



Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION 1139587
OIL & GAS CONSERVATION DIVISION

Form ACO-1

August 2013

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 SIOW
- Gas D&A ENHR SIGW
- OG GSW Temp. Abd.
- 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 ENHR Conv. to SWD
- Plug Back Conv. to GSW Conv. to Producer
- Commingled Permit #: _____
- Dual Completion Permit #: _____
- SWD Permit #: _____
- ENHR Permit #: _____
- GSW Permit #: _____

Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date
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API No. 15 - _____

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
- Geologist Report Received
- UIC Distribution
- ALT I II III Approved by: _____ Date: _____



1139587

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 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				

Did you perform a hydraulic fracturing treatment on this well? Yes No *(If No, skip questions 2 and 3)*

Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? Yes No *(If No, skip question 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)*

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record <i>(Amount and Kind of Material Used)</i>	Depth

TUBING RECORD: Size: _____ Set At: _____ Packer At: _____ Liner Run: Yes No

Date of First, Resumed Production, SWD or ENHR: _____ Producing Method:
 Flowing Pumping Gas Lift Other *(Explain)* _____

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> <input type="checkbox"/> Other <i>(Specify)</i> _____ <i>(Submit ACO-4)</i>	PRODUCTION INTERVAL: _____ _____
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Conservation Division
Finney State Office Building
130 S. Market, Rm. 2078
Wichita, KS 67202-3802



Phone: 316-337-6200
Fax: 316-337-6211
<http://kcc.ks.gov/>

Mark Sievers, Chairman
Thomas E. Wright, Commissioner
Shari Feist Albrecht, Commissioner

Sam Brownback, Governor

May 15, 2013

Leon Rodak
Murfin Drilling Co., Inc.
250 N WATER STE 300
WICHITA, KS 67202-1216

Re: ACO1
API 15-025-21555-00-00
Harden 1-20
NE/4 Sec.20-32S-21W
Clark County, Kansas

Dear Production Department:

We are herewith requesting that the Well Completion Form ACO-1 and attached information for the subject well be held confidential for a period of two years.

Should you have any questions or need additional information regarding subject well, please contact our office.

Respectfully,
Leon Rodak

OPERATOR

Company: Murfin Drilling Company, Inc.
 Address: 250 N. Water Suite 300
 Wichita, KS 67202
 Contact Geologist: Michel Runnion
 Contact Phone Nbr: 316-267-3241
 Well Name: Harden #1-20
 Location: Sec. 20 - T32S - R21W
 Pool: Sec. 20 - T32S - R21W
 State: Kansas
 API: 15-025-21555-0000
 Field: Morrison
 Country: USA



Scale 1:240 Imperial

Well Name: Harden #1-20
 Surface Location: Sec. 20 - T32S - R21W
 Bottom Location:
 API: 15-025-21555-0000
 License Number: 30606
 Spud Date: 1/19/2013 Time: 00:00
 Region: Clark County
 Drilling Completed: 2/2/2011 Time: 22:50
 Surface Coordinates: 367' FNL & 1349' FEL
 Bottom Hole Coordinates:
 Ground Elevation: 2169.00ft
 K.B. Elevation: 2180.00ft
 Logged Interval: 3500.00ft To: 6627.00ft
 Total Depth: 6627.00ft
 Formation: Viola
 Drilling Fluid Type: Chemical/Fresh Water Gel

SURFACE CO-ORDINATES

Well Type: Vertical
 Longitude: Latitude:
 N/S Co-ord: 367' FNL
 E/W Co-ord: 1349' FEL

LOGGED BY



Company: Keith Reavis, Inc.
 Address: 3420 22nd Street
 Great Bend, KS 67530
 Phone Nbr: 620-617-4091
 Logged By: KLG #136 Name: Keith Reavis

CONTRACTOR

Contractor: Murfin Drilling Company
 Rig #: 22
 Rig Type: mud rotary
 Spud Date: 1/19/2013 Time: 00:00
 TD Date: 2/2/2011 Time: 22:50
 Rig Release: Time:

ELEVATIONS

K.B. Elevation: 2180.00ft Ground Elevation: 2169.00ft
 K.B. to Ground: 11.00ft

NOTES

Due to considerable hole trouble, no electrical logs or drill stem tests were run on this well. Based on sample shows and favorable structure, the operator elected to set 5 1/2" production casing and test the Viola formation through perforations and stimulation.

A Bloodhound gas detection system operated by Bluestem Environmental was employed on this well. ROP and gas data were imported into this mudlog.

Samples were saved and will be available for review at the Kansas Geological Survey Well Sample Library located in Wichita, KS.

Respectfully submitted,
 Keith Reavis

**Murfin Drilling Company
 daily drilling report**

DATE	7:00 AM DEPTH	REMARKS
01/23/2013	4608	Geologist Keith Reavis on location @ 0205 hrs, 4335 ft., drilling ahead Lecompton, Heebner, Toronto, Douglas, Lansing, Stark
01/24/2013	5250	drilling ahead, Marmaton, Pawnee, stop @ 5250', pull PDC bit, back in hole with button bit, ctch, resume drilling, Cherokee
01/25/2013	5456	drilling ahead, Mississippian
01/26/2013	5709	drilling ahead, Mississippian
01/27/2013	6055	drilling ahead, Mississippian, Cowley Facies
01/28/2013	6283	drilling ahead, Cowley Facies
01/29/2013	6507	drilling ahead, Cowley Facies, short trip at 6465', resume drilling show in Viola and kick warrants test, TOH for DST #1, stacked out tools At 900', lay down tools, in with bit, lost circ at 950', mix mud and lcm
01/30/2013	6530	regain circ, TIH hole with bit, hit bridge at 5700', stuck
01/31/2013	6530	spot oil, no help, run free point, shot loose 2 collars above bit
02/01/2013	6530	rig up bumper sub and jars, did not get fish first attempt, TIH for second run, successfully got fish out of hole, put on new bit, TIH, ctch
02/02/2013	6530	finish cleaning hole, displace old mud, resume drilling, TD @ 6627 ft 2250 hrs, ctch
02/03/2013	6627	TOH for logs, stuck bit @ 950' get loose, ream, operator elected to not run logs, release logging truck, TIH to condition hole and come out laying down to run production casing, geologist off location 0600 hrs

**Murfin Drilling Company
 well comparison sheet**

FORMATION	DRILLING WELL Murfin - Harden 1-20 367' FNL & 1349' FEL Sec 20-T32S-R21W 2180 KB				COMPARISON WELL Bereco - Harden 4-20 429' FNL & 477' FEL Sec 20-T32S-R21W 2134 KB				COMPARISON WELL			
	Sample	Sub-Sea	Log	Sub-Sea	Log	Sub-Sea	Structural Relationship	Log	KB	Structural Relationship	Sample	Log
Heebner	4432	-2252			4376	-2242	-10					
Douglas	4515	-2335			4462	-2328	-7					
Lansing	4632	-2452			4577	-2443	-9					
Muncie Creek	4858	-2678			4801	-2667	-11					
Stark Shale	5018	-2838			4964	-2830	-8					
Marmaton	5143	-2963			5086	-2952	-11					
Pawnee	5231	-3051			5176	-3042	-9					
Cherokee	5312	-3132			5259	-3125	-7					
Morrow-Atoka	5391	-3211			5335	-3201	-10					
Miss-St. Gen	5401	-3221			5344	-3210	-11					
Cowley Facies	6057	-3877			6042	-3908	31					
Viola	6524	-4344			6474	-4340	-4					
Simpson Dol	not reached				6636	-4502						
Simpson Shale	not reached				6714	-4580						
Arbuckle	not reached				6781	-4647						
Total Depth	6627	-4447			6906	-4772	325					

ROCK TYPES

- Dolprim
- sdylmst
- Lmst fw7>
- shale, gry
- Dolsec
- Lmst fw<7
- shale, grn
- Carbon Sh

