Bison Oil Well Cementing
Single Cement Surface Pipe

INVOICE #	900389
LOCATION	Weld
FOREMAN	Corey Barras
Date	8/8/2019

Customer	Anadarko Petroleum Corporation
Well Name	Farley 23-3HZ

Treatment Report Page 2

Amount Pumped		Time/Date	Event	Description	Rate	BBLs	Pressure
% Excess	10%	245	ARRIVE ON LOCATION	ACCESS LOCATION			
Mixed bbls	122.3	300	MIRU	SPOT EQUIPMENT			
Total Sacks	687	400	JSA				
bbl Returns	18	437	PRESSURE TEST LINES	PRESSURE TEST TO 1500 PSI			1500
Water Temp	58	438	Spacer Ahead	30 BBLS H2O DYE IN 2ND 10	6	30	110
		445	CEMENT	CEMENT 14.2 PPG	6	181.1	110
Notes:		518	SHUT DOWN				
		519	DROP PLUG				
		520	START DISPLACEMENT	DISPLACE H2O	7	70	340
		550	BUMP PLUG	(640 PSI LIFT PSI)	3	138.3	1150
		552	CHECK FLOATS	FLOATS HELD, .5 BBL BACK			
		555	RIG DOWN				
		615	LEAVE LOCATION				

X _[signature]_
Authorized signature

X Co. Man
Title

X 8-8-19
Date

Bison Oil Well Cementing
Single Cement Surface Pipe

Date:	8/8/2019
Invoice #	900389
API#	05-123-50189
Foreman:	Corey Barras

Customer: Anadarko Petroleum Corporation

Well Name: Farley 23-3HZ

County:	Weld	Consultant:	Josh
State:	Colorado	Rig Name & Number:	CARTEL 88
		Distance To Location:	28
Sec:	23	Units On Location:	4028/3103-404024/3214-4039/3212
Twp:	3n	Time Requested:	330
Range:	66w	Time Arrived On Location:	245
		Time Left Location:	

WELL DATA

Casing Size OD (in) :	9.625
Casing Weight (lb) :	36.00
Casing Depth (ft.) :	1,824
Total Depth (ft) :	1834
Open Hole Diameter (in.) :	13.50
Conductor Length (ft) :	80
Conductor ID :	15.25
Shoe Joint Length (ft) :	42
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:	7.48
% Excess:	10%
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 WATER, DYE IN 2ND 10

Casing ID	8.921	Casing Grade	J-55 only used

Calculated Results

Displacement:	138.38	bbls

(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

cuft of Shoe	18.23	cuft

(Casing ID Squared) X (.005454) X (Shoe Joint ft)

Pressure of cement in annulus

Hydrostatic Pressure:	1345.56 PSI

cuft of Conductor	61.05	cuft

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

Pressure of the fluids inside casing

cuft of Casing	937.58	cuft

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

Displacement:	768.36 psi
Shoe Joint:	30.98 psi

Total Slurry Volume	1016.86	cuft

(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

Total	799.35 psi

bbls of Slurry	181.10	bbls

(Total Slurry Volume) X (.1781)

Differential Pressure:	546.22 psi

Sacks Needed	687	sk

Collapse PSI:	2020.00 psi

(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Burst PSI:	3520.00 psi

Mix Water	122.36	bbls

(Sacks Needed) X (Gallons Per Sack) ÷ 42

Total Water Needed:	310.74 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.

Farley 23-3 HZ