Bison Oil Well Cementing
Single Cement Surface Pipe

Date: 5/16/2018
Invoice # 200283
API#
Foreman: Kirk Kallhoff

Customer: Anadarko Petroleum Corporation
Well Name: english farms 8-10hz

County: Weld
State: Colorado

Sec: 8
Twp: 1n
Range: 65w

Consultant: levi
Rig Name & Number: CARTEL 88
Distance To Location: 38
Units On Location: 1
Time Requested: 1100 am
Time Arrived On Location: 1000 am
Time Left Location: 3:00 pm

WELL DATA

Casing Size OD (in) :	_9.625
Casing Weight (lb) :	36.00
Casing Depth (ft.) :	1,868
Total Depth (ft) :	1878
Open Hole Diameter (in.) :	12.25
Conductor Length (ft) :	80
Conductor ID :	15.5
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:	7.48
% 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 WATER, DYE 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 64.40 cuft
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)

cuft of Casing 643.96 cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 726.16 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 129.33 bbls
(Total Slurry Volume) X (.1781)

Sacks Needed 491 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 87.38 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 141.86 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus
Hydrostatic Pressure: 1378.02 PSI

Pressure of the fluids inside casing
Displacement: 787.77 psi
Shoe Joint: 30.25 psi
Total 818.01 psi

Differential Pressure: 560.01 psi

Collapse PSI: 2020.00 psi
Burst PSI: 3520.00 psi

Total Water Needed: 269.24 bbls

x Levi Kallhoff
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 #	200283
LOCATION	Weld
FOREMAN	Kirk Kallhoff
Date	5/16/2018

Customer	Anadarko Petroleum Corporation
Well Name	english farms 8-10hz

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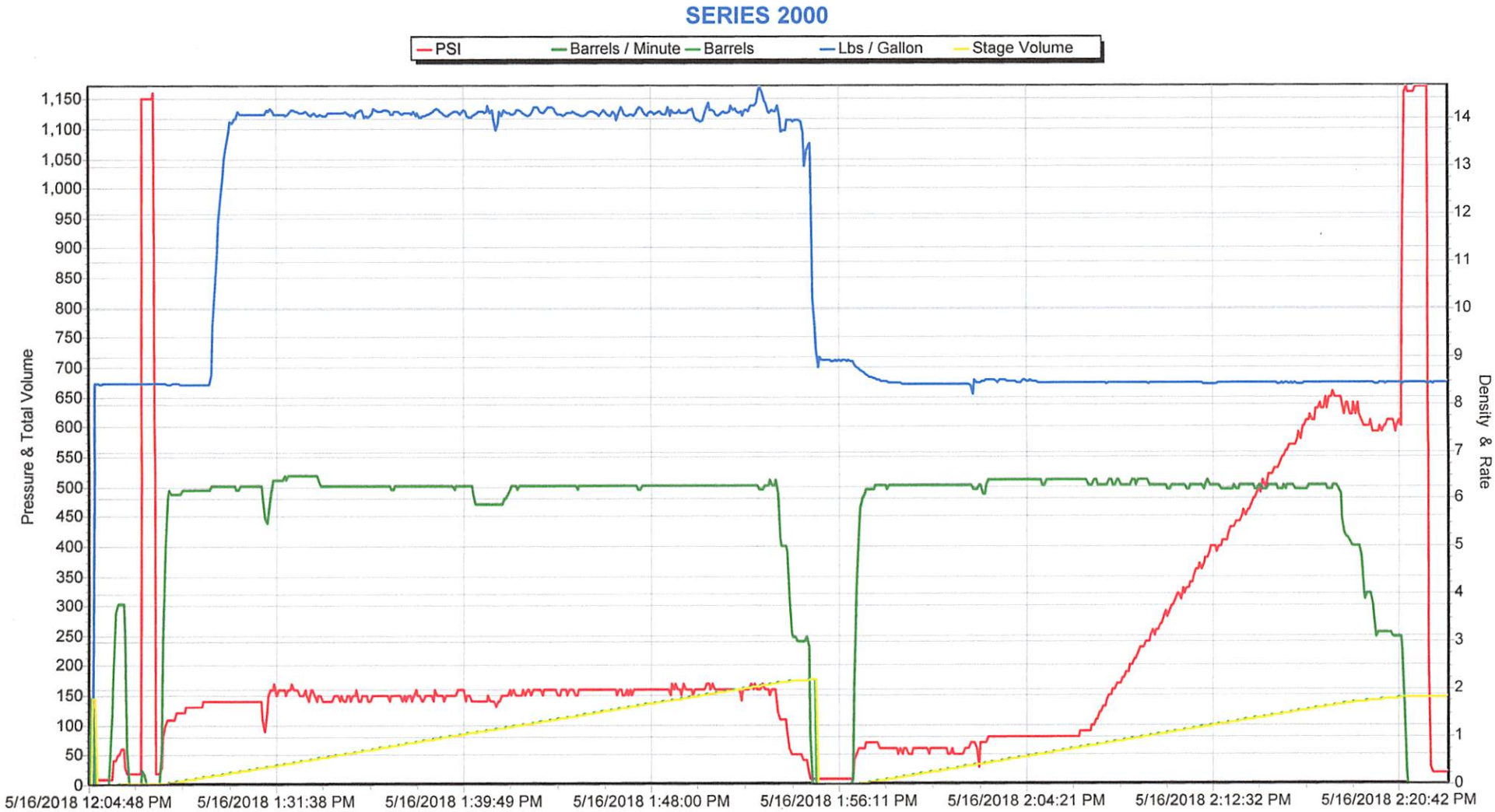
DESCRIPTION OF JOB EVENTS

Amount Pumped		Time/Date	Event	Description	Rate	BBLs	Pressure
% Excess	15%	1000 am	ARRIVE ON LOCATION	ACCESS LOCATION			
Mixed bbls	87.4	1015 am	MIRU	SPOT EQUIPMENT			
Total Sacks	491	110 pm	JSA				
bbl Returns	12	124 pm	PRESSURE TEST LINES	PRESSURE TEST TO 1300 PSI			1200
Water Temp	60	126 pm	Spacer Ahead	30 BBLS H2O DYE IN 2ND 10	6	30	200
		131 pm	CEMENT	491 SKS CEMENT 14.2 LBS 129.3 BBLS SLURRY	6	129.3	250
Notes:		154 pm	SHUT DOWN				0
		156 pm	DROP PLUG				
		156 pm	START DISPLACEMENT	DISPLACE 141.8 BBLS H2O	6	141.8	350
		221 pm	BUMP PLUG	610 PSI LIFT PSI		141.8	1170
		222 pm	CHECK FLOATS	FLOATS HELD, .5 BBL BACK			
		230 pm	RIG DOWN				
		300 pm	LEAVE LOCATION				

x Kirk Kallhoff
Authorized signature

x WSC
Title

x 5-16-18
Date


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
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14
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