



**Bison Oil Well Cementing
Single Cement Surface Pipe**

INVOICE #
LOCATION
FOREMAN
Date

606443
Weld
Nick Vigil
3/1/2019

Customer Enadarko Petroleum Corporation
Well Name Ranger 7-19HZ

DESCRIPTION OF JOB EVENTS

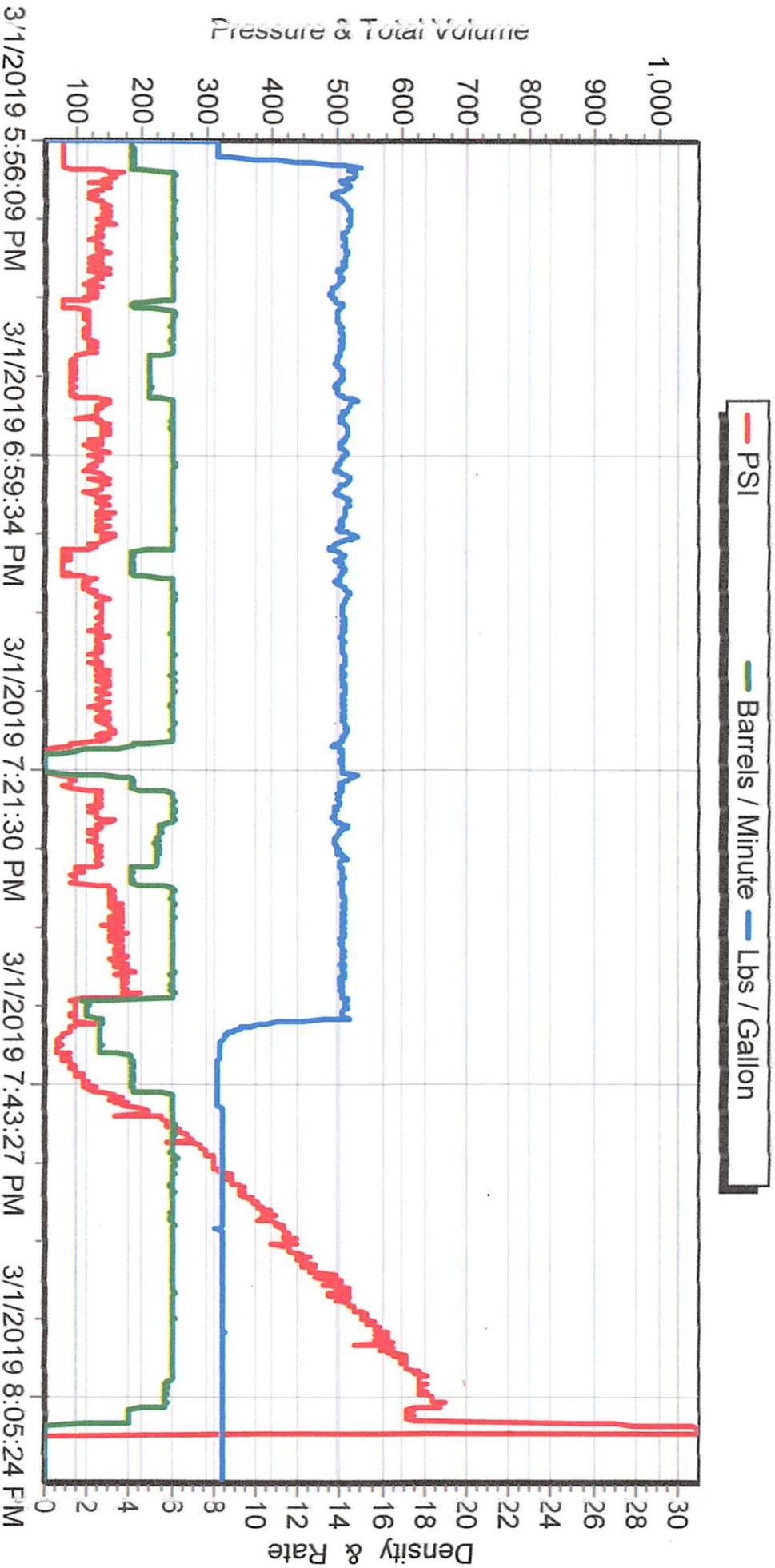
Amount Pumped	Time/Date	Event	Description	Rate	BBLs	Pressure
% Excess 150%	17:30	Arrive On Location	Rig was running casing.			
Mixed bbls 403.8	17:35	Well Site Assessment	Hazard hunt, Rig up safety meeting			
Total Sacks 1522	17:40	Rig Up Equipment				
bbl Returned 20	18:08	JSA	Held Safety meeting with all personnel involved in job.			
Water Temp 45	18:38	Pressure Test Lines	Pressure tested lines to 1700 psi.			
	18:39	Spacer Ahead	Fresh water with dye in second 10 bbl.	4	30	80
Notes:	18:42	Pump Cement	14.2 ppg Cement W/polyflake	6	396.1	170
Had returns during cmt.		Shut Down	Did not shut down			
We started getting cmt	19:45	Drop Plug	We dropped plug on the fly.			
to surface at the end	19:45	Pump Displacement	Fresh water	6	70	450
of cement. Once we	20:09	Bump Plug	Bumped plug 510 psi over final lift (1060psi)	3.5	142.1	550
dropped the plug returns	20:10	Check Floats	Floats held (flowed back .5 bbl)			
slowly faded.	20:11	End Job				
	20:15	Rig Down Equipment				
	20:30	Leave Location				

X Ronald [Signature]
Work Performed

X Co-man
Title

X 3-1-19
Date

Ranger 7-19HZ





Bison Oil Well Cementing Single Cement Surface Pipe

Date: 3/1/2019

Invoice #: 606443

API#: 05-123-49356

Foreman: Nick Vigil

Customer: Anadarko Petroleum Corporation

Well Name: Ranger 7-19HZ

County: Weld
State: Colorado

Sec: 8
Twp: 1N
Range: 05W

Consultant: Dave
Rig Name & Number: Cartel 88
Distance To Location: 36 Miles
Units On Location: 4045/4044/4030/4023
Time Requested: 18:00
Time Arrived On Location: 17:30
Time Left Location:

WELL DATA

Casing Size OD (in) : 9.625
Casing Weight (lb) : 36.00
Casing Depth (ft) : 1,871
Total Depth (ft) : 1881
Open Hole Diameter (in.) : 13.50
Conductor Length (ft) : 80
Conductor ID : 15.25
Shoe Joint Length (ft) : 42
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: 150%
Displacement Fluid lb/gal: 8.3
BBL to Pit: 0.0
Fluid Ahead (bbls): 30.0
H2O Wash Up (bbls): 10.0

Spacer Ahead Makeup
Dye in second 10 bbl

Casing ID

8.921

Casing Grade

J-55 only used

Calculated Results

cuft of Shoe 18.23 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 2188.29 cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 2267.57 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 403.85 bbls
(Total Slurry Volume) X (.1781)

Sacks Needed 1522 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 271.04 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 142.17 bbls

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

Pressure of cement in annulus

Hydrostatic Pressure: 1380.24 PSI

Pressure of the fluids inside casing

Displacement: 788.63 psi

Shoe Joint: 30.98 psi

Total 819.61 psi

Differential Pressure: 560.62 psi

Collapse PSI: 2020.00 psi

Burst PSI: 3520.00 psi

Total Water Needed: 453.21 bbls

X
Authorization To Proceed