Bison Oil Well Cementing
Single Cement Surface Pipe

Customer	Anadarko Petroleum Corporation
Well Name	Windsock 21-6HZ

INVOICE #	200550
LOCATION	Weld
FOREMAN	Terry Richey
Date	12/10/2019

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

Amount Pumped			Event	Description	Rate	BBLs	Pressure
excess	10%	1020pm	arived on location				
Mixed bbls	123.6	1030pm	move in rig up				
Total Sacks	707	1145pm	JSA				
bbl Returns		1213am	Pressure Test		0.5		1800
Water Temp	60	1215am	Spacer Ahead	30 bbls h2o dye in 2nd 10	5	30	90
		1220am	M&P	707 sks cement 14.2 lbs 186.48 bbls slurry	6	195.1	110
Notes:		100am	Shutdown				0
		105am	Drop Plug				
		107am	Start Displacement	143.4 bbls h2o	6		380
		130am	Bump Plug	143.4 bbls h2o 570 psi lift	2	143.4	1020
		132am	Test Floats				
		135am	End Job				
		145am	Rig Down				
		200am	Leave Location				

x _____
Work Preformed

x _____
Title

x 12-10-19
Date

Bison Oil Well Cementing
Single Cement Surface Pipe

Date: 12/9/2019
Invoice # 200550
API# 2151722
Foreman: Terry Richey

Customer: Anadarko Petroleum Corporation
Well Name: Windsock 21-6HZ

County: Weld
State: Colorado
Sec: 12
Twp: 1n
Range: 68w

Consultant: Levi
Rig Name & Number: Cartel 88
Distance To Location: 84
Units On Location: 4047/4027
Time Requested: 1130PM
Time Arrived On Location: 1020 pm
Time Left Location:

WELL DATA

Casing Size OD (in) :	_9.625
Casing Weight (lb) :	36.00
Casing Depth (ft.) :	1,881
Total Depth (ft) :	1891
Open Hole Diameter (in.) :	13.50
Conductor Length (ft) :	80
Conductor ID :	15.25
Shoe Joint Length (ft) :	41
Landing Joint (ft) :	8
Max Rate:	8
Max Pressure:	2000

Cement Data

Cement Name:	BFN III
Cement Density (lb/gal) :	14.2
Cement Yield (cuft) :	1.48
Gallons Per Sack:	7.40
% Excess:	10%
Displacement Fluid lb/gal:	8.3
BBL to Pit:	
Fluid Ahead (bbls):	30.0
H20 Wash Up (bbls):	10.0

Spacer Ahead Makeup
30 bbl with Die in 2nd 10

Casing ID 8.921 Casing Grade J-55 only used

Calculated Results

cuft of Shoe 17.80 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 968.22 cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 1047.07 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 186.48 bbls
(Total Slurry Volume) X (.1781)

Sacks Needed 707 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 124.65 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 142.87 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus
Hydrostatic Pressure: 1387.61 PSI

Pressure of the fluids inside casing
Displacement: 793.37 psi
Shoe Joint: 30.25 PSI
Total 823.62 psi

Differential Pressure: 563.99 psi

Collapse PSI: 2020.00 psi
Burst PSI: 3520.00 psi

Total Water Needed: 307.52 bbls

x Levi Kullman
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.

Windsock 21-6HZ