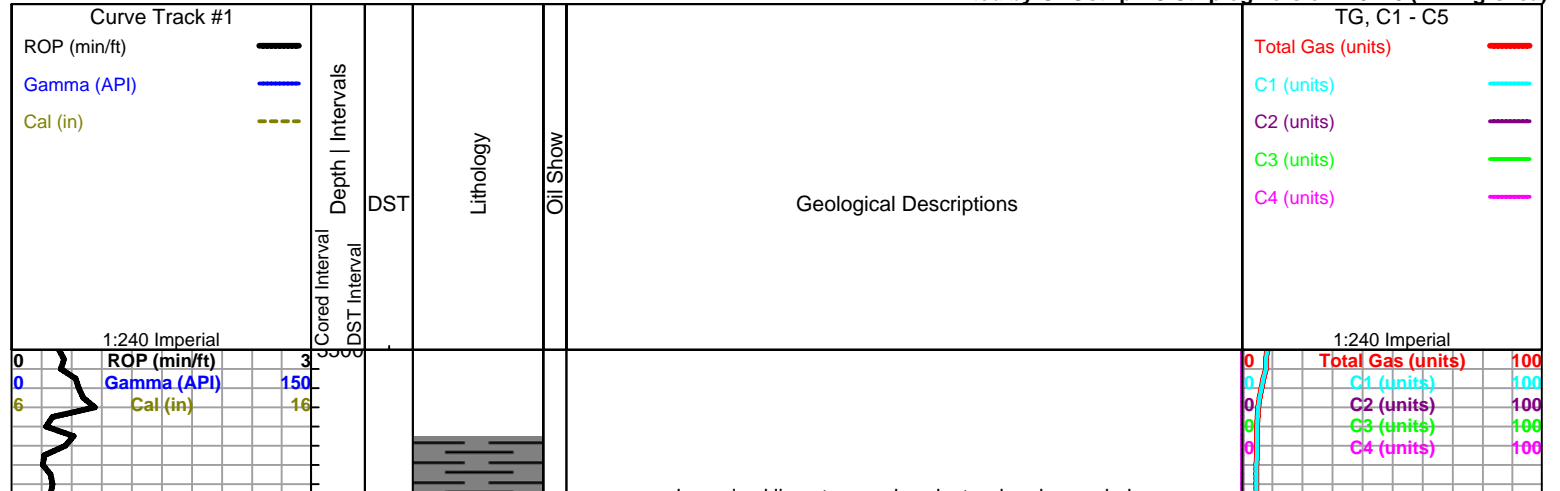
ACCESSORIES

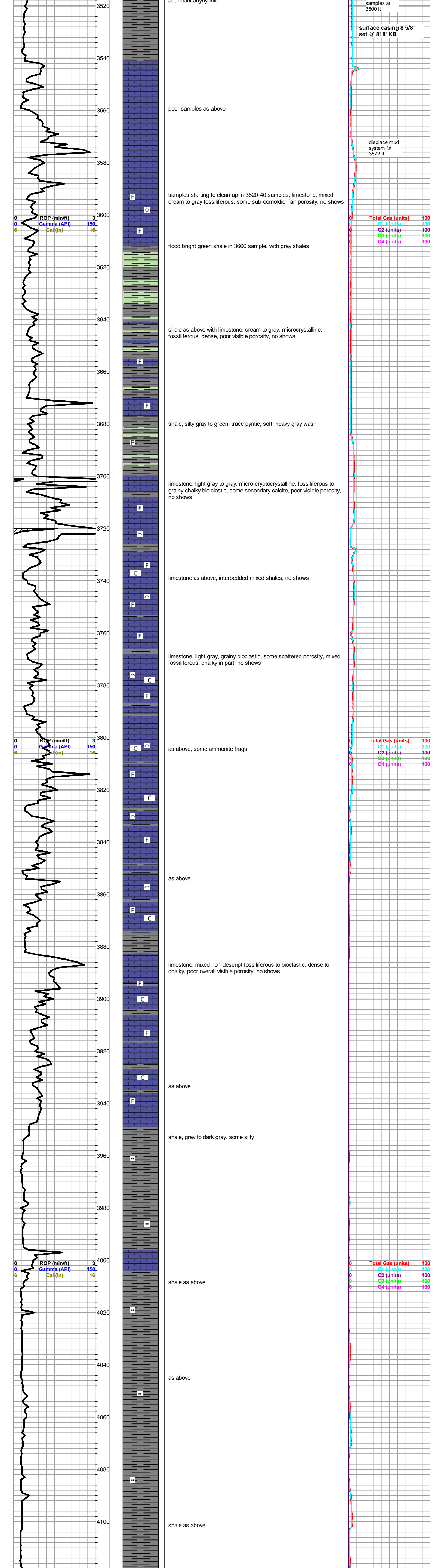
- | | | | |
|---------------------|----------------------------|-----------------|----------------|
| MINERAL | FOSSIL | STRINGER | TEXTURE |
| - Argillaceous | ^ Bioclastic or Fragmental | ■ Dolomite | C Chalky |
| ▲ Chert, dark | F Fossils < 20% | ■ Limestone | L Lithogr |
| ▣ Chert, tripolitic | φ Oolite | ■ Sandstone | |
| ▤ Dolomitic | | ■ Siltstone | |
| ∩ Glauconite | | ■ Shale | |
| P Pyrite | | | |
| ^ Siliceous | | | |
| △ Silty | | | |
| △ Chert White | | | |

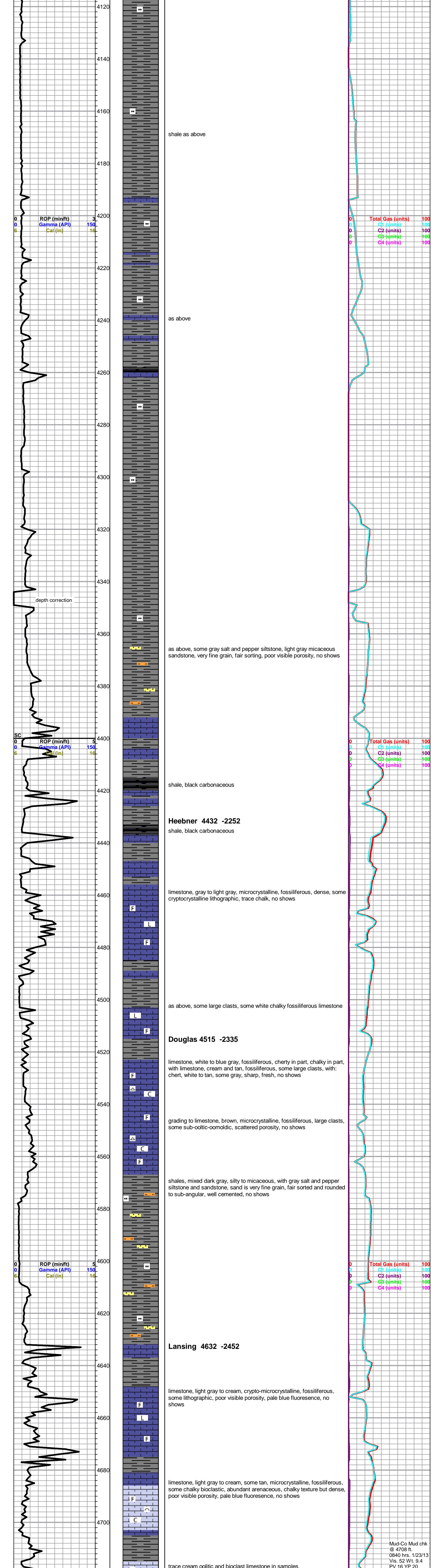
OTHER SYMBOLS

- DST**
- DST Int
 - ▲ DST alt
 - Core
 - || tail pipe

Printed by GEOstrip VC Striplog version 4.0.7.0 (www.grsi.ca)







shale as above

as above

as above, some gray salt and pepper siltstone, light gray micaceous sandstone, very fine grain, fair sorting, poor visible porosity, no shows

shale, black carbonaceous

Heebner 4432 -2252
shale, black carbonaceous

limestone, gray to light gray, microcrystalline, fossiliferous, dense, some cryptocrystalline lithographic, trace chalk, no shows

as above, some large clasts, some white chalky fossiliferous limestone

Douglas 4515 -2335

limestone, white to blue gray, fossiliferous, cherty in part, chalky in part, with limestone, cream and tan, fossiliferous, some large clasts, with: chert, white to tan, some gray, sharp, fresh, no shows

grading to limestone, brown, microcrystalline, fossiliferous, large clasts, some sub-oolitic-oolitic, scattered porosity, no shows

shales, mixed dark gray, silty to micaceous, with gray salt and pepper siltstone and sandstone, sand is very fine grain, fair sorted and rounded to sub-angular, well cemented, no shows

Lansing 4632 -2452

limestone, light gray to cream, crypto-microcrystalline, fossiliferous, some lithographic, poor visible porosity, pale blue fluorescence, no shows

limestone, light gray to cream, some tan, microcrystalline, fossiliferous, some chalky bioclastic, abundant arenaceous, chalky texture but dense, poor visible porosity, pale blue fluorescence, no shows

