Bison Oil Well Cementing
Single Cement Surface Pipe

Date: 2/1/2014
Invoice # 12311
API# 445564
Foreman: MONTE

Customer: encana
Well Name: volg geist 2f-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: 3102-3202
Time Requested: 1:00am
Time Arrived On Location: 9:15pm
Time Left Location:

WELL DATA

Casing Size OD (in) :	9.6250
Casing Weight (lb) :	40
Casing Depth (ft.) :	825
Total Depth (ft) :	850
Open Hole Diameter (in.) :	12.25
Conductor Length (ft) :	108
Conductor ID :	15.5
Shoe Joint Length (ft) :	45
Landing Joint (ft) :	29
Max Rate:	
Max Pressure:	

Cement Data

Cement Name:	BFN III
Cement Density (lb/gal) :	15.2
Cement Yield (cuft) :	1.27
Gallons Per Sack:	5.89
% Excess:	25%
Displacement Fluid lb/gal:	
BBL to Pit:	
Fluid Ahead (bbls):	
H20 Wash Up (bbls):	20.0

Spacer Ahead Makeup
10 fresh 10 dye 10 fresh

Calculated Results

cuft of Shoe 19.16 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)

cuft of Conductor 86.95 cuft
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)

cuft of Casing 224.55 cuft
((Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 330.65 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 73.61 bbls
(Total Slurry Volume) X (.1781) X (% Excess Cement)

Sacks Needed 325 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 45.64 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 61.30 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 651.42 PSI

Pressure of the fluids inside casing

Displacement: #N/A psi
Shoe Joint: 35.53 psi
Total #N/A psi

Differential Pressure: #N/A psi

Collapse PSI: 2570.00 psi
Burst PSI: 3950.00 psi

Total Water Needed: 65.64 bbls

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

INVOICE #	12311
LOCATION	weld
FOREMAN	MONTE
Date	2/1/2014

Customer	encana
Well Name	volg geist 2f-5h-f267

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

Safety Meeting	2:50am
MIRU	1:45
CIRCULATE	3:26
Drop Plug	
3:52	
M & P	

Time	Sacks
3:32-3:50	325

% Excess	25%
Mixed bbls	45.6
Total Sacks	325
bbl Returns	27

Displace 1		
BBLS	Time	PSI
0	3:55	10
10	3:57	80
20	3:59	220
30	4:01	200
40	4:03	360
50	4:05	440
60	4:07	320
70	4:10	590
80		
90		
100		
110		
120		
130		
140		
150		

Displace 2		
BBLS	Time	PSI
0		
10		
20		
30		
40		
50		
60		
70		
80		
90		
100		
110		
120		
130		
140		
150		

Displace 3		
BBLS	Time	PSI
0		
10		
20		
30		
40		
50		
60		
70		
80		
90		
100		
110		
120		
130		
140		
150		

Displace 4		
BBLS	Time	PSI
0		
10		
20		
30		
40		
50		
60		
70		
80		
90		
100		
110		
120		
130		
140		
150		

Displace 5		
BBLS	Time	PSI
0		
10		
20		
30		
40		
50		
60		
70		
80		
90		
100		
110		
120		
130		
140		
150		

Notes:

safty meeting, miru, pressure test per company man, circulate 30 bbls ahead with dye in 2nd 10. mix and pump 325 sks at 25 % excess

drop plug and displace 61.3 bbls h2o, 27 back

X Jim Summers
Work Preformed

X Rig Supervison
Title

X 02-02-14
Date

Bison Oil Well Cementing
Single Cement Surface Pipe

Cementing Customer Satisfaction Survey

Service Date	2/1/2014
Well Name	volg geist 2f-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: quiz

Supervisor Name: monte

Employee Name (Including Supervisor)	Exposure Hours (Per Employee)
lee	4
jeff	4
kurt	4
Total Exposure Hours	12

