Bison Oil Well Cementing
Single Cement Surface Pipe

Date: 4/29/2019
Invoice # 200447
API#
Foreman: KirkKallhoff

Customer: Anadarko Petroleum Corporation
Well Name: carson 1-8hz

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

Consultant: dave
Rig Name & Number: Cartel 88
Distance To Location: 38
Units On Location: 4047/4039/4044
Time Requested: 800 am
Time Arrived On Location: 530 am
Time Left Location: 10:30 am

WELL DATA

Casing Size OD (in) :	_9.625
Casing Weight (lb) :	36.00
Casing Depth (ft.) :	1,829
Total Depth (ft) :	1839
Open Hole Diameter (in.) :	13.50
Conductor Length (ft) :	80
Conductor ID :	19.125
Shoe Joint Length (ft) :	41
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:	15%
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 17.80 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)

cuft of Conductor 119.17 cuft
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)

cuft of Casing 983.01 cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 1119.97 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 199.47 bbls
(Total Slurry Volume) X (.1781)

Sacks Needed 757 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 133.33 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 138.85 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus
Hydrostatic Pressure: 1349.25 PSI

Pressure of the fluids inside casing
Displacement: 770.95 psi
Shoe Joint: 30.25 PSI
Total 801.20 psi

Differential Pressure: 548.06 psi

Collapse PSI: 2020.00 psi
Burst PSI: 3520.00 psi

Total Water Needed: 312.18 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.

Bison Oil Well Cementing
Single Cement Surface Pipe

INVOICE #	200447
LOCATION	Weld
FOREMAN	KirkKallhoff
Date	4/29/2019

Customer	Anadarko Petroleum Corporation
Well Name	carson 1-8hz

Treatment Report Page 2

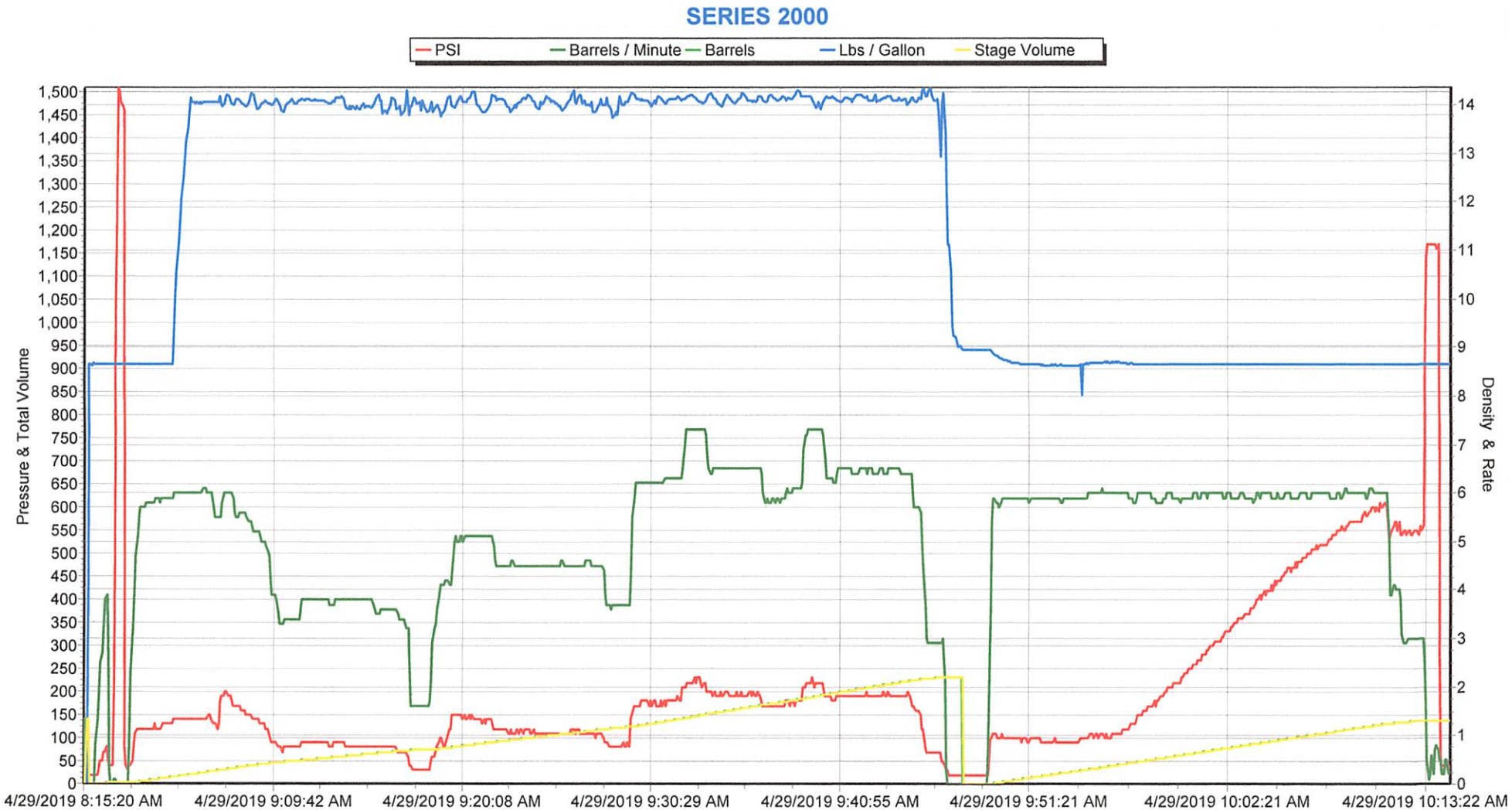
DESCRIPTION OF JOB EVENTS

Amount Pumped			Event	Description	Rate	BBLs	Pressure
% Excess	15%	530 am	arived on location				
Mixed bbls	133.3	800 am	MIRU				
Total Sacks	759	845 am	JSA				
bbl Returns	18	900 am	Pressure Test		0.5		1000
Water Temp	50	901 am	Spacer Ahead	30 bbls h2o dye in 2nd 10	5	30	120
		906 am	M&P	757 sks cement 14.2 lbs 199.4 bbls slurry	6	199.4	250
Notes:		947 am	Shutdown				0
		949 am	Drop Plug				
		949 am	Start Displacement	138.8 bbls h2o	6		450
		1013 am	Bump Plug	138.8 bbls h2o 560 psi lift	2	138.8	1170
		1014 am	Test Floats				
		1015 am	End Job				
		1020 am	Rig Down				
		1030 am	Leave Location				

X David Conti
Work Preformed

X Co-man
Title

X 4-29-19
Date


SERIES 2000
PSI
Barrels / Minute
Barrels
Lbs / Gallon
Stage Volume
Pressure & Total Volume
Density & Rate
1,500
1,450
1,400
1,350
1,300
1,250
1,200
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
4/29/2019 8:15:20 AM
4/29/2019 9:09:42 AM
4/29/2019 9:20:08 AM
4/29/2019 9:30:29 AM
4/29/2019 9:40:55 AM
4/29/2019 9:51:21 AM
4/29/2019 10:02:21 AM
4/29/2019 10:13:22 AM