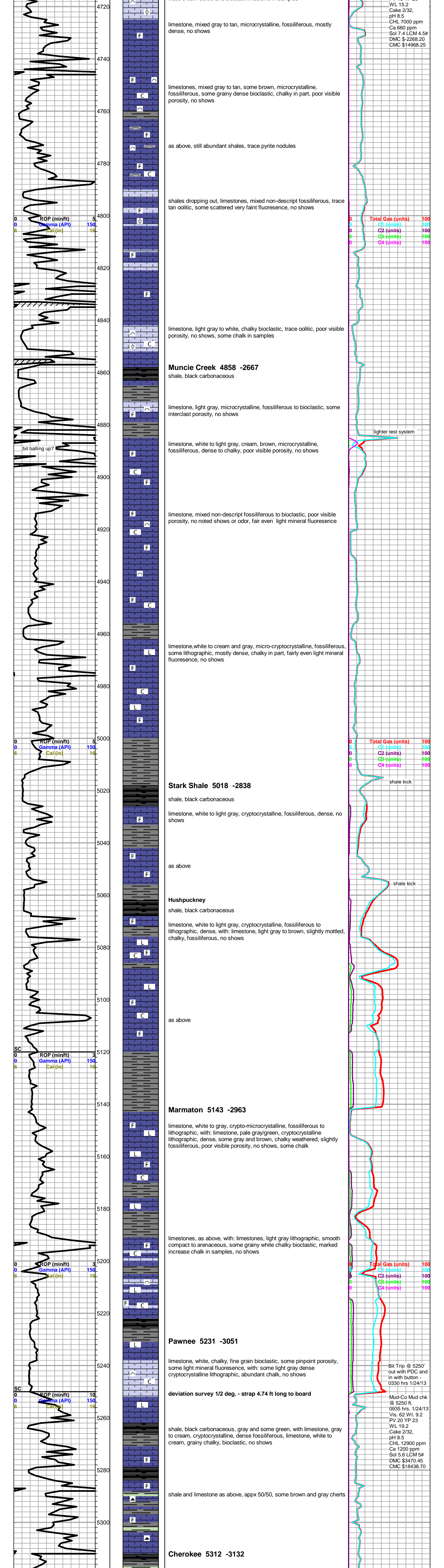
trace cream oolitic and bioclast limestone in samples

Total Gas (units) 100
C1 (units) 100
C2 (units) 100
C3 (units) 100
C4 (units) 100

Total Gas (units) 100
C1 (units) 100
C2 (units) 100
C3 (units) 100
C4 (units) 100

Total Gas (units) 100
C1 (units) 100
C2 (units) 100
C3 (units) 100
C4 (units) 100

Mud-Co Mud chk @ 4708 ft. 0840 hrs. 1/23/13 Vis. 52 Wt. 9.4 PV 16 YP 20



limestone, mixed gray to tan, microcrystalline, fossiliferous, mostly dense, no shows

WL 15.2
 Cake 2/32,
 pH 8.5
 CHL 7000 ppm
 Ca 660 ppm
 Sol 7.4 LCM 4.5#
 DMC \$-2268.20
 CMC \$14968.25

limestones, mixed gray to tan, some brown, microcrystalline, fossiliferous, some grainy dense bioclastic, chalky in part, poor visible porosity, no shows

as above, still abundant shales, trace pyrite nodules

shales dropping out, limestones, mixed non-descript fossiliferous, trace tan oolitic, some scattered very faint fluorescence, no shows

Total Gas (units) 100
 C1 (units) 100
 C2 (units) 100
 C3 (units) 100
 C4 (units) 100

limestone, light gray to white, chalky bioclastic, trace oolitic, poor visible porosity, no shows, some chalk in samples

Muncie Creek 4858 -2667
 shale, black carbonaceous

limestone, light gray, microcrystalline, fossiliferous to bioclastic, some interclast porosity, no shows

lighter test system

limestone, white to light gray, cream, brown, microcrystalline, fossiliferous, dense to chalky, poor visible porosity, no shows

bit balling up?

limestone, mixed non-descript fossiliferous to bioclastic, poor visible porosity, no noted shows or odor, fair even light mineral fluorescence

limestone, white to cream and gray, micro-cryptocrystalline, fossiliferous, some lithographic, mostly dense, chalky in part, fairly even light mineral fluorescence, no shows

Stark Shale 5018 -2838
 shale, black carbonaceous

limestone, white to light gray, cryptocrystalline, fossiliferous, dense, no shows

Total Gas (units) 100
 C1 (units) 100
 C2 (units) 100
 C3 (units) 100
 C4 (units) 100

shale kick

as above

shale kick

Hushpuckney
 shale, black carbonaceous

limestone, white to light gray, cryptocrystalline, fossiliferous to lithographic, dense, with: limestone, light gray to brown, slightly mottled, chalky, fossiliferous, no shows

as above

Marmaton 5143 -2963

limestone, white to gray, crypto-microcrystalline, fossiliferous to lithographic, with: limestone, pale gray/green, cryptocrystalline lithographic, dense, some gray and brown, chalky weathered, slightly fossiliferous, poor visible porosity, no shows, some chalk

limestones, as above, with: limestones, light gray lithographic, smooth compact to arenaceous, some grainy white chalky bioclastic, marked increase chalk in samples, no shows

Total Gas (units) 100
 C1 (units) 100
 C2 (units) 100
 C3 (units) 100
 C4 (units) 100

Pawnee 5231 -3051

limestone, white, chalky, fine grain bioclastic, some pinpoint porosity, some light mineral fluorescence, with: some light gray dense cryptocrystalline lithographic, abundant chalk, no shows

deviation survey 1/2 deg. - strap 4.74 ft long to board

Bit Trip @ 5250' out with PDC and in with button - 0330 hrs 1/24/13

Mud-Co Mud chk @ 5250 ft. 0935 hrs. 1/24/13
 Vis. 62 Wt. 9.2
 PV 20 YP 23
 WL 19.2
 Cake 2/32,
 pH 8.5
 CHL 12900 ppm
 Ca 1200 ppm
 Sol 5.6 LCM 5#
 DMC \$3470.45
 CMC \$18438.70

shale, black carbonaceous, gray and some green, with limestone, gray to cream, cryptocrystalline, dense fossiliferous, limestone, white to cream, grainy chalky, bioclastic, no shows

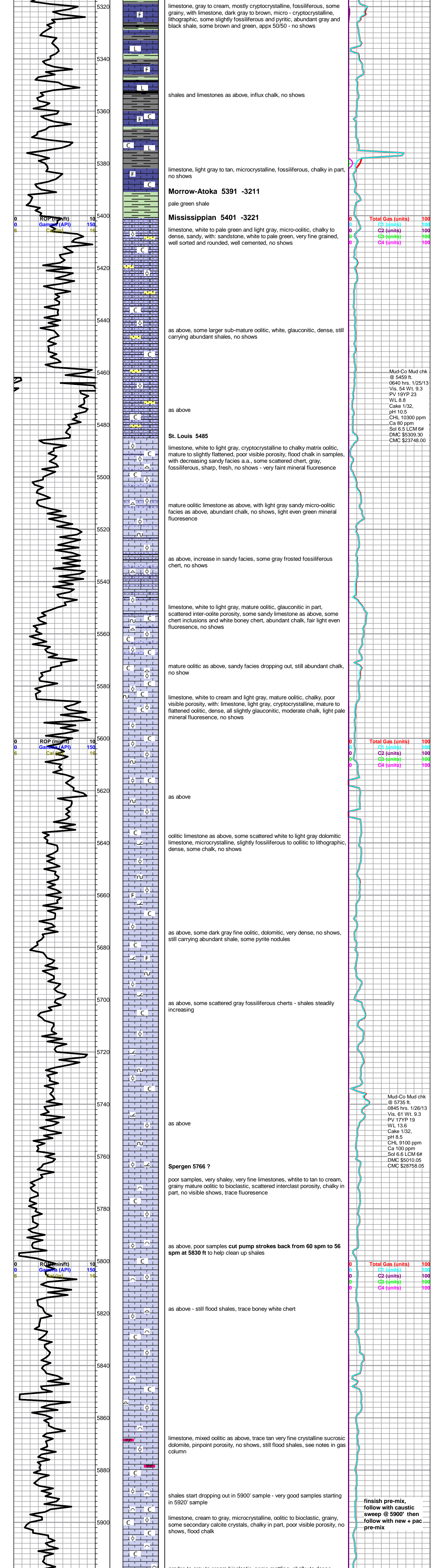
shale and limestone as above, appx 50/50, some brown and gray cherts