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	CUSTOMER SATISFACTION RATING
3	Personnel -	Did our personnel perform to your satisfaction?
3	Equipment -	Did our equipment perform to your satisfaction?
3	Job Design -	Did we perform the job to the agreed upon design?
3	Product/Material -	Did our products and materials perform as you expected?
3	Health & Safety -	Did we perform in a safe and careful manner (Pre/post mtgs, PPE, TSMR, etc..)?
3	Environmental -	Did we perform in an environmentally sound manner (spills, leaks, cleanup, etc..)?
3	Timeliness -	Was job performed as scheduled (On time to site, accessible to customers, completed when expected)?
3	Condition/Appearance -	Did the equipment condition and appearance meet your expectations?
3	Communication -	How well did our personnel communicate during mobilization, rig up and job execution?

Please Circle:			Please Circle:		
Yes	(No)	Did an accident or injury occur?	(Yes)	No	Was a pre-job safety meeting held?
Yes	(No)	Did an injury requiring medical treatment occur?	(Yes)	No	Was a job safety analysis completed?
Yes	(No)	Did a first-aid injury occur?	(Yes)	No	Were emergency services discussed
Yes	(No)	Did a vehicle accident occur?	Yes	(No)	Did environmental incident occur?
(Yes)	No	Was a post-job safety meeting held?	Yes	(No)	Did any near misses occur?

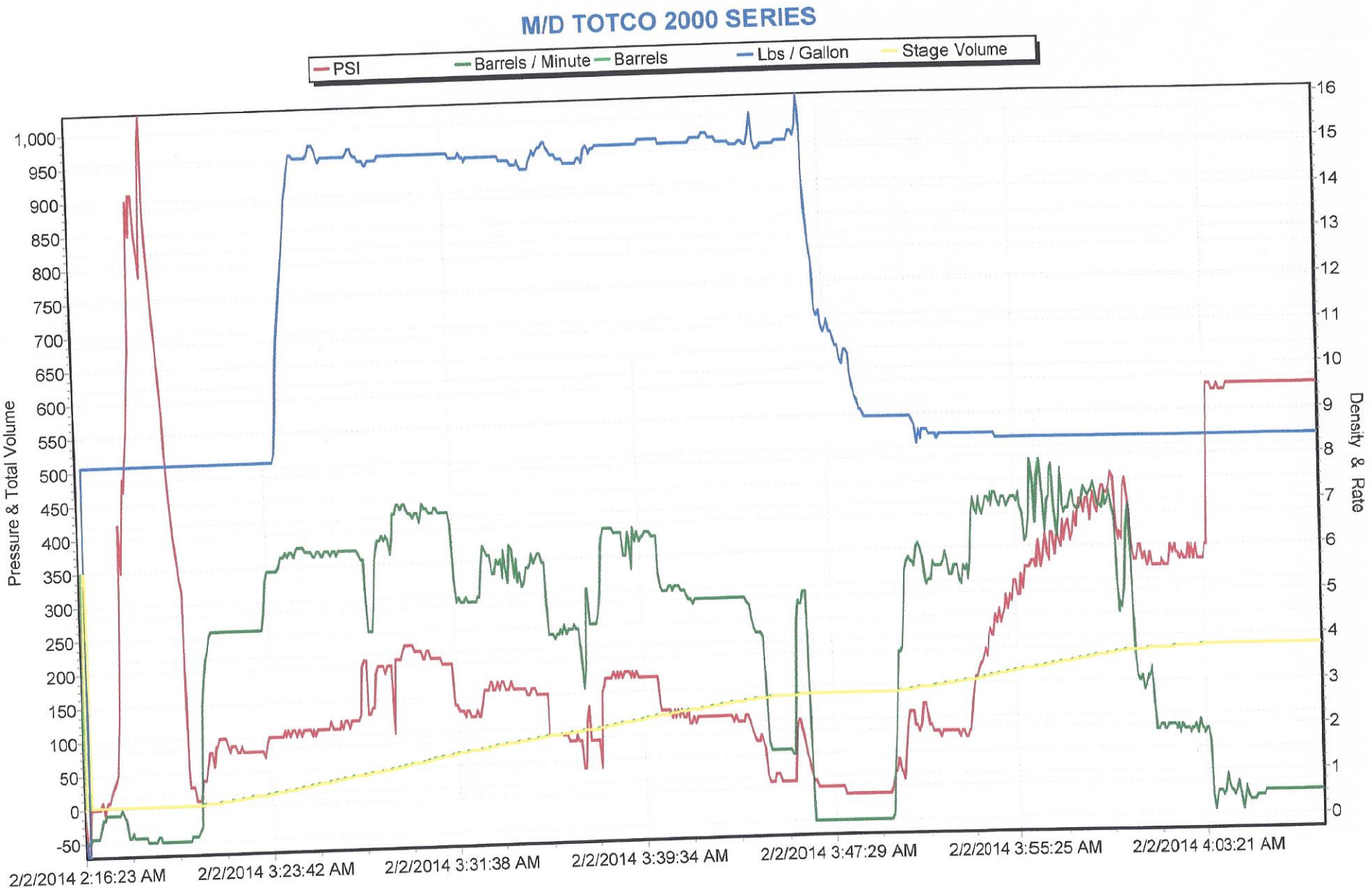
Additional Comments:

