



Bison Oil Well Cementing Single Cement Surface Pipe

Date: 2/1/2014
 Invoice # 12312
 API# 445564
 Foreman: MONTE

Customer: encana
 Well Name: volg mccooy 2h-5h-f267

County: weld
 State: colorado
 Sec: 5
 Twp: 2n
 Range: 67w

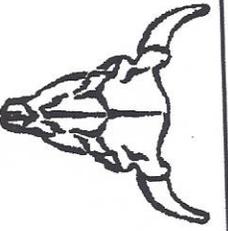
Consultant: quiz
 Rig Name & Number: h & p 278
 Distance To Location: 24.2
 Units On Location: 3103-3211, 4024, 4020
 Time Requested: 10:00pm
 Time Arrived On Location: 22:00
 Time Left Location: _____

WELL DATA		Cement Data	
Casing Size OD (in) :	9.6250	Cement Name:	BFN III
Casing Weight (lb) :	40	Cement Density (lb/gal) :	15.2
Casing Depth (ft.) :	833	Cement Yield (cuft) :	1.27
Total Depth (ft) :	869	Gallons Per Sack:	5.89
Open Hole Diameter (in.) :	12.25	% Excess:	25%
Conductor Length (ft) :	108	Displacement Fluid lb/gal:	
Conductor ID :	15.5	BBL to Pit:	
Shoe Joint Length (ft) :	36	Fluid Ahead (bbls):	
Landing Joint (ft) :	25	H2O Wash Up (bbls):	20.0
Max Rate:	5	Spacer Ahead Makeup	
Max Pressure:	1000	10 fresh 10 dye 10 fresh	

Calculated Results	Displacement:	62.33 bbls
cuft of Shoe 15.33 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 86.95 cuft (Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	Pressure of cement in annulus Hydrostatic Pressure: 657.74 PSI	
cuft of Casing 227.05 cuft (Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)	Pressure of the fluids inside casing Displacement: #N/A psi Shoe Joint: 28.43 psi Total #N/A psi	
Total Slurry Volume 329.33 cuft (cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)	Differential Pressure: #N/A psi	
bbls of Slurry 73.32 bbls (Total Slurry Volume) X (.1781) X (% Excess Cement)	Collapse PSI: 2570.00 psi Burst PSI: 3950.00 psi	
Sacks Needed 324 sk (Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	Total Water Needed: 65.46 bbls	
Mix Water 45.46 bbls (Sacks Needed) X (Gallons Per Sack) ÷ 42		

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.



Bison Oil Well Cementing
Single Cement Surface Pipe

Customer
 Well Name

encana
 volg mccozy 2h-5h-f267

INVOICE #
 LOCATION
 FOREMAN
 Date

12312
 weld
 MONTE
 2/1/2014

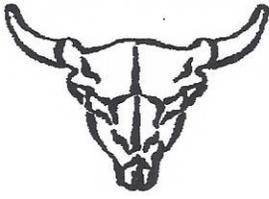
DESCRIPTION OF JOB EVENTS

	Displace 1			Displace 2			Displace 3			Displace 4			Displace 5		
	BLS	Time	PSI	BLS	Time	PSI	BLS	Time	PSI	BLS	Time	PSI	BLS	Time	PSI
Safety Meeting	1:15am														
MIRU	2:45														
CIRCULATE	3:05	0	110	0			0			0			0		
Drop Plug		10	110	10			10			10			10		
		20	100	20			20			20			20		
		30	280	30			30			30			30		
		40	260	40			40			40			40		
		50	350	50			50			50			50		
M & P		60	350	60			60			60			60		
Time		60	4:02	70			70			70			70		
Sacks		324	520	80			80			80			80		
3:20-3:45		80		80			80			80			80		
		90		90			90			90			90		
		100		100			100			100			100		
		110		110			110			110			110		
		120		120			120			120			120		
% Excess		25%		120			120			120			120		
Mixed bbls		130		130			130			130			130		
Total Sacks		140		140			140			140			140		
		150		150			150			150			150		
bbl Returns		12													