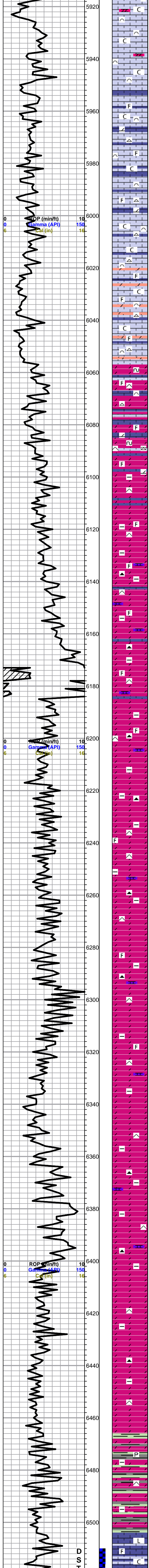
Cherokee 5312 -3132

ROP (min/ft) 3
 Gamma (API) 150
 Cal (in) 16

ROP (min/ft) 3
 Gamma (API) 150
 Cal (in) 16

ROP (min/ft) 10
 Gamma (API) 150
 Cal (in) 16





grades to gray to cream bioclastic, some mottling, chunky to dense, some scattered gray dolomitic bioclastic limestone, poor visible porosity, no shows, abundant chalk, very faint mineral fluorescence

limestone, white to light gray to cream, some mottled, fossiliferous to bioclastic, some re-crystallized, altered, dolomitic in part, poor visible porosity, fresh boney white chert and white to light gray fossiliferous cherts, abundant chalk, no shows

as above

limestone and chert as above, with influx limestone, white to gray, very chalky/weathered bioclastic, some scattered porosity, with: dolomite, white to light blue/gray, slight mottling, altered fossiliferous, dense, abundant chalk, no shows, faint to scattered fair mineral fluorescence

increasing dolomite and increased mottling, decreasing limestone, increase chalk

Cowley Facies 6057 -3877
 dolomite to dolomitic limestone, gray mottled and gray green mottled, microcrystalline, altered fossiliferous, slightly to very glauconitic, dense, with: limestone as above, chert, gray mottled, fossiliferous, weathered to sub-tripolitic, dolomite, light gray, arenaceous-argillaceous, dense, abundant loose quartz shards, moderate chalk, no shows

grades to : dolomite, gray to light gray, microcrystalline, arenaceous to sub sucrosic, dense, with glauconitic facies as above, chalky bioclastic limestones fall out, still carrying weathered cherts and quartz shards

6130 sample, further decrease in glauconitic facies

as above, primarily gray argillaceous/arenaceous facies with stringers glauconitic facies, glauconitic facies primarily dolomite now, quartz shards, some scattered gray spiculitic to fossiliferous cherts, scattered limestone, cream, bioclastic, dolomitic, dense, no shows

as above

primarily gray argillaceous/arenaceous dolomite facies, glauconitic facies and limestone drops out, trace chert and quartz shards

as above

as above

as above, no fluorescence or shows

mixed dark gray argillaceous/arenaceous dolomites as above, some scattered light gray to cream dolomitic limestone, fossiliferous, scattered cherts, quartz shard decrease, no shows

as above

as above, with shale, gray, dense limey to soft, some green and turquoise, silty to dense limey, some quartz inclusions and loose quartz shards, some brown shale, trace pyrite, gray wash in samples

limestone, cream to gray, microcrystalline, slightly fossiliferous to lithographic, some very chalky but mostly dense, no visible porosity, no shows or fluorescence

Total Gas (units)	100
C1 (units)	100
C2 (units)	100
C3 (units)	100
C4 (units)	100

Mud-Co Mud chk @ 6094 ft. 1015 hrs. 1/27/13 Vis. 64 Wt. 9.2 PV 20 YP 23 WL 9.6 Cake 1/32, pH 9.5 CHL 9800 ppm Ca 40 ppm Sol 5.8 LCM 15# DMC \$7848.50 CMC \$36606.55

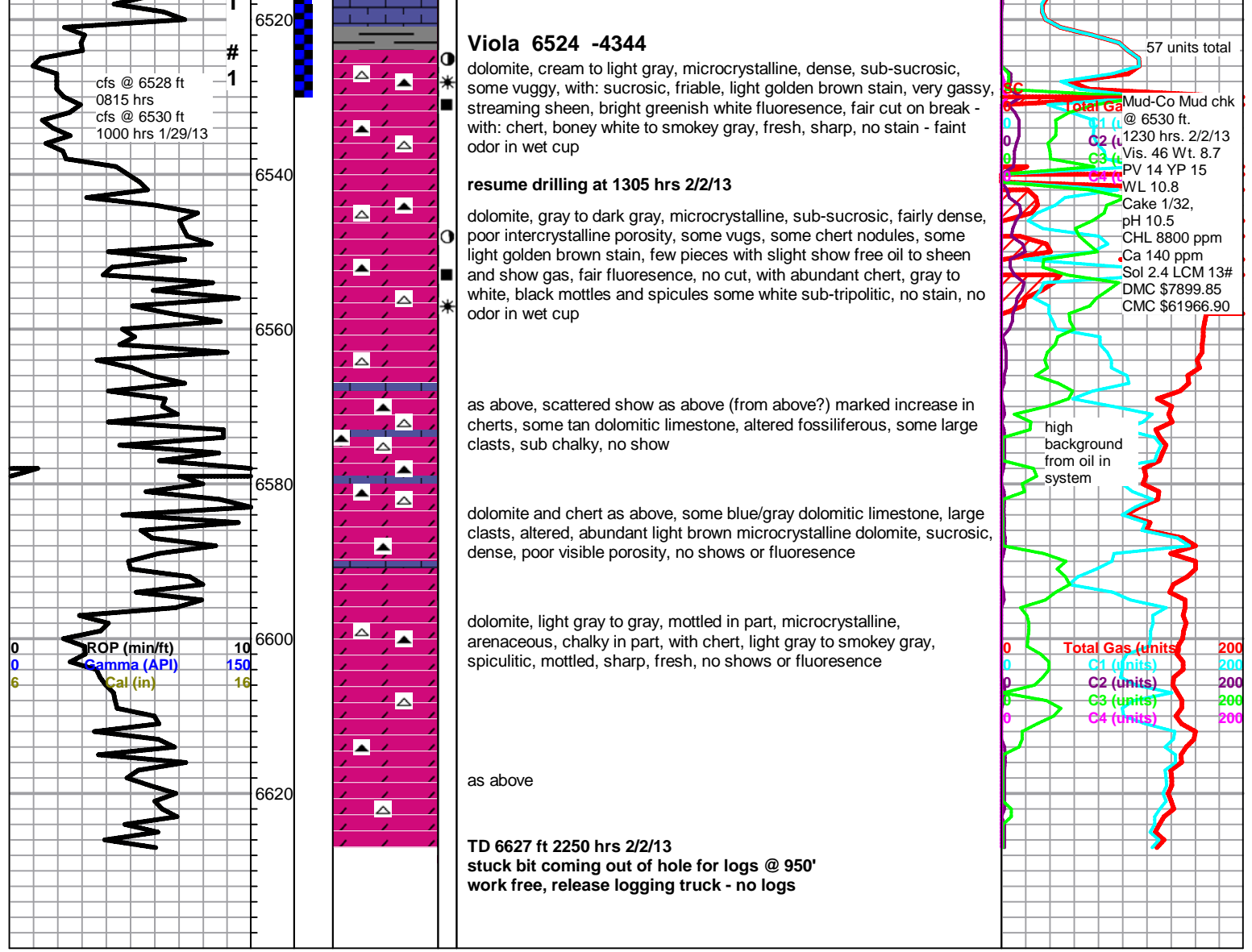
Total Gas (units)	100
C1 (units)	100
C2 (units)	100
C3 (units)	100
C4 (units)	100

Mud-Co Mud chk @ 6300 ft. 0820 hrs. 1/28/13 Vis. 57 Wt. 9.2 PV 20 YP 22 WL 11.6 Cake 1/32, pH 9.5 CHL 7200 ppm Ca 140 ppm Sol 6.0 LCM 15# DMC \$5668.15 CMC \$42274.70

Total Gas (units)	100
C1 (units)	100
C2 (units)	100
C3 (units)	100
C4 (units)	100

Short Trip @ 6465'

DST #1 mis-run, hit bridge at 950', then stuck bit at 5780' when cleaning out hole - see daily drilling report in headers





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co, Inc.**

250 Water STE 300
Wichita, KS 67202

ATTN: Keith Reavis

Harden #1-20

20-32s-21w Clark,KS

Start Date: 2013.01.29 @ 15:08:05

End Date: 2013.01.29 @ 17:18:45

Job Ticket #: 51431 DST #: 1

Trilobite Testing, Inc
PO Box 362 Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2013.02.05 @ 09:04:25



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co, Inc.

