



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 12/1/2017
 Invoice # 900217
 API# 05-123-45128
 Foreman: Corey Barras

Customer: Anadarko Petroleum Corporation
Well Name: Putter 27-7HZ

County: Weld Consultant: Matt
 State: Colorado Rig Name & Number: Cartel 88
 Distance To Location: 42 28
 Sec: 27 Units On Location: 1027-3103/4020-3214/4024-320
 Twp: 3N Time Requested: 1000
 Range: 68W Time Arrived On Location: 930
 Time Left Location: _____

| WELL DATA | Cement Data |
|---|---------------------------------------|
| Casing Size OD (in) : <u>9.625</u> | Cement Name: <u>BFN III</u> |
| Casing Weight (lb) : <u>36.00</u> | Cement Density (lb/gal) : <u>14.2</u> |
| Casing Depth (ft.) : <u>1,889</u> | Cement Yield (cuft) : <u>1.48</u> |
| Total Depth (ft) : <u>1899</u> | Gallons Per Sack: <u>7.40</u> |
| Open Hole Diameter (in.) : <u>13.50</u> | % Excess: <u>5%</u> |
| Conductor Length (ft) : <u>80</u> | Displacement Fluid lb/gal: <u>8.3</u> |
| Conductor ID : <u>15.25</u> | BBL to Pit: |
| Shoe Joint Length (ft) : <u>44</u> | Fluid Ahead (bbls): <u>30.0</u> |
| Landing Joint (ft) : <u>15</u> | H2O Wash Up (bbls): <u>20.0</u> |
| Max Rate: <u>8</u> | Spacer Ahead Makeup |
| Max Pressure: <u>2000</u> | <u>30 bbl with Die in 2nd 10</u> |

| Calculated Results | Displacement: <u>143.79 bbls</u> |
|--|--|
| cuft of Shoe <u>19.10</u> cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft) | (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint) |
| cuft of Conductor <u>61.05</u> cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft) | Pressure of cement in annulus |
| cuft of Casing <u>928.32</u> cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length) | Hydrostatic Pressure: <u>1393.52 PSI</u> |
| Total Slurry Volume <u>1008.47</u> cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing) | Pressure of the fluids inside casing |
| bbls of Slurry <u>179.61</u> bbls (Total Slurry Volume) X (.1781) | Displacement: <u>795.53 psi</u> |
| Sacks Needed <u>681</u> sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement) | Shoe Joint: <u>32.46 psi</u> |
| Mix Water <u>120.06</u> bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42 | Total <u>827.99 psi</u> |
| | Differential Pressure: <u>565.53 psi</u> |
| | Collapse PSI: <u>2020.00 psi</u> |
| | Burst PSI: <u>3520.00 psi</u> |
| | Total Water Needed: <u>313.85 bbls</u> |

X Corey Barras
 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**

Customer
Well Name

Anadarko Petroleum Corporation
Putter 27-7HZ

INVOICE #
LOCATION
FOREMAN
Date

900217
Weld
Corey Barras
12/1/2017

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DESCRIPTION OF JOB EVENTS

| Amount Pumped | | Event | Description | Rate | BBLs | Pressure |
|---------------|--------|-------|--------------------------------------|------|------|----------|
| % Excess | 5% | 930 | What rig is doing upon Bison Arrival | | | |
| Mixed bbls | 120.06 | 935 | JSA | | | |
| Total Sacks | 681 | 945 | Rig up | | | |
| bbl Returns | 14 | 1330 | Safety Meeting | | | |
| Water Temp | 58 | 1350 | Start Job | | | |
| | | 1352 | Pressure Test | | | |
| Notes: | | | | | | |
| | | 1354 | Spacer Ahead | | | |
| | | 1400 | Lead Cement | | | |
| | | | 2nd 10 with die | 6 | 30 | 80 |
| | | | 14.2 ppg | 5 | 179 | 50 |
| | | 1452 | Shutdown | | | |
| | | 1454 | Drop Plug | | | |
| | | | Preloaded in plug container | | | |
| | | 1455 | Start Displacement | 8 | 90 | 320 |
| | | 1520 | Bump Plug | 2 | 143 | 520 |
| | | | 500 over final lift (1110 PSI) | | | |
| | | 1522 | Floats Held | | | |
| | | 1525 | End Job | | | |
| | | | Held for 2 MIN with .5 bll back | | | |
| | | 1530 | Rig Down | | | |
| | | 1600 | Leave Location | | | |

X *Corey Barras*
Work Performed

X Co. Man
Title

X 12-1-17
Date

Putter 27N-7HZ

