Bison Oil Well Cementing
Single Cement Surface Pipe

Date: 1/28/2014
Invoice # 12276
API#
Foreman: Kirk

Customer: encana
Well Name: vogl geist 2d-5h-f267

County: weld
State: Colorado

Sec: 5
Twp: 2n
Range: 62w

Consultant: quiz
Rig Name & Number: h&p 278
Distance To Location:
Units On Location: 3103-3210
Time Requested: 1100 pm
Time Arrived On Location: 900 pm
Time Left Location: 7:00 am

WELL DATA

Casing Size OD (in) :	9.6250
Casing Weight (lb) :	40
Casing Depth (ft.) :	829
Total Depth (ft) :	868
Open Hole Diameter (in.) :	12.25
Conductor Length (ft) :	100
Conductor ID :	15.5
Shoe Joint Length (ft) :	44
Landing Joint (ft) :	28
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:	40%
Displacement Fluid lb/gal:	8.3
BBL to Pit:	
Fluid Ahead (bbls):	
H20 Wash Up (bbls):	20.0

Spacer Ahead Makeup

Casing ID 8.835 Casing Grade J-55 only used

Calculated Results

cuft of Shoe 18.60 cuft
(Casing ID Squared) X (.005454) X (Shoe Joint ft)

cuft of Conductor 80.51 cuft
(Conductor Width Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)

cuft of Casing 228.31 cuft
(Open Hole Squared)-(Casing Size Squared) X (.005454) X (Casing Depth - Conductor Length)

Total Slurry Volume 327.42 cuft
(cuft of Shoe) + (cuft of Conductor) + (cuft of Casing)

bbls of Slurry 81.64 bbls
(Total Slurry Volume) X (.1781) X (% Excess Cement)

Sacks Needed 361 sk
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)

Mix Water 50.62 bbls
(Sacks Needed) X (Gallons Per Sack) ÷ 42

Displacement: 61.67 bbls
(Casing ID Squared) X (.0009714) X (Casing Depth + Landing Joint - Shoe Joint)

Pressure of cement in annulus

Hydrostatic Pressure: 654.58 PSI

Pressure of the fluids inside casing

Displacement:	338.61 psi
Shoe Joint:	34.51 psi
Total	373.11 psi
Differential Pressure:	281.47 psi
Collapse PSI:	2570.00 psi
Burst PSI:	3950.00 psi
Total Water Needed:	70.62 bbls

X Jim Greenberg
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	encana
Well Name	vogl geist 2d-5h-f267

INVOICE #	12276
LOCATION	weld
FOREMAN	Kirk
Date	1/28/2014

Treatment Report Page 2

DESCRIPTION OF JOB EVENTS

Safety Meeting	120am
MIRU	1210am
CIRCULATE	528am
Drop Plug	
554 am	
M & P	

Time	Sacks
534 am	361
550 am stop	

% Excess	40%
Mixed bbls	50.6
Total Sacks	361
bbl Returns	29

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
0	554	10	0			0			0			0		
10	557	120	10			10			10			10		
20	559	170	20			20			20			20		
30	601	260	30			30			30			30		
40	603	310	40			40			40			40		
50	605	360	50			50			50			50		
60	608	320	60			60			60			60		
70			70			70			70			70		
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		
130			130			130			130			130		
140			140			140			140			140		
150			150			150			150			150		

Notes:

bumped plug at 609 am 520 psi

X _____
Work Performed

X _____
Title

X 1-28-14
Date

Bison Oil Well Cementing
Single Cement Surface Pipe

Cementing Customer Satisfaction Survey

Service Date	1/28/2014
Well Name	vogl geist 2d-5h-f267
County	weld
State	Colorado
SEC	5
TWP	2n
RNG	62w

Invoice Number	20511
API #	0
Job Type	Single Cement Surface Pipe
Company Name	encana

Customer Representative: quiz

Supervisor Name: kirk

Employee Name (Including Supervisor)	Exposure Hours (Per Employee)
chris	10
eric	10
zack	10
Total Exposure Hours	30