20-32s-21w Clark,KS

250 Water STE 300
Wichita, KS 67202

Harden #1-20

Job Ticket: 51431

DST#: 1

ATTN: Keith Reavis

Test Start: 2013.01.29 @ 15:08:05

Tool Information

Drill Pipe:	Length: 6266.00 ft	Diameter: 3.80 inches	Volume: 87.90 bbl	Tool Weight: 2500.00 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: 240.00 ft	Diameter: 2.25 inches	Volume: 1.18 bbl	Weight to Pull Loose: 30000.00 lb
			<u>Total Volume: 89.08 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	23.00 ft			String Weight: Initial 30000.00 lb
Depth to Top Packer:	6510.00 ft			Final 30000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	20.00 ft			
Tool Length:	47.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Change Over Sub	1.00			6484.00	
Shut In Tool	5.00			6489.00	
Hydraulic tool	5.00			6494.00	
Jars	5.00			6499.00	
Safety Joint	2.00			6501.00	
Packer	5.00			6506.00	27.00 Bottom Of Top Packer
Packer	4.00			6510.00	
Stubb	1.00			6511.00	
Recorder	0.00	8677	Inside	6511.00	
Recorder	0.00	8522	Outside	6511.00	
Perforations	16.00			6527.00	
Bullnose	3.00			6530.00	20.00 Bottom Packers & Anchor

Total Tool Length: 47.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co, Inc.

20-32s-21w Clark,KS

250 Water STE 300
Wichita, KS 67202

Harden #1-20

Job Ticket: 51431

DST#: 1

ATTN: Keith Reavis

Test Start: 2013.01.29 @ 15:08:05

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 11.99 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 9500.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
0.00		0.000

Total Length:

ft

Total Volume:

bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

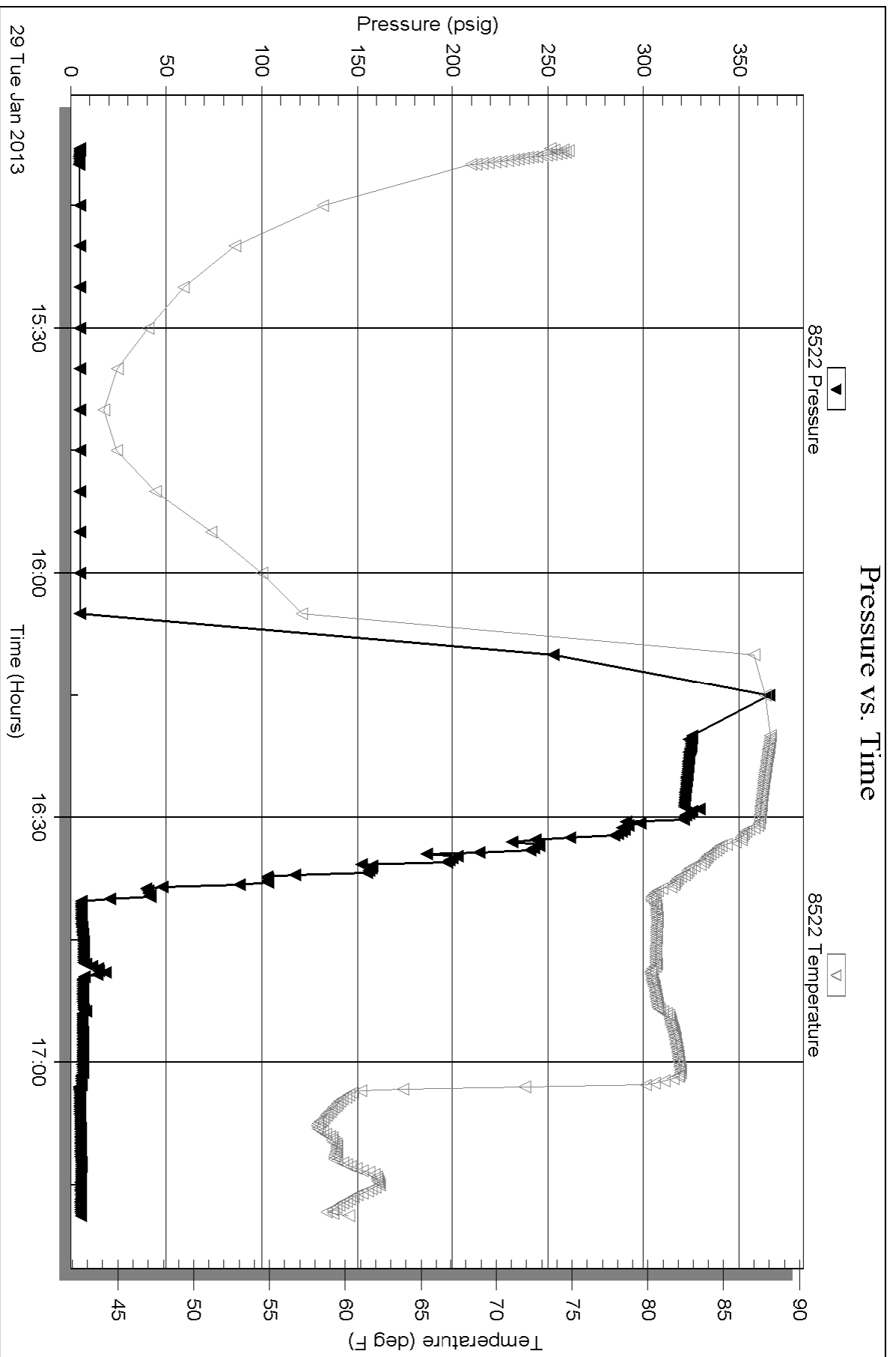
Recovery Comments:

Serial #: 8522

Outside Murfin Drilling Co, Inc.

