Bison Oil Well Cementing
Single Cement Surface Pipe

Customer	Anadarko Petroleum Corporation
Well Name	farley 23-5hz

INVOICE #	200490
LOCATION	Weld
FOREMAN	Kirk Kallhoff
Date	8/6/2019

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

Amount Pumped			Event	Description	Rate	BBLs	Pressure
% Excess	10%	1200 pm	arived on location				
Mixed bbls	125.3	1215 pm	MIRU				
Total Sacks	711	345 pm	JSA				
bbl Returns	9	404 pm	Pressure Test		0.5		1000
Water Temp	60	405 pm	Spacer Ahead	30 bbls h2o dye in 2nd 10	5	30	120
		410 pm	M&P	711 sks cement 14.2 lbs 187.3 bbls slurry	5	187.3	250
Notes:		445 pm	Shutdown				0
		447 pm	Drop Plug				
		447 pm	Start Displacement	143.7 bbls h2o	5		450
		514 pm	Bump Plug	143.7 bbls h2o 550 psi lift	2	143.7	1120
		515 pm	Test Floats				
		516 pm	End Job				
		520 pm	Rig Down				
		530 pm	Leave Location				

X [signature] Work Performed

X Co-Man Title

X 8-6-19 Date

Bison Oil Well Cementing
Single Cement Surface Pipe

Date: 8/6/2019
Invoice # 200490
API#
Foreman: Kirk Kallhoff

Customer: Anadarko Petroleum Corporation
Well Name: farley 23-5hz

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

Consultant: tyler
Rig Name & Number: Cartel 88
Distance To Location: 25
Units On Location: 4047/4024/4027
Time Requested: 200 pm
Time Arrived On Location: 1200 pm
Time Left Location:

WELL DATA

Casing Size OD (in) :	_9.625
Casing Weight (lb) :	36.00
Casing Depth (ft.) :	1,891
Total Depth (ft) :	1901
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 973.60 cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 1052.01 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 187.36 bbls
(Total Slurry Volume) X (.1781)

Sacks Needed 711 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 125.24 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 143.72 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 1394.99 PSI

Pressure of the fluids inside casing

Displacement: 798.12 psi
Shoe Joint: 29.51 PSI
Total 827.62 psi

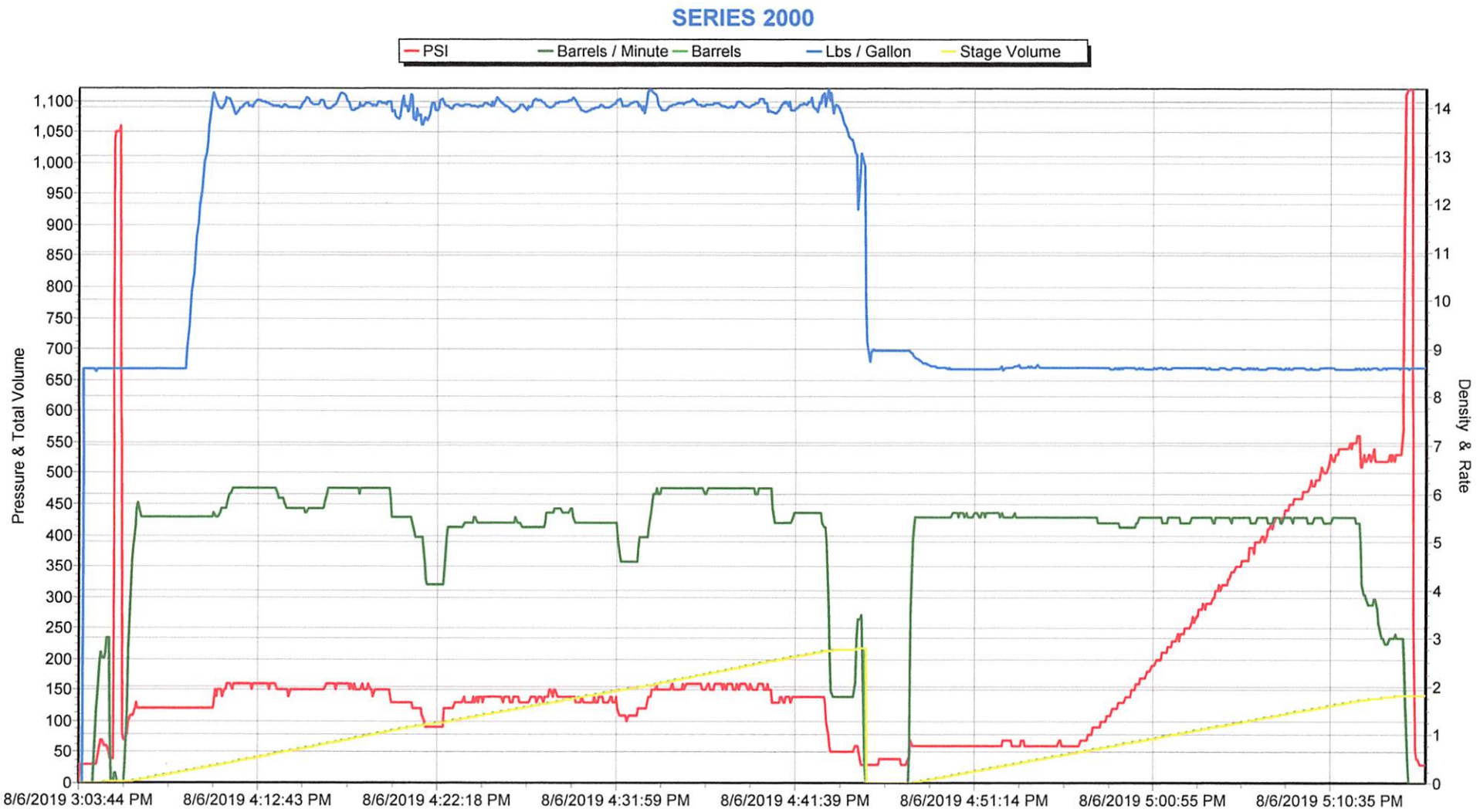
Differential Pressure: 567.37 psi

Collapse PSI: 2020.00 psi
Burst PSI: 3520.00 psi

Total Water Needed: 308.96 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
1,100
1,050
1,000
950
900
850
800
750
700
650
600
550
500
450
400
350
300
250
200
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