

Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

Form ACO-1

January 2018

Form must be Typed

Form must be Signed

All blanks must be Filled

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # _____

Name: _____

Address 1: _____

Address 2: _____

City: _____ State: _____ Zip: _____ + _____

Contact Person: _____

Phone: (_____) _____

CONTRACTOR: License # _____

Name: _____

Wellsite Geologist: _____

Purchaser: _____

Designate Type of Completion:

New Well Re-Entry Workover

Oil WSW SWD

Gas DH EOR

OG GSW

CM (Coal Bed Methane)

Cathodic Other (Core, Expl., etc.): _____

If Workover/Re-entry: Old Well Info as follows:

Operator: _____

Well Name: _____

Original Comp. Date: _____ Original Total Depth: _____

Deepening Re-perf. Conv. to EOR Conv. to SWD

Plug Back Liner Conv. to GSW Conv. to Producer

Commingled Permit #: _____

Dual Completion Permit #: _____

SWD Permit #: _____

EOR Permit #: _____

GSW Permit #: _____

Spud Date or Date Reached TD Completion Date or Recompletion Date

API No.: _____

Spot Description: _____

_____ - _____ - _____ Sec. _____ Twp. _____ S. R. _____ East West

_____ Feet from North / South Line of Section

_____ Feet from East / West Line of Section

Footages Calculated from Nearest Outside Section Corner:

NE NW SE SW

GPS Location: Lat: _____, Long: _____
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum: NAD27 NAD83 WGS84

County: _____

Lease Name: _____ Well #: _____

Field Name: _____

Producing Formation: _____

Elevation: Ground: _____ Kelly Bushing: _____

Total Vertical Depth: _____ Plug Back Total Depth: _____

Amount of Surface Pipe Set and Cemented at: _____ Feet

Multiple Stage Cementing Collar Used? Yes No

If yes, show depth set: _____ Feet

If Alternate II completion, cement circulated from: _____

feet depth to: _____ w/ _____ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: _____ ppm Fluid volume: _____ bbls

Dewatering method used: _____

Location of fluid disposal if hauled offsite:

Operator Name: _____

Lease Name: _____ License #: _____

Quarter _____ Sec. _____ Twp. _____ S. R. _____ East West

County: _____ Permit #: _____

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

Confidentiality Requested

Date: _____

Confidential Release Date: _____

Wireline Log Received Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

ALT I II III Approved by: _____ Date: _____

Operator Name: _____ Lease Name: _____ Well #: _____

Sec. _____ Twp. _____ S. R. _____ East West County: _____

INSTRUCTIONS: Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i> Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No Geologist Report / Mud Logs <input type="checkbox"/> Yes <input type="checkbox"/> No List All E. Logs Run:	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample Name Top Datum
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CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate <input type="checkbox"/> Protect Casing <input type="checkbox"/> Plug Back TD <input type="checkbox"/> Plug Off Zone				

1. Did you perform a hydraulic fracturing treatment on this well? Yes No *(If No, skip questions 2 and 3)*
2. Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? Yes No *(If No, skip question 3)*
3. Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry? Yes No *(If No, fill out Page Three of the ACO-1)*

Date of first Production/Injection or Resumed Production/Injection:	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____				
Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <i>(Submit ACO-4)</i>	PRODUCTION INTERVAL: Top Bottom
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Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record <i>(Amount and Kind of Material Used)</i>

TUBING RECORD:	Size:	Set At:	Packer At:	
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Form	ACO1 - Well Completion
Operator	Murfin Drilling Co., Inc.
Well Name	GARTRELL 1-12
Doc ID	1367977

All Electric Logs Run

DIL
DUCP
MEL
BHCS

Saman Sharifaie

Petroleum Geologist

GEOLOGISTS REPORT

DRILLING TIME AND SAMPLE LOG

COMPANY: **Murfin Drilling Co., Inc.**
LEASE: **Garrett #1-12**

FIELD: **Eldgar**
LOCATION: **1980' N.L. & 730' E.E.L.**
SEC: **12** TWP: **6S** RGE: **20W**

COUNTRY: **Kooks** STATE: **Kansas**
CONTRACTOR: **Murfin Drilling #16**
SPUD: **08/01/17** COMP: **08/09/17**

RTD: **3688'** LTD: **3688'**
WUD UP: **2793'** TYPE MUD: **Chemical**

SAMPLES SAVED FROM: **3000'** TO RTD
DRILLING TIME KEPT FROM: **3000'** TO RTD
SAMPLES EXAMINED FROM: **3000'** TO RTD

GEOLOGICAL SUPERVISION FROM: **2700'**
CND: **D.L. MELI, Sonic**
PRONER: **Hireline**

FORMATION: **Goddessa Comp - Garrett #1**

Formation	Sample Tops	E-log Tops	Struct
Anhydrite	1688 (+428)	1696 (+420)	+4
Base Anhydrite	1728 (+388)	1727 (+389)	+1
Topeka	3098 (+982)	3098 (+982)	-1
Oread	3252 (+1136)	3252 (+1136)	Flat
Heebner	3297 (+1181)	3296 (+1180)	-1
Toronto	3320 (+1204)	3319 (+1203)	Flat
Lansing	3356 (+1240)	3354 (+1238)	Flat
Mount City	3543 (+1427)	3542 (+1426)	-1
Reagan	3586 (+1470)	3585 (+1469)	-3



REMARKS: Due to fair shows of oil in multiple potential pay zones and positive DST results, it is recommended and agreed upon by all parties that production casing be set to further evaluate this well.

Respectfully Submitted,
Saman Sharifaie
Petroleum Geologist

API #15-163-24345
*Tops have been adjusted to electric logs

Curve Track 1	ROP (MinFt)	Gamma (API)	Caliper (Inches)
ROP (MinFt)	0-10	0-100	0-10
Gamma (API)	0-10	0-100	0-10
Caliper (Inches)	0-10	0-100	0-10

Geological Descriptions	Engineering Data
Anhydrite 1696 (+420)	
Base 1727 (+389)	

Geological Descriptions	Engineering Data
DAILY PENETRATION @ 7:00 AM 08/01/17 - Spudded at 12:30 PM 08/02/17 - Drilling at 320' 08/03/17 - Drilling at 1870' 08/04/17 - Drilling at 3015' 08/05/17 - Drilling at 3300' 08/06/17 - Drilling at 3485' 08/07/17 - Logging at 3688'	

Geological Descriptions	Engineering Data
Sh, gry, calc IP; silt to brlt, Tr sil gry Sh, dk gry, pycr, fit Ls, cm,mglytan, moll IP, fn xln, foss IP, no-pr vis por, pt dns to chky, fit, sbang to bkly, shly, nis Ls, cm,lt gry, fn xln, foss, Tr pr mkr Oolc & intbn poc; sil oolc IP, fit, calc IP, pycr, nis Sh, gry, calc IP; silt to brlt, Tr sil gry Ls, cm,lt gry, sil moll, fn xln, foss, pr intfoss & xln por, dns crt, fit to brlt, pycr IP, sbang, Tr Sd, nis Ls, aa, dns to chky, incr Sh abund Sh, gry, pycr IP, calc, sil sily, sil sft Ls, cm,lt gry, varic, moll, fn xln, foss, pr intfoss poc; calc crt, pt dns to chky, sbang, pycr IP, nis Sh, gry, bk, sil carb, pycr, fit to brlt Topeka 3098 (-982) Ls, cm,lt gry, moll IP, fn xln, Oolc, pr intfoss poc; calc crt, pt dns to chky, hd to brlt, sbang, nis Ls, bm, gry, sing, vf xln, Tr, foss, NVR, dns, hd, sbang to bkly, scat gry Sh, nis Ls, bm, mgly, gyl, bk, moll IP, vf xln, Tr, foss, no-pr vis por, dns, calc IP, pycr IP; sbang to bkly, abund gry Sh, Tr Sd, nis Ls, cm,mglytan, fn xln, foss IP, no-pr vis por; pt dns to sub-chky, sil fit to brlt, sbang, nis Sh, gry, calc IP, calc IP, pycr IP; silt brlt Deer Creek 3150 (-1034) Ls, cm,lt gry, vf xln, foss IP, Tr pr pp infoss poc; pred NVR; pt dns to sub-chky, hd to brlt, nis Ls, cm, fn xln, foss, pr fr intbn & pp intfoss poc; fit to brlt, calc, pycr, nis Sh, gry, fit, gn, bk, sil carb, pycr IP Ls, cm, sing, fn xln, pr pp infoss poc; pt dns to sub-chky, calc, pycr IP, nis Ls, aa, bm IP, incr calc, Tr Chl Sh, gry, calc IP, calc IP, pycr IP; silt sft Sh, gry, bm, calc, sil sily, fit LeCompton 3215 (-1099) Ls, cm,lt gry, fn xln, foss IP, Tr pr pp infoss poc; pred NVR; pt dns to sub-chky, calc IP, fit, Tr med bm spkld stn, fly, no odr, NSLO Ls, aa, incr dns & sing, nis Sh, gry, fit, gn, bk, sil carb, pycr IP Ls, & Sh, aa, scat pycr, Tr qtz, nis Oread 3252 (-1136) Ls, cm,lt gry, fn xln, foss, pr int Oolc & pp infoss por, Tr mkr vug, pt dns to sub-chky, brlt to fit, scat (approx 5% of cuttings) med bm stn, pt sat, sil bld ind pp FO, m G Bubbis, no fluor, gd odr, VSSFO Ls, cm, sing, vf xln, NVR, dns, sbang, Tr Chl, nis Ls, cm,lt gry, fn xln, foss IP, Tr pr intbn & foss por, dns to chky, sbang, shly, nis Ls, aa, calc IP, Tr pycr, Tr fit, gry op Chl Ls, cm,lt gry, fn xln, Tr, foss, no-pr vis por; pt dns to sub-chky, fit, sbang, calc IP, chly, Tr did bm stn, no odr, NSLO Heebner 3296 (-1180) Sh, bk carb, pycr, fess IP Sh, fit, gry, fit, gn, sil sily to mly Toronto 3319 (-1203) Ls, cm,lt gry, fn xln, foss IP, Tr pr pp infoss poc; pt dns to sub-chky, calc IP, fit, Tr med bm spkld stn, v fit sat, Tr fit bm FO bld on bk, no odr, VSSFO Lansing 3334 (-1218) Ls, cm, fn xln, foss, Oolc IP, pr pp infoss & micr vug; calc dns to sub-chky, fit to brlt, scat fr med bm spkld stn, fit pt sat, sil bld pp FO, ind IP, dyl fluor, fr cut, gd gsd odr, SFSO Ls, aa, wht IP, calc dns, decr por & Shw abund, pred NVR, sbang, incr sub-chky to chky pos, fr odr, NSFO Sh, gry, fit, gn, bk, sil sily to gry IP Ls, cm, fn xln, Oolc, pr int Oolc & frac, Tr xln surf vugs, pt dns to sub-chky, calc IP, fit, Tr med bm spkld stn, v fit sat, Tr fit bm FO bld on bk, ind IP, Tr m fluor, no-pr cut, fit odr, VSSFO Sh, gry, fit, gn, bk, sil sily to gry IP Ls, cm,lt gry, fn xln, foss IP, pr pp infoss poc; pt dns to sub-chky, calc crt, fit to silt brlt, shly, Tr Chl, Tr med bm spkld stn, fit pt sat, sil bld pp FO, ind IP, m G Bubbis, no fluor, fr odr, VSSFO Sh, gry, fit, gn, sil sily, pycr IP Ls, cm,lt gry, fn xln, foss IP, pr intbn & frac por, Tr xln vugs, calc dns to brlt, calc, sbang, Tr Chl, m med bm spkld stn, v fit sat, sil bld ind pp FO, fit odr, VSSFO Ls, cm,lt gry, fn xln, Oolc IP, fr pp infoss & xln poc; scat xln vugs, pt dns, calc, brlt to fit, fr med bm spkld stn, sub-sat, sil bld pp FO, ind OCV, scat G Bubbis, y fluor, fr cut, gd odr, S-FSFO Ls, cm,lt gry, fn xln, Tr, foss, pr intfoss & xln por, pred NVR; pt dns to sub-chky, fit to sbang, r bm spkld stn, v fit sat, Tr m fluor, v fit odr, NSFO Ls, cm,lt gry, fn xln, NVR, dns, bkly to sbang, nis Sh, gry, bk, carb, pycr, fess IP Ls, cm,lt gry, fn xln, Oolc IP, pr pp infoss poc; calc crt, pt dns to sub-chky, fit, Tr Chl, m med bm spkld stn, v fit sat, no odr, NSFO Ls, cm, sing, fn xln, foss, no-pr vis poc; dns to sub-chky, sil bkly, chly, nis Sh, gry, fit, gn, varic, sil sily Ls, bm, cm, sing, vf xln, pr intbn poc; dns to sub-chky, bkly to sbang, frant med-bk bm spkld stn, fit mod sat, sil bld pp FO, ind OCV, no fluor, fr odr, S-FSFO Sh, bm, idk, omg, sily Ls, cm,lt gry, fn xln, foss, pr intfoss & pp infoss poc; vuggy IP; pt dns to sub-chky, fit, frant med-bk bm stn, fit mod sat, abund FO bld, mod-hvy OCV, ind, frant G Bubbis, gd odr, F-GSFO Stark 3509 (-1393) Sh, gry, fit, gn, bk, sil carb, sil sily IP, Tr pycr Ls, cm,lt gry, fn xln, Tr, foss, Tr pr intbn & pp infoss poc, pred NVR; pt dns to sub-chky, bkly, fit, Tr med bm spkld stn, v fit sat, Tr FO bld on bk, fit, ind, v fit odr, VSSFO Ls, cm,lt gry, fn xln, Oolc, NVR; dns to sub-chky, calc crt, sbang, nis Mount City 3542 (-1426) Sh, gry, fit, gn, sil sily, pycr IP Sh, bm, idk, omg, gry Ls, cm, sing, vf xln, NVR; dns to sub-chky, sbang, nis Sh, gry, sil carb, fess IP Gorham Sd 3576 (-1460) Sat, fit, purp tan, vf gr, srt, pr intgan por; sub-mdd, shly, fit to argl, r bm spks of stn, v fit sat, Tr med bm spkld stn, v fit odr, VSSFO Reagan Sd 3585 (-1469) Sat, chlt, gry, wht, fr-cs gr; mod-pr srt, fr intgan por; fit to brlt, frant med-bk bm stn, fit mod sat, frant FO bld, m G Bubbis, no fluor, gd odr, FSFO Sat, dk med-lg gr; pr-mod srt, gd intgan por; w stks of med bm LO stn, fit mod sat, consl, fit, mod to sbang, frant FO bld, ind hvy OCV, gd odr, GSFO Sat, aa, fr-med gr; incr srt, pycr IP, incr Sh abund, Tr sly, v gd odr, GSFO Sh, bmlt, gn, sily to snyd, pycr IP Sh, aa, incr snyd Sat, chlv, varic, moll, med-lg gr; pr srt, pr vis por, retd, calc, consl, scat dd bk stn, no odr, NSLO Sh, gry, fit, gn, sil sily, fit Sh, bm, gry, varic, sbang, sly, fit, pycr IP Sh, fit, gn, bm, sily to snyd, calc, fit to silt brlt RTD 3688 (-1572) Deviation Survey @ 3688': 1'	Morgan Mud @ 3067' Wt: 8.6 Vis: 5.0 Wl: 6.8 Chl: 900 LCM: #0 DST #1 (Oread) 3225'-3269' 30-60-60-90 IF: Blow built to 2 1/4" FF: Blow built to 1/2" Rec: 60' W (100%W), 40' MW (25%M, 75%W) IFP: 22 - 42 FFP: 47 - 70 ISIP: 1099 FSIP: 1087 IHP: 1541 FHP: 1511 BHT: 103° RW: .15 @ 65° F Chl: 54,000 PPM Pipe Strip @ 3269': 0.5' Short to Board Deviation Survey, 1'