Harden #1-20

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 51431

Printed: 2013.02.05 @ 09:04:28

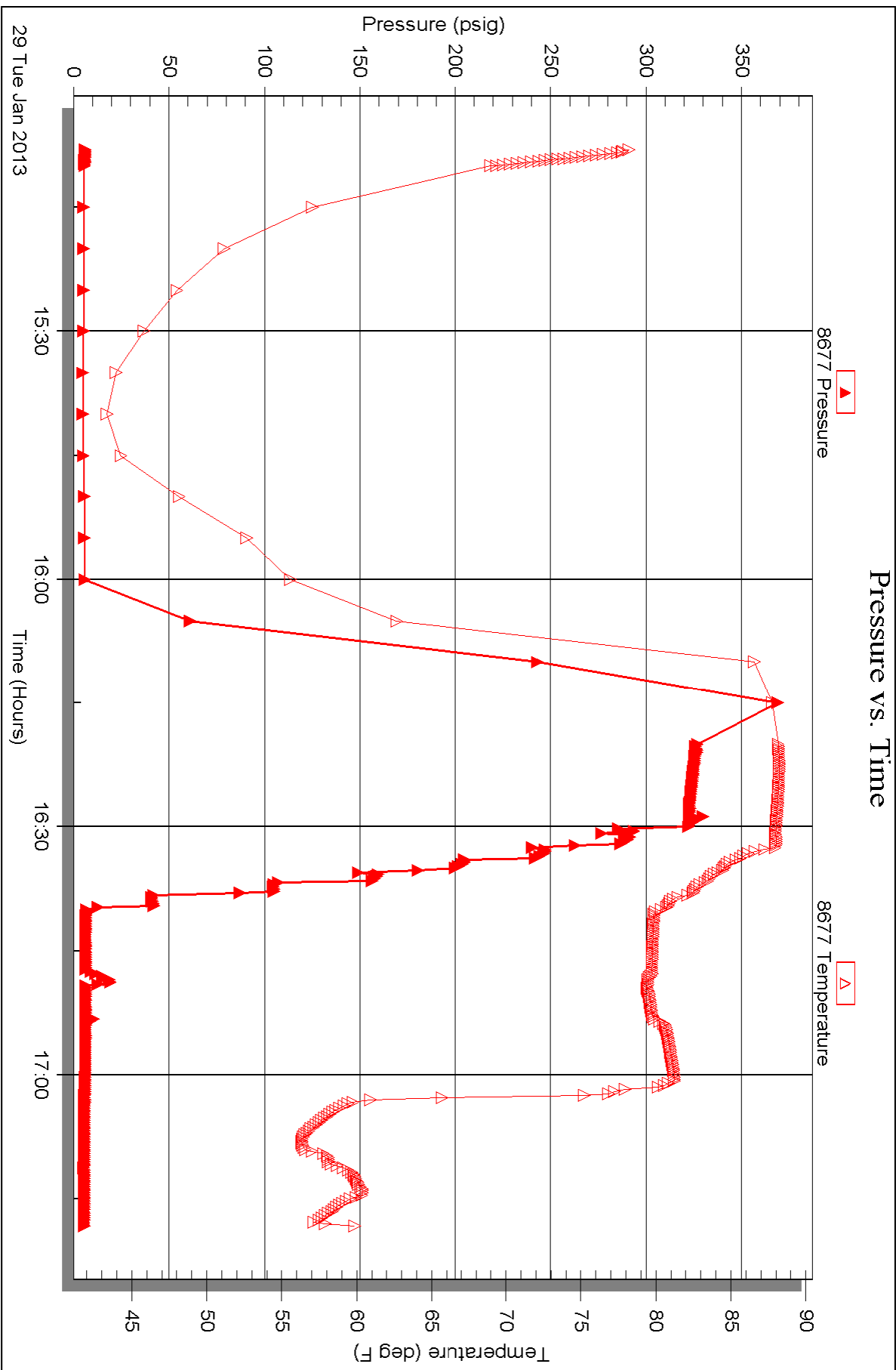
Serial #: 8677

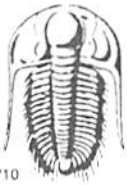
Inside

Murfin Drilling Co., Inc.

Harden #1-20

DST Test Number: 1





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 51431

Well Name & No. Harden #1-20 Test No. 1 Date 1/29/15
 Company Murfin Drilling Co, Inc Elevation _____ KB _____ GL _____
 Address 250 Water STE 300 Wichita, Ks 67202
 Co. Rep / Geo. Keith Reavis Rig Murfin # 22
 Location: Sec. 20 Twp. 32 S Rge. 21 W Co. Clark State Ks

Interval Tested 6510 6530 Zone Tested Viola
 Anchor Length 20 Drill Pipe Run 6266 Mud Wt. 9.2
 Top Packer Depth 6505 Drill Collars Run 240 Vis 60
 Bottom Packer Depth 6510 Wt. Pipe Run Ø WL 12.0
 Total Depth 6530 Chlorides 9500 ppm System LCM 14#

Blow Description Mis-Run - Tool hit bridge on way down hole.

Rec	Feet of	%gas	%oil	%water	%mud
<u>Ø</u>					

Rec Total Ø BHT _____ Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic _____ Test 1250 _____ T-On Location 1400
 (B) First Initial Flow M _____ Jars 250 _____ T-Started 1508
 (C) First Final Flow I _____ Safety Joint 75 _____ T-Open _____
 (D) Initial Shut-In S _____ Circ Sub N/E _____ T-Pulled 1630
 (E) Second Initial Flow R _____ Hourly Standby _____ T-Out 17:18
 (F) Second Final Flow U _____ Mileage 146rt 452.60 _____
 (G) Final Shut-In N _____ Sampler _____
 (H) Final Hydrostatic _____ Straddle _____

Comments Multiple Loss of Circ. ~~to~~ Pipe got stuck P/O Tool 1-30-13 @ 1100

Initial Open MIS RUN
 Initial Shut-In _____
 Final Flow _____
 Final Shut-In _____

Ruined Shale Packer _____
 Ruined Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

Sub Total 2027.60

Approved By _____ Our Representative [Signature]

Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.

ALLIED

OIL & GAS SERVICES, LLC

acct.
Prod-LH

INVOICE

PO Box 93999
Southlake, TX 76092

Invoice Number: 134602
Invoice Date: Jan 20, 2013
Page: 1

Voice: (817) 546-7282
Fax: (817) 246-3361

Now Includes:



Bill To:
Murfin Drlg. Co., Inc. 250 N. Water STE #300 Wichita, KS 67202

Customer ID	Field Ticket #	Payment Terms	
Murfin	59713	Net 30 Days	
Job Location	Camp Location	Service Date	Due Date
KS1-01	Airborne	Jan 20, 2013	2/19/13

Quantity	Item	Description	Unit Price	Amount
150.00	MAT	Harden #1-20		
		Class A Common	17.90	2,685.00
3.00	MAT	Gel	23.40	70.20
14.00	MAT	Chloride	64.00	896.00
250.00	MAT	Lightweight Type 1 Class A	16.50	4,125.00
63.00	MAT	Flo Seal	2.97	187.11
559.50	SER	Cubic Feet	2.48	1,387.56
1,060.95	SER	Ton Mileage	2.60	2,758.47
1.00	SER	Surface	2,058.50	2,058.50
55.00	SER	Pump Truck Mileage	7.70	423.50
1.00	SER	Manifold Rental	275.00	275.00
55.00	SER	Light Vehicle Mileage	4.40	242.00
2.00	EQP	8.5/8 Basket	559.26	1,118.52
3.00	EQP	8.5/8 Centralizer	74.88	224.64
1.00	EQP	8.5/8 Baffle Plate	131.04	131.04
1.00	EQP	8.5/8 Rubber Plug	131.04	131.04
1.00	CEMENTER	Jason Thimesch		
1.00	CEMENTER	Ron Gilley		
1.00	EQUIP OPER	Justin Bower		

ALL PRICES ARE NET, PAYABLE
30 DAYS FOLLOWING DATE OF
INVOICE. 1 1/2% CHARGED
THEREAFTER. IF ACCOUNT IS
CURRENT, TAKE DISCOUNT OF

\$ 5,849.75

ONLY IF PAID ON OR BEFORE
Feb 14, 2013

May 2, 2013

Subtotal	16,713.58
Sales Tax	602.82
Total Invoice Amount	17,316.40
Payment/Credit Applied	
TOTAL	17,316.40

- 5,849.75
11,466.65

ALLIED OIL & GAS SERVICES, LLC 059713

Federal Tax I.D.# 20-5975804

REMIT TO P.O. BOX 93999
SOUTHLAKE, TEXAS 76092

SERVICE POINT:
Medicine Lodge KS

DATE <u>07/20/13</u>	SEC. <u>20</u>	TWP. <u>32</u>	RANGE <u>21W</u>	CALLED OUT	ON LOCATION	JOB START	JOB FINISH
LEASE <u>Harden</u>	WELL# <u>1-20</u>	LOCATION <u>160+34 int (Sika), North 2 1/2 mi to</u>			COUNTY <u>Frank</u>	STATE <u>KS</u>	
OLD OR <input checked="" type="radio"/> NEW (Circle one)		RD <u>Q, 1/4 East, 1/4 North into, Stay straight on main Rd</u>					

CONTRACTOR Murfin
TYPE OF JOB Surface
HOLE SIZE 12 1/4 T.D. 820
CASING SIZE 8 5/8 DEPTH 819
TUBING SIZE DEPTH
DRILL PIPE DEPTH
TOOL DEPTH
PRES. MAX 500 MINIMUM
MEAS. LINE SHOE JOINT 40
CEMENT LEFT IN CSG. 40
PERFS.
DISPLACEMENT 49 1/2 Bbls Fresh H₂O
EQUIPMENT

OWNER Murfin Drilling Co. Inc
CEMENT
AMOUNT ORDERED 250 sx 65.75:6% Gel + 3% cc + 1/4# Floreal, sx Class A + 3% cc + 2% Gel

COMMON <u>Class A</u>	<u>150 sx @ 17.90</u>	<u>2685</u>
POZMIX	@	
GEL	<u>3 sx @ 23.40</u>	<u>70.20</u>
CHLORIDE	<u>14 sx @ 64.00</u>	<u>896</u>
ASC	@	
Allied Light Ent Typ 1 Class A 250	@ <u>16.50</u>	<u>4125</u>
Floreal	<u>63 lb @ 2.97</u>	<u>187.11</u>
	@	
	@	
	@	
	@	
	@	
HANDLING <u>559.5 cu ft</u>	@ <u>2.48</u>	<u>1387.56</u>
MILEAGE <u>19.29 mi x 55 mi</u>	@ <u>2.60</u>	<u>2758.47</u>
TOTAL		<u>12109.34</u>

PUMP TRUCK CEMENTER Jason Thibodeau
471/202 HELPER Ron Bailey
BULK TRUCK
421/252 DRIVER Justin Bower
BULK TRUCK
DRIVER

REMARKS:

Did cure cement

SERVICE

DEPTH OF JOB <u>819</u>		
PUMP TRUCK CHARGE		<u>2058.50</u>
EXTRA FOOTAGE	@	
MILEAGE <u>55 mi</u>	@ <u>7.70</u>	<u>423.50</u>
MANIFOLD	@ <u>275</u>	<u>275</u>
<u>LV</u>	@ <u>55 mi @ 4.40</u>	<u>242</u>
	@	

TOTAL 2999

PLUG & FLOAT EQUIPMENT

<u>8 5/8</u>			
Baskets	<u>2 @ 559.26</u>	<u>1118.52</u>	
Centralizers	<u>3 @ 74.88</u>	<u>224.64</u>	
Baffle Plate	<u>1 @ 131.04</u>	<u>131.04</u>	
Refriger Play	<u>1 @ 131.04</u>	<u>131.04</u>	
	@		

TOTAL 1605.24

CHARGE TO: Coral Coast
STREET _____
CITY _____ STATE _____ ZIP _____

SALES TAX (If Any) _____
TOTAL CHARGES 16713.58
DISCOUNT _____ IF PAID IN 30 DAYS

To: Allied Oil & Gas Services, LLC.
You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.

