Bison Oil Well Cementing
Single Cement Surface Pipe

Date: 8/17/2015
Invoice # 80626
API# 05-123-41902
Foreman: JASON KELEHER

Customer: Anadarko Petroleum Corporation
Well Name: POWERS 13C-22HZ

County: Weld
State: Colorado
Sec: 22
Twp: 2N
Range: 65W

Consultant: BRYAN
Rig Name & Number: NOBLE 2
Distance To Location: 40
Units On Location: 4031-3106/ 4034-3203
Time Requested: 1600
Time Arrived On Location: 1430
Time Left Location: 1930

WELL DATA

Casing Size OD (in) :	_9.625
Casing Weight (lb) :	36.00
Casing Depth (ft.) :	1,869
Total Depth (ft) :	1880
Open Hole Diameter (in.) :	13.50
Conductor Length (ft) :	67
Conductor ID :	15.25
Shoe Joint Length (ft) :	42
Landing Joint (ft) :	7
Max Rate:	6
Max Pressure:	1250

Cement Data

Cement Name:	BFN III
Cement Density (lb/gal) :	14.2
Cement Yield (cuft) :	1.49
Gallons Per Sack:	7.48
% Excess:	15%
Displacement Fluid lb/gal:	8.3
BBL to Pit:	32.0
Fluid Ahead (bbls):	30.0
H20 Wash Up (bbls):	20.0

Spacer Ahead Makeup
30BBL WATER/ DYE IN 2ND 10

Casing ID 8.921 Casing Grade J-55 only used

Calculated Results

cuft of Shoe 18.41 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)

cuft of Conductor 51.13 cuft
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)

cuft of Casing 1012.61 cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 1082.16 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 192.73 bbls
(Total Slurry Volume) X (.1781)

Sacks Needed 726 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 129.35 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 141.73 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 1378.53 PSI

Pressure of the fluids inside casing

Displacement: 787.45 psi
Shoe Joint: 31.29 psi
Total 818.74 psi

Differential Pressure: 559.78 psi

Collapse PSI: 2020.00 psi
Burst PSI: 3520.00 psi

Total Water Needed: 321.07 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	POWERS 13C-22HZ

INVOICE #	80626
LOCATION	Weld
FOREMAN	JASON KELEHER
Date	8/17/2015

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

Amount Pumped		Time/Date	Event	Description	Rate	BBLs	Pressure
% Excess	15%	1430	Arrive on location	WELL SIGHT ASSESMENT/ HAZARD HUNT			
Mixed bbls	129.3	1445	MIRU	SPOT TRUCKS AND RIG UP HOSES			
Total Sacks	726	1710	JSA	REVIEW JOB/ HAZARDS/ EMERGENCIES			
bbl Returns	32	1720	Pressure Test	TEST LINES TO 1400 PSI			1400
Water Temp	67	1723	Spacer Ahead	30 BBL WATER/ DYE IN 2ND 10	5.5	30	220
		1729	Lead Cement	14.2 PPG CEMENT(726 SKS)	6.5	192.7	200
Notes:		1807	Shutdown				
		1809	Drop Plug	PLUG PRELOADED			
		1809	Start Displacement	FRESH WATER	2	141.7	590
		1839	Bump Plug	LANDED PLUG AND PRESSURED UP			1130
		1841	Check floats	FLOATS HELD-.5 BBL BACK			1130
		1850	Rig Down	GO OVER RIG DOWN JSA			
		1930	Leave Location	HOLD PRE JOURNEY MEETING			

X _____
Customer Signature

X _____
Title

X _____
Date

POWERS 13C-22HZ SURFACE