Geological Descriptions	Engineering Data
Sh, gry, calc IP; silt to brlt, Tr sil gry Sh, dk gry, pycr, fit Ls, cm,mglytan, moll IP, fn xln, foss IP, no-pr vis por, pt dns to chky, fit, sbang to bkly, shly, nis Ls, cm,lt gry, fn xln, foss, Tr pr mkr Oolc & intbn poc; sil oolc IP, fit, calc IP, pycr, nis Sh, gry, calc IP; silt to brlt, Tr sil gry Ls, cm,lt gry, sil moll, fn xln, foss, pr intfoss & xln por, dns crt, fit to brlt, pycr IP, sbang, Tr Sd, nis Ls, aa, dns to chky, incr Sh abund Sh, gry, pycr IP, calc, sil sily, sil sft Ls, cm,lt gry, varic, moll, fn xln, foss, pr intfoss poc; calc crt, pt dns to chky, sbang, pycr IP, nis Sh, gry, bk, sil carb, pycr, fit to brlt Topeka 3098 (-982) Ls, cm,lt gry, moll IP, fn xln, Oolc, pr intfoss poc; calc crt, pt dns to chky, hd to brlt, sbang, nis Ls, bm, gry, sing, vf xln, Tr, foss, NVR, dns, hd, sbang to bkly, scat gry Sh, nis Ls, bm, mgly, gyl, bk, moll IP, vf xln, Tr, foss, no-pr vis por, dns, calc IP, pycr IP; sbang to bkly, abund gry Sh, Tr Sd, nis Ls, cm,mglytan, fn xln, foss IP, no-pr vis por; pt dns to sub-chky, sil fit to brlt, sbang, nis Sh, gry, calc IP, calc IP, pycr IP; silt brlt Deer Creek 3150 (-1034) Ls, cm,lt gry, vf xln, foss IP, Tr pr pp infoss poc; pred NVR; pt dns to sub-chky, hd to brlt, nis Ls, cm, fn xln, foss, pr fr intbn & pp intfoss poc; fit to brlt, calc, pycr, nis Sh, gry, fit, gn, bk, sil carb, pycr IP Ls, cm, sing, fn xln, pr pp infoss poc; pt dns to sub-chky, calc, pycr IP, nis Ls, aa, bm IP, incr calc, Tr Chl Sh, gry, calc IP, calc IP, pycr IP; silt sft Sh, gry, bm, calc, sil sily, fit LeCompton 3215 (-1099) Ls, cm,lt gry, fn xln, foss IP, Tr pr pp infoss poc; pred NVR; pt dns to sub-chky, calc IP, fit, Tr med bm spkld stn, fly, no odr, NSLO Ls, aa, incr dns & sing, nis Sh, gry, fit, gn, bk, sil carb, pycr IP Ls, & Sh, aa, scat pycr, Tr qtz, nis Oread 3252 (-1136) Ls, cm,lt gry, fn xln, foss, pr int Oolc & pp infoss por, Tr mkr vug, pt dns to sub-chky, brlt to fit, scat (approx 5% of cuttings) med bm stn, pt sat, sil bld ind pp FO, m G Bubbis, no fluor, gd odr, VSSFO Ls, cm, sing, vf xln, NVR, dns, sbang, Tr Chl, nis Ls, cm,lt gry, fn xln, foss IP, Tr pr intbn & foss por, dns to chky, sbang, shly, nis Ls, aa, calc IP, Tr pycr, Tr fit, gry op Chl Ls, cm,lt gry, fn xln, Tr, foss, no-pr vis por; pt dns to sub-chky, fit, sbang, calc IP, chly, Tr did bm stn, no odr, NSLO Heebner 3296 (-1180) Sh, bk carb, pycr, fess IP Sh, fit, gry, fit, gn, sil sily to mly Toronto 3319 (-1203) Ls, cm,lt gry, fn xln, foss IP, Tr pr pp infoss poc; pt dns to sub-chky, calc IP, fit, Tr med bm spkld stn, v fit sat, Tr fit bm FO bld on bk, no odr, VSSFO Lansing 3334 (-1218) Ls, cm, fn xln, foss, Oolc IP, pr pp infoss & micr vug; calc dns to sub-chky, fit to brlt, scat fr med bm spkld stn, fit pt sat, sil bld pp FO, ind IP, dyl fluor, fr cut, gd gsd odr, SFSO Ls, aa, wht IP, calc dns, decr por & Shw abund, pred NVR, sbang, incr sub-chky to chky pos, fr odr, NSFO Sh, gry, fit, gn, bk, sil sily to gry IP Ls, cm, fn xln, Oolc, pr int Oolc & frac, Tr xln surf vugs, pt dns to sub-chky, calc IP, fit, Tr med bm spkld stn, v fit sat, Tr fit bm FO bld on bk, ind IP, Tr m fluor, no-pr cut, fit odr, VSSFO Sh, gry, fit, gn, bk, sil sily to gry IP Ls, cm,lt gry, fn xln, foss IP, pr pp infoss poc; pt dns to sub-chky, calc crt, fit to silt brlt, shly, Tr Chl, Tr med bm spkld stn, fit pt sat, sil bld pp FO, ind IP, m G Bubbis, no fluor, fr odr, VSSFO Sh, gry, fit, gn, sil sily, pycr IP Ls, cm,lt gry, fn xln, foss IP, pr intbn & frac por, Tr xln vugs, calc dns to brlt, calc, sbang, Tr Chl, m med bm spkld stn, v fit sat, sil bld ind pp FO, fit odr, VSSFO Ls, cm,lt gry, fn xln, Oolc IP, fr pp infoss & xln poc; scat xln vugs, pt dns, calc, brlt to fit, fr med bm spkld stn, sub-sat, sil bld pp FO, ind OCV, scat G Bubbis, y fluor, fr cut, gd odr, S-FSFO Ls, cm,lt gry, fn xln, Tr, foss, pr intfoss & xln por, pred NVR; pt dns to sub-chky, fit to sbang, r bm spkld stn, v fit sat, Tr m fluor, v fit odr, NSFO Ls, cm,lt gry, fn xln, NVR, dns, bkly to sbang, nis Sh, gry, bk, carb, pycr, fess IP Ls, cm,lt gry, fn xln, Oolc IP, pr pp infoss poc; calc crt, pt dns to sub-chky, fit, Tr Chl, m med bm spkld stn, v fit sat, no odr, NSFO Ls, cm, sing, fn xln, foss, no-pr vis poc; dns to sub-chky, sil bkly, chly, nis Sh, gry, fit, gn, varic, sil sily Ls, bm, cm, sing, vf xln, pr intbn poc; dns to sub-chky, bkly to sbang, frant med-bk bm spkld stn, fit mod sat, sil bld pp FO, ind OCV, no fluor, fr odr, S-FSFO Sh, bm, idk, omg, sily Ls, cm,lt gry, fn xln, foss, pr intfoss & pp infoss poc; vuggy IP; pt dns to sub-chky, fit, frant med-bk bm stn, fit mod sat, abund FO bld, mod-hvy OCV, ind, frant G Bubbis, gd odr, F-GSFO Stark 3509 (-1393) Sh, gry, fit, gn, bk, sil carb, sil sily IP, Tr pycr Ls, cm,lt gry, fn xln, Tr, foss, Tr pr intbn & pp infoss poc, pred NVR; pt dns to sub-chky, bkly, fit, Tr med bm spkld stn, v fit sat, Tr FO bld on bk, fit, ind, v fit odr, VSSFO Ls, cm,lt gry, fn xln, Oolc, NVR; dns to sub-chky, calc crt, sbang, nis Mount City 3542 (-1426) Sh, gry, fit, gn, sil sily, pycr IP Sh, bm, idk, omg, gry Ls, cm, sing, vf xln, NVR; dns to sub-chky, sbang, nis Sh, gry, sil carb, fess IP Gorham Sd 3576 (-1460) Sat, fit, purp tan, vf gr, srt, pr intgan por; sub-mdd, shly, fit to argl, r bm spks of stn, v fit sat, Tr med bm spkld stn, v fit odr, VSSFO Reagan Sd 3585 (-1469) Sat, chlt, gry, wht, fr-cs gr; mod-pr srt, fr intgan por; fit to brlt, frant med-bk bm stn, fit mod sat, frant FO bld, m G Bubbis, no fluor, gd odr, FSFO Sat, dk med-lg gr; pr-mod srt, gd intgan por; w stks of med bm LO stn, fit mod sat, consl, fit, mod to sbang, frant FO bld, ind hvy OCV, gd odr, GSFO Sat, aa, fr-med gr; incr srt, pycr IP, incr Sh abund, Tr sly, v gd odr, GSFO Sh, bmlt, gn, sily to snyd, pycr IP Sh, aa, incr snyd Sat, chlv, varic, moll, med-lg gr; pr srt, pr vis por, retd, calc, consl, scat dd bk stn, no odr, NSLO Sh, gry, fit, gn, sil sily, fit Sh, bm, gry, varic, sbang, sly, fit, pycr IP Sh, fit, gn, bm, sily to snyd, calc, fit to silt brlt RTD 3688 (-1572) Deviation Survey @ 3688': 1'	Morgan Mud @ 3340' Wt: 8.8 Vis: 6.0 Wl: 6.8 Chl: 1,000 LCM: #0 DST #2 (LKC A-G) 3330'-3440' 30-60-30-60 IF: Blow built to 1" FF: Weak surface blow Rec: 1' CO (100%O), 90' MW (10%M, 90%W) IFP: 25 - 53 FFP: 56 - 73 ISIP: 1078 FSIP: 1032 IHP: 1600 FHP: 1581 BHT: 103° RW: .12 @ 65° F Chl: 68,000 PPM Pipe Strip @ 3389': 0.5' Short to Board Deviation Survey, 1'