Notes: safety meeting, miru, pressure test per company man, circulate 30 bbls ahead with dye in 2nd 10. mix and pump 324 sks at 25 % excess

drop plug and displace 21.3 bbls h2o, 12 back

X *Rig* *Supervisory*
 Work Performed
 X *Rig* *Supervisor*
 Title
 X *02-03-14*
 Date



Bison Oil Well Cementing Single Cement Surface Pipe

Cementing Customer Satisfaction Survey

Service Date	2/1/2014
Well Name	volg mccooy 2h-5h-f267
County	weld
State	colorado
SEC	5
TWP	2n
RNG	67w

Invoice Number	20511
API #	445564
Job Type	Single Cement Surface Pipe
Company Name	encana

Customer Representative

Supervisor Name

Employee Name (Including Supervisor)	
<input type="text" value="jon"/>	
<input type="text" value="jeff"/>	
<input type="text"/>	
<input type="text"/>	
<input type="text"/>	

Exposure Hours (Per Employee)	
<input type="text" value="5"/>	
<input type="text" value="5"/>	
<input type="text"/>	
<input type="text"/>	
<input type="text"/>	
<input type="text" value="10"/>	Total Exposure Hours

Did we encounter any problems on this job? Yes No

To Be Completed By Customer

Rating/Description

- 5 - Superior Performance (Established new quality/performance standards)
 - 4 - Exceeded Expectation (Provided more than what was required/expected)
 - 3 - Met Expectations (Did what was expected)
 - 2 - Below Expectations (Job problems/failures occurred - *Recovery made)
 - 1 - Poor Performance (Job problems/failures occurred - *Some recovery made)
- *Recovery: resolved issue(s) on jobsite in a timely and professional manner

RATING	CATEGORY
3	Personnel -
3	Equipment -
3	Job Design -
3	Product/Material -
3	Health & Safety -
3	Environmental -
3	Timeliness -
3	Condition/Appearance -
3	Communication -

CUSTOMER SATISFACTION RATING

- Did our personnel perform to your satisfaction?
- Did our equipment perform to your satisfaction?
- Did we perform the job to the agreed upon design?
- Did our products and materials perform as you expected?
- Did we perform in a safe and careful manner (Pre/post mtgs, PPE, TSMR, etc..)?
- Did we perform in an environmentally sound manner (spills, leaks, cleanup, etc..)?
- Was job performed as scheduled (On time to site, accessible to customers, completed when expected)?
- Did the equipment condition and appearance meet your expectations?
- How well did our personnel communicate during mobilization, rig up and job execution?

Please Circle:

- Yes No Did an accident or injury occur?
- Yes No Did an injury requiring medical treatment occur?
- Yes No Did a first-aid injury occur?
- Yes No Did a vehicle accident occur?
- Yes No Was a post-job safety meeting held?

Please Circle:

- Yes No Was a pre-job safety meeting held?
- Yes No Was a job safety analysis completed?
- Yes No Were emergency services discussed?
- Yes No Did environmental incident occur?
- Yes No Did any near misses occur?

Additional Comments:

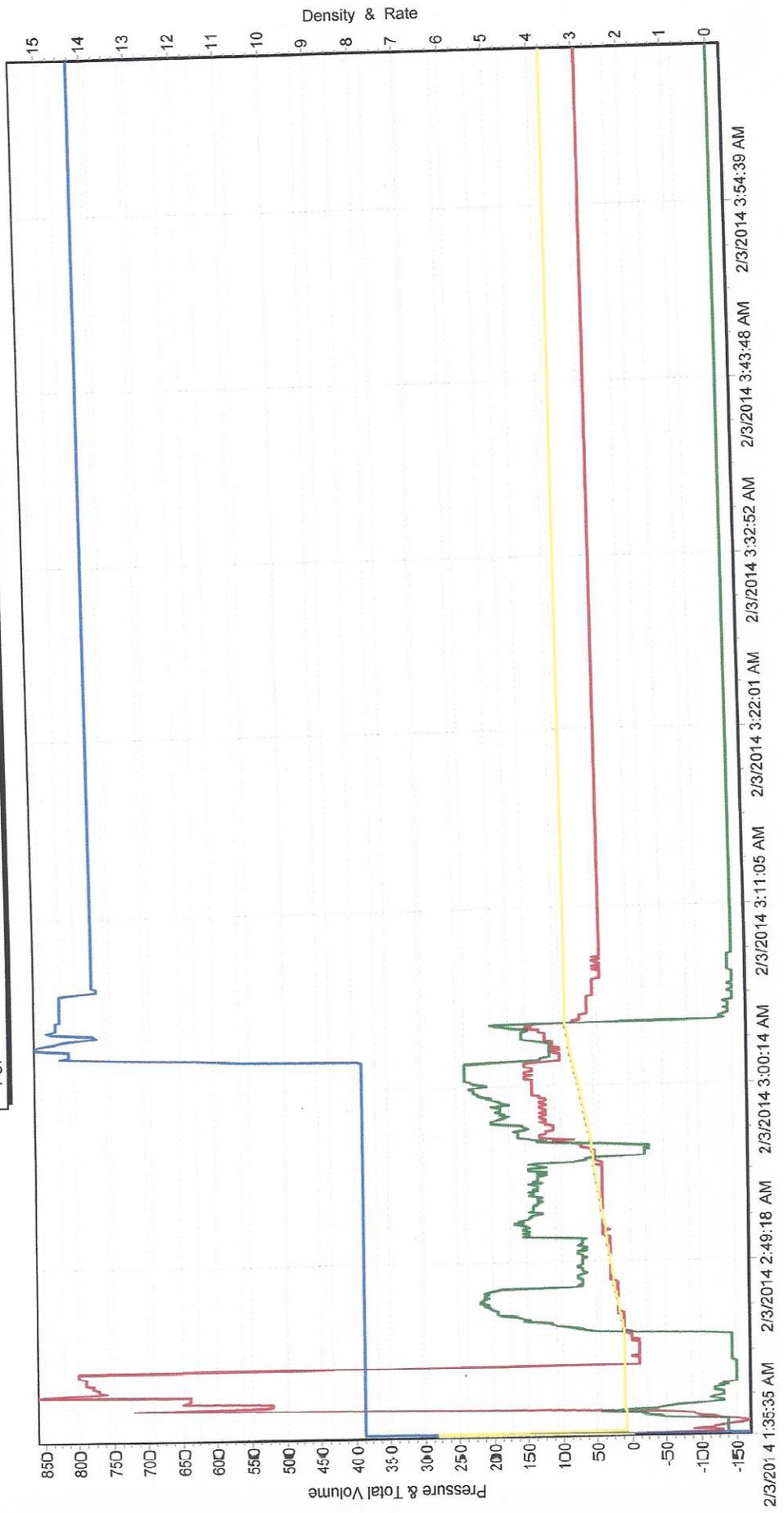
THE INFORMATION HEREIN IS CORRECT -

X Jim [Signature]
Customer Representative's Signature

DATE: 02-03-14

Any additional Customer Comments or HSE concerns should be described on the back of this form