THE INFORMATION HEREIN IS CORRECT -

X Jim Jennings
Customer Representative's Signature

DATE: 02-02-14

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


M/D TOTCO 2000 SERIES
PSI
Barrels / Minute
Barrels
Lbs / Gallon
Stage Volume
Pressure & Total Volume
Density & Rate
1,000
950
900
850
800
750
700
650
600
550
500
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2/2/2014 3:23:42 AM
2/2/2014 3:31:38 AM
2/2/2014 3:39:34 AM
2/2/2014 3:47:29 AM
2/2/2014 3:55:25 AM
2/2/2014 4:03:21 AM

BISON

BISON OILWELL CEMENTING JOB SAFETY ANALYSIS WORKSHEET

ASK: SURFACE CASING CEMENTING	CEMENTER/SUPERVISOR: monte bedeaux	PAGE 1	OF 3
NAME: volg geist 2f -5h-f267	RIG # h & p 238 / LOCATION: frontier rd	DATE: 2-1-14	
ATOR: encana	CONSULTANT: quiz	INVOICE # 12311	

EQUIRED: ☑ Hard Hat ☑ Safety Glasses ☑ Steel Toe Boots ☑ Impact Gloves ☑ FR Coveralls ☑ Reflective Vest ADDITIONAL PPE (based on job specific hazards) □Goggles □Faceshield □ Chemical Resistant Gloves □ Chemical Resistant Clothing □Air Purifying Respirator □Supplied Air Respirator □Personal H2S Monitor □Personal Methane Monitor

JOB STEPS	POTENTIAL HAZARDS	RECOMMENDED ACTION OR PROCEDURE	REVIEWED BY
iew JSA	Misunderstanding	Clarify job and associated hazards and safety concerns	MB
ıduct pre job safety meeting	Misunderstanding	-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	
ve trucks in and rig up equipment	Other traffic on location, overhead lines, pinch points, heavy lifting, slips/falls	-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	
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	-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	
ınect Cement head/swage/pin, chicksens and es.	Working in a congested area, pinch points, swinging hammers, slippery rig floor	-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 *Bison Oilwell Iron Inspection Program*	
ssure test lines — Test to: PSI- 1000; Maximum pressure allowed for job: PSI- 1500	Equipment failing under high pressures	-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- 7500	
np Spacer (dye marker)/Mix and Pump ıent	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	-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	

BISON

BISON OILWELL CEMENTING JOB SAFETY ANALYSIS WORKSHEET

p plug		Slips, trips, falls. Miscommunication between pump operator and cementer, pressure against a closed stop	-Utilize 3 points of contact while descending/climbing ladder and stairs -Have visual contact between cementer and pump operator before pump is engaged	MB
ɔlacement		Unexpected pressure associated with resuming of pumping, casing hydraulicing from hole, serious injury from high pressure line failure or catastrophic equipment failure.	-Ensure rig floor remains clear and non-essential personnel stay clear from buffer area -Pump operator monitors pump pressure constantly -Utilize proper PPE	
ımp plug-Test float and release pressure		Pressure jumps before expected (calculated) displacement. Pressure jumps rapidly and higher than expected.	-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	
ɛssure test casing required)	Test to: PSI- FOR:MIN-	Serious injury from high pressure line or catastrophic equipment failure	-Ensure rig floor remains clear and non-essential personnel stay clear from the buffer area	
ash up / rig down		Splashing cement slurry, heavy lifting, pinch points, unsecured hoses	-Utilize stakes or portable tank manifold to secure hoses -Use proper lifting technique (2 man lift, lift with legs, plan your route)	
part location		Other traffic and personnel and location, overhead lines	-All Bison crew member walk the planned exit route to access possible obstacles and hazards -Utilize spotters while backing	
ɛneral Precautions/Stop Work		- 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.		
THER HAZARDS SPECIFIC TO LOCATION OR ONMENT NOT ADDRESSED ABOVE:				

NATED EMERGENCY MUSTER AREA:
rd
COUNT--

NEAREST EMERGENCY MEDICAL FACILITY (OTHER THAN 911): longmont

Signature and Company	
monte Bodeary Bison	
[illegible] WISE	
[illegible] WISE	
[illegible] WISE	
Dennis WISE	
Jeff Kugler Bison	
K Carper RPF	
Kurt Campbell Bison	
Johny Ribbet	
Jim Juenemann ENCANA	
Terry Calillan	
Nick Frantz H&P	
Rob Fountain H&P	

BISON
Oil Well Cementing Inc.

PRE TRIP CEMENT CALL OUT SHEET

INVOICE # 12311 DATE/TIME 2-2-14

WELL NAME Wolf Geist 2F-5H-F267 OPERATOR DW2

CUSTOMER Encana

LOCATION/RIG H&P 238

DELIVERED TO Frontier Rd

PRE CHECK CALL OUT

CHECK ITEMS	Supervisor Initials	Other Initials	BULK TRUCK DRIVER	Supervisor Initials	Other Initials
DRY SAMPLE #	WS	JL	VACUUM BREAKER PORT CLEANED & INSPECTED & SPARE ON TRUCK	MB	
REQUIRED CEMENT CONNECTIONS	MB	JL	WATER JET AT MIX HEAD REMOVED, INSPECTED & CLEANED	MB	
TYPE OF CEMENT	BFNII		CEMENTING HEAD INSPECTED & CLEANED	MB	
# OF LBS/SACKS	4004		MIX TUB INSPECTED & CLEANED	MB	
FLOAT EQUIPMENT	at Rig		CENTRIFUGALS GREASED, TIGHTENED & INSPECTED	MB	
BEGINNING FUEL	FULL	✓	DECK MOTORS STARTED	MB	
STARTING MILEAGE	3489	✓	VERIFY ALL AIR VALVES ARE FUNCTIONAL	MB	
PERSONAL PROTECTIVE EQUIPMENT	MB	JL	VERIFY ALL VALVES ARE FUNCTIONAL ON BULK TRUCK	MB	JL
DRIVING DIRECTIONS	MB	JL	VERIFY BERMS ARE ON BULK TRUCK	MB	JL
DRIVERS LOGS UPDATED PRIOR TO LEAVING YARD	MB	JL	VERIFY SPARE CEMENT HEAD IS ON BULK TRUCK	MB	JL
TRUCK PRE TRIP COMPLETED	MB	JL	VERIFY 1" TUBING IS ON BULK TRUCK AND ADEQUATELY SECURED	MB	JL
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	JL			
TIGHTEN PACKING NUTS ON PLUNGERS	MB				

CEMENT HEAD CHECK LIST

	Supervisor Initials	Other Initials
THREADS	MB	
VALVES	MB	
PIN	MB	

COMMENTS: