

Bison Oil Well Cementing Tail & Lead

Cementing Customer Satisfaction Survey

Service Date	10/2/2018
Well Name	EMMY STATE H25-744
County	Weld
State	Colorado
SEC	25
TWP	3N
RNG	65W

Invoice Number	300201
API #	05-123-46970
Job Type	Two Cement
Company Name	Noble Energy Inc.

Customer Representative: GARY

Supervisor Name: JASON KELEHER

Employee Name (Including Supervisor)	Exposure Hours (Per Employee)
JASON	7
JESSE	7
CHRIS	7
DAVE	7
MARCK	7
Total Exposure Hours	35

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

DATE: 10-2-18



**Bison Oil Well Cementing
Tail & Lead**

Date: 10/2/2018
 Invoice # 300201
 API# 05-123-46970
 Foreman: JASON KELEHER

Customer: Noble Energy Inc.
 Well Name: EMMY STATE H25-744

County: Weld Consultant: GARY
 State: Colorado Rig Name & Number: H&P 517
 Distance To Location: 23
 Units On Location: -3103,4039-3214,4041-3205
 Sec: 25 Time Requested: 700
 Twp: 3N Time Arrived On Location: 430
 Range: 65W Time Left Location: 1130

WELL DATA	Cement Data
Casing Size (in) : <u>9.625</u> Casing Weight (lb) : <u>36</u> Casing Depth (ft.) : <u>1,946</u> Total Depth (ft) : <u>1955</u> Open Hole Diameter (in) : <u>13.50</u> Conductor Length (ft) : <u>80</u> Conductor ID : <u>15.25</u> Shoe Joint Length (ft) : <u>49</u> Landing Joint (ft) : <u>5</u> Sacks of Tail Requested <u>100</u> HOC Tail (ft): <u>0</u> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px auto;"> One or the other, cannot have quantity in both </div> Max Rate: <u>8</u> Max Pressure: <u>1500</u>	Lead Cement Name: Cement Density (lb/gal) : <u>13.5</u> Cement Yield (cuft) : <u>1.7</u> Gallons Per Sack <u>9.00</u> % Excess <u>15%</u> Tail Cement Name: Cement Density (lb/gal) : <u>15.2</u> Cement Yield (cuft) : <u>1.27</u> Gallons Per Sack: <u>5.89</u> % Excess: <u>0%</u> Fluid Ahead (bbls) 30.0 H2O Wash Up (bbls) 20.0 Spacer Ahead Makeup 30 BBL WATER DYE IN 2ND 10

Casing ID 8.921 Casing Grade J-55 only used

Lead Calculated Results	Tail Calculated Results
HOC of Lead 1729.41 ft	Tail Cement Volume In Ann 105.56 cuft
Casing Depth - HOC Tail	(HOC Tail) X (OH Ann)
Volume of Lead Cement 926.98 cuft	Total Volume of Tail Cement 127.00 Cuft
HOC of Lead X Open Hole Ann	(HOC Tail X OH Ann) - (Shoe Length X Shoe Joint Ann)
Volume of Conductor 61.04 cuft	bbls of Tail Cement 22.62 bbls
(Conductor ID Squared) -(Casing Size OD Squared) X (.005454) X (Conductor Length ft)	(HOC of Tail) X (OH Ann) + (Cement Yield) X (Shoe Joint Ann) X (.1781) X (% Excess)
Total Volume of Lead Cement 988.04 cuft	HOC Tail 216.09 ft
(cuft of Lead Cement) + (Cuft of Conductor)	(Tail Cement Volume) ÷ (OH Ann)
bbls of Lead Cement 176.20 bbls	Sacks of Tail Cement 100.00 sk
(Total cuft of Lead Cement) X (.1781) X (1+%Lead Excess)	(Total Volume of Tail Cement) ÷ (Cement Yield)
Sacks of Lead Cement 582.00 sk	bbls of Tail Mix Water 14.02 bbls
(Total Slurry Volume) ÷ (Cement Yield) X (% Excess Cement)	(Sacks of Tail Cement X Gallons Per Sack) ÷ 42
bbls of Lead Mix Water 124.70 bbls	Pressure of cement in annulus
(Sacks Needed) X (Gallons Per Sack) ÷ 42	Hydrostatic Pressure 460.00 PSI
Displacement 147.00 bbls	Collapse PSI: 2020.00 psi
(Casing ID Squared) X (.0009714) X (Casing Depth) + (Landing Joint) - (Shoe Length)	Burst PSI: 3520.00 psi
Total Water Needed: 190.00 bbls	