PRINTED NAME Kelly Wilson
SIGNATURE Kelly Wilson

NET \$ 13,370.86



Accty - re:WT
cc: L-1
cc: L-1

PAGE	CUST NO	INVOICE DATE
1 of 1	1002852	02/06/2013
INVOICE NUMBER		
1718 - 91112611		

Pratt (620) 672-1201
 B MURFIN DRILLING
 I PO Box: 288
 L RUSSELL
 L KS US 67665
 T
 O ATTN: ACCOUNTS PAYABLE

J LEASE NAME Harden 1-20
 O LOCATION
 B COUNTY Clark
 S STATE KS
 I JOB DESCRIPTION Cement-New Well Casing/Pi
 T JOB CONTACT
 E

JOB #	EQUIPMENT #	PURCHASE ORDER NO.	TERMS	DUE DATE
40561728	20920		Net - 30 days	03/08/2013

For Service Dates: 02/04/2013 to 02/04/2013

0040561728

171807723A Cement-New Well Casing/Pi 02/04/2013
 Cement 5 1/2" Longstring

USED FOR I 103
 APPROVED [Signature]

	QTY	U of M	UNIT PRICE	INVOICE AMOUNT
AA2 Cement	325.00	EA	12.75	4,143.60 T
C-41P	77.00	EA	3.00	230.99 T
Salt	1,624.00	EA	0.37	608.98 T
Cement Friction Reducer	92.00	EA	4.50	413.98 T
FLA-322	245.00	EA	5.62	1,378.07 T
Gilsonite	1,625.00	EA	0.50	816.53 T
"Latch Down Plug & Baffle, 5 1/2" (Blue)	1.00	EA	299.99	299.99
"Auto Fill Float Shoe 5 1/2" (Blue)"	1.00	EA	269.99	269.99
"Turbolizer, 5 1/2" (Blue)"	8.00	EA	82.50	659.97
"5 1/2" Basket (Blue)"	2.00	EA	217.49	434.98
Claymax KCL Substitute	7.00	EA	26.25	183.74 T
Mud Flush	500.00	EA	0.64	322.49 T
"Unit Mileage Chg (PU, cars one way)"	75.00	MI	3.19	239.05
Heavy Equipment Mileage	150.00	MI	5.25	787.47
"Proppant & Bulk Del. Chgs., per ton mil	1,148.00	EA	1.20	1,377.55
Depth Charge; 6001'-7000'	1.00	EA	2,429.91	2,429.91
Blending & Mixing Service Charge	325.00	BAG	1.05	341.24
Plug Container Util. Chg.	1.00	EA	187.49	187.49
Casing Swivel Rental	1.00	EA	149.99	149.99
"Service Supervisor, first 8 hrs on loc.	1.00	EA	131.24	131.24

PLEASE REMIT TO:	SEND OTHER CORRESPONDENCE TO:	SUB TOTAL	15,407.25
BASIC ENERGY SERVICES, LP	BASIC ENERGY SERVICES, LP	TAX	510.20
PO BOX 841903	801 CHERRY ST, STE 2100	INVOICE TOTAL	15,917.45
DALLAS, TX 75284-1903	FORT WORTH, TX 76102		



BASICSM
ENERGY SERVICES
PRESSURE PUMPING & WIRELINE

10244 NE Hwy. 61
P.O. Box 8613
Pratt, Kansas 67124
Phone 620-672-1201

FIELD SERVICE TICKET
1718 07723 A

DATE _____ TICKET NO. _____

DATE OF JOB <u>02-04-13</u> DISTRICT <u>PRATT KS</u>		NEW WELL <input checked="" type="checkbox"/> OLD WELL <input type="checkbox"/> PROD <input type="checkbox"/> INJ <input type="checkbox"/> WDW <input type="checkbox"/> CUSTOMER ORDER NO.:						
CUSTOMER <u>MORFFIN Dolo</u>		LEASE <u>HARDEN</u> 1-20 WELL NO.						
ADDRESS		COUNTY <u>CLARK</u> STATE <u>KS</u>						
CITY STATE		SERVICE CREW <u>Sullivan, Wright, Young</u>						
AUTHORIZED BY		JOB TYPE: <u>CNW</u> <u>5 1/2"</u>						
EQUIPMENT#	HRS	EQUIPMENT#	HRS	EQUIPMENT#	HRS	TRUCK CALLED <u>2-3-13</u> DATE	AM	TIME
<u>33705-20170</u>	<u>50</u>							<u>2:30</u>
<u>77686-7368</u>	<u>30</u>							<u>2:30</u>
<u>37900</u>								<u>4:00</u>
								<u>4:50</u>
								<u>5:30</u>
								<u>75</u>

CONTRACT CONDITIONS: (This contract must be signed before the job is commenced or merchandise is delivered).

The undersigned is authorized to execute this contract as an agent of the customer. As such, the undersigned agrees and acknowledges that this contract for services, materials, products, and/or supplies includes all of and only those terms and conditions appearing on the front and back of this document. No additional or substitute terms and/or conditions shall become a part of this contract without the written consent of an officer of Basic Energy Services LP.

SIGNED: James Spurgeon
(WELL OWNER, OPERATOR, CONTRACTOR OR AGENT)

ITEM/PRICE REF. NO.	MATERIAL, EQUIPMENT AND SERVICES USED	UNIT	QUANTITY	UNIT PRICE	\$ AMOUNT
CP 105	AA-2 cmt	SK	275		4,675.00
CP 105	AA-2 1 cmt	SK	50		850.00
CC 105	Detc. Adm.	lb	77		308.00
CC 111	SALT	lb	1624		812.00
CC 112	Fracture Adm.	lb	92		552.00
CC 229	Flu. Li. Lads	lb	745		1,837.50
CC 701	g. solvent	lb	1625		1,088.75
PF 607	LATCH Mower Plug x RUFFLO 5 1/2"	SA	1		400.00
PF 1251	Audu Full Hand shoe	SA	1		360.00
PF 1651	Turned on	SA	8		880.00
PF 1901	BASKET	GR	2		580.00
C 204	Chem. KCC	MC	7		245.00
CC 151	PROD Flank	PHL	500		430.00
C 100	airup mid	mi	75		318.75
C 101	Hess. Spent air	mm	150		1,050.00
C 113	Bulk Delivery	TON	1148		1,836.00

CHEMICAL / ACID DATA:			

SUB TOTAL		
SERVICE & EQUIPMENT	%TAX ON \$	
MATERIALS	%TAX ON \$	
TOTAL		

SERVICE REPRESENTATIVE <u>Robert Sullivan</u>	THE ABOVE MATERIAL AND SERVICE ORDERED BY CUSTOMER AND RECEIVED BY: <u>James Spurgeon</u> (WELL OWNER OPERATOR CONTRACTOR OR AGENT)
---	--

FIELD SERVICE ORDER NO.