Geological Descriptions	Engineering Data
Sh, gry, calc IP; silt to brlt, Tr sil gry Sh, dk gry, pycr, fit Ls, cm,mglytan, moll IP, fn xln, foss IP, no-pr vis por, pt dns to chky, fit, sbang to bkly, shly, nis Ls, cm,lt gry, fn xln, foss, Tr pr mkr Oolc & intbn poc; sil oolc IP, fit, calc IP, pycr, nis Sh, gry, calc IP; silt to brlt, Tr sil gry Ls, cm,lt gry, sil moll, fn xln, foss, pr intfoss & xln por, dns crt, fit to brlt, pycr IP, sbang, Tr Sd, nis Ls, aa, dns to chky, incr Sh abund Sh, gry, pycr IP, calc, sil sily, sil sft Ls, cm,lt gry, varic, moll, fn xln, foss, pr intfoss poc; calc crt, pt dns to chky, sbang, pycr IP, nis Sh, gry, bk, sil carb, pycr, fit to brlt Topeka 3098 (-982) Ls, cm,lt gry, moll IP, fn xln, Oolc, pr intfoss poc; calc crt, pt dns to chky, hd to brlt, sbang, nis Ls, bm, gry, sing, vf xln, Tr, foss, NVR, dns, hd, sbang to bkly, scat gry Sh, nis Ls, bm, mgly, gyl, bk, moll IP, vf xln, Tr, foss, no-pr vis por, dns, calc IP, pycr IP; sbang to bkly, abund gry Sh, Tr Sd, nis Ls, cm,mglytan, fn xln, foss IP, no-pr vis por; pt dns to sub-chky, sil fit to brlt, sbang, nis Sh, gry, calc IP, calc IP, pycr IP; silt brlt Deer Creek 3150 (-1034) Ls, cm,lt gry, vf xln, foss IP, Tr pr pp infoss poc; pred NVR; pt dns to sub-chky, hd to brlt, nis Ls, cm, fn xln, foss, pr fr intbn & pp intfoss poc; fit to brlt, calc, pycr, nis Sh, gry, fit, gn, bk, sil carb, pycr IP Ls, cm, sing, fn xln, pr pp infoss poc; pt dns to sub-chky, calc, pycr IP, nis Ls, aa, bm IP, incr calc, Tr Chl Sh, gry, calc IP, calc IP, pycr IP; silt sft Sh, gry, bm, calc, sil sily, fit LeCompton 3215 (-1099) Ls, cm,lt gry, fn xln, foss IP, Tr pr pp infoss poc; pred NVR; pt dns to sub-chky, calc IP, fit, Tr med bm spkld stn, fly, no odr, NSLO Ls, aa, incr dns & sing, nis Sh, gry, fit, gn, bk, sil carb, pycr IP Ls, & Sh, aa, scat pycr, Tr qtz, nis Oread 3252 (-1136) Ls, cm,lt gry, fn xln, foss, pr int Oolc & pp infoss por, Tr mkr vug, pt dns to sub-chky, brlt to fit, scat (approx 5% of cuttings) med bm stn, pt sat, sil bld ind pp FO, m G Bubbis, no fluor, gd odr, VSSFO Ls, cm, sing, vf xln, NVR, dns, sbang, Tr Chl, nis Ls, cm,lt gry, fn xln, foss IP, Tr pr intbn & foss por, dns to chky, sbang, shly, nis Ls, aa, calc IP, Tr pycr, Tr fit, gry op Chl Ls, cm,lt gry, fn xln, Tr, foss, no-pr vis por; pt dns to sub-chky, fit, sbang, calc IP, chly, Tr did bm stn, no odr, NSLO Heebner 3296 (-1180) Sh, bk carb, pycr, fess IP Sh, fit, gry, fit, gn, sil sily to mly Toronto 3319 (-1203) Ls, cm,lt gry, fn xln, foss IP, Tr pr pp infoss poc; pt dns to sub-chky, calc IP, fit, Tr med bm spkld stn, v fit sat, Tr fit bm FO bld on bk, no odr, VSSFO Lansing 3334 (-1218) Ls, cm, fn xln, foss, Oolc IP, pr pp infoss & micr vug; calc dns to sub-chky, fit to brlt, scat fr med bm spkld stn, fit pt sat, sil bld pp FO, ind IP, dyl fluor, fr cut, gd gsd odr, SFSO Ls, aa, wht IP, calc dns, decr por & Shw abund, pred NVR, sbang, incr sub-chky to chky pos, fr odr, NSFO Sh, gry, fit, gn, bk, sil sily to gry IP Ls, cm, fn xln, Oolc, pr int Oolc & frac, Tr xln surf vugs, pt dns to sub-chky, calc IP, fit, Tr med bm spkld stn, v fit sat, Tr fit bm FO bld on bk, ind IP, Tr m fluor, no-pr cut, fit odr, VSSFO Sh, gry, fit, gn, bk, sil sily to gry IP Ls, cm,lt gry, fn xln, foss IP, pr pp infoss poc; pt dns to sub-chky, calc crt, fit to silt brlt, shly, Tr Chl, Tr med bm spkld stn, fit pt sat, sil bld pp FO, ind IP, m G Bubbis, no fluor, fr odr, VSSFO Sh, gry, fit, gn, sil sily, pycr IP Ls, cm,lt gry, fn xln, foss IP, pr intbn & frac por, Tr xln vugs, calc dns to brlt, calc, sbang, Tr Chl, m med bm spkld stn, v fit sat, sil bld ind pp FO, fit odr, VSSFO Ls, cm,lt gry, fn xln, Oolc IP, fr pp infoss & xln poc; scat xln vugs, pt dns, calc, brlt to fit, frant med bm spkld stn, sub-sat, sil bld pp FO, ind OCV, scat G Bubbis, y fluor, fr cut, gd odr, S-FSFO Ls, cm,lt gry, fn xln, Tr, foss, pr intfoss & xln por, pred NVR; pt dns to sub-chky, fit to sbang, r bm spkld stn, v fit sat, Tr m fluor, v fit odr, NSFO Ls, cm,lt gry, fn xln, NVR, dns, bkly to sbang, nis Sh, gry, bk, carb, pycr, fess IP Ls, cm,lt gry, fn xln, Oolc IP, pr pp infoss poc; calc crt, pt dns to sub-chky, fit, Tr Chl, m med bm spkld stn, v fit sat, no odr, NSFO Ls, cm, sing, fn xln, foss, no-pr vis poc; dns to sub-chky, sil bkly, chly, nis Sh, gry, fit, gn, varic, sil sily Ls, bm, cm, sing, vf xln, pr intbn poc; dns to sub-chky, bkly to sbang, frant med-bk bm spkld stn, fit mod sat, sil bld pp FO, ind OCV, no fluor, fr odr, S-FSFO Sh, bm, idk, omg, sily Ls, cm,lt gry, fn xln, foss, pr intfoss & pp infoss poc; vuggy IP; pt dns to sub-chky, fit, frant med-bk bm stn, fit mod sat, abund FO bld, mod-hvy OCV, ind, frant G Bubbis, gd odr, F-GSFO Stark 3509 (-1393) Sh, gry, fit, gn, bk, sil carb, sil sily IP, Tr pycr Ls, cm,lt gry, fn xln, Tr, foss, Tr pr intbn & pp infoss poc, pred NVR; pt dns to sub-chky, bkly, fit, Tr med bm spkld stn, v fit sat, Tr FO bld on bk, fit, ind, v fit odr, VSSFO Ls, cm,lt gry, fn xln, Oolc, NVR; dns to sub-chky, calc crt, sbang, nis Mount City 3542 (-1426) Sh, gry, fit, gn, sil sily, pycr IP Sh, bm, idk, omg, gry Ls, cm, sing, vf xln, NVR; dns to sub-chky, sbang, nis Sh, gry, sil carb, fess IP Gorham Sd 3576 (-1460) Sat, fit, purp tan, vf gr, srt, pr intgan por; sub-mdd, shly, fit to argl, r bm spks of stn, v fit sat, Tr med bm spkld stn, v fit odr, VSSFO Reagan Sd 3585 (-1469) Sat, chlt, gry, wht, fr-cs gr; mod-pr srt, fr intgan por; fit to brlt, frant med-bk bm stn, fit mod sat, frant FO bld, m G Bubbis, no fluor, gd odr, FSFO Sat, dk med-lg gr; pr-mod srt, gd intgan por; w stks of med bm LO stn, fit mod sat, consl, fit, mod to sbang, frant FO bld, ind hvy OCV, gd odr, GSFO Sat, aa, fr-med gr; incr srt, pycr IP, incr Sh abund, Tr sly, v gd odr, GSFO Sh, bmlt, gn, sily to snyd, pycr IP Sh, aa, incr snyd Sat, chlv, varic, moll, med-lg gr; pr srt, pr vis por, retd, calc, consl, scat dd bk stn, no odr, NSLO Sh, gry, fit, gn, sil sily, fit Sh, bm, gry, varic, sbang, sly, fit, pycr IP Sh, fit, gn, bm, sily to snyd, calc, fit to silt brlt RTD 3688 (-1572) Deviation Survey @ 3688': 1'	Morgan Mud @ 3510' Wt: 5.2 Vis: 7.2 Wl: 1,200



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N. Water STE 300
Wichita KS 67202-1216

ATTN: Samam Sharifaie

Gartrell #1-12

12-6s-20w Rooks,KS

Start Date: 2017.08.04 @ 19:25:52

End Date: 2017.08.05 @ 02:53:31

Job Ticket #: 63006 DST #: 1

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2017.08.08 @ 08:51:13



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co Inc
 250 N. Water STE 300
 Wichita KS 67202-1216
 ATTN: Samam Sharifaie

12-6s-20w Rooks,KS
Gartrell #1-12
 Job Ticket: 63006 **DST#: 1**
 Test Start: 2017.08.04 @ 19:25:52

GENERAL INFORMATION:

Formation: **Oread**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 21:18:47
 Time Test Ended: 02:53:31
 Interval: **3225.00 ft (KB) To 3269.00 ft (KB) (TVD)**
 Total Depth: 3269.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Ray Schwager
 Unit No: 77
 Reference Elevations: 2116.00 ft (KB)
 2111.00 ft (CF)
 KB to GR/CF: 5.00 ft

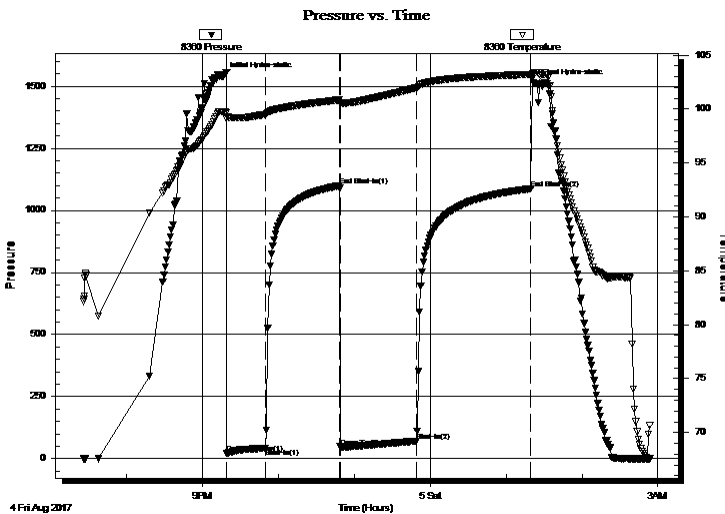
Serial #: 8360

Inside

Press@RunDepth: 70.31 psig @ 3233.00 ft (KB)
 Start Date: 2017.08.04 End Date: 2017.08.05
 Start Time: 19:25:52 End Time: 02:53:31
 Capacity: 8000.00 psig
 Last Calib.: 2017.08.05
 Time On Btm: 2017.08.04 @ 21:16:17
 Time Off Btm: 2017.08.05 @ 01:22:46

TEST COMMENT: 30-IFP-w k bl thru-out 1/4" to 2 1/4" bl
 60-ISIP-no bl bk
 60-FFP-w k bl thru-out Surface to 1/4" bl
 90-FSIP-no bl bk

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1540.53	99.73	Initial Hydro-static
3	22.47	99.13	Open To Flow (1)
34	41.69	99.51	Shut-In(1)
92	1099.05	100.85	End Shut-In(1)
93	47.08	100.47	Open To Flow (2)
153	70.31	101.98	Shut-In(2)
244	1087.11	103.22	End Shut-In(2)
247	1510.79	103.38	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	Water	0.57
40.00	Muddy Water 25%M75%W	0.56

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co Inc

12-6s-20w Rooks,KS

250 N. Water STE 300
Wichita KS 67202-1216

Gartrell #1-12

Job Ticket: 63006

DST#: 1

ATTN: Samam Sharifaie

Test Start: 2017.08.04 @ 19:25:52

Tool Information

Drill Pipe:	Length: 3198.00 ft	Diameter: 3.80 inches	Volume: 44.86 bbl	Tool Weight: 2200.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 30.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 45.01 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial 46000.00 lb
Depth to Top Packer:	3225.00 ft			Final 46000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	44.00 ft			
Tool Length:	73.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3197.00	
Shut In Tool	5.00			3202.00	
Hydraulic tool	5.00			3207.00	
Jars	5.00			3212.00	
Safety Joint	3.00			3215.00	
Packer	5.00			3220.00	29.00 Bottom Of Top Packer
Packer	5.00			3225.00	
Stubb	1.00			3226.00	
Perforations	7.00			3233.00	
Recorder	0.00	8360	Inside	3233.00	
Recorder	0.00	8673	Outside	3233.00	
Blank Spacing	33.00			3266.00	
Bullnose	3.00			3269.00	44.00 Bottom Packers & Anchor

Total Tool Length: 73.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co Inc

12-6s-20w Rooks,KS

250 N. Water STE 300
Wichita KS 67202-1216

Gartrell #1-12

Job Ticket: 63006

DST#: 1

ATTN: Samam Sharifaie

Test Start: 2017.08.04 @ 19:25:52

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

54000 ppm

Viscosity: 61.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.73 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 900.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	Water	0.568
40.00	Muddy Water 25%M75%W	0.561

Total Length: 100.00 ft

Total Volume: 1.129 bbl

Num Fluid Samples: 0

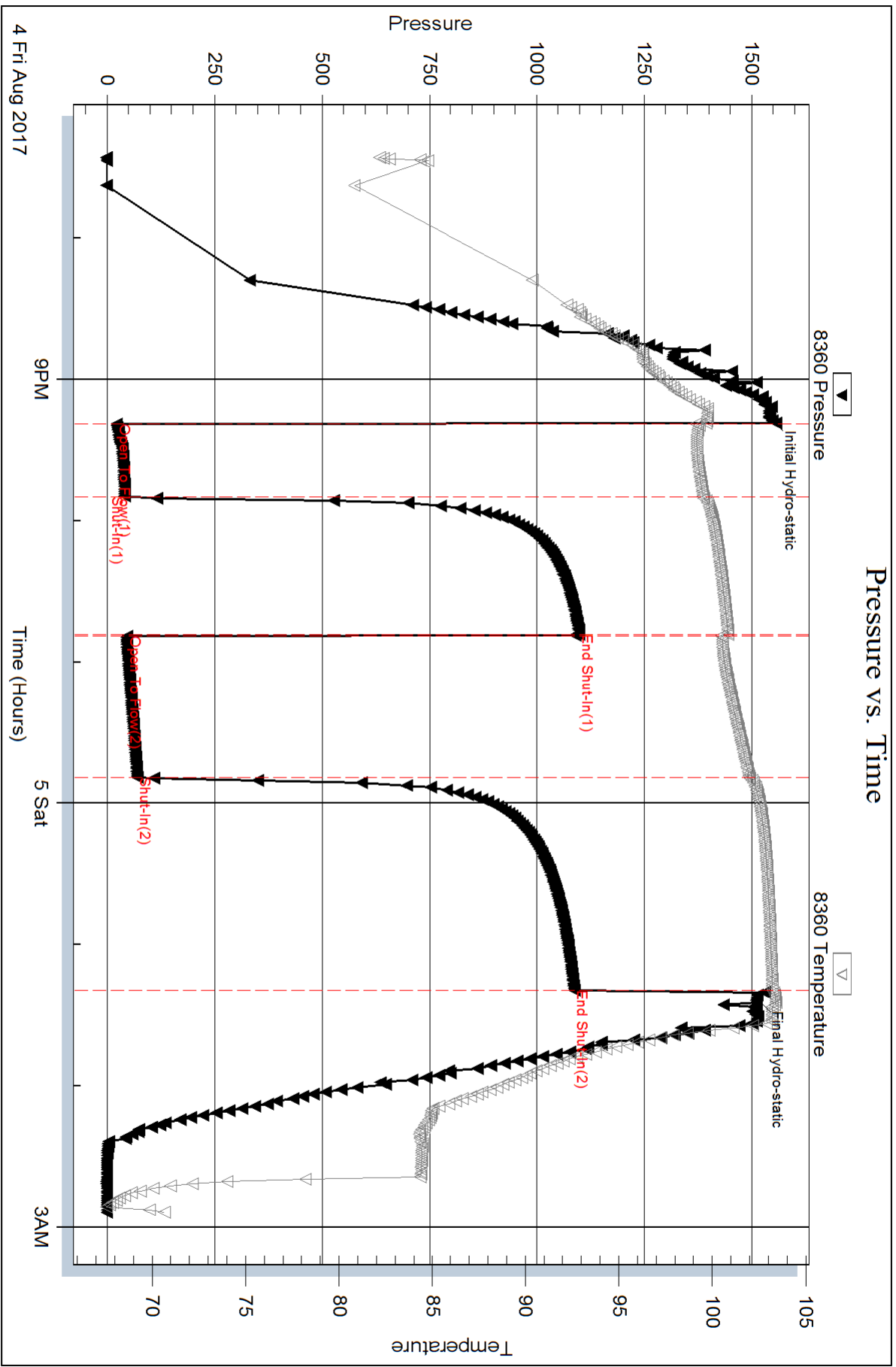
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW .15@ 65F





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N. Water STE 300
Wichita KS 67202-1216

ATTN: Samam Sharifaie

Gartrell #1-12

12-6s-20w Rooks,KS

Start Date: 2017.08.05 @ 18:55:34

End Date: 2017.08.06 @ 00:58:13

Job Ticket #: 63007 DST #: 2

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2017.08.08 @ 08:50:34



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co Inc
 250 N. Water STE 300
 Wichita KS 67202-1216
 ATTN: Samam Sharifaie

12-6s-20w Rooks,KS
Gartrell #1-12
 Job Ticket: 63007 **DST#: 2**
 Test Start: 2017.08.05 @ 18:55:34

GENERAL INFORMATION:

Formation: **LKC "A-G"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 20:26:14
 Time Test Ended: 00:58:13
 Interval: **3330.00 ft (KB) To 3440.00 ft (KB) (TVD)**
 Total Depth: 3440.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Ray Schwager
 Unit No: 77
 Reference Elevations: 2116.00 ft (KB)
 2111.00 ft (CF)
 KB to GR/CF: 5.00 ft

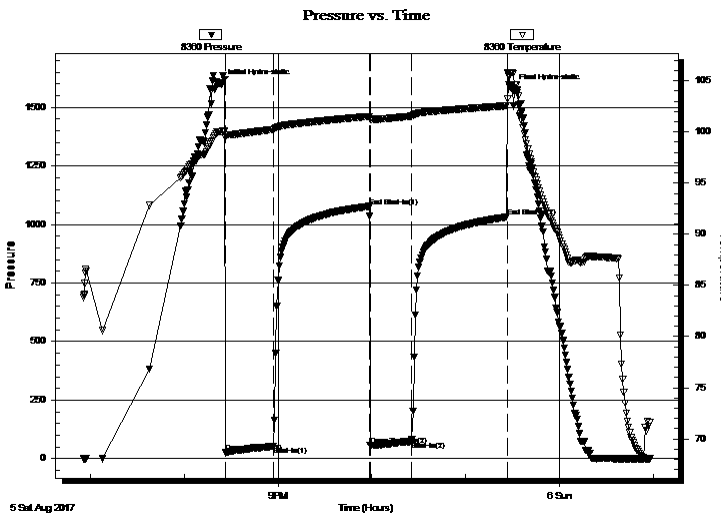
Serial #: 8360

Inside

Press@RunDepth: 73.34 psig @ 3340.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.08.05 End Date: 2017.08.06 Last Calib.: 2017.08.06
 Start Time: 18:55:34 End Time: 00:58:13 Time On Btm: 2017.08.05 @ 20:23:29
 Time Off Btm: 2017.08.05 @ 23:29:43

TEST COMMENT: 30-IFP-w k bl thru-out 1/4" to 1" bl
 60-ISIP-no bl bk
 30-FFP-no bl first 20 min, then very w k surface bl
 60-FSIP-no bl

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1599.96	100.02	Initial Hydro-static
3	25.25	99.42	Open To Flow (1)
34	52.51	100.24	Shut-In(1)
95	1077.63	101.52	End Shut-In(1)
96	56.05	101.20	Open To Flow (2)
122	73.34	101.53	Shut-In(2)
183	1032.16	102.56	End Shut-In(2)
187	1580.68	105.82	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
90.00	MW 10%M90%W	0.99
1.00	CO	0.01

* Recovery from multiple tests

Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co Inc

12-6s-20w Rooks,KS

250 N. Water STE 300
Wichita KS 67202-1216

Gartrell #1-12

Job Ticket: 63007

DST#: 2

ATTN: Samam Sharifaie

Test Start: 2017.08.05 @ 18:55:34

Tool Information

Drill Pipe:	Length: 3292.00 ft	Diameter: 3.80 inches	Volume: 46.18 bbl	Tool Weight: 2200.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 30.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 46.33 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	21.00 ft			String Weight: Initial 46000.00 lb
Depth to Top Packer:	3330.00 ft			Final 46000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	110.00 ft			
Tool Length:	139.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3302.00	
Shut In Tool	5.00			3307.00	
Hydraulic tool	5.00			3312.00	
Jars	5.00			3317.00	
Safety Joint	3.00			3320.00	
Packer	5.00			3325.00	29.00 Bottom Of Top Packer
Packer	5.00			3330.00	
Stubb	1.00			3331.00	
Perforations	9.00			3340.00	
Recorder	0.00	8360	Inside	3340.00	
Recorder	0.00	8673	Outside	3340.00	
Blank Spacing	97.00			3437.00	
Bullnose	3.00			3440.00	110.00 Bottom Packers & Anchor

Total Tool Length: 139.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co Inc

12-6s-20w Rooks,KS

250 N. Water STE 300
Wichita KS 67202-1216

Gartrell #1-12

Job Ticket: 63007

DST#: 2

ATTN: Samam Sharifaie

Test Start: 2017.08.05 @ 18:55:34

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

68000 ppm

Viscosity: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.75 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
90.00	MW 10%M90%W	0.989
1.00	CO	0.014

Total Length: 91.00 ft Total Volume: 1.003 bbl

Num Fluid Samples: 0

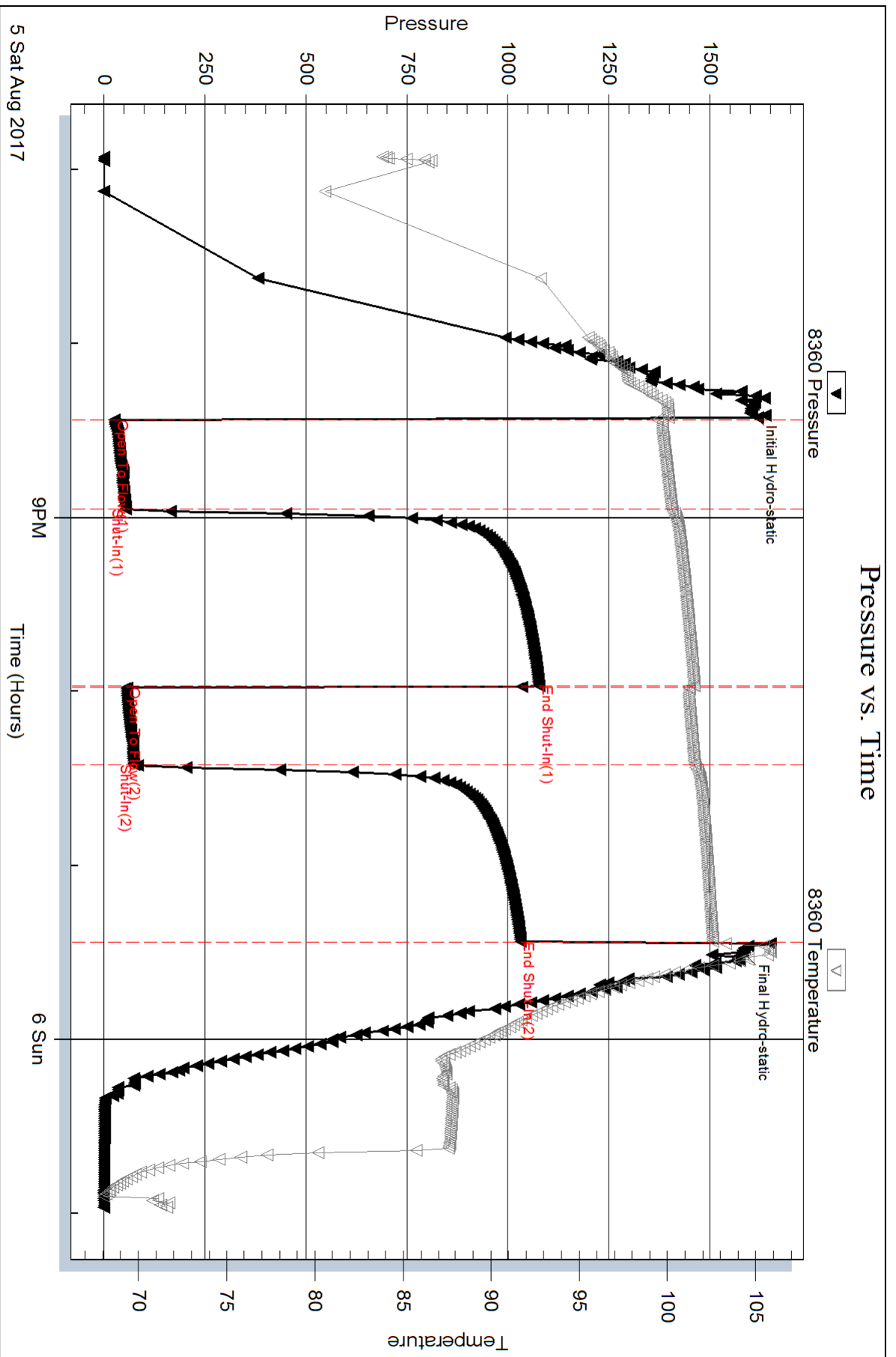
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW .12@65F

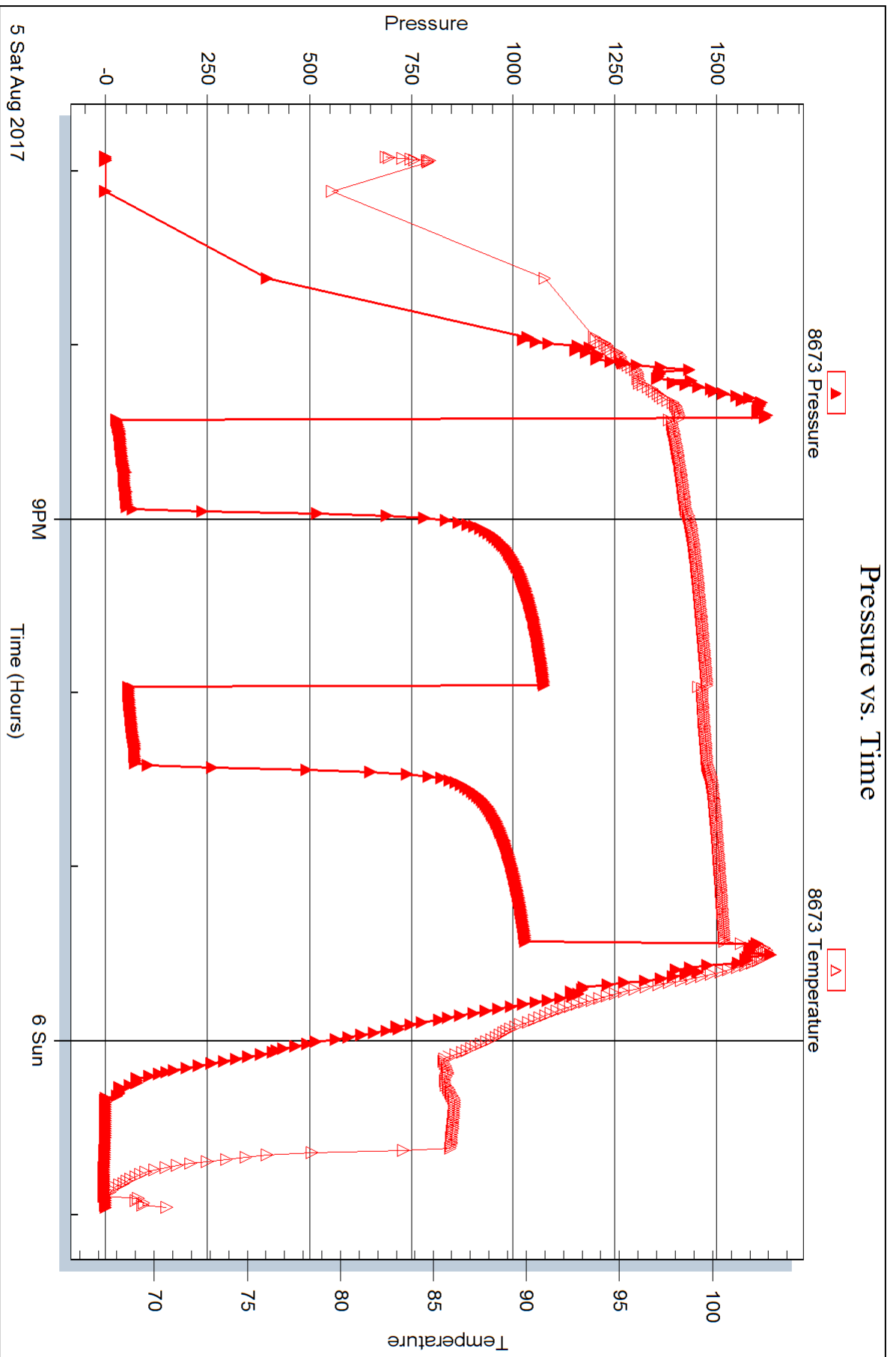


Serial #: 8673

Outside Murfin Drilling Co Inc

Gartrell #1-12

DST Test Number: 2





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N. Water STE 300
Wichita KS 67202-1216

ATTN: Samam Sharifaie

Gartrell #1-12

12-6s-20w Rooks,KS

Start Date: 2017.08.06 @ 10:20:55

End Date: 2017.08.06 @ 16:04:34

Job Ticket #: 63008 DST #: 3

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2017.08.08 @ 08:50:01



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co Inc
 250 N. Water STE 300
 Wichita KS 67202-1216
 ATTN: Samam Sharifaie

12-6s-20w Rooks,KS
Gartrell #1-12
 Job Ticket: 63008 **DST#: 3**
 Test Start: 2017.08.06 @ 10:20:55

GENERAL INFORMATION:

Formation: **LKC H-J**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 11:47:05
 Tester: Ray Schwager
 Time Test Ended: 16:04:34
 Unit No: 77
 Interval: **3445.00 ft (KB) To 3510.00 ft (KB) (TVD)**
 Reference Elevations: 2116.00 ft (KB)
 Total Depth: 3510.00 ft (KB) (TVD)
 2111.00 ft (CF)
 Hole Diameter: 7.88 inches
 Hole Condition: Fair
 KB to GR/CF: 5.00 ft

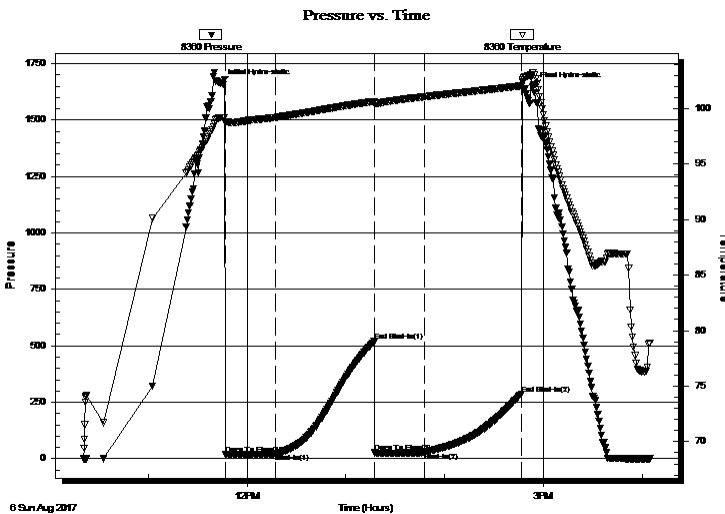
Serial #: 8360

Inside

Press@RunDepth: 29.86 psig @ 3449.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.08.06 End Date: 2017.08.06 Last Calib.: 2017.08.06
 Start Time: 10:20:55 End Time: 16:04:34 Time On Btm: 2017.08.06 @ 11:44:20
 Time Off Btm: 2017.08.06 @ 14:53:34

TEST COMMENT: 30-IFP-w k bl thru-out 1/4" to 1/2" bl
 60-ISIP-no bl
 30-FFP-no bl
 60-FSIP-no bl

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1662.75	99.17	Initial Hydro-static
3	20.24	98.70	Open To Flow (1)
33	21.76	99.19	Shut-In(1)
93	520.03	100.64	End Shut-In(1)
94	26.77	100.40	Open To Flow (2)
124	29.86	101.06	Shut-In(2)
182	286.97	102.03	End Shut-In(2)
190	1648.58	103.24	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	HOCM 35%O65%M	0.02

* Recovery from multiple tests

Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co Inc

12-6s-20w Rooks,KS

250 N. Water STE 300
Wichita KS 67202-1216

Gartrell #1-12

Job Ticket: 63008

DST#: 3

ATTN: Samam Sharifaie

Test Start: 2017.08.06 @ 10:20:55

Tool Information

Drill Pipe:	Length: 3418.00 ft	Diameter: 3.80 inches	Volume: 47.95 bbl	Tool Weight:	2200.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 30.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose:	60000.00 lb
			<u>Total Volume: 48.10 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial	46000.00 lb
Depth to Top Packer:	3445.00 ft			Final	46000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	65.00 ft				
Tool Length:	94.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			
Tool Comments:					

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3417.00	
Shut In Tool	5.00			3422.00	
Hydraulic tool	5.00			3427.00	
Jars	5.00			3432.00	
Safety Joint	3.00			3435.00	
Packer	5.00			3440.00	29.00 Bottom Of Top Packer
Packer	5.00			3445.00	
Stubb	1.00			3446.00	
Perforations	3.00			3449.00	
Recorder	0.00	8360	Inside	3449.00	
Recorder	0.00	8673	Outside	3449.00	
Blank Spacing	33.00			3482.00	
Perforations	25.00			3507.00	
Bullnose	3.00			3510.00	65.00 Bottom Packers & Anchor

Total Tool Length: 94.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co Inc

12-6s-20w Rooks,KS

250 N. Water STE 300
Wichita KS 67202-1216

Gartrell #1-12

Job Ticket: 63008

DST#: 3

ATTN: Samam Sharifaie

Test Start: 2017.08.06 @ 10:20:55

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 52.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.73 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
5.00	HOCM 35%O65%M	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

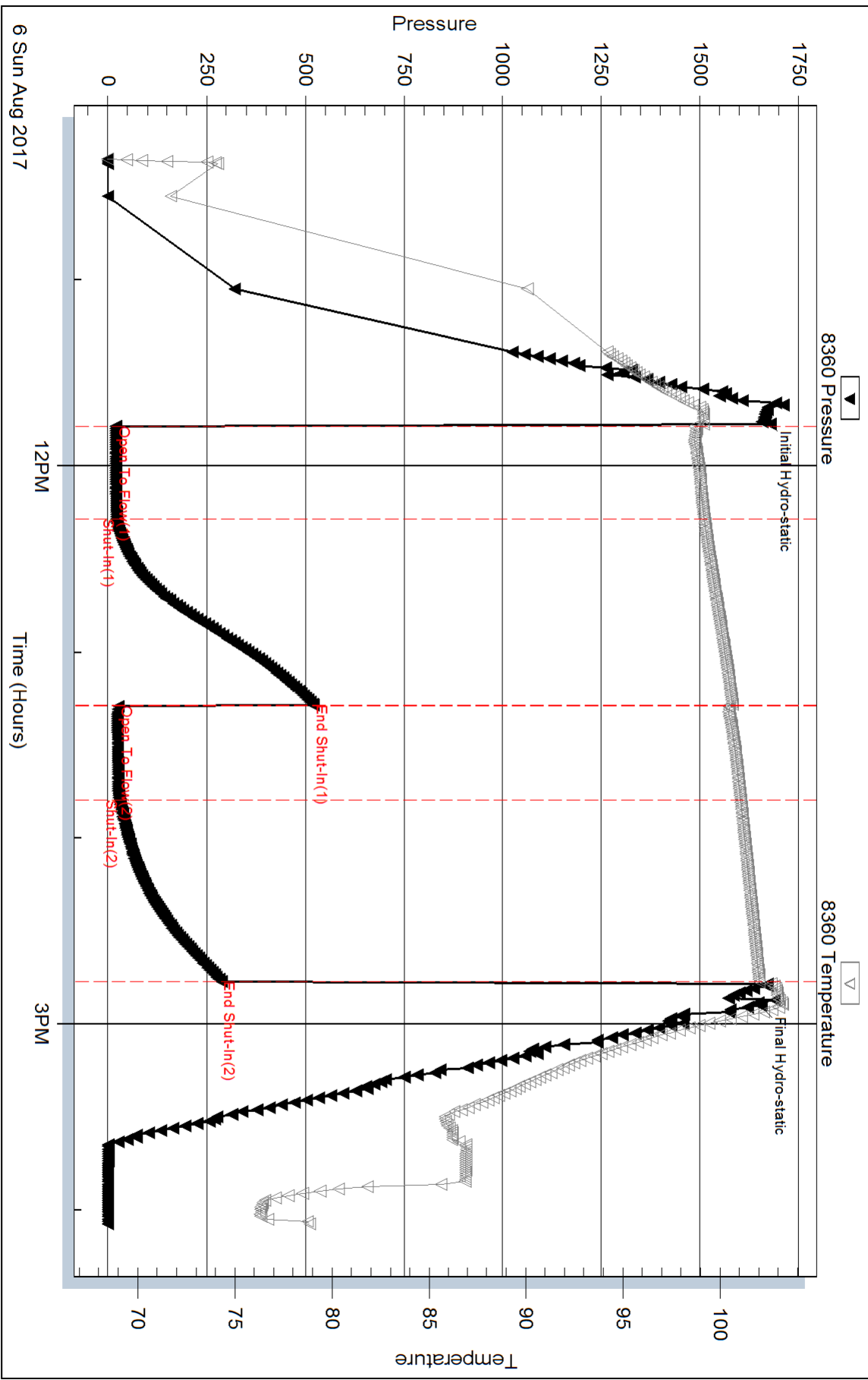
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time

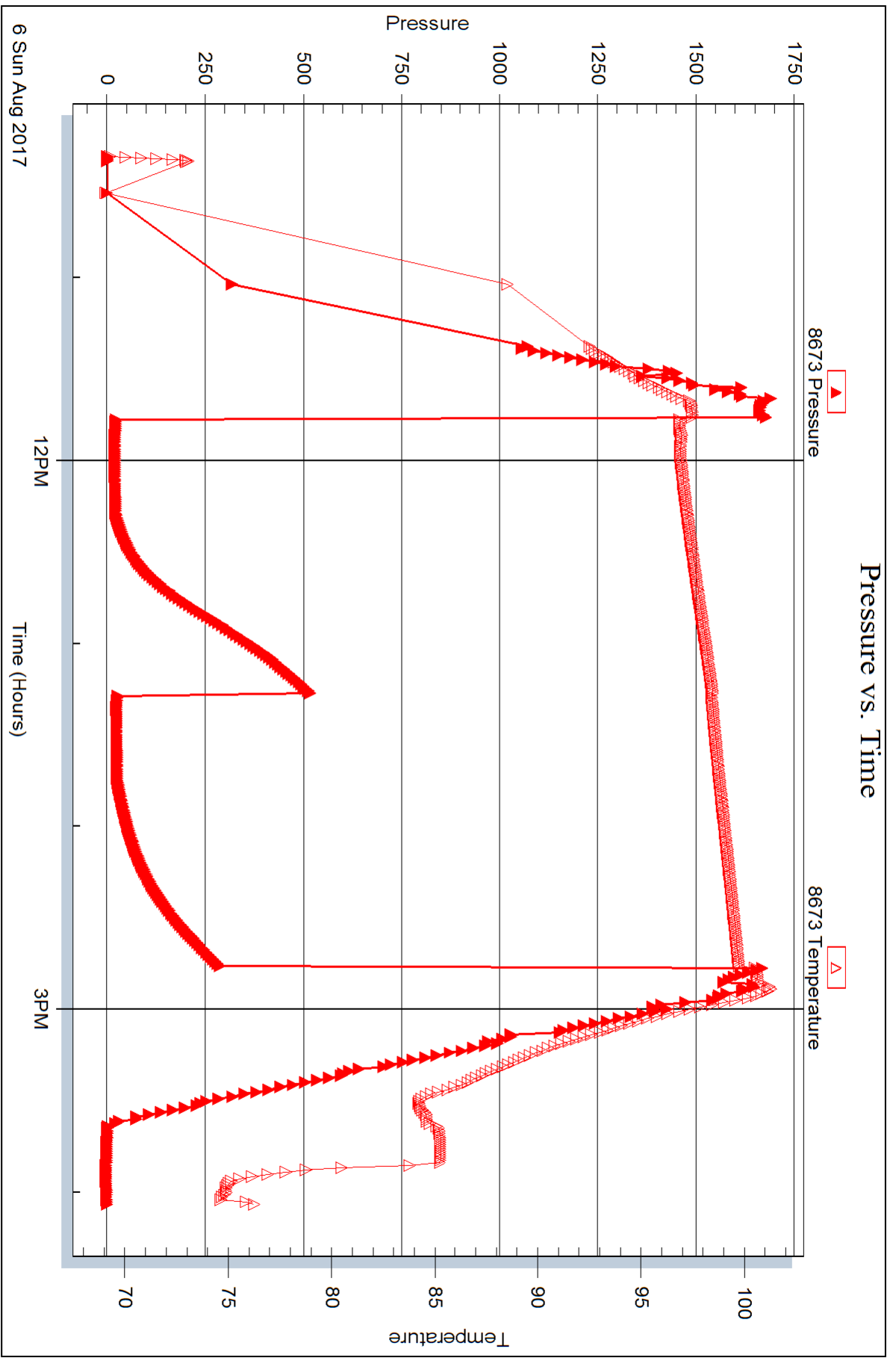


Serial #: 8673

Outside Murfin Drilling Co Inc

Gartrell #1-12

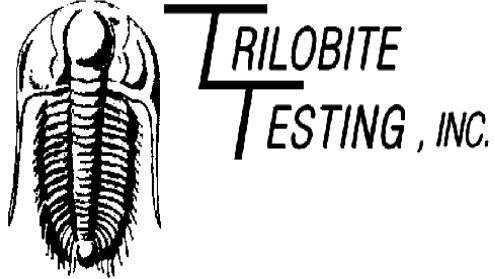
DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 63008