Authorization To Proceed



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

Customer: Noble Energy Inc.
Well Name: EMMY STATE H25-744

Date: 10/2/2018
INVOICE #: 300201
LOCATION: Weld
FOREMAN: JASON KELEHER

DESCRIPTION OF JOB EVENTS

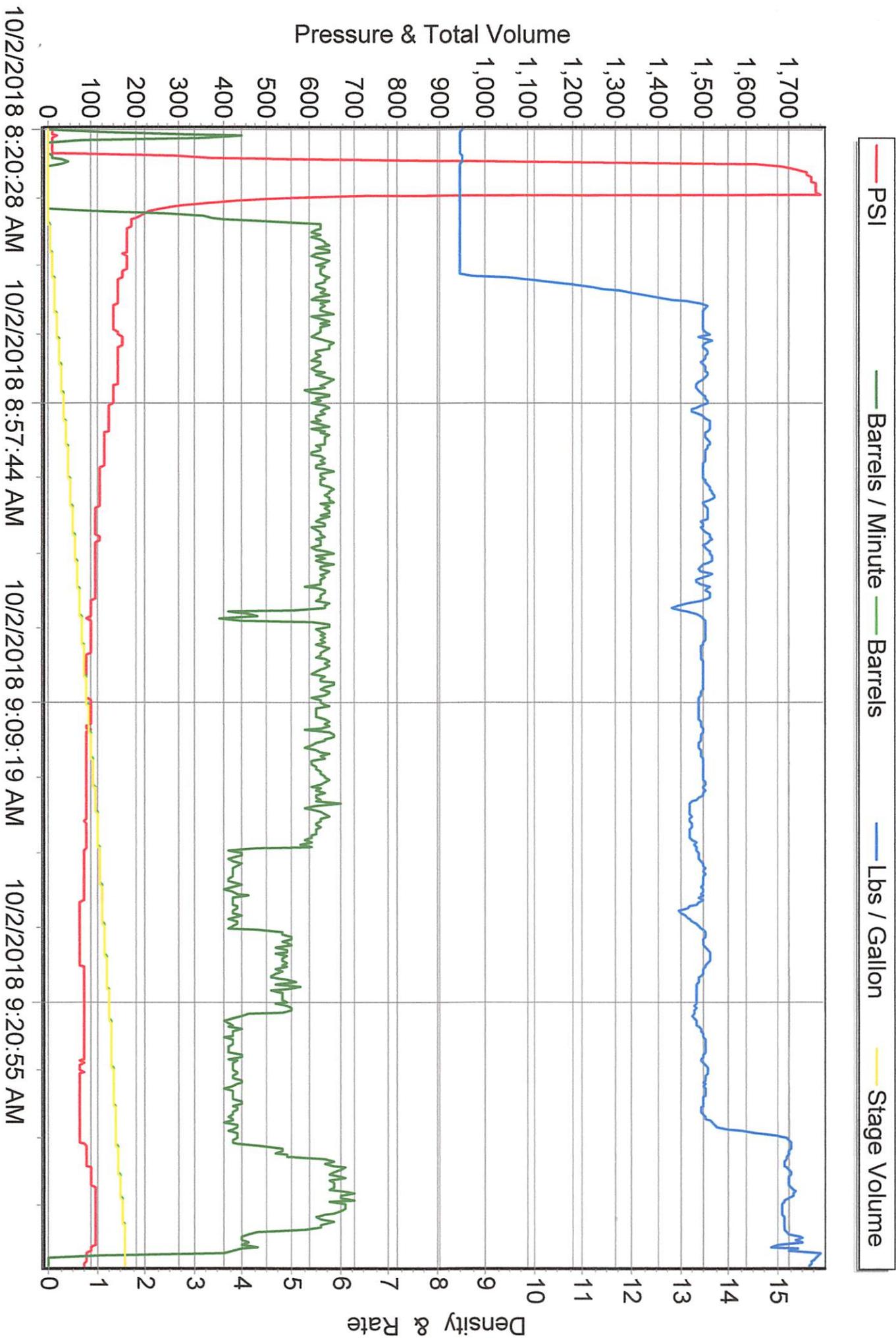
Amount Pumped	Time/Date	Event	Description	Rate	BBLs	Pressure
Lead mixed bbls	124.7	430	ARRIVE ON LOCATION			
Lead % Excess	15%	730	MIRU			
Lead Sacks	582	825	PRE JOB SAFETY MEETING			
		848	PRESSURE TEST LINES			1500
		850	SPACER AHEAD	5.5	30	150
Tail mixed bbls	14	855	LEAD CEMENT	5.5	176.2	90
Tail % Excess	0%	926	TAIL CEMENT	5.5	22.6	100
Tail Sacks	100	931	SHUT DOWN			
		935	DROP PLUG			
Total Sacks	675	935	DISPLACEMENT	1	147	420
Water Temp	60	1000	BUMP PLUG			1370
bbl Returns	39	1016	CHECK FLOATS			1278
		1100	RIG DOWN			
Notes:	1130	LEAVE LOCATION				
			monitered well no top off			

X Mary Stepha
Signature

X WSS
Title

X 10-2-18
Date

EMMY STATE H25-744 SURFACE



Release and Indemnification

Customer acknowledges and assumes the risks associated with oil well drilling, cementing and acidizing, including, without limitation, destabilization, loss of production, contamination, fracturing and loss of well control. Customer agrees to release Bison Oil Well Cementing, Inc., Bison Energy Services, Inc., its agents, employees and assigns, from any and all liability for any and all damages whatsoever to property of any kind owned by, in the possession of, or leased by customer and those persons or entities customer has the ability to bind by contract. Customer also agrees to indemnify and hold harmless Bison Oil Well Cementing, Inc., Bison Energy Services, Inc., its agents, employees and assigns, from and against any and all liability, claims, costs, expenses, attorneys fees and damages whatsoever for claims, costs, expenses, attorneys fees and damages whatsoever for personal injury, illness, death, property damage and loss resulting from: loss or reduction of production, destabilization loss of oil well control, failure of or contamination by acid stimulation, hydraulic fracturing, cementing, pumping services, incompatible fluid or other processes to stimulate, complete or end production, and/or any other condition. Customer's release, indemnity and hold harmless obligation shall apply even if the liability and claims are caused by the sole, concurrent, active or passive negligence, fault, or strict liability of Bison Oil Well Cementing, Inc. and/or Bison Energy Services, Inc. or any defect in the data, products, supplies, materials or equipment furnished by Bison Oil Well Cementing, Inc. whether in the design, manufacturing, maintenance, or marketing thereof or from failure to warn of such defect. In the event that any portion of this release and indemnity is found by a court of competent jurisdiction to be inoperable or unenforceable, the remaining portions and provisions shall apply, and customer agrees that the contract price herein shall be the limit of Bison Oil Well Cementing, Inc.'s liability, if any.