Bison Oil Well Cementing
Single Cement Surface Pipe

INVOICE #	200456
LOCATION	Weld
FOREMAN	KirkKallhoff
Date	5/10/2019

Customer	Anadarko Petroleum Corporation
Well Name	barclay farms 28-1hz

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

Amount Pumped			Event	Description	Rate	BBLs	Pressure
% Excess	20%	130 pm	arived on location				
Mixed bbls	137.9	145 pm	MIRU				
Total Sacks	783	450 pm	JSA				
bbl Returns	26	509 pm	Pressure Test		0.5		1000
Water Temp	50	510 pm	Spacer Ahead	30 bbls h2o dye in 2nd 10	6	30	120
		515 pm	M&P	783 sks cement 14.2 lbs 206.3 bbls slurry	6	206.3	250
Notes:		552 pm	Shutdown				0
		554 pm	Drop Plug				
		554 pm	Start Displacement	146.3 bbls h2o	6		450
		619 pm	Bump Plug	146.3 bbls h2o 590 psi lift	2	146.3	1150
		620 pm	Test Floats				
		621 pm	End Job				
		630 pm	Rig Down				
		700 pm	Leave Location				

x _____
Work Preformed

x Co. Man
Title

x 5-10-19
Date

Bison Oil Well Cementing
Single Cement Surface Pipe

Date: 5/10/2019
Invoice # 200456
API#
Foreman: KirkKallhoff

Customer: Anadarko Petroleum Corporation
Well Name: barclay farms 28-1hz

County: Weld
State: Colorado
Sec: 8
Twp: 1n
Range: 65w

Consultant: dave
Rig Name & Number: Cartel 88
Distance To Location: 38
Units On Location: 4047/4024/4030
Time Requested: 400 pm
Time Arrived On Location: 130 pm
Time Left Location: 7:00pm

WELL DATA

Casing Size OD (in) :	_9.625
Casing Weight (lb) :	36.00
Casing Depth (ft.) :	1,923
Total Depth (ft) :	1933
Open Hole Diameter (in.) :	13.50
Conductor Length (ft) :	80
Conductor ID :	15.25
Shoe Joint Length (ft) :	38
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:	20%
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 16.49 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 1080.87 cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 1158.42 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 206.31 bbls
(Total Slurry Volume) X (.1781)

Sacks Needed 783 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 137.91 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 146.34 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 1418.60 PSI

Pressure of the fluids inside casing

Displacement: 812.78 psi
Shoe Joint: 28.03 PSI
Total 840.81 psi

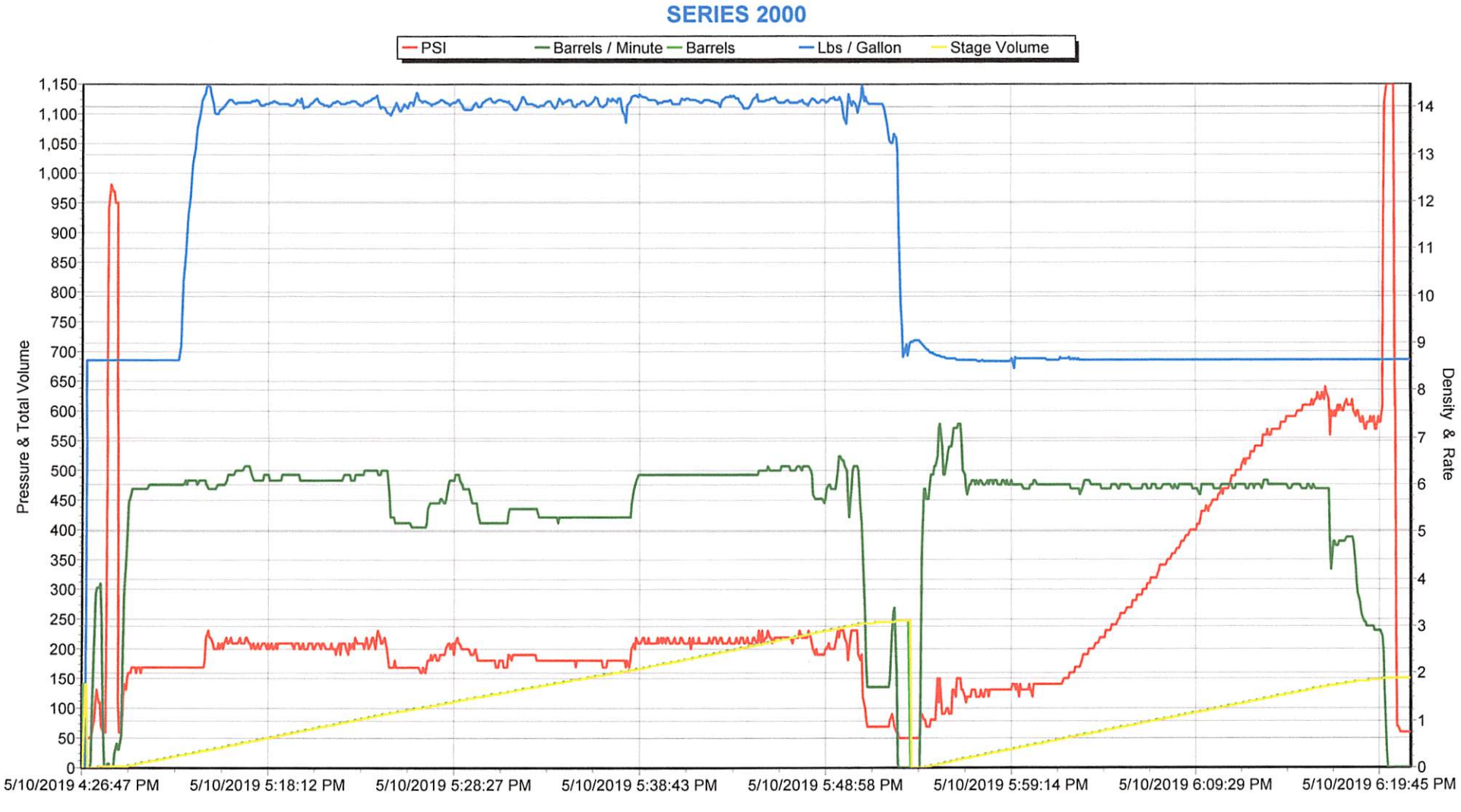
Differential Pressure: 577.79 psi

Collapse PSI: 2020.00 psi
Burst PSI: 3520.00 psi

Total Water Needed: 324.25 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.


SERIES 2000
PSI
Barrels / Minute
Barrels
Lbs / Gallon
Stage Volume
Pressure & Total Volume
Density & Rate
1,150
1,100
1,050
1,000
950
900
850
800
750
700
650
600
550
500
450
400
350
300
250
200
150
100
50
0
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
5/10/2019 4:26:47 PM
5/10/2019 5:18:12 PM
5/10/2019 5:28:27 PM
5/10/2019 5:38:43 PM
5/10/2019 5:48:58 PM
5/10/2019 5:59:14 PM
5/10/2019 6:09:29 PM
5/10/2019 6:19:45 PM