Printed: 2017.08.08 @ 08:50:02



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N. Water STE 300
Wichita KS 67202-1216

ATTN: Samam Sharifaie

Gartrell #1-12

12-6s-20w Rooks,KS

Start Date: 2017.08.07 @ 02:10:29

End Date: 2017.08.07 @ 09:06:53

Job Ticket #: 63009 DST #: 4

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2017.08.08 @ 08:49:15



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co Inc
 250 N. Water STE 300
 Wichita KS 67202-1216
 ATTN: Samam Sharifaie

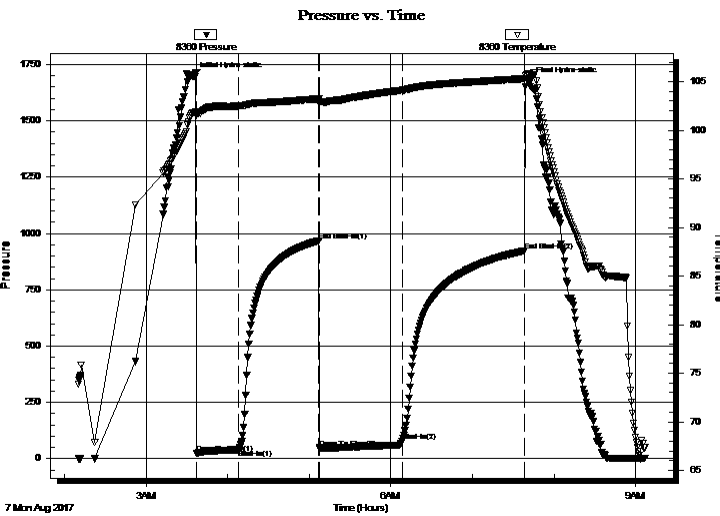
12-6s-20w Rooks,KS
Gartrell #1-12
 Job Ticket: 63009 **DST#: 4**
 Test Start: 2017.08.07 @ 02:10:29

GENERAL INFORMATION:

Formation: **Gorham Sd.& Reagan S**
 Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 03:37:24 Tester: Ray Schwager
 Time Test Ended: 09:06:53 Unit No: 77
 Interval: **3528.00 ft (KB) To 3592.00 ft (KB) (TVD)** Reference Elevations: 2116.00 ft (KB)
 Total Depth: 3592.00 ft (KB) (TVD) 2111.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 5.00 ft

Serial #: 8360 Inside
 Press@RunDepth: 76.39 psig @ 3532.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.08.07 End Date: 2017.08.07 Last Calib.: 2017.08.07
 Start Time: 02:10:29 End Time: 09:06:53 Time On Btm: 2017.08.07 @ 03:35:09
 Time Off Btm: 2017.08.07 @ 07:41:38

TEST COMMENT: 30-IFP-w k bl thru-out 1/2" to 3" bl
 60-ISIP-no bl bk
 60-FFP-w k bl thru-out 1/4" to 1 1/2" bl
 90-FSIP-no bl bk



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1697.92	101.79	Initial Hydro-static
3	24.15	101.62	Open To Flow (1)
33	40.08	102.50	Shut-In(1)
92	967.60	103.23	End Shut-In(1)
93	45.82	102.97	Open To Flow (2)
153	76.39	104.09	Shut-In(2)
244	923.28	105.30	End Shut-In(2)
247	1674.59	105.70	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
105.00	MO 35%M 65%O	1.20

* Recovery from multiple tests

Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co Inc

12-6s-20w Rooks,KS

250 N. Water STE 300
Wichita KS 67202-1216

Gartrell #1-12

Job Ticket: 63009

DST#: 4

ATTN: Samam Sharifaie

Test Start: 2017.08.07 @ 02:10:29

Tool Information

Drill Pipe:	Length: 3484.00 ft	Diameter: 3.80 inches	Volume: 48.87 bbl	Tool Weight: 2200.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 30.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 49.02 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 46000.00 lb
Depth to Top Packer:	3528.00 ft			Final 47000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	64.00 ft			
Tool Length:	93.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3500.00	
Shut In Tool	5.00			3505.00	
Hydraulic tool	5.00			3510.00	
Jars	5.00			3515.00	
Safety Joint	3.00			3518.00	
Packer	5.00			3523.00	29.00 Bottom Of Top Packer
Packer	5.00			3528.00	
Stubb	1.00			3529.00	
Perforations	3.00			3532.00	
Recorder	0.00	8360	Inside	3532.00	
Recorder	0.00	8673	Outside	3532.00	
Blank Spacing	33.00			3565.00	
Perforations	24.00			3589.00	
Bullnose	3.00			3592.00	64.00 Bottom Packers & Anchor

Total Tool Length: 93.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co Inc

12-6s-20w Rooks,KS

250 N. Water STE 300
Wichita KS 67202-1216

Gartrell #1-12

Job Ticket: 63009

DST#: 4

ATTN: Samam Sharifaie

Test Start: 2017.08.07 @ 02:10:29

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.16 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1200.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
105.00	MO 35%M 65%O	1.200

Total Length: 105.00 ft Total Volume: 1.200 bbl

Num Fluid Samples: 0

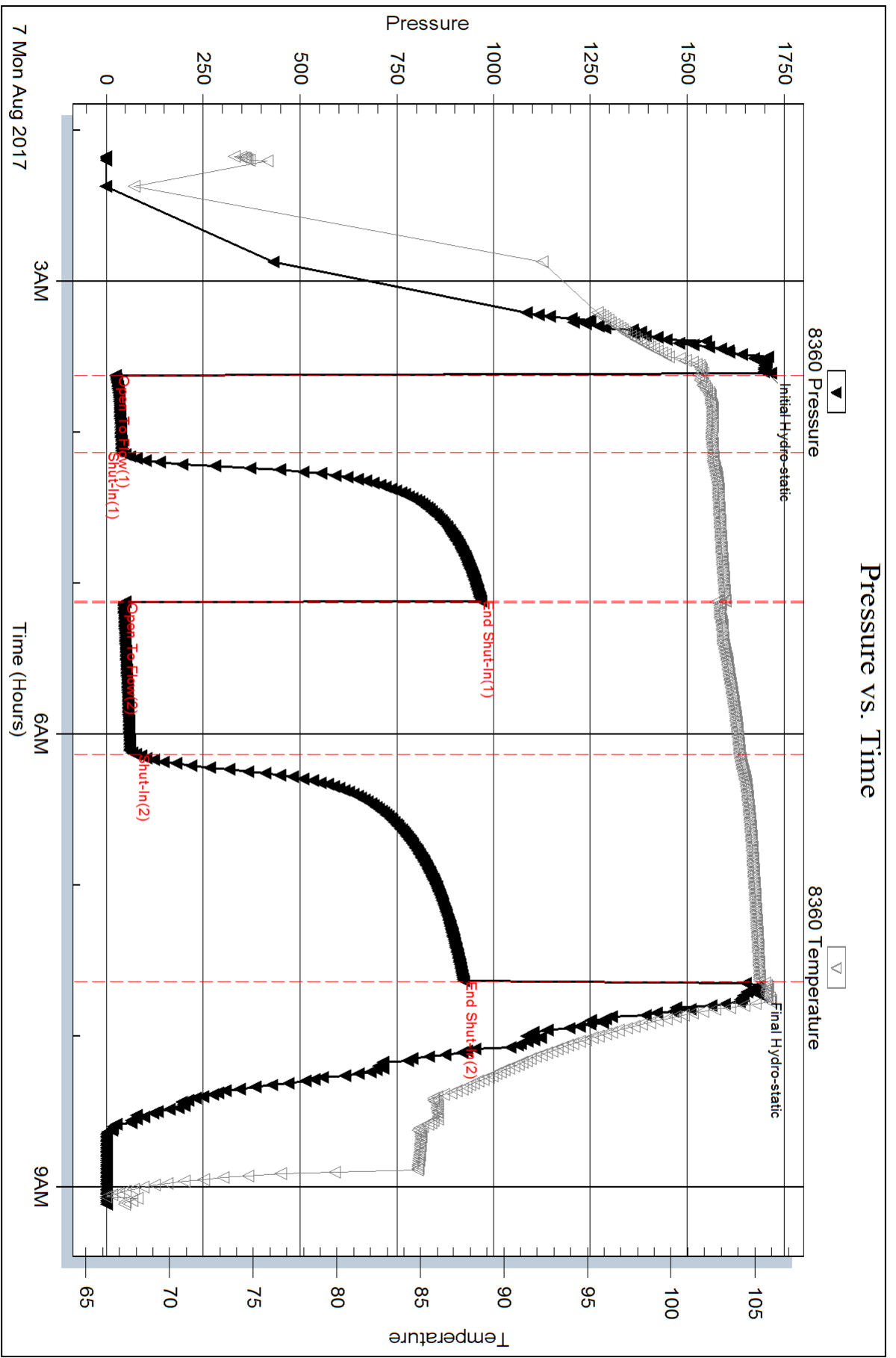
Num Gas Bombs: 0

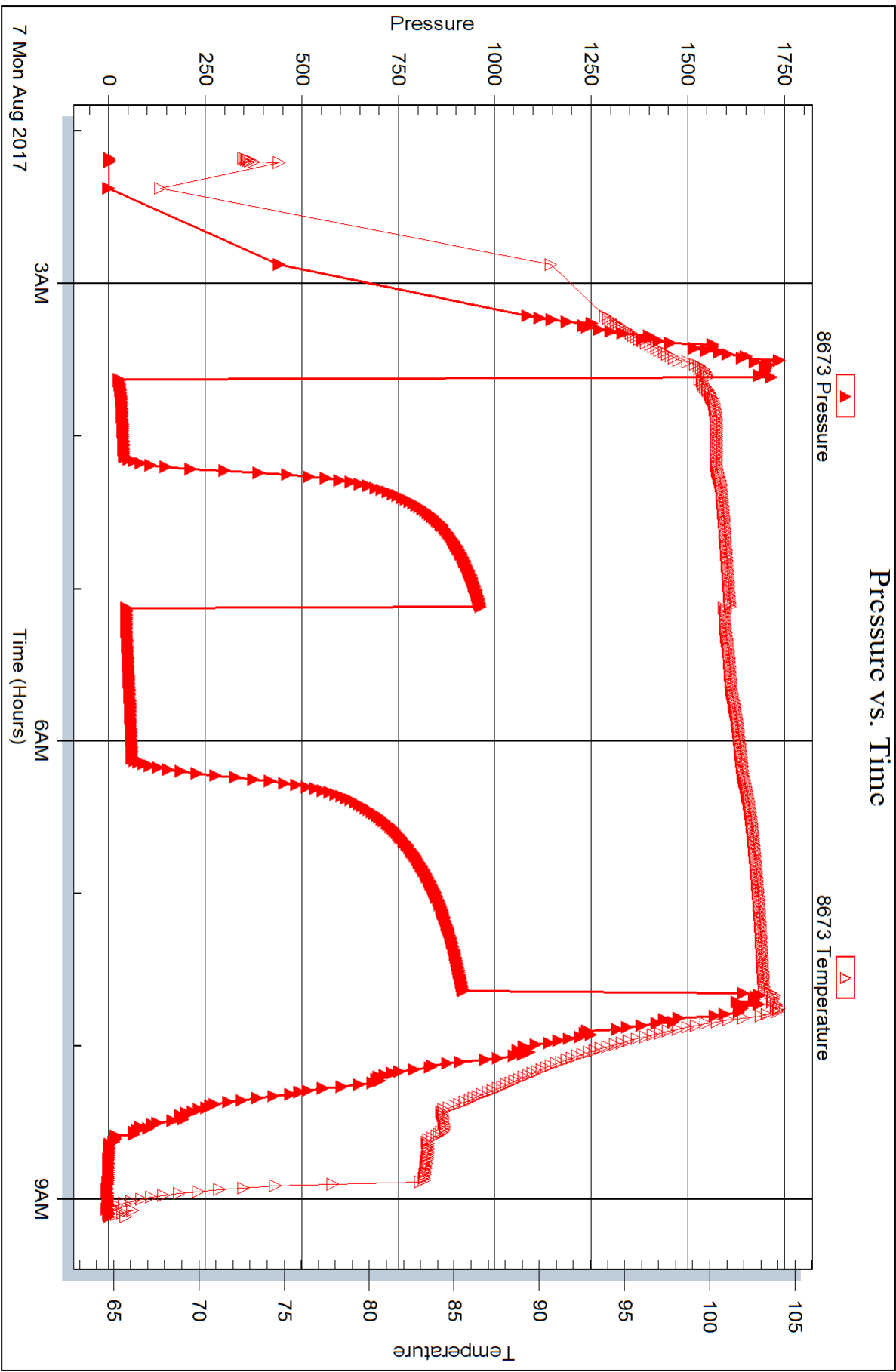
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N. Water STE 300
Wichita KS 67202-1216

ATTN: Samam Sharifaie

Gartrell #1-12

12-6s-20w Rooks,KS

Start Date: 2017.08.07 @ 13:40:13

End Date: 2017.08.07 @ 20:02:37

Job Ticket #: 63010 DST #: 5

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2017.08.08 @ 08:45:30



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co Inc
 250 N. Water STE 300
 Wichita KS 67202-1216
 ATTN: Samam Sharifaie

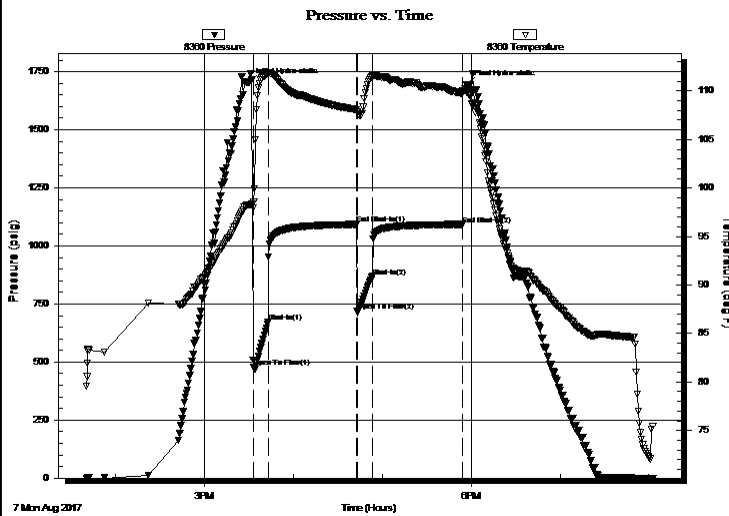
12-6s-20w Rooks,KS
Gartrell #1-12
 Job Ticket: 63010 **DST#: 5**
 Test Start: 2017.08.07 @ 13:40:13

GENERAL INFORMATION:

Formation: **Gorham Sd. & Reagan**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 15:33:08 Tester: Ray Schwager
 Time Test Ended: 20:02:37 Unit No: 77
 Interval: **3528.00 ft (KB) To 3617.00 ft (KB) (TVD)** Reference Elevations: 2116.00 ft (KB)
 Total Depth: 3617.00 ft (KB) (TVD) 2111.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 5.00 ft

Serial #: 8360 Inside
 Press@RunDepth: 867.94 psig @ 3530.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.08.07 End Date: 2017.08.07 Last Calib.: 2017.08.07
 Start Time: 13:40:13 End Time: 20:02:37 Time On Btm: 2017.08.07 @ 15:29:53
 Time Off Btm: 2017.08.07 @ 17:57:07

TEST COMMENT: 30-IFP-BOB thru-out
 60-ISIP-no bl bk
 10-FFP-BOB in 1 min
 60-FSIP-no bl bk



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1703.79	98.24	Initial Hydro-static
4	477.71	98.58	Open To Flow (1)
13	671.93	111.79	Shut-In(1)
73	1092.65	108.09	End Shut-In(1)
73	717.95	107.91	Open To Flow (2)
84	867.94	111.47	Shut-In(2)
145	1092.21	109.77	End Shut-In(2)
148	1694.03	109.90	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1395.00	Water	19.29
465.00	SOCMW 1%O20%M79%W	6.52

* Recovery from multiple tests

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co Inc

12-6s-20w Rooks,KS

250 N. Water STE 300
Wichita KS 67202-1216

Gartrell #1-12

Job Ticket: 63010

DST#: 5

ATTN: Samam Sharifaie

Test Start: 2017.08.07 @ 13:40:13

Tool Information

Drill Pipe:	Length: 3484.00 ft	Diameter: 3.80 inches	Volume: 48.87 bbl	Tool Weight: 2200.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 30.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose: 65000.00 lb
			<u>Total Volume: 49.02 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	3528.00 ft			Final 55000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	89.00 ft			
Tool Length:	118.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3500.00	
Shut In Tool	5.00			3505.00	
Hydraulic tool	5.00			3510.00	
Jars	5.00			3515.00	
Safety Joint	3.00			3518.00	
Packer	5.00			3523.00	29.00 Bottom Of Top Packer
Packer	5.00			3528.00	
Stubb	1.00			3529.00	
Perforations	1.00			3530.00	
Recorder	0.00	8360	Inside	3530.00	
Recorder	0.00	8673	Outside	3530.00	
Blank Spacing	65.00			3595.00	
Perforations	19.00			3614.00	
Bullnose	3.00			3617.00	89.00 Bottom Packers & Anchor

Total Tool Length: 118.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co Inc

12-6s-20w Rooks,KS

250 N. Water STE 300
Wichita KS 67202-1216

Gartrell #1-12

Job Ticket: 63010

DST#: 5

ATTN: Samam Sharifaie

Test Start: 2017.08.07 @ 13:40:13

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

58000 ppm

Viscosity: 49.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.74 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1200.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1395.00	Water	19.295
465.00	SOCMW 1%O20%M79%W	6.523

Total Length: 1860.00 ft Total Volume: 25.818 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

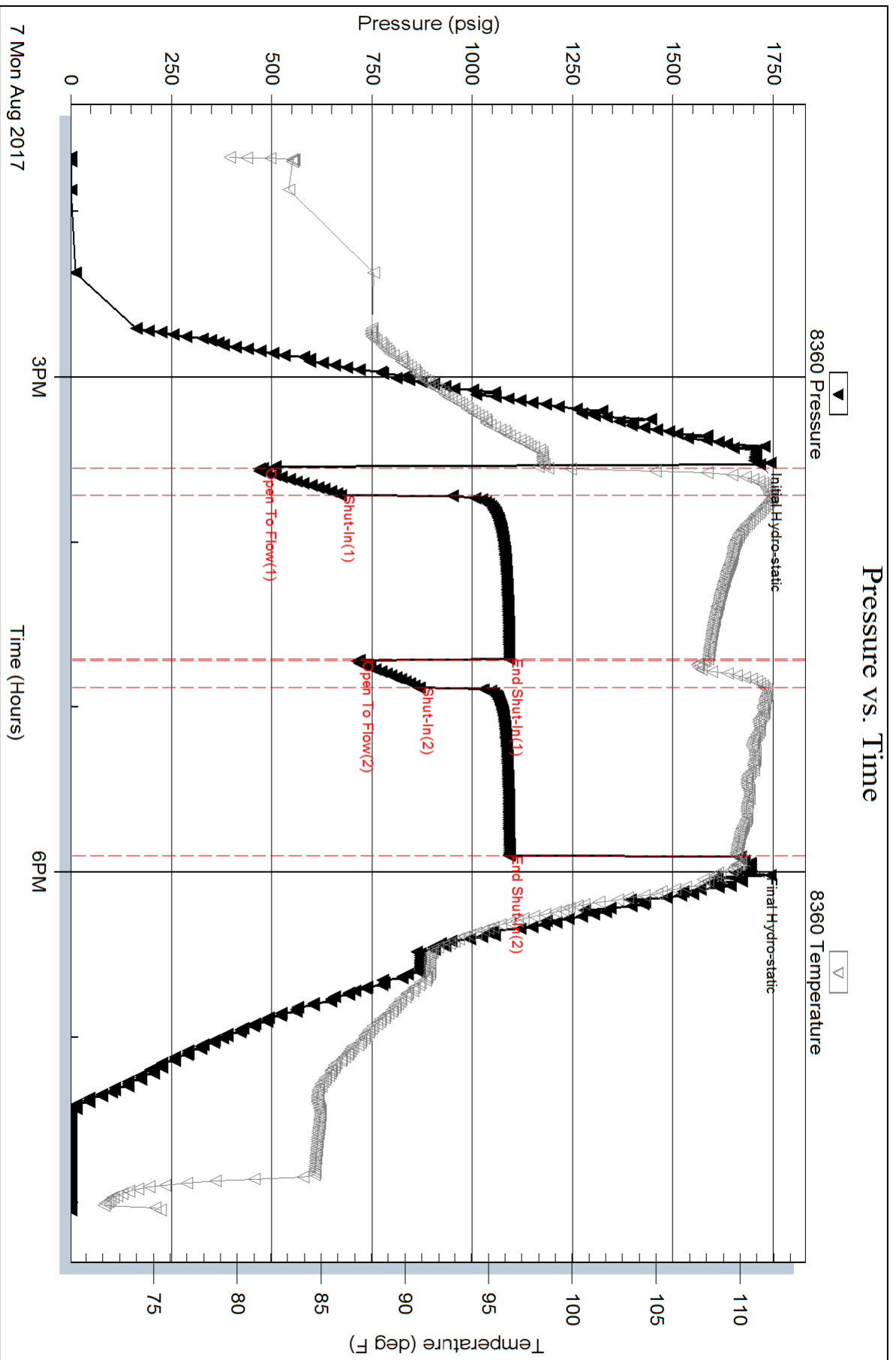
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW.12@75F

Pressure vs. Time

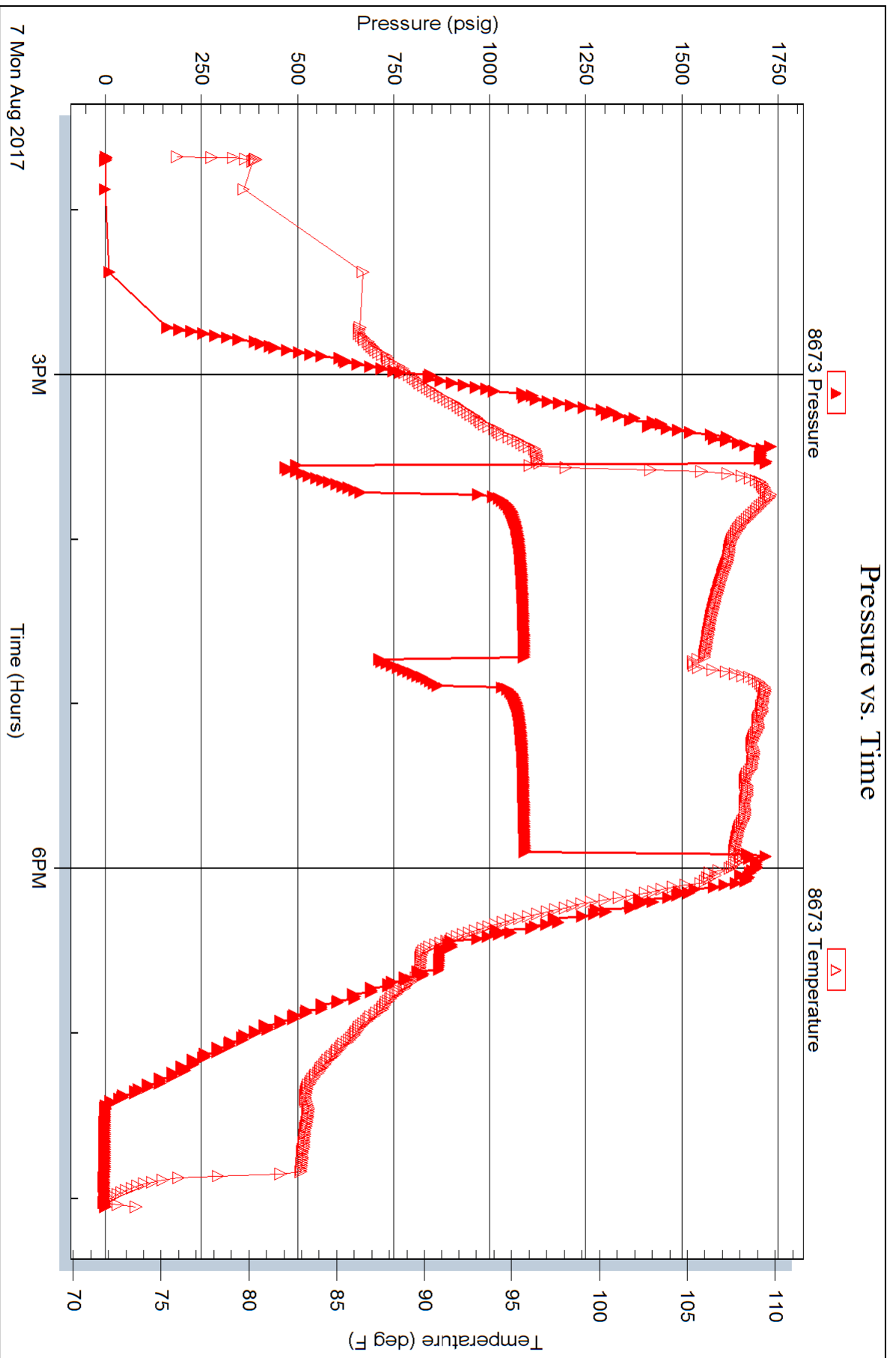


Serial #: 8673

Outside Murfin Drilling Co Inc

Gartrell #1-12

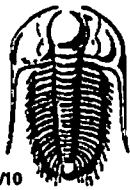
DST Test Number: 5



Trilobite Testing, Inc

Ref. No: 63010

Printed: 2017.08.08 @ 08:45:34



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63006

Well Name & No. GARTRELL 1-12 Test No. 1 Date 8-4-12
 Company MURFIN DRILLING CO, INC Elevation 2116 KB 2111 GL
 Address 250 N. WATER STE 300 WICHITA, KS 67202-1216
 Co. Rep / Geo. SAMAM SHARIFAIE Rig MURFIN rig 16
 Location: Sec. 12 Twp. 6^s Rge. 20^w Co. ROOKS State Ks

Interval Tested 3225-3269 Zone Tested Oread
 Anchor Length 44 Drill Pipe Run 3198 Mud Wt. 8.6
 Top Packer Depth 3221 Drill Collars Run 30 Vis 61
 Bottom Packer Depth 3225 Wt. Pipe Run - WL 6.8
 Total Depth 3269 Chlorides 900 ppm System LCM -
 Blow Description IFP - WEAK BLOW THRU-OUT 1/4" TO 2 1/4" BLOW
ISTP - NO BLOW
FFP - WEAK BLOW THRU-OUT SURFACE TO 1/4" BLOW
FSTP - NO BLOW

Rec	Feet of	%gas	%oil	%water	%mud
<u>40</u>	<u>MW</u>			<u>75</u>	<u>25</u>
<u>60</u>	<u>WATER</u>				
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 100 BHT 103 Gravity - API RW .15 @ 65 °F Chlorides 54000 ppm

(A) Initial Hydrostatic 1540 Test 1050
 (B) First Initial Flow 22 Jars 250
 (C) First Final Flow 41 Safety Joint 75
 (D) Initial Shut-In 1099 Circ Sub _____
 (E) Second Initial Flow 47 Hourly Standby _____
 (F) Second Final Flow 70 Mileage 125 RT 93.75
 (G) Final Shut-In 1087 Sampler _____
 (H) Final Hydrostatic 1510 Straddle _____

Initial Open 30 Shale Packer _____
 Initial Shut-In 60 Extra Packer _____
 Final Flow 60 Extra Recorder _____
 Final Shut-In 90 Day Standby _____
 Accessibility _____

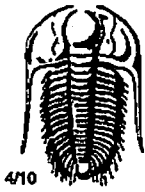
Sub Total 1468.75

T-On Location 1800
 T-Started 1925
 T-Open 2115
 T-Pulled 0115
 T-Out 0253

Comments _____
 Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total 0
 Total 1468.75
 MP/DST Disc't _____

Approved By _____

Our Representative RAY SCHWARTZ Thank you



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63007

Well Name & No. GARTRELL 1-12 Test No. 2 Date 8-5-17
 Company Murfin Drilling Co, Inc Elevation 2116 KB 2111 GL
 Address 250 N. WATER ST 300 WICHITA, KS 67202-1216
 Co. Rep / Geo. SAMAN SHARIFAIE Rig MURFIN RIG 16
 Location: Sec. 12 Twp. 6^s Rge. 20^w Co. ROOK State KO

Interval Tested 3330-3440 Zone Tested LKC A-G
 Anchor Length 110 Drill Pipe Run 3292 Mud Wt. 8.9
 Top Packer Depth 3325 Drill Collars Run 30 Vis 50
 Bottom Packer Depth 3330 Wt. Pipe Run - WL 6.8
 Total Depth 3440 Chlorides 1000 ppm System LCM -

Blow Description IFP - WEAK Blow THRU-out 1/4" To 1" Blow
TSIP - NO Blow
FFP - NO Blow first 20 min, Then Very WEAK surface Blow
FSP - NO Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>1</u>	<u>CO</u>				
<u>90</u>	<u>MW</u>			<u>90</u>	<u>10</u>

Rec Total 91 BHT 102 Gravity - API RW .12 @ 65 °F Chlorides 68000 ppm

(A) Initial Hydrostatic 1599 Test 1050 T-On Location 1830
 (B) First Initial Flow 25 Jars 250 T-Started 1855
 (C) First Final Flow 52 Safety Joint 75 T-Open 2025
 (D) Initial Shut-In 1077 Circ Sub _____ T-Pulled 2325
 (E) Second Initial Flow 56 Hourly Standby _____ T-Out 0058
 (F) Second Final Flow 73 Mileage 93.75 Comments _____
 (G) Final Shut-In 1032 Sampler _____
 (H) Final Hydrostatic 1580 Straddle _____

Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Initial Open 30
 Initial Shut-In 60
 Final Flow 30
 Final Shut-In 60
 Day Standby _____
 Accessibility _____
 Sub Total 1468.75
 Sub Total 1468.75
 Total 1468.75
 MP/DST Disc't _____

Approved By _____ Our Representative RAY SCHWAGER *Thank you*



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63008

Well Name & No. GARTRELL 1-12 Test No. 3 Date 8-6-17
 Company MURFIN DRILLING CO INC Elevation 2116 KB 2111 GL
 Address 250 N. WATER STE 300 WICHITA, KS 67202-1216
 Co. Rep / Geo. SAMAN SHARIFAIE Rig MURFIN RIG 16
 Location: Sec. 12 Twp. 6^s Rge. 20^w Co. ROOKS State Ks

Interval Tested 3445-3510 Zone Tested LKC
 Anchor Length 65 Drill Pipe Run 3418 Mud Wt. 9
 Top Packer Depth 3440 Drill Collars Run 30 Vis 52
 Bottom Packer Depth 3445 Wt. Pipe Run - WL 6.8
 Total Depth 3510 Chlorides 1000 ppm System LCM -

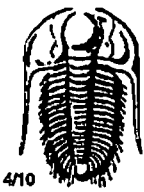
Blow Description TFP - WEAK BLOW THRU-OUT 1/4" TO 1/2" BLOW
TSIP - NO BLOW
FFP - NO BLOW
FSIP - NO BLOW

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>HOCM</u>		<u>35</u>		<u>65</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 5 BHT 102 Gravity - API RW - @ - °F Chlorides - ppm
 (A) Initial Hydrostatic 1662 Test 1050 T-On Location 1000
 (B) First Initial Flow 20 Jars 250 T-Started 1020
 (C) First Final Flow 21 Safety Joint 75 T-Open 1145
 (D) Initial Shut-In 520 Circ Sub _____ T-Pulled 1445
 (E) Second Initial Flow 26 Hourly Standby _____ T-Out 1604
 (F) Second Final Flow 29 Mileage 93.75 Comments _____
 (G) Final Shut-In 286 Sampler _____
 (H) Final Hydrostatic 1648 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

Initial Open 30
 Initial Shut-In 60
 Final Flow 30
 Final Shut-In 60

Sub Total 1468.75 Total 1468.75 MP/DST Disc't _____
 Approved By _____ Our Representative RAYSCHWAGER THANK YOU



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63009

Well Name & No. GARTREK 1-12 Test No. 4 Date 8-7-17
 Company MURFIN DRILLING CO. INC Elevation 2116 KB 2111 GL
 Address 250 N. WATER STE 300 WICHITA, KS 67202-1216
 Co. Rep / Geo. SAMAN SHARIFAI Rig MURFIN RIG 16
 Location: Sec. 12 Twp. 6^S Rge. 20^W Co. ROOKS State KO

Interval Tested 3528-3592 Zone Tested GORHAM SD + REAGAN SD
 Anchor Length 64 Drill Pipe Run 3484 Mud Wt. 9
 Top Packer Depth 3523 Drill Collars Run 30 Vis 53
 Bottom Packer Depth 3528 Wt. Pipe Run - WL 7.2
 Total Depth 3592 Chlorides 1200 ppm System LCM 2#
 Blow Description IFP - WEAK BLOW THRU-OUT 1/2" TO 3" BLOW
ISIP - NO BLOW
FFP - WEAK BLOW THRU-OUT
FSIP -

Rec	Feet of	%gas	%oil	%water	%mud
<u>105</u>	<u>MO</u>	<u>65</u>		<u>35</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

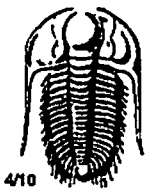
Rec Total 105 BHT 105 Gravity - API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic <u>1697</u>	<input checked="" type="checkbox"/> Test <u>1050</u>	T-On Location <u>0200</u>
(B) First Initial Flow <u>24</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>0210</u>
(C) First Final Flow <u>40</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>0335</u>
(D) Initial Shut-In <u>967</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>0735</u>
(E) Second Initial Flow <u>45</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>0906</u>
(F) Second Final Flow <u>76</u>	<input checked="" type="checkbox"/> Mileage <u>93.75</u>	Comments
(G) Final Shut-In <u>923</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1674</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
	<input type="checkbox"/> Day Standby	Total <u>1468.75</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1468.75</u>	

Initial Open 30
 Initial Shut-In 60
 Final Flow 60
 Final Shut-In 90

Approved By _____

Our Representative RAY SCHWAGG Thank you



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63010

Well Name & No. GARTRELL 1-12 Test No. 5 Date 8-7-17
 Company MURFIN DRILLING CO INC Elevation 2116 KB 2111 GL
 Address 250 N. WATER ST # 300 WICHITA, KS 67202-1216
 Co. Rep / Geo. SAMAN SHARIFAIE Rig MURFIN RIG 16
 Location: Sec. 12 Twp. 6^s Rge. 20^w Co. ROOKS State Ks

Interval Tested 3528-3617 Zone Tested GORHAN SD. + REAGAN SD
 Anchor Length 89 Drill Pipe Run 3484 Mud Wt. 9
 Top Packer Depth 3523 Drill Collars Run 30 Vis 49
 Bottom Packer Depth 3528 Wt. Pipe Run - WL 6.8
 Total Depth 3617 Chlorides 1200 ppm System LCM 2#

Blow Description IFP - STRONG BLOW THEN OUT
ISIP - NO BLOW BACK
FFP - BOB IN 1 MIN
FSIP - NO BLOW BACK

Rec	Feet of	%gas	%oil	%water	%mud
<u>465</u>	<u>50 CMU</u>	<u>1</u>	<u>79</u>	<u>20</u>	
<u>1395</u>	<u>WATER</u>				
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 1860 BHT 109 Gravity - API RW .12 @ 75 °F Chlorides 58000 ppm

- (A) Initial Hydrostatic 1703
- (B) First Initial Flow 477
- (C) First Final Flow 671
- (D) Initial Shut-In 1092
- (E) Second Initial Flow 717
- (F) Second Final Flow 867
- (G) Final Shut-In 1092
- (H) Final Hydrostatic 1694

- Test 1050
- Jars 250
- Safety Joint 75
- Circ Sub
- Hourly Standby
- Mileage 93.75
- Sampler
- Straddle
- Shale Packer
- Extra Packer
- Extra Recorder
- Day Standby
- Accessibility
- Sub Total 1468.75

T-On Location 1300
 T-Started 1340
 T-Open 1535
 T-Pulled 1755
 T-Out 2002

Comments _____
 Ruined Shale Packer
 Ruined Packer
 Extra Copies
 Sub Total 0
 Total 1468.75
 MP/DST Disc't _____

Initial Open 10
 Initial Shut-In 60
 Final Flow 10
 Final Shut-In 60

Approved By _____

Our Representative RAY SCHWAGER THANK YOU

TREATMENT REPORT



HURRICANE SERVICES INC

TIME	INJECTION RATE		PRESSURE		REMARKS	PROP (lbs)	HCL (gls)	FLUID (bbls)
	FLUID	N2/CO2	STP	ANNULUS				
1:15 AM	3.0		1,000.0		Plug Down 600 PSI			89.00
					Release Psi Float Held			
					1/4 BBL Back			
1:20 AM	3.0		1,000.0		Drop Open Tool W/ Pump Truck			
					Pump 6 BBL's @ BPM 300 PSI			
1:30 AM					Hook to Rig Circulate 4 Hours			
6:30 AM	3.0		176.0		Pump 6 BBL's H2O			6.00
6:00 AM	2.0		160.0		Plug Rat & Mouse Holes			
6:10 AM	6.0		226.0		Start Mix & Pump 200 sacks H-Con			93.00
					Shut Down Clear Pump & Lines Release Closing Plug			16.00
6:35 AM	5.7		260.0		Start Displacement			
	6.0		600.0		27 Out 600 PSI			27.00
	3.0				38 Slow Rate			
	3.0		1,000.0		Plug Down			41.00
6:45 AM			2,000.0		PSI Up			
					Release Psi & Hold			
					1/4 BBL Back			
					Rack Up Truck			
					Off Location			
					Thank You			
					Please Call Again			
					Todd Tony Cody Sheldon			
					Bottom Stage 125 Sacks H-Long 2% Gel 10% Salt			
					5Lb/Sk Koseal 6% Calsel .6% CFL-160 .25% Caf-38			
					14.8 Lb/Gal Yield 1.60			
					Top Stage 200 Sacks 200 Sacks H-Con 3% CC 1/2 Lb/Sk			
					Phenoseal 12Lb/Gal 2.81			
					60 Sack Plug Rat & Mouse Holes			

Activity provided on this page is calculated in the summary and totals on page 1

TREATMENT REPORT



HURRICANE SERVICES INC

Customer: Murfin Drilling Company Inc.	Date: 8/1/2017	Ticket No.: 100782
Field Rep: Andy		
Address:		
City, State:		
County, Zip:		

Field Order No.: 100782	Open Hole:	Perf Depths (ft)	Perfs
Well Name:	Casing Depth: 218'		
Location: Stockton	Casing Size: 8 5/8 23 Lb		
Formation:	Tubing Depth:		
Type of Service: Surface	Tubing Size:		
Well Type: Oil	Liner Depth:		
Age of Well: New	Liner Size:		
Packer Type:	Liner Top:		
Packer Depth:	Liner Bottom:		
Treatment Via: Casing	Total Depth: 220'		
		Total Perfs	0

TIME	INJECTION RATE		PRESSURE		REMARKS	PROP (lbs)	HCL (gls)	FLUID (bbls)
	FLUID	N2/CO2	STP	ANNULUS				
12:30 PM					Called Out			
3:48 PM					On Location W/ Trucks Hold Safety Meeting			
					Spot & Set Up Trucks			
					TD=220' TP=218' SJ= 20' Centralizer Jt# 3			
4:00 PM					Start Casing 6 Jt's 23 Lb			
					Casing On Bottom			
4:30 PM					Hook Up To Casing Break Circulation W/ Rig			
4:40 PM	4.0		150.0		Start Pumping H2O			10.00
	4.0		150.0		Start Mix & Pump 166 Sk Common 2%Gel 3%CC			39.87
	4.0		160.0		Start Displacement			12.87
5:10 PM			200.0		Shut Down Close Valve On Casing			
					Good Circulation thru Job			
					Circulate Cement To Pit 4 BBL's			
					Washb Up Truck & Rack Up Truck			
5:45 PM					Off Location			
					Thank You			
					Please Call Again			
					Tony Cody Darren			
TOTAL:								62.64

SUMMARY

Max Fl. Rate	Avg Fl. Rate	Max PSI	Avg PSI
4.0	4.0	200.0	162.5

PRODUCTS USED

165 Sacks Common 2% Gel 3% Calcium Chloride

Treater: Tony P

Customer: Andy

MDCI
 Gartrell #1-12
 1980 FNL 730 FEL
 Sec. 12-T6S-R20W
 2116' KB

Formation	Sample top	Datum	Ref	Log Top	Datum	Ref
Anhydrite	1688	+428	+12	1696	+420	+4
B/Anhydrite	1728	+388	Flat	1727	+389	+1
Topeka	3098	-982	-1	3098	-982	-1
Heebner	3297	-1181	-2	3296	-1180	-1
Toronto	3320	-1204	-1	3319	-1203	Flat
Lansing	3336	-1220	-2	3334	-1218	Flat
Mound City	3543	-1427	-2	3542	-1426	-1
Reagan	3586	-1470	-4	3585	-1469	-3
RTD	3688					
LTD				3688		