



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 10/5/2014
 Invoice #: 65011
 API#: 05-123-39590
 Foreman: Lee Sharp

Customer: Anadarko Petroleum Corporation
Well Name: Steward 36C-6HZ

County: Weld
 State: Colorado
 Sec: 6
 Twp: 1N
 Range: 65W

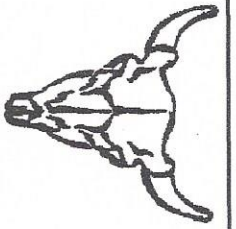
Consultant:
 Rig Name & Number: Major 29
 Distance To Location: 22
 Units On Location: 4031-3106;4024-3204
 Time Requested: 5:30
 Time Arrived On Location: 4:00
 Time Left Location:

WELL DATA		Cement Data	
Casing Size OD (in) :	9.625	Cement Name:	BFN III
Casing Weight (lb) :	36.00	Cement Density (lb/gal) :	14.2
Casing Depth (ft.) :	1,615	Cement Yield (cuft) :	1.49
Total Depth (ft) :	1631	Gallons Per Sack:	7.48
Open Hole Diameter (in.) :	13.50	% Excess:	20%
Conductor Length (ft) :	0	Displacement Fluid lb/gal:	8.3
Conductor ID :	0	BBL to Pit:	0.0
Shoe Joint Length (ft) :	42	Fluid Ahead (bbls):	30.0
Landing Joint (ft) :	8	H2O Wash Up (bbls):	20.0
Max Rate:		Spacer Ahead Makeup	10+10D+10=30bbl
Max Pressure:			

Calculated Results	Displacement:
Casing ID: 8.921 Casing Grade: J-55 only used	122.20 bbls
cuft of Shoe 18.34 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
cuft of Conductor 0.00 cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Pressure of cement in annulus
cuft of Casing 950.29 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Hydrostatic Pressure: 1191.35 PSI
Total Slurry Volume 968.62 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Pressure of the fluids inside casing
bbls of Slurry 172.51 bbls (Total Slurry Volume) X (.1781)	Displacement: 678.12 psi
Sacks Needed 650 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Shoe Joint: 31.17 psi
Mix Water 115.78 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	Total 709.29 psi
	Differential Pressure: 482.06 psi
	Collapse PSI: 2020.00 psi
	Burst PSI: 3520.00 psi
	Total Water Needed: 287.98 bbls

X *Randy Case*
 Authorization To Proceed

Customers hereby acknowledges and specifically agrees to the terms and condition on this work order, including, without limitation, the provisions on this work order.



Bison Oil Well Cementing
Single Cement Surface Pipe

Customer
 Well Name

Anadarko Petroleum Corporation
 Steward 36C-6HZ

INVOICE #
 LOCATION
 FOREMAN
 Date

65011
 Weld
 Lee Sharp
 10/5/2014

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DESCRIPTION OF JOB EVENTS

Safety Meeting	7:00	Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
		BLS	Time	PSI	BLS	Time	PSI	BLS	Time	PSI	BLS	Time	PSI	BLS	Time	PSI
MIRU	5:00															
CIRCULATE	7:31	0	8:17	40	0		0		0		0		0		0	
Drop Plug		10	8:20	40	10		10		10		10		10		10	
		20	8:21	40	20		20		20		20		20		20	
		30	8:25	50	30		30		30		30		30		30	
		40	8:27	130	40		40		40		40		40		40	
		50	8:29	200	50		50		50		50		50		50	
M & P		60	8:31	250	60		60		60		60		60		60	
Time	Sacks	70	8:33	270	70		70		70		70		70		70	
7:40-8:40	650	80	8:35	390	80		80		80		80		80		80	
		90	8:37	450	90		90		90		90		90		90	
		100	8:39	500	100		100		100		100		100		100	
		110	8:42	570	110		110		110		110		110		110	
% Excess	20%	120	8:45	520	120		120		120		120		120		120	
Mixed bbls	115.78	130	landed	600	130		130		130		130		130		130	
Total Sacks	650	140			140		140		140		140		140		140	
bbl Returns	0	150			150		150		150		150		150		150	
Water Temp	70															

Notes:

job went well plug land on calculated 122 bbl, landed @ 600 psi bumped 1600 psi; mixed & pumped 650 115.78 bbl n20, got 14 bbl returns; checked floats @8:49 floats held. Rig down and leave 9:30

X *Ray Lee*
 Work Performed
 Title
 X APC Consultant
 Date 10/05/2014