Bison Oil Well Cementing
Single Cement Surface Pipe

Customer	Anadarko Petroleum Corporation
Well Name	damore 18-5hz

INVOICE #	200574
LOCATION	Weld
FOREMAN	Kirk Kallhoff
Date	2/24/2020

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

Amount Pumped			Event	Description	Rate	BBLs	Pressure
% Excess	10%	1130 am	arived on location				
Mixed bbls	122.7	1200 pm	MIRU				
Total Sacks	697	245 pm	JSA				
bbl Returns	17	303 pm	Pressure Test		0.5		1000
Water Temp	60	304 pm	Spacer Ahead	30 bbls h2o dye in 2nd 10	5	30	120
		309 pm	M&P	697 sks cement 14.2 lbs 183.6 bbls slurry	4	183.6	250
Notes:		407 pm	Shutdown				0
		409 pm	Drop Plug				
		409 pm	Start Displacement	140.7 bbls h2o	8		300
		432 pm	Bump Plug	140.7 bbls h2o 580 psi lift	2	140.7	1080
		433 pm	Test Floats				
		434 pm	End Job				
		440 pm	Rig Down				
		500 pm	Leave Location				

X _____
Work Preformed

X Co-man
Title

X 2-24-20
Date

Bison Oil Well Cementing
Single Cement Surface Pipe

Date: 2/24/2020
Invoice # 200574
API#
Foreman: Kirk Kallhoff

Customer: Anadarko Petroleum Corporation
Well Name: damore 18-5hz

County: Weld
State: Colorado
Sec: 18
Twp: 5n
Range: 67w

Consultant: dave
Rig Name & Number: Cartel 88
Distance To Location: 15
Units On Location: 4043/4034/4039
Time Requested: 130 pm
Time Arrived On Location: 1130 am
Time Left Location:

WELL DATA

Casing Size OD (in) :	_9.625
Casing Weight (lb) :	36.00
Casing Depth (ft.) :	1,852
Total Depth (ft) :	1842
Open Hole Diameter (in.) :	13.50
Conductor Length (ft) :	80
Conductor ID :	15.25
Shoe Joint Length (ft) :	40
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 17.36 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 952.63 cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 1031.04 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 183.63 bbls
(Total Slurry Volume) X (.1781)

Sacks Needed 697 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 122.74 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 140.70 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 1366.22 PSI

Pressure of the fluids inside casing

Displacement: 781.30 psi
Shoe Joint: 29.51 PSI
Total 810.81 psi

Differential Pressure: 555.41 psi

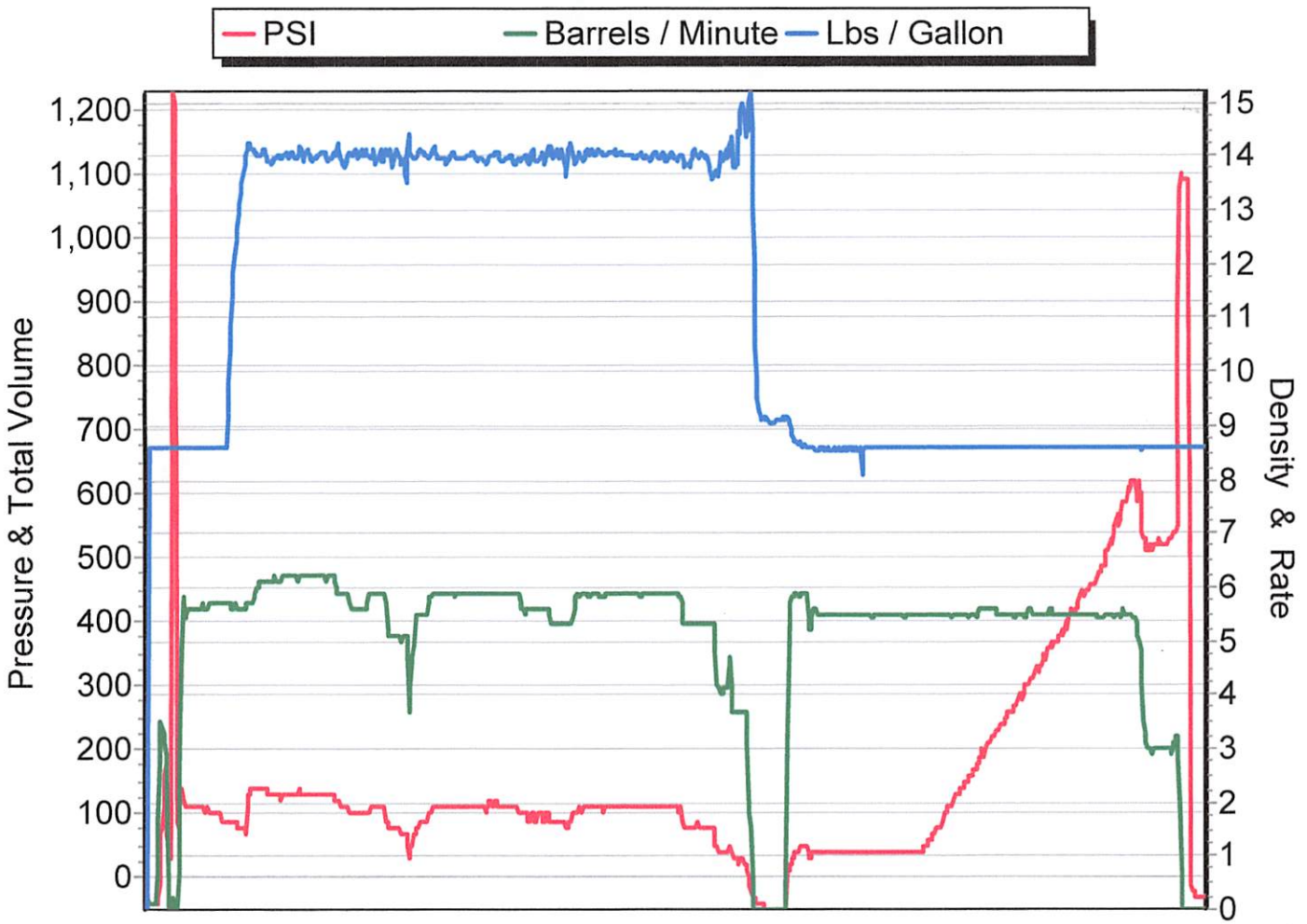
Collapse PSI: 2020.00 psi
Burst PSI: 3520.00 psi

Total Water Needed: 303.44 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
Lbs / Gallon
Pressure & Total Volume
Density & Rate
1,200
1,100
1,000
900
800
700
600
500
400
300
200
100
0
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0