Bison Oil Well Cementing
Single Cement Surface Pipe

Date: 9/16/2015
Invoice # 80448
API# 05-123-42071
Foreman: Calvin Reimers

Customer: Anadarko Petroleum Corporation

Well Name: Sunflower 7C-17HZ

County: Weld
State: Colorado

Sec: 8
Twp: 2N
Range: 65W

Consultant: Hayden / Bryan
Rig Name & Number: Noble 2
Distance To Location: 28 Miles
Units On Location: 4023-3104/4033-3203
Time Requested: 100pm
Time Arrived On Location: 1115am
Time Left Location: 2:30pm

WELL DATA

Casing Size OD (in) :	9.625
Casing Weight (lb) :	36.00
Casing Depth (ft.) :	1,834
Total Depth (ft) :	1851
Open Hole Diameter (in.) :	13.50
Conductor Length (ft) :	60
Conductor ID :	15.25
Shoe Joint Length (ft) :	41
Landing Joint (ft) :	10
Max Rate:	8
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:	20%
Displacement Fluid lb/gal:	8.3
BBL to Pit:	3/
Fluid Ahead (bbls):	30.0
H20 Wash Up (bbls):	15.0

Spacer Ahead Makeup
30 bbls H2O+Dye in 2nd 10 bbls

Casing ID 8.921 Casing Grade J-55 only used

Calculated Results

cuft of Shoe 17.70 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)

cuft of Conductor 45.79 cuft
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)

cuft of Casing 1040.51 cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 1103.99 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 196.62 bbls
(Total Slurry Volume) X (.1781)

Sacks Needed 741 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 131.96 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 139.42 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 1353.07 PSI

Pressure of the fluids inside casing

Displacement:	773.28 psi
Shoe Joint:	30.08 psi
Total	803.36 psi
Differential Pressure:	549.71 psi
Collapse PSI:	2020.00 psi
Burst PSI:	3520.00 psi
Total Water Needed:	316.37 bbls

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.

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LOCATION	Weld
FOREMAN	Calvin Reimers
Date	9/16/2015

Customer	Anadarko Petroleum Corporation
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DESCRIPTION OF JOB EVENTS

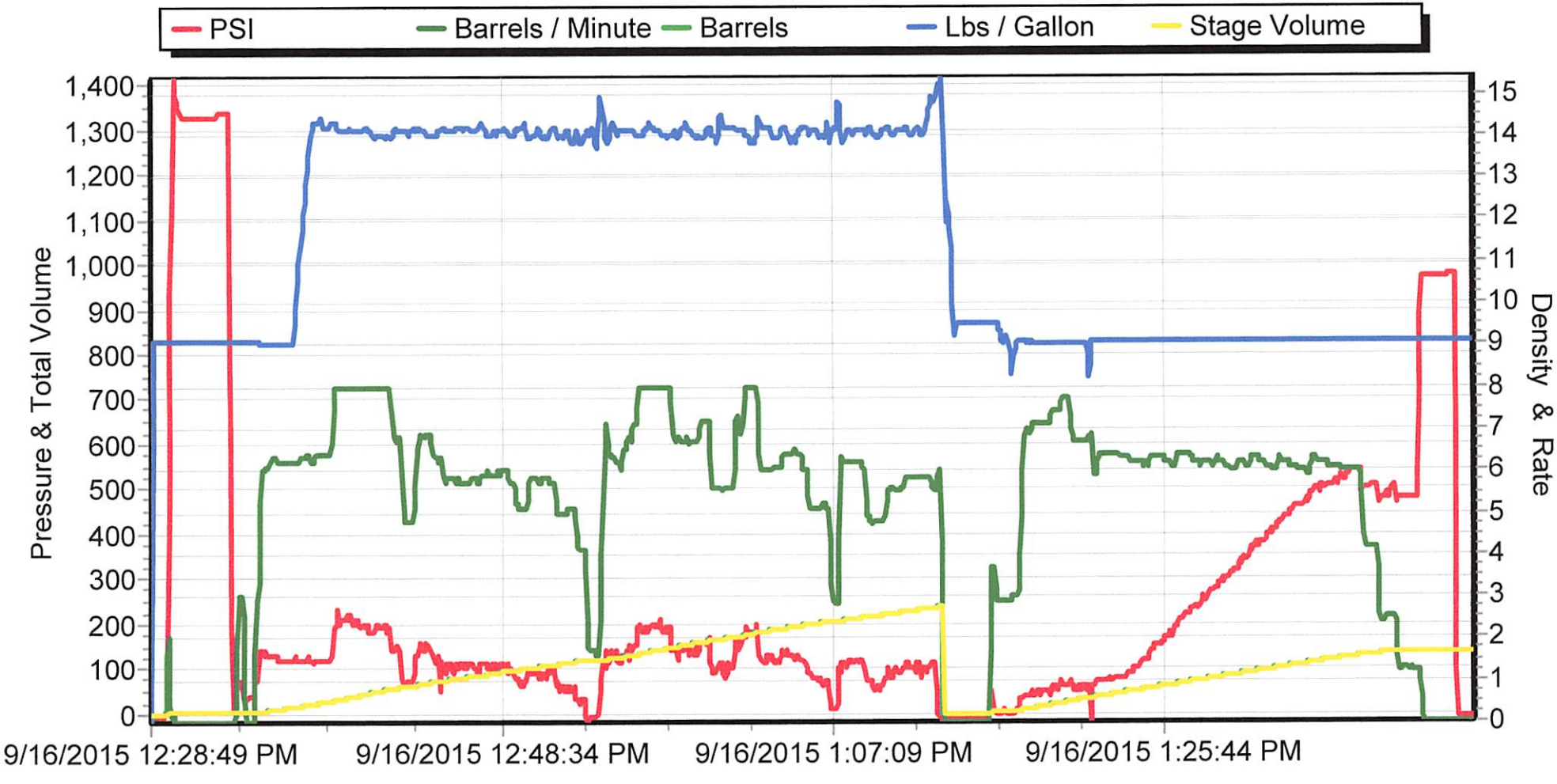
Amount Pumped		Time/Date	Event	Description	Rate	BBLs	Pressure
% Excess	20%	1120am	MIRU	Rigged Up Equipment			
Mixed bbls	131.96	1221pm	JSA	Safety Meeting			
Total Sacks	741	1233pm	Pressure Test	Pressure Test Lines to Cement Head	0.5	1	1300
bbl Returns	31	1235pm	Spacer Ahead	Pump Spacer (dye in 2nd 10 bbls)	6	30	190
Water Temp	72.3	1240pm	Lead Cement	14.2ppg 741 sks	6	196.62	280
		113pm	Shutdown	Stop Cementing			
Notes:		115pm	Drop Plug	Release Plug			
		116pm	Start Displacement	Displaced With Fresh Water	6	139.42	80
		141pm	Bump Plug	Land Plug at 500PSI Over Lift PSI	1		540
		143pm	Floats Held	Checked Floats			480
		200pm	End Job	Rigged Down Equipment			980
		230pm	Leave Location	Leave Location			
		1115am	What rig is doing upon Bison Arrival	Running Casing			

X _____
Work Preformed

X _____
Title

X _____
Date

SERIES 2000


PSI
Barrels / Minute
Barrels
Lbs / Gallon
Stage Volume
Pressure & Total Volume
Density & Rate
1,400
1,300
1,200
1,100
1,000
900
800
700
600
500
400
300
200
100
0
15
14
13
12
11
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