Bison Oil Well Cementing
Single Cement Surface Pipe

Date: 4/22/2017
Invoice # 900085
API# 05-123-43806
Foreman: Corey B.

Customer: Anadarko Petroleum Corporation
Well Name: Babcock 22N-33HZ

County: Weld
State: Colorado
Sec: 4
Twp: 2N
Range: 67W

Consultant: Matt
Rig Name & Number: 252
Distance To Location: 36
Units On Location: 027-3103/4020-3212/4019-321
Time Requested: 1130
Time Arrived On Location: 1045
Time Left Location:

WELL DATA

Casing Size OD (in) :	_9.625
Casing Weight (lb) :	36.00
Casing Depth (ft.) :	1,868
Total Depth (ft) :	1878
Open Hole Diameter (in.) :	13.50
Conductor Length (ft) :	80
Conductor ID :	15.25
Shoe Joint Length (ft) :	44
Landing Joint (ft) :	15
Max Rate:	8bm
Max Pressure:	2000

Cement Data

Cement Name: BFN III

Cement Density (lb/gal) :	14.2
Cement Yield (cuft) :	1.48
Gallons Per Sack:	7.49
% Excess:	15%
Displacement Fluid lb/gal:	8.3
BBL to Pit:	
Fluid Ahead (bbls):	30.0
H20 Wash Up (bbls):	20.0

Spacer Ahead Makeup
30 bbl /2nd 10 BBL with Die

Casing ID 8.921 Casing Grade J-55 only used

Calculated Results

cuft of Shoe 19.10 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)

cuft of Conductor 61.05 cuft
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)

cuft of Casing 1004.93 cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 1085.07 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 193.25 bbls
(Total Slurry Volume) X (.1781)

Sacks Needed 733 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 130.75 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 142.17 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 1378.02 PSI

Pressure of the fluids inside casing

Displacement: 786.47 psi
Shoe Joint: 32.46 psi
Total 818.93 psi

Differential Pressure: 559.09 psi

Collapse PSI: 2020.00 psi
Burst PSI: 3520.00 psi

Total Water Needed: 322.92 bbls

X _____
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	Anadarko Petroleum Corporation
Well Name	Babcock 22N-33HZ

INVOICE #	900085
LOCATION	Weld
FOREMAN	Corey B.
Date	4/22/2017

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

Amount Pumped		Time/Date	Event	Description	Rate	BBLs	Pressure
% Excess	15%						
Mixed bbls	130.75						
Total Sacks	733	1045	What rig is doing upon Bison Arrival	Running casing			
bbl Returns	24	1050	JSA	Bison Crew			
Water Temp	62	1055	Rig up				
		1335	Safety Meeting	Bison and Rig crew			
Notes:		1434	Start Job				
		1437	Pressure Test				
		1438	Spacer Ahead	2nd 10 with die	4.5	30	80
		1445	Lead Cement	14.2 ppg	6.5	190	180
		1520	Shutdown				
		1522	Drop Plug	Preloaded in plug container			
		1525	Start Displacement		7	90	400
		1548	Bump Plug	500 psi over final lift (1110psi)	2	140	530
		1551	Floats Held	Held for 3 min with 1/2 BBL Back			
		1552	End Job				
		1555	Rig Down				
		1630	Leave Location				

X _____ Work Preformed

X W APC WSS Title

X 4-22-17 Date

Babcock 22N-33HZ