BASICSM
ENERGY SERVICES
PRESSURE PUMPING & WIRELINE

10244 NE Hwy. 61
P.O. Box 8613
Pratt, Kansas 67124
Phone 620-672-1201

FIELD SERVICE TICKET
1718 07725 A

DATE _____ TICKET NO. _____

DATE OF JOB		DISTRICT		NEW WELL <input type="checkbox"/>	OLD WELL <input type="checkbox"/>	PROD. <input type="checkbox"/>	INJ. <input type="checkbox"/>	WDW <input type="checkbox"/>	CUSTOMER ORDER NO.	
CUSTOMER				LEASE				WELL NO.		
ADDRESS				COUNTY		STATE				
CITY		STATE		SERVICE CREW						
AUTHORIZED BY				JOB TYPE:						
EQUIPMENT#	HRS	EQUIPMENT#	HRS	EQUIPMENT#	HRS	TRUCK CALLED		DATE	AM PM	TIME
						ARRIVED AT JOB			AM PM	
						START OPERATION			AM PM	
						FINISH OPERATION			AM PM	
						RELEASED			AM PM	
						MILES FROM STATION TO WELL				

CONTRACT CONDITIONS: (This contract must be signed before the job is commenced or merchandise is delivered).

The undersigned is authorized to execute this contract as an agent of the customer. As such, the undersigned agrees and acknowledges that this contract for services, materials, products, and/or supplies includes all of and only those terms and conditions appearing on the front and back of this document. No additional or substitute terms and/or conditions shall become a part of this contract without the written consent of an officer of Basic Energy Services LP.

SIGNED: _____
(WELL OWNER, OPERATOR, CONTRACTOR OR AGENT)

ITEM/PRICE REF. NO.	MATERIAL, EQUIPMENT AND SERVICES USED	UNIT	QUANTITY	UNIT PRICE	\$ AMOUNT
		500	27		4,675 00
					800 20
		16	37		309 00
		16	16		912 00
		16	31		552 00
		16	24		1,837 50
		16	16		1,283 75
		70	1		400 00
					360 00
					880 00
			2		580 00
					245 00
			50		430 00
			9		318 75
			100		1,050 00
			128		1,236 00
SUB TOTAL					

CHEMICAL / ACID DATA:			

SERVICE & EQUIPMENT	%TAX ON \$	
MATERIALS	%TAX ON \$	
TOTAL		

SERVICE REPRESENTATIVE	THE ABOVE MATERIAL AND SERVICE ORDERED BY CUSTOMER AND RECEIVED BY:
------------------------	---

(WELL OWNER OPERATOR CONTRACTOR OR AGENT)

FIELD SERVICE ORDER NO.

Customer <i>MURFIN DR/G</i>	Lease No.	Date <i>02-04-13</i>
Lease <i>HARDEN</i>	Well # <i>7-20</i>	
Field Order # <i>7123</i>	Station <i>PRN-H KS</i>	Casing # <i>512</i>
	Depth <i>6625'</i>	County <i>CLARK</i>
Type Job <i>CNW 5 1/2 long string</i>	Formation	Legal Description <i>20-32-21</i>

PIPE DATA		PERFORATING DATA		FLUID USED		TREATMENT RESUME		
Casing Size	Tubing Size	Shots/Ft		Acid	RATE	PRESS	ISIP	
<i>5 1/2</i>							5 Min.	
Depth <i>6625'</i>	Depth	From	To	Pre Pad	Max			
Volume <i>157</i>	Volume	From	To	Pad	Min		10 Min.	
Max Press <i>2,000</i>	Max Press	From	To	Frac	Avg		15 Min.	
Well Connection <i>P.C.</i>	Annulus Vol.	From	To		HHP Used		Annulus Pressure	
Plug Depth <i>6601'</i>	Packer Depth	From	To	Flush	Gas Volume		Total Load	

Customer Representative	Station Manager <i>DAVE SCOTT</i>	Treater <i>Robert Johnson</i>
Service Units <i>37900 23708 20920 77686 73768</i>		
Driver Names <i>Sullivan Wright Young</i>		

Time	Casing Pressure	Tubing Pressure	Bbls. Pumped	Rate	Service Log
<i>2:30</i>	<i>200</i>				<i>on loc softx making RWD 157 JTS 5 1/2 15.5 csp cont 1, 3 = 2, 9, 11, 15 Bkt 20-35 cin csg JTS EO 1/2 back</i>
<i>3:15</i>					<i>CANDE and Bottom</i>
<i>3:30</i>					<i>Hook up circ.</i>
<i>4:00</i>	<i>500</i>		<i>3</i>	<i>3.5</i>	<i>H SPACER</i>
			<i>12</i>		<i>mix mud flush</i>
			<i>3</i>		<i>EDUCARD</i>
			<i>5</i>		<i>mix cont 275 sk AA-7 cont R 15.0009</i>
			<i>20</i>		<i>cont mix (6 shut down) wash, pump, lower Release Plug</i>
			<i>6</i>		<i>1/2 Dis w/ 2% KCL #20</i>
	<i>400</i>		<i>115</i>		<i>lift PSI</i>
	<i>700</i>			<i>4</i>	<i>Slow Rate</i>
<i>4:50</i>	<i>2,000</i>		<i>157</i>		<i>Plug down</i>
			<i>7</i>		<i>plug R/W w/ sock</i>
			<i>5</i>		<i>plug MW w/ sock</i>
					<i>JOB Complete</i>
					<i>Thank you</i>

Company: MURFIN DRILLING COMPANY, INC.
Well: HARDEN NO. 1-20

Field: CLARK
County: CLARK
State: KANSAS

Location: 367 P.M.L. & 1348 FEL.
APR #1 : 15-025-21-955

Permanent Datum: SEC 20 TWP 32S RGE 21W
Log Measured From: GROUND LEVEL
Drilling Measured From: KELLY BUSHING

Date: FEB 11 2013
Depth: 6188'
Bottom Logged Interval: 6186' - 6190'

Company Meter: VMA FER
Type of Assembly: 138F
Time Recorded: 1:56F
Estimated Cement Top: 4630'

Time Logged to Bottom: //'
Equipment Number: P1 36
Logged by: BOB KAYS
Checked by: MR. MICHAEL PANCIK

Run Number: 1225
TMO: 818
Casing Record: To 6077
Size: 13.000"
Type: VMA FER

Gamma Ray: 6.18
Neutron: 0.00
CCL: 62.53

Gamma Ray: 6.18
Neutron: 0.00
CCL: 62.53

Gamma Ray: 6.18
Neutron: 0.00
CCL: 62.53

Gamma Ray: 6.18
Neutron: 0.00
CCL: 62.53

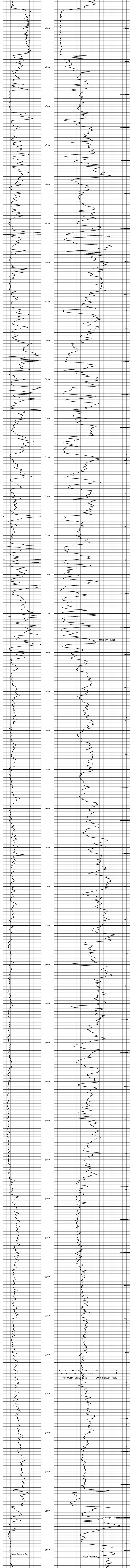
Gamma Ray: 6.18
Neutron: 0.00
CCL: 62.53

Gamma Ray: 6.18
Neutron: 0.00
CCL: 62.53

Gamma Ray: 6.18
Neutron: 0.00
CCL: 62.53

Comments: THANK YOU FOR USING PERF-TECH WIRELINE SERVICES, INC. 785-628-3969
DIRECTIONS: SITKA, KS. 5 NORTH to Q Rd, 1 1/2 EAST, NORTH EAST

Database File: feb1113.db
Dataset Pathname: pass4
Presentation Format: gr-n-col
Dataset Creation: Mon Feb 11 14:14:09 2013 by Log SCH 111116
Charted by:



MDCI Harden #1-20 367 FNL 1349 FEL Sec. 20-32-21 2180' KB							Berexco, Inc. Harden #4-20 429 FNL 477 FEL Sec. 20-32-21 2134' KB	
Formations	Sample Tops	Datum	Ref	Log tops	Datum	Ref	Log Tops	Datum
Heebner	4432	-2252	-10				4376	-2242
Lansing	4632	-2452	-9	4634	-2454	-11	4577	-2443
Stark	5018	-2838	-8	5020	-2840	-10	4964	-2830
Marmaton	5143	-2963	-11	5146	-2966	-14	5086	-2952
Pawnee	5231	-3051	-9	5231	-3051	-9	5176	-3042
Cherokee	5312	-3132	-7	5314	-3134	-9	5259	-3125
Mississippi	5401	-3221	-11	5404	-3224	-14	5344	-3210
Viola	6524	-4344	-4	6525	-4345	-5	6474	-4340
Arbuckle							(Samp) 6781	-4647
RTD	6627						6900	
LTD				6588			6906	

Due to hole conditions, no openhole logs were run. Only a cased hole neutron log.