M/D TOTCO 2000 SERIES





BISON

BISON OILWELL CEMENTING JOB SAFETY ANALYSIS WORKSHEET

ASK: SURFACE CASING CEMENTING		CEMENTER/SUPERVISOR: monte bedeaux		PAGE 1	OF 3
NAME: volg mccooy 2h-5h-f267		RIG # h & p 238	LOCATION: frontier rd	DATE: 2-2-14	INVOICE # 12312
ATOR: encana		CONSULTANT: quiz			
EQUIPED:		ADDITIONAL PPE (based on job specific hazards)			
<input type="checkbox"/> Hard Hat <input type="checkbox"/> Safety Glasses <input type="checkbox"/> Steel Toe Boots <input type="checkbox"/> Impact Gloves		<input type="checkbox"/> FR Coveralls <input type="checkbox"/> Reflective Vest <input type="checkbox"/> Goggles <input type="checkbox"/> Faceshield <input type="checkbox"/> Chemical Resistant Gloves <input type="checkbox"/> Personal H2S Monitor <input type="checkbox"/> Chemical Resistant Clothing <input type="checkbox"/> Personal Methane Monitor		<input type="checkbox"/> Air Purifying Respirator <input type="checkbox"/> Supplied Air Respirator	
JOB STEPS		POTENTIAL HAZARDS		RECOMMENDED ACTION OR PROCEDURE	
view JSA	Misunderstanding	Clarity job and associated hazards and safety concerns			mb
duct pre job safety meeting	Misunderstanding	<ul style="list-style-type: none"> -Hold safety meeting with all personnel on location, ensure everyone pays attention to ensure they understand their role and responsibility during the job -Review treatment report with consultant and attain signature for authorization to proceed -Identify and address short service employees (SSE) who are on location 			mb
ve trucks in and rig up equipment	Other traffic on location, overhead lines, pinch points, heavy lifting, slips/falls	<ul style="list-style-type: none"> -Coordinate with well site supervisor for directions on where and when to park the equipment -All Bison crew members walk the location prior to driving in to access specific hazards -Utilize spotters when trucks are in motion -Establish buffer zone around equipment utilizing cones and caution tape -Cementer follows up to ensure connections are secure -Lift with your legs and use teamwork when rigging up -Utilize reflective vests and wands to increase visibility at night -Deploy spill berms and buckets 			mb
e cement head and hoses to rig floor	Overhead work, Improper hookup/load not properly secured, poor communication between ground personnel and crane/tugger operator	<ul style="list-style-type: none"> -Inspect slings, chains and hooks prior to lift -Ensure line of sight with crane/tugger operator is maintained throughout the lift and hand signals are understood -Ensure no personnel are under suspended equipment -Utilize a tag line to control the load 			mb
inct Cement head/swage/pin, chickens and es.	Working in a congested area, pinch points, swinging hammers, slippery rig floor	<ul style="list-style-type: none"> -Only Bison personnel install the cement head and hoses -Maintain line of sight and communication with crane/tugger operator -Remove non-essential personnel from rig floor, wait until other activity is done -Rig crew does not install chains until head and hoses are installed -Ensure a clear path when swinging a hammer -Ensure all fittings and hoses have proper pressure rating for the job and fall within the parameters of the <i>Bison Oilwell Iron Inspection Program</i> 			mb
ssure test lines	Test to: PSI- 1000 Maximum pressure allowed for job: PSI- 1500	<ul style="list-style-type: none"> -Ensure rig floor is clear and personnel are away from hoses prior to test -Establish buffer area around high pressure hoses -Lines are checked from a distance and using pressure gauges -Cementer ensures pressure gauges are functioning properly 	Pressure relief valve set to: PSI- 2500 Max. pump pressure: PSI- 3500		mb
np Spacer (dye marker)/Mix and Pump tent	Equipment falling under high pressures	<ul style="list-style-type: none"> -Pressure test prior to job, utilize heavy duty hose hobbles and pressure relief valve -Keep rig floor and buffer area clear while pumping -Utilize proper PPE -Have access to water to rinse affected skin -Deploy spill berms and buckets 			mb
Serious injury from high pressure line failure or catastrophic equipment failure. Casing hydraulicing from hole, causing injury. Burns or skin irritation from splashing cement, uncontrolled spills					

BISON OILWELL CEMENTING JOB SAFETY ANALYSIS WORKSHEET



p plug	Slips, trips, falls. Miscommunication between pump operator and cementer, pressure against a closed stop	<ul style="list-style-type: none"> -Utilize 3 points of contact while descending/climbing ladder and stairs -Have visual contact between cementer and pump operator before pump is engaged 	mb
placement	Unexpected pressure associated with resuming of pumping, casing hydraulicing from hole, serious injury from high pressure line failure or catastrophic equipment failure.	<ul style="list-style-type: none"> -Ensure rig floor remains clear and non-essential personnel stay clear from buffer area -Pump operator monitors pump pressure constantly -Utilize proper PPE 	mb
pmp plug-Test float and release pressure	Pressure jumps before expected (calculated) displacement. Pressure jumps rapidly and higher than expected.	<ul style="list-style-type: none"> -Pump operator slows rate to 2BPM when 5 bbls from calculated displacement and down to 1 bpm within 2 bbls of calculated displacement -Pump operator monitors pressure constantly -Pressure relief valve installed on pump 	mb
Pressure test casing required)	Test to: PSI- na FOR:MIN- na	<ul style="list-style-type: none"> -Ensure rig floor remains clear and non-essential personnel stay clear from the buffer area 	mb
ash up / rig down	Splashing cement slurry, heavy lifting, pinch points, unsecured hoses	<ul style="list-style-type: none"> -Utilize stakes or portable tank manifold to secure hoses -Use proper lifting technique (2 man lift, lift with legs, plan your route) 	mb
part location	Other traffic and personnel and location, overhead lines	<ul style="list-style-type: none"> -All Bison crew member walk the planned exit route to access possible obstacles and hazards -Utilize spotters while backing 	mb
<p>General Precautions/Stop Work</p> <ul style="list-style-type: none"> - If you see a leaking connection, notify the cementer. Do not attempt to hammer up a leaking connection as there may be pressure on the lines. -Any person on location, regardless of their position or experience level has the authority and responsibility to stop the job if they witness an unsafe act or condition. 			
<p>OTHER HAZARDS SPECIFIC TO LOCATION OR COMMENT NOT ADDRESSED ABOVE:</p>			
<p>NATED EMERGENCY MUSTER AREA: rd COUNT-- 14</p>		<p>NEAREST EMERGENCY MEDICAL FACILITY (OTHER THAN 911): longmont</p>	



BISON
Oil Well Cementing Inc.

PRE TRIP CEMENT CALL OUT SHEET

INVOICE # 12312 DATE/TIME 2-2-14
 WELL NAME Volg - McCoy 2H - 5H - F267 OPERATOR Quz
 CUSTOMER Encang
 LOCATION/RIG HJP 238
 DELIVERED TO Frontier Rd

PRE CHECK CALL OUT

CHECK ITEMS	Supervisor		BULK TRUCK DRIVER	Supervisor	
	Initials	Other Initials		Initials	Other Initials
DRY SAMPLE #	MB	JK	VACUUM BREAKER PORT CLEANED & INSPECTED & SPARE ON TRUCK	MB	
REQUIRED CEMENT CONNECTIONS	MB	JK	WATER JET AT MIX HEAD REMOVED, INSPECTED & CLEANED	MB	
TYPE OF CEMENT	BENTONITE ✓		CEMENTING HEAD INSPECTED & CLEANED	MB	
# OF LBS/SACKS	full		MIX TUB INSPECTED & CLEANED	MB	
FLOAT EQUIPMENT	at Rig		CENTRIFUGALS GREASED, TIGHTENED & INSPECTED	MB	
BEGINNING FUEL	full ✓		DECK MOTORS STARTED	MB	
STARTING MILEAGE	68535 ✓		VERIFY ALL AIR VALVES ARE FUNCTIONAL	MB	
PERSONAL PROTECTIVE EQUIPMENT	MB	JK	VERIFY ALL VALVES ARE FUNCTIONAL ON BULK TRUCK	MB	JK
DRIVING DIRECTIONS	MB	JK	VERIFY BERMS ARE ON BULK TRUCK	MB	JK
DRIVERS LOGS UPDATED PRIOR TO LEAVING YARD	MB	JK	VERIFY SPARE CEMENT HEAD IS ON BULK TRUCK	MB	JK
TRUCK PRE TRIP COMPLETED	MB	JK	VERIFY 1" TUBING IS ON BULK TRUCK AND ADEQUATELY SECURED	MB	JK
ROCK CATCHERS REMOVED & CLEANED	MB		CHECK FOR ADEQUATE SUPPLY OF KCL, DYE AND DEFOAMER	MB	✓
VACUUM BREAKER REMOVED & CLEANED	MB		TOP OFF FUEL IN TRUCKS POST TRIP		
VERIFY CORRECT POP OFF PIN IN PLACE	MB		VERIFY PARKING METER GAUGE IS ON TRUCK		
VERIFY PRESSURE TRANSDUCERS ARE CLEAN OF CEMENT	MB		DRAIN AIR TANKS		
CLEAN TRUCKS	MB	JK			
TIGHTEN PACKING NUTS ON PLUNGERS	MB				

CEMENT HEAD CHECK LIST

	Supervisor Initials	Other Initials
THREADS	MB	
VALVES	MB	
PIN	MB	

COMMENTS: