Bison Oil Well Cementing
Single Cement Surface Pipe

Date:	5/15/2018
Invoice #	666311
API#	05-123-46593
Foreman:	Nick Vigil

Customer: Anadarko Petroleum Corporation

Well Name: English Farms 8-9HZ

County:	Weld	Consultant:	Brian/Levi
State:	Colorado	Rig Name & Number:	Cartel 88
		Distance To Location:	38 Miles
Sec:	8	Units On Location:	4023/4024
Twp:	1N	Time Requested:	22:00
Range:	65W	Time Arrived On Location:	21:00
		Time Left Location:	

WELL DATA

Casing Size OD (in) :	9.625
Casing Weight (lb) :	36.00
Casing Depth (ft.) :	1,859
Total Depth (ft) :	1869
Open Hole Diameter (in.) :	12.25
Conductor Length (ft) :	80
Conductor ID :	15.25
Shoe Joint Length (ft) :	43
Landing Joint (ft) :	10
Max Rate:	8
Max Pressure:	2000

Cement Data

Cement Name:	BFN III
Cement Density (lb/gal) :	14.2
Cement Yield (cuft) :	1.49
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):	20.0

Spacer Ahead Makeup

Dye in second 10 bbl

Casing ID 8.921 Casing Grade J-55 only used

Calculated Results

cuft of Shoe 18.66 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 640.72 cuft

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

Total Slurry Volume 720.43 cuft

(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 128.31 bbls

(Total Slurry Volume) X (.1781)

Sacks Needed 484 sk

(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 86.11 bbls

(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 141.16 bbls

(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 1371.38 PSI

Pressure of the fluids inside casing

Displacement:	783.02 psi
Shoe Joint:	31.72 psi
Total	814.75 psi
Differential Pressure:	556.64 psi
Collapse PSI:	2020.00 psi
Burst PSI:	3520.00 psi
Total Water Needed:	277.28 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 #	666311
LOCATION	Weld
FOREMAN	Nick Vigil
Date	5/16/2018

Customer: Anadarko Petroleum Corporatio
Well Name: English Farms 8-9HZ

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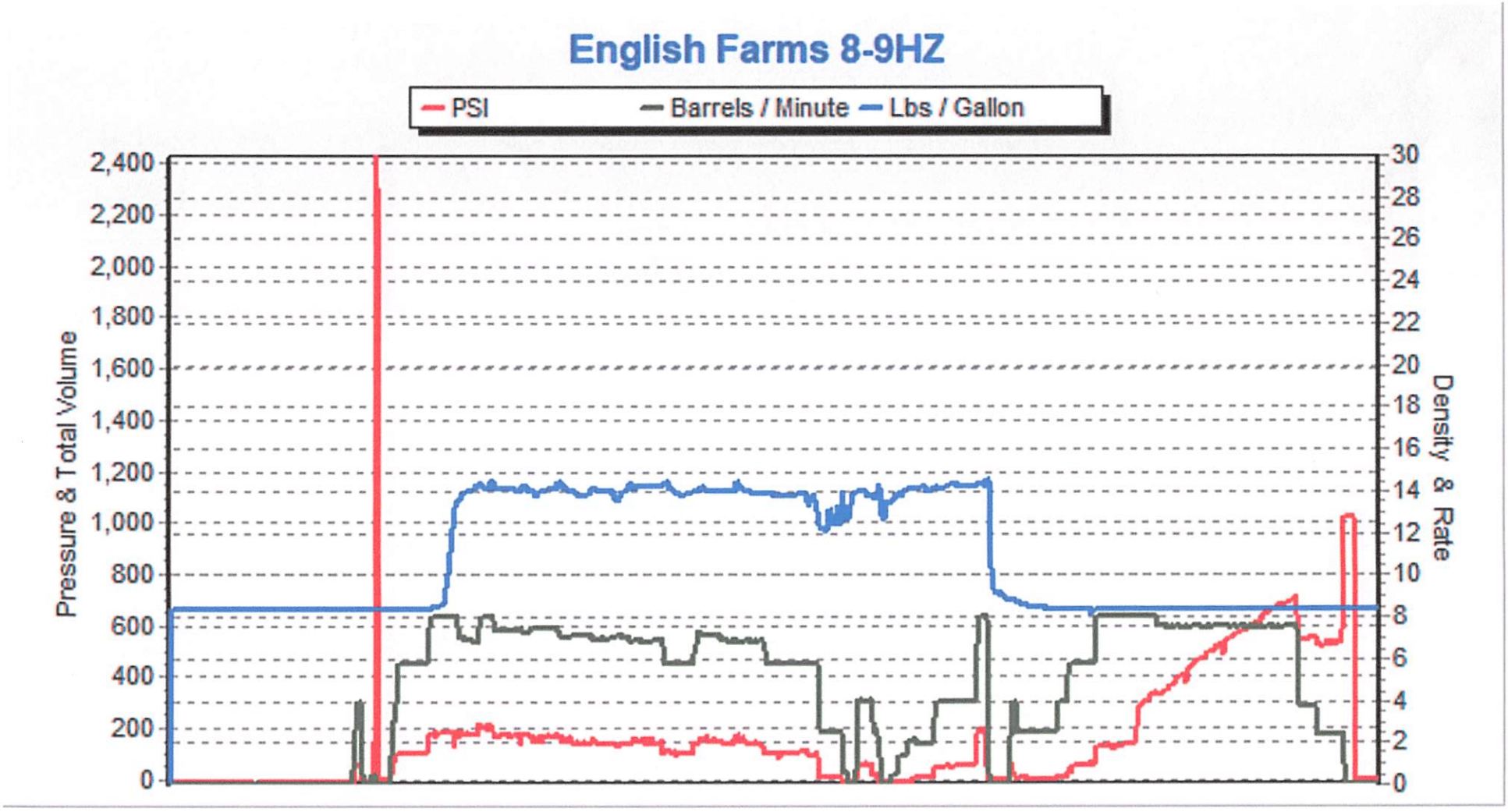
DESCRIPTION OF JOB EVENTS

Amount Pumped		Time/Date	Event	Description	Rate	BBLs	Pressure
% Excess	15%	21:00	Arrive On Location	Rig was circulating.			
Mixed bbls	128.3	21:05	Well Site Assesment	Hazard hunt, Rig up safety meeting			
Total Sacks	484	23:00	Rig Up Equipment				
bbl Returned	26	23:20	JSA	Held Safety meeting with all personel involved in job.			
Water Temp	55	23:37	Pressure Test Lines	Pressure tested lines to 2500 psi.			
		23:39	Spacer Ahead	Fresh water with dye in second 10 bbl.	8	30	200
Notes:		23:43	Pump Cement	14.2 ppg Cement	7	128.3	180
		0:08	Shut Down				
		0:08	Drop Plug	Plug was pre loaded.			
		0:09	Pump Displacement	Fresh water	8	70	350
		0:28	Bump Plug	Bumped plug 550 psi over final lift (1100 psi)	2.8	141.1	550
		0:29	Check Floats	Floats held			
		0:30	End Job	Rig down safety meeting.			
		0:35	Rig Down Equipment				
		1:00	Leave Location				

X [signature] — Work Preformed
X MSC — Title
X 5-16-18 — Date


English Farms 8-9HZ
PSI
Barrels / Minute
Lbs / Gallon
Pressure & Total Volume
Density & Rate
2,400
2,200
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0