



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 3/18/2014
 Invoice #: 12129
 API#: 05-123-380730
 Foreman: LEE SHARP

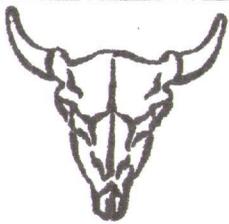
Customer: ENCANA
 Well Name: EDITH ANN-DUCKWORTH 4A-21H-0268

County: Weld County
 State: Colorado
 Sec: 21
 Twp: 2N
 Range: 68W

Consultant: LENARD CLARK
 Rig Name & Number: PATTERSON 272
 Distance To Location: 32
 Units On Location: 4027-3106; 4018-3204
 Time Requested: 11:00 AM
 Time Arrived On Location: 10:55 AM
 Time Left Location:

WELL DATA	Cement Data
Casing Size OD (in) : 9.625	Cement Name: BFN III
Casing Weight (lb) : 40.00	Cement Density (lb/gal) : 15.2
Casing Depth (ft.) : 902	Cement Yield (cuft) : 1.27
Total Depth (ft) : 913	Gallons Per Sack: 5.89
Open Hole Diameter (in.) : 12.25	% Excess: 41%
Conductor Length (ft) : 83	Displacement Fluid lb/gal: 8.3
Conductor ID : 15.5	BBL to Pit:
Shoe Joint Length (ft) : 44	Fluid Ahead (bbls): 30.0
Landing Joint (ft) : 35	H2O Wash Up (bbls): 20.0
Max Rate:	Spacer Ahead Makeup
Max Pressure:	30KCLBBL 10+10DIE+10

Calculated Results	Pressure and Displacement
cuft of Shoe 18.86 cuft (Casing ID Squared) X (.005454) X (Shoe Joint ft)	Displacement: 67.71 bbls (Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)
cuft of Conductor 66.82 cuft (Conductor Width Squared) - (Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Pressure of cement in annulus Hydrostatic Pressure: 712.22 PSI
cuft of Casing 256.49 cuft (Open Hole Squared) - (Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing Displacement: 369.82 psi Shoe Joint: 34.98 psi Total: 404.80 psi
Total Slurry Volume 342.17 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Differential Pressure: 307.42 psi
bbls of Slurry 85.62 bbls (Total Slurry Volume) X (.1781) X (% Excess Cement)	Collapse PSI: #N/A psi Burst PSI: #N/A psi
Sacks Needed 379 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total Water Needed: 170.80 bbls
Mix Water 53.09 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42	
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**

Customer
Well Name

ENCANA
DITH ANN-DUCKWORTH 4A-21H-026

INVOICE #
LOCATION
FOREMAN
Date

12129
Weld County
LEE SHARP
3/18/2014

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

		Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
		BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI	BBLS	Time	PSI
Safety Meeting	13:20															
MIRU	12:20															
CIRCULATE	14:07	0	14:40		0			0			0			0		
Drop Plug		10	14:44	150	10			10			10			10		
14:40		20	14:46	210	20			20			20			20		
		30	14:48	280	30			30			30			30		
		40	14:50	350	40			40			40			40		
M & P		50	14:52	410	50			50			50			50		
Time	Sacks	60	14:54	430	60			60			60			60		
14:11	379	70	14:56	730	70			70			70			70		
		80			80			80			80			80		
		90			90			90			90			90		
		100			100			100			100			100		
		110			110			110			110			110		
% Excess	41%	120			120			120			120			120		
Mixed bbls	53.25	130			130			130			130			130		
Total Sacks	380	140			140			140			140			140		
bbl Returns	21	150			150			150			150			150		
Water Temp	72															

Notes:
 The day COMPANY MAN LENORD CLARK PROVIDED ALL NUMBERS FOR JOB. I WAS INSTRUCTED TO USE HIS NUMBERS NOT BISON JIM WAS MADE AWARE @12:35
 JOB WENT WELL NO ISSUES.

X _____
Work Performed

X _____
Title

X _____
Date