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

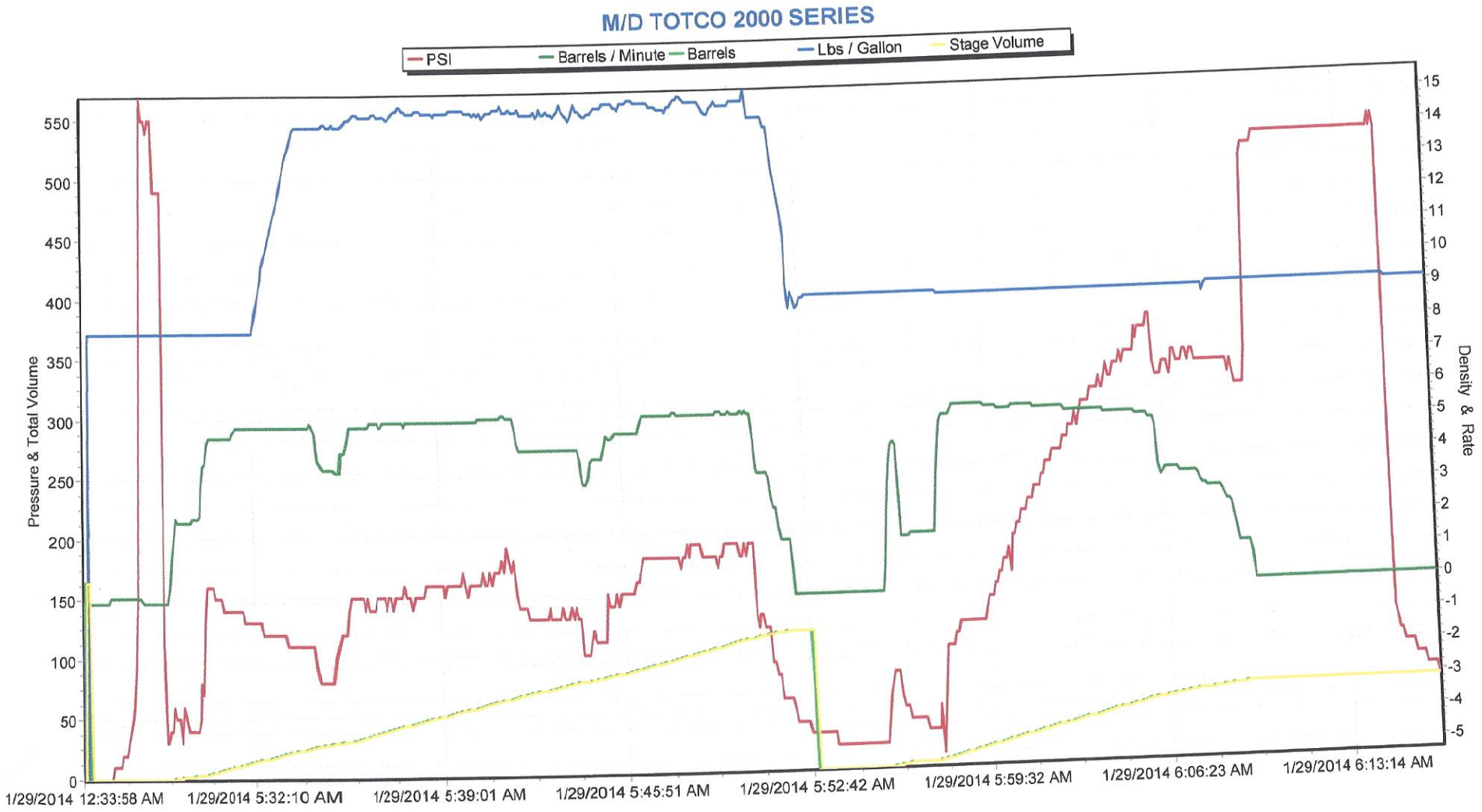
Additional Comments:

THE INFORMATION HEREIN IS CORRECT -

X _____
Customer Representative's Signature

DATE: 1-28-14

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
0
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100
150
200
250
300
350
400
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BISON

BISON OILWELL CEMENTING JOB SAFETY ANALYSIS WORKSHEET

ASK: SURFACE CASING CEMENTING	CEMENTER/SUPERVISOR: Kirk Kallhoff	PAGE 1	OF 3
NAME: vogl geist 2d-5h-f267	RIG #h&p 278 / LOCATION:24-15	DATE: 1-28-14	
ATOR: encana	CONSULTANT: quiz	INVOICE # 12276	

