



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 7/30/2014

Invoice # 45011

API# 05-123-36903

Foreman: JASON

Customer: Anadarko Petroleum Corporation

Well Name: MORNING FRESH 36N-22HZR

County: Weld

State: Colorado

Sec: 22

Twp: 3N

Range: 66W

Consultant: TERRY

Rig Name & Number: ENSIGN 132

Distance To Location: 12

Units On Location: 4031-3106/ 4007-3210

Time Requested: 100

Time Arrived On Location: 2230

Time Left Location: 1200

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 36.00
Casing Depth (ft.) : 957
Total Depth (ft) : 983
Open Hole Diameter (in.) : 13.50
Conductor Length (ft) :
Conductor ID :
Shoe Joint Length (ft) : 40
Landing Joint (ft) : 13

Max Rate: 7
Max Pressure: 2500

Cement Data

Cement Name: BFN III
Cement Density (lb/gal) : 14.2
Cement Yield (cuft) : 1.49
Gallons Per Sack: 7.48
% Excess: 25%
Displacement Fluid lb/gal: 8.3
BBL to Pit: 13.0
Fluid Ahead (bbls): 30.0
H2O Wash Up (bbls): 20.0

Spacer Ahead Makeup
30 BBL H2O, 2ND 10 WITH DYE

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 17.30 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)
cuft of Conductor 0.00 cuft
(Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)
cuft of Casing 584.45 cuft
(Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)
Total Slurry Volume 601.75 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)
bbls of Slurry 107.17 bbls
(Total Slurry Volume) X (.1781)
Sacks Needed 404 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)
Mix Water 71.93 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 71.88 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 705.74 PSI

Pressure of the fluids inside casing

Displacement: 395.32 psi

Shoe Joint: 29.40 psi

Total 424.72 psi

Differential Pressure: 281.02 psi

Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 193.81 bbls

X *Terence D. Drake*
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
MORNING FRESH 36N-22HZR

INVOICE #
LOCATION
FOREMAN
Date

45011
Weld
JASON
7/30/2014

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DESCRIPTION OF JOB EVENTS

Safety Meeting	910	Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
MIRU	730	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI
CIRCULATE	1000	0	1036	0	0			0			0			0		
Drop Plug		10	1039	60	10			10			10			10		
1035		20	1040	90	20			20			20			20		
		30	1043	190	30			30			30			30		
		40	1045	290	40			40			40			40		
M & P		50	1047	350	50			50			50			50		
Time	Sacks	60	1048	390	60			60			60			60		
1007-1032	404	70	1051	310	70			70			70			70		
		80	1052	320	80			80			80			80		
		90	BUMP	950	90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
% Excess	25%	120			120			120			120			120		
Mixed bbls	71.9	130			130			130			130			130		
Total Sacks	404	140			140			140			140			140		
bbl Returns	13	150			150			150			150			150		
Water Temp	72															

Notes:

The day

PRESSURE TESTED TO 2000 PSI @ 0957, PUMPED 30 BBL WATER WITH DYE IN 2ND 10 @ 1000, MIX AND PUMPED 404 SKS AT 14.2, 107.2 BBLs AT 1007, STARTED DISPLACEMENT AT 1036, PLUG LANDED AT 310 PSI AT 1052 AND PRESSURED UP TO 950 PSI AND HELD FOR 2 MINUTES, RELEASED PRESSURE AND GOT .25 BBL BACK

X Terence D. Brucke
Work Performed

X Consultant
Title

X 7-30-14
Date

SERIES 2000

— PSI — Barrels / Minute — Barrels — Lbs / Gallon — Stage Volume

