



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

Customer
Well Name

Occidental Petroleum
SHAKE 11-12HZ

INVOICE #
LOCATION
FOREMAN
Date

900512
Weld
kirt/Terry Richey
4/19/2021

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DESCRIPTION OF JOB EVENTS

Amount Pumped	Time/Date	Event	Description	Rate	BBLs	Pressure
% Excess 10%	150am	Arrive On Location				
Mixed bbls 125.5	200am	Rig Up				
Total Sacks 712						
bbl Returns 14	600am	JSA				
Water Temp 60	605am	Start Job				
	608am	Test Lines	750PSI	1	2	750
Notes:	610am	pump spacer&drop bootom plug	10Water 10Die 10Water	6	30	90
	620am	Cement	14.2 ppg	5	187	90
	700am	Shut Down				
	702am	Drop top plug				
	704am	Pump Displacment	H2O	7	143	390
	730am	Bump Plug	680PSI	2		1052
	732am	Check Floats	14bbls back			
	735am	Rig Down				
	800am	Leave Location				

X

David Conitt

Work Performed

X

Co-man

Title

X

4-19-21

Date



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 4/19/2021
 Invoice # 900512
 API# 512351400
 Foreman: kirt/Terry Richey

Customer: Occidental Petroleum
Well Name: SHAKE 11-12HZ

County: Weld Consultant: David
 State: Colorado Rig Name & Number: Icon 12
 Distance To Location: 36
 Sec: 44 Units On Location: 4045/3103-4039/3205-4033/3201
 Twp: 4N Time Requested: 300am
 Range: 68W Time Arrived On Location: 150am
 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>1,883</u>	Cement Yield (cuft) : <u>1.48</u>
Total Depth (ft) : <u>1893</u>	Gallons Per Sack: <u>7.40</u>
Open Hole Diameter (in.) : <u>13.50</u>	% Excess: <u>10%</u>
Conductor Length (ft) : <u>80</u>	Displacement Fluid lb/gal: <u>8.3</u>
Conductor ID : <u>15.5</u>	BBL to Pit: _____
Shoe Joint Length (ft) : <u>41</u>	Fluid Ahead (bbls): <u>30.0</u>
Landing Joint (ft) : <u>8</u>	H2O Wash Up (bbls): <u>30.0</u>
Max Rate: <u>7</u>	Spacer Ahead Makeup
Max Pressure: <u>1500</u>	<u>10 BBL H2O 10BBL DIE 10BBL H2O</u>

Calculated Results	Pressure Calculations
Casing ID <u>8.921</u> Casing Grade _____ J-55 only used	Displacement: <u>143.02 bbls</u>
cuft of Shoe <u>17.80 cuft</u> (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>64.40 cuft</u> (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Pressure of cement in annulus
cuft of Casing <u>969.30 cuft</u> (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Hydrostatic Pressure: <u>1389.09 PSI</u>
Total Slurry Volume <u>1051.50 cuft</u> (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Pressure of the fluids inside casing
bbls of Slurry <u>187.27 bbls</u> (Total Slurry Volume) X (.1781)	Displacement: <u>794.24 psi</u>
Sacks Needed <u>710 sk</u> (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Shoe Joint: <u>30.25 psi</u>
Mix Water <u>125.18 bbls</u> (Sacks Needed) X (Gallons Per Sack) ÷ 42	Total <u>824.48 psi</u>
	Differential Pressure: <u>564.61 psi</u>
	Collapse PSI: <u>2020.00 psi</u>
	Burst PSI: <u>3520.00 psi</u>
	Total Water Needed: <u>328.20 bbls</u>

X [Signature]
 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.