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	kk
iduct 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	kk
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	kk
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	kk
inect 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*	kk
ssure test lines — Test to: PSI- 500; Maximum pressure allowed for job: PSI- 2500	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- 2000; Max. pump pressure: PSI- 3000	kk
np Spacer (dye marker)/Mix and Pump ient	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	kk

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	kk
placement		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	kk
mp plug-Test float and release pressure		Pressure jumps before expected (calculated) displacement. Pressure jumps rapidly and higher than expected.	-Pump operator slows rate to 2 BPM 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	kk
ssure 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	kk
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)	kk
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	kk
neral 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: access rd

COUNT-- 16

NEAREST EMERGENCY MEDICAL FACILITY (OTHER THAN 911): longmont

BISON

BISON OILWELL CEMENTING JOB SAFETY ANALYSIS WORKSHEET

Signature and Company	
[illegible] Bison	Rob Fountain H&P
Johny W. Rabolt H&P	Nick Krantz H&P
Zach [illegible] Wise	Tony Colella
[illegible]	
[illegible]	
[illegible]	
[illegible]	
Chris Olson [illegible]	
Eric P. Reiner Bison	
[illegible] Bison	
[illegible] EnCana	
[illegible] RDT	
Don Sharpe H/P	

BISON
Oil Well Cementing Inc.

PRE TRIP CEMENT CALL OUT SHEET

INVOICE # 12276

DATE/TIME 1-27-14

WELL NAME Doyle Geist 2D-5H-FZ67

OPERATOR Chris

CUSTOMER Enerplus

LOCATION/RIG NE 27B

DELIVERED TO 24-15

PRE CHECK CALL OUT 4025-3205

CHECK ITEMS	Supervisor Initials	Other Initials
DRY SAMPLE #	KK	
REQUIRED CEMENT CONNECTIONS	KK	
TYPE OF CEMENT BFWIII 3%	KK	
# OF LBS/SACKS Full	KK	
FLOAT EQUIPMENT		
BEGINNING FUEL 3/4	KK	
STARTING MILEAGE		
PERSONAL PROTECTIVE EQUIPMENT	—	
DRIVING DIRECTIONS	—	
DRIVERS LOGS UPDATED PRIOR TO LEAVING YARD	—	
TRUCK PRE TRIP COMPLETED	—	
ROCK CATCHERS REMOVED & CLEANED	—	
VACUUM BREAKER REMOVED & CLEANED	—	
VERIFY CORRECT POP OFF PIN IN PLACE	—	
VERIFY PRESSURE TRANSDUCERS ARE CLEAN OF CEMENT	—	
CLEAN TRUCKS	—	
TIGHTEN PACKING NUTS ON PLUNGERS	—	

BULK TRUCK DRIVER	Supervisor Initials	Other Initials
VACUUM BREAKER PORT CLEANED & INSPECTED & SPARE ON TRUCK	—	
WATER JET AT MIX HEAD REMOVED, INSPECTED & CLEANED	—	
CEMENTING HEAD INSPECTED & CLEANED	—	
MIX TUB INSPECTED & CLEANED	—	
CENTRIFUGALS GREASED, TIGHTENED & INSPECTED	—	
DECK MOTORS STARTED	—	
VERIFY ALL AIR VALVES ARE FUNCTIONAL	—	
VERIFY ALL VALVES ARE FUNCTIONAL ON BULK TRUCK	—	
VERIFY BERMS ARE ON BULK TRUCK	—	
VERIFY SPARE CEMENT HEAD IS ON BULK TRUCK		
VERIFY 1" TUBING IS ON BULK TRUCK AND ADEQUATELY SECURED	—	
CHECK FOR ADEQUATE SUPPLY OF KCL, DYE AND DEFOAMER	—	
TOP OFF FUEL IN TRUCKS POST TRIP		
VERIFY PARKING METER GAUGE IS ON TRUCK	—	
DRAIN AIR TANKS		

CEMENT HEAD CHECK LIST

	Supervisor Initials	Other Initials
THREADS	KK	
VALVES	KK	
PIN	KK	

COMMENTS: