KOLAR Document ID: 1429575

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 # 3180
Name: Deutsch, Kent A. dba Deutsch Oil Company
Address 1: 8100 E 22ND ST N, BLDG 600
Address 2:
City: WICHITA State: KS Zip: 67226 + 2307
Contact Person: Kent Deutsch
Phone: (316) 681-3567
CONTRACTOR: License # 5123
Name: Pickrell Drilling Company, Inc.
Wellsite Geologist: Aaron Youn
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 #:

07/05/2018 Spud Date or Recompletion Date
07/18/2018 Date Reached TD
12/03/2018 Completion Date or Recompletion Date

API No.: 15-151-22473-00-00
Spot Description:
_ - NE - NE - NE Sec. 18 Twp. 26 S. R. 11 ☐ East ☑ West
330 Feet from ☑ North / ☐ South Line of Section
330 Feet from ☑ East / ☐ West Line of Section
Footages Calculated from Nearest Outside Section Corner:
☑ NE ☐ NW ☐ SE ☐ SW
GPS Location: Lat: *(e.g. xx.xxxxx)* , Long: *(e.g. -xxx.xxxxx)*
Datum: ☐ NAD27 ☐ NAD83 ☐ WGS84
County: Pratt
Lease Name: TRIPLE M Well #: 1-18
Field Name:
Producing Formation: Mississippi
Elevation: Ground: 1858 Kelly Bushing: 1865
Total Vertical Depth: 4285 Plug Back Total Depth:
Amount of Surface Pipe Set and Cemented at: 304 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: 40000 ppm Fluid volume: 1520 bbls
Dewatering method used: Hauled to Disposal
Location of fluid disposal if hauled offsite:
Operator Name: Studer Oil Co.
Lease Name: Studer #3 License #: 9582
Quarter SW Sec. 4 Twp. 27 S. R. 12 ☐ East ☑ West
County: Pratt Permit #: D24220.0

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:** Karen Ritter **Date:** 12/11/2018

Operator Name: Deutsch, Kent A. dba Deutsch Oil Company Lease Name: TRIPLE M Well #: 1-18

Sec. 18 Twp. 26 S. R. 11 ☐ East ☑ West County: Pratt

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 *(Attach Additional Sheets)*	☑ Yes	☐ No
Samples Sent to Geological Survey	☑ Yes	☐ No
Cores Taken	☐ Yes	☑ No
Electric Log Run	☑ Yes	☐ No
Geologist Report / Mud Logs	☑ Yes	☐ No

List All E. Logs Run:

Dual Induction
Micro
Comp. Neutron Density

☑ Log Formation (Top), Depth and Datum ☐ Sample

Name	Top	Datum
Heebner	3433	1578
Lansing	3645	1780
Mississippi	4063	2198
Viola	4239	2374

CASING RECORD ☑ New ☐ 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
Surface	12.25	8.625	23	304	60/40 poz	300	2%gel, 3% cc.
Production	7.875	5.5	17	4275	AA2	175	10% salt, .5% defoamer, .3% friction redu

ADDITIONAL CEMENTING / SQUