



CEMENT JOB REPORT



CUSTOMER Petroleum Development Corpor.		DATE 05-JUL-11	F.R. # 1001833887	SERV. SUPV. CHASE M MURCHISON	
LEASE & WELL NAME PUCKETT #34A-7D - API 05045143600000		LOCATION 7-7S-96W		COUNTY-PARISH-BLOCK Garfield Colorado	
DISTRICT Grand Junction		DRILLING CONTRACTOR RIG #		TYPE OF JOB Surface	
SIZE & TYPE OF PLUGS		LIST-CSG-HARDWARE		PHYSICAL SLURRY PROPERTIES	
9-5/8" Top Cem Plug, Nitrile cvr, Phc		Float Collar, Al Flap, 9-5/8 - 8rd		SACKS OF CEMENT	Bbl SLURRY
		Float Shoe 9-5/8 - 8rd		SLURRY WGT PPG	Bbl MIX WATER
				SLURRY YLD FT ³	
				WATER GPS	
				PUMP TIME HR:MIN	
MATERIALS FURNISHED BY BJ					
Type III with Additives				194	33.93
Fresh Water				8.34	176
Fresh Water				8.34	20
Premium Lite Cement				1,317	332.87
Available Mix Water 1000 Bbl.		Available Displ. Fluid 400 Bbl.		TOTAL	708.35
					366.80
HOLE		TBG-CSG-D.P.		COLLAR DEPTHS	
SIZE	% EXCESS	DEPTH	SIZE	WGT.	TYPE
16		2375	9.625	36	CSG
				DEPTH	GRADE
				2500	J-55
				SHOE	FLOAT
				2375	2331
				STAGE	
LAST CASING		PKR-CMT RET-BR PL-LINER		PERF. DEPTH	
SIZE	WGT	TYPE	DEPTH	TOP	BTM
20	52.73		100		0
		no packer			
		BRAND & TYPE		TOP CONN	
				SIZE	THREAD
				9.625	8RND
				WELL FLUID	
				TYPE	
				WATER BASED ML	
				WGT.	
				9	
DISPL. VOLUME		DISPL. FLUID		CAL. PSI	
VOLUME	UOM	TYPE	WGT.	BUMP PLUG	TO REV.
176	BBLs	Fresh Water	8.34	1000	0
				OP. MAX	MAX TBG PSI
				SQ. PSI	RATED
				0	0
				Operator	MAX CSG PSI
				0	RATED
				Operator	Operator
				0	3520
				0	2816
				MIX WATER	
				up right rig tank	

EXPLANATION: TROUBLE SETTING TOOL, RUNNING CSG, ETC. PRIOR TO CEMENTING:

PRESSURE/RATE DETAIL						EXPLANATION	
TIME HR:MIN.	PRESSURE - PSI		RATE BPM	Bbl. FLUID PUMPED	FLUID TYPE	SAFETY MEETING: BJ CREW	CO. REP.
	PIPE	ANNULUS				X	X
14:30							
17:00							
17:22							
20:30							
20:56	360		2	20	H2O		
21:07	3500						
21:17	200		4	20	H2O		
21:42	302		4.8	50	SLURRY		
22:11	308		4.8	150	SLURRY		
22:23	437		4.8	200	SLURRY		
22:54	408		4.8	350	SLURRY		
23:01	264		4.8	400	SLURRY		
23:15	281		4.8	450	SLURRY		
23:30	255		4.8	50	SLURRY		
23:38							
23:45	216		7	50	H2O		
23:53	272		6	100	H2O		
23:53	272			176	H2O		
04:37	28		3	10	SLURRY		
05:20							

TEST LINES 3500 PSI
CIRCULATING WELL - RIG X BJ
safty meeting /leave yard
arive on loc/ spot trucks
rig up meeting/ rig up
safty meeting
pump paresite
psi test
spacer
lead cement 12.5ppg
tail cement 14.2ppg
drop plug
displacment
displacment
bump plug 1bbl back test flouts
14.2 ppg cement to surface ← TOP OUT
END JOB THANK YOU CHASE & BHI CREW

BUMPED PLUG	PSI TO BUMP PLUG	TEST FLOAT EQUIP.	BBL.CMT RETURNS/ REVERSED	TOTAL BBL. PUMPED	PSI LEFT ON CSG	SPOT TOP OUT CEMENT	SERVICE SUPERVISOR SIGNATURE:
Y	N 850	Y	N 1	756	0	Y	N

Andrews, David

From: Andrews, David
Sent: Tuesday, July 19, 2011 3:52 PM
To: rcjevne@aol.com
Cc: Ellsworth, Stuart; King, Kevin; Krabacher, Jay; Weems, Mark; Longworth, Mike
Subject: RE: 34A-7D Surface Cement Report
Attachments: PDC Top Out 07-05-2011.xls; PDC_2008_10.doc; Oxy_2011_06.doc; 2055138.PDF[1].pdf; 2053760.pdf

Randy,

As discussed, please review the attached files, and call to discuss PDC's next steps. On the attached spreadsheet, the yellow and green cells are inputs. Other cells are calculated values. The most significant unknown input is Annular Fluid Weight (weight of fluid above the top of lead cement). I usually assume 0.0 ppg for a completely evacuated annulus (air void), 5.0 ppg as an average value for a partially-evacuated annulus, or 8.3 ppg for a water-filled annulus. As you are aware, evacuated or partially-evacuated annuli are common on the Roan Plateau, because of significant lost circulation zones in the upper +/-1800' of the hole. When I have requested surface casing CBL's from other operators in the past, a value of 5.0 ppg generally gives a decent TOC estimate. The analytical model assumes that any cement losses to the hole would be from the lead cement.

For the Puckett 34A-7D, I estimate that the annular lead cement TOC is likely at a depth ranging from 416' (assumes a 0.0 ppg annular fluid weight) to 1238' (same calculation with a 8.3 ppg annular fluid weight). This would have required top-out volumes of 66 bbls to 196 bbls, respectively. PDC only topped out with 10 bbls of 14.2 ppg slurry. Therefore, it is likely that there is a significant void between the primary TOC and the top-out cement.

Two example variances are attached, one from PDC in 2008, and a recent Oxy variance. Information contained in the Word files has been presented in COGCC's past Staff Reports to our Commissioners.

In this case, PDC would be required to submit a variance request on a Sundry Notice (recent Oxy example attached and 2008 PDC example attached), with a demonstration explaining why the current wellbore configuration of the Puckett 34A-7D well is protective of fresh water (groundwater) resources. Considering that this is a repeat situation for PDC, I am not ruling out issuance of a Notice of Alleged Violation for failure to comply with Rule 317.h. Following the 2008 variance request, PDC personnel assured me that adequacy of surface casing cement jobs would be reviewed following every job to evaluate the need for a CBL or remedial cement prior to drilling out the surface casing shoe. That does not appear to have been the case for the Puckett 34A-7D well.

Thanks,

David D. Andrews, P.E., P.G.
Engineering Supervisor - Western Colorado

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Oil and Gas Conservation Commission
707 Wapiti Court, Suite 204
Rifle, Colorado 81650
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Website: <http://www.colorado.gov/cogcc>

From: rcjevne@aol.com [<mailto:rcjevne@aol.com>]
Sent: Tuesday, July 19, 2011 2:07 PM
To: Andrews, David
Subject: Re: 34A-7D Surface Cement Report

Yes, My # is 307-851-2957

-----Original Message-----

From: Andrews, David <David.Andrews@state.co.us>

To: rcjevne <rcjevne@aol.com>; Longworth, Mike <Mike.Longworth@state.co.us>; Kellerby, Shaun <Shaun.Kellerby@state.co.us>

Sent: Tue, Jul 19, 2011 8:50 am

Subject: RE: 34A-7D Surface Cement Report

Randy,

I have some concerns with the surface casing cement job on this well. Please reply with the PDC engineer contact information for this location. From what I recall, you already drilled out the surface casing shoe on this well, drilled the production hole, and set production casing, correct?

Thanks,

David D. Andrews, P.E., P.G.

Engineering Supervisor - Western Colorado

State of Colorado

Oil and Gas Conservation Commission

707 Wapiti Court, Suite 204

Rifle, Colorado 81650

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Cell Phone: (970) 456-5262

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E-mail: David.Andrews@state.co.us

Website: <http://www.colorado.gov/cogcc>

From: rcjevne@aol.com [<mailto:rcjevne@aol.com>]

Sent: Tuesday, July 19, 2011 4:17 AM

To: Longworth, Mike; Andrews, David; Kellerby, Shaun

Subject: 34A-7D Surface Cement Report

I get a paper copy & e-mailed report so I just Forward the report !, Depends on which engineer I get, what kind of report I get !

I'll review it from now on to make sure you don't have a problem with it.

Thanx Randy

Pressure Equilibrium Calculation

Assumptions:

Water in casing when flowing casing pressure is measured prior to bumping the plug.
 Friction loss in casing is negligible
 Loss of lead cement only - all tail cement remains in the annulus

Flowing Casing Pressure (FCP) 272 psi
 Annular Fill Volume 1.12235 lf/cf
 Surface Casing Setting Depth 2375 feet
 Annular Fluid Weight 5.0 ppg
 Sacks Lead Cement 1317 sx
 Yield Lead Cement 1.97 cf/sk
 Slurry Weight Lead Cement 12.5 ppg
 Sacks Tail Cement 194 sx
 Yield Tail Cement 1.47 cf/sk
 Slurry Weight Tail Cement 14.2 ppg

Calculations:

Height of Tail Cement 320 feet
 BHP (Hydrostatic + FCP) 1300 psi
 Pressure Exerted by Tail Cement 236 psi
 Difference 1064 psi
Height of Mud (Top of Lead Cement) 693 feet

Calculation Check:

Pressure Exerted by Annular Fluid Above Cement 180 psi
 Pressure Exerted by Lead Cement 884 psi
 Pressure Exerted by Tail Cement 236 psi
 1300 psi

Top Job Cement Yield 1.47 cf/sk

Cement Required for Top Job

Slurry Volume 420 sx
 Slurry Volume 618 cf
 Slurry Volume 110 bbl

Actual Cement 38.19456 sx
 Actual Slurry Volume 56.1 cf
 Pea Gravel 0 cy
 Total Volume 56 cf

Simple Volumetric Calculation Comparison

Assumptions:

No loss to the formation

Annulus volumetrics:
 16 hole size
 9.625 casing size
 1.12235 lf/cf
 0.89099 cf/lf
 6.30155 lf/bbl
 0.158691 bbl/lf

Annular Fill Volume 1.12235 lf/cf
 Surface Casing Setting Depth 2375 feet
 Sacks Lead Cement 1317 sx
 Yield Lead Cement 1.97 cf/sk
 Sacks Tail Cement 194 sx
 Yield Tail Cement 1.47 cf/sk

Height of Fluid Column 3232 feet

Andrews, David

From: Andrews, David
Sent: Monday, July 18, 2011 8:16 AM
To: Longworth, Mike; rcjevne@aol.com
Subject: RE: PDC surface 100183387
Attachments: Northwest Area Notification Procedures Rev2_09-21-2010.pdf

Importance: High

Follow Up Flag: Follow up
Flag Status: Completed

RE: Puckett 34A-7D, API # 05-045-143600000

I am your primary point-of-contact for post-job cement summaries (see attached – Subsequent Reports section). This submittal was not sufficient because COGCC does not have software for opening your attachments in *.PBA, *.EVE, and *.JMD formats.

I was able to gather the following information from the PDF files attached to your email below: 9.625" csg set at 2375', lift pressure of 272 psi prior to bumping the plug, 12.5 ppg lead slurry weight, and 14.2 ppg tail slurry weight.

Please reply with the following information:

- Actual hole size (permitted size was 17.5")
- Sacks and yield for the lead cement (12.5 ppg slurry)
- Sacks and yield for the tail cement (14.2 ppg slurry)
- Sacks, yield, and slurry weight for the top-out cement

Thanks,

David D. Andrews, P.E., P.G.
Engineering Supervisor - Western Colorado

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Website: <http://www.colorado.gov/cogcc>

From: Longworth, Mike
Sent: Monday, July 11, 2011 11:18 AM
To: Andrews, David
Subject: FW: PDC surface 100183387

THANK YOU!

MIKE LONGWORTH
FIELD INSPECTOR (GARFIELD AND RIO BLANCO COUNTIES)
OFFICE: 970.243.1183

From: rcjevne@aol.com [mailto:rcjevne@aol.com]
Sent: Tuesday, July 05, 2011 1:20 PM
To: Kellerby, Shaun; Longworth, Mike
Subject: Fwd: PDC surface 100183387

Surface Cement F/ Puckett 34A-7D, API # 05-045-143600000.

-----Original Message-----

From: Murchison, Chase M <Chase.Murchison@bakerhughes.com>
To: Reese, Tina E <Tina.Reese@bakerhughes.com>; Phillips, Steven P <Steven.Phillips@bakerhughes.com>; Smith, Jarrod C <Jarrod.Smith@bakerhughes.com>
Cc: rcjevne <rcjevne@aol.com>
Sent: Tue, Jul 5, 2011 10:52 am
Subject: PDC surface 100183387