	6/25/2014	09:46:00	COM5	13.05	3362.23	0.00	Pressure Test Lines to 3000 PSI (Holding with No Visible Leaks)
Event	8	Pump Spacer 1	Pump Spacer 1	6/25/2014	09:48:11	COM5	8.18	24.43	3.01	Pump 10 bbls Fresh Water Spacer
Event	9	Pump Spacer 2	Pump Spacer 2	6/25/2014	09:51:12	COM5	8.18	33.22	3.01	Pump 12 bbls Mud Flush (40 lb Bag)
Event	10	Pump Spacer 1	Pump Spacer 1	6/25/2014	09:54:43	COM5	8.21	42.99	4.59	Pump 10 bbls Fresh Water
Event	11	Pump Cement	Pump Cement	6/25/2014	09:59:54	COM5	1.21	2.93	1.53	Mix and Pump 645 sks (172.3 bbls) SwiftCem Cement @ 14.2 lb/gal (Density Verified by Pressurized Scales)
Event	12	Shutdown	Shutdown	6/25/2014	10:29:13	COM5	-0.67	-0.98	0.00	
Event	13	Drop Top Plug	Drop Top Plug	6/25/2014	10:30:15	COM5	-0.79	0.00	0.00	Shutdown, Drop Top Plug
Event	14	Pump Displacement	Pump Displacement	6/25/2014	10:30:27	COM5	13.89	17.59	2.06	Pump Fresh Water

										Displacement (Wash-Up on Top of Plug)
Event	15	Other	Other	6/25/2014	10:54:22	COM5	8.21	526.66	5.06	Mud Flush Returns to Surface
Event	16	Cement Returns to Surface	Cement Returns to Surface	6/25/2014	11:03:00	USER	8.21	635.12	2.06	2 BBL Cement to Surface
Event	17	Bump Plug	Bump Plug	6/25/2014	11:04:09	COM5	8.26	1325.94	0.00	Bump Plug @ 1330 PSI
Event	18	Check Floats	Check Floats	6/25/2014	11:06:53	USER	-0.27	-29.31	0.00	Check Floats, Floats Holding (Returned 1 bbl Back to Truck)
Event	19	Other	Other	6/25/2014	11:30:00	USER	-0.94	0.00	0.00	Cement Fell Back from Surface Approx 15'. Customer Rep. Orders 100 sks Class G Neat Cement to Perform Top-Out.
Event	20	Other	Other	6/25/2014	11:30:01	USER	-0.95	-0.98	0.00	Cement Arrives at 1330. Rig Crew Assembles 1" Pipe and Runs in Hole. Tagged Cement @ 20' Below Surface.
Event	21	Pump Cement	Pump Cement	6/25/2014	14:01:26	COM5	7.17	5.86	1.00	Mix and Pump 60 sks (12 bbls) Class G Premium @ 15.8 lb/gal
Event	22	Other	Other	6/25/2014	14:05:00	USER	15.62	32.24	1.05	Top Out Well with 15.8 lb/gal Cement (Fill Ditch with Remaining Cement)
Event	23	Shutdown	Shutdown	6/25/2014	14:29:00	USER	-0.62	0.98	1.63	Shutdown
Event	24	Safety Meeting - Pre Rig-Down	Safety Meeting - Pre Rig-Down	6/25/2014	14:35:10	USER				Safety Meeting with HES Crew Prior to Rigging Down
Event	25	Safety Meeting - Departing Location	Safety Meeting - Departing Location	6/25/2014	15:00:00	USER				Journey Management Meeting With Crew Prior to Departing Location
Event	26	Other	Other	6/25/2014	15:05:00	USER				100 sks Top-Out Cement Delivered to Location, 40 sks Returned to Service Center

27.0 Custom Graphs

27.1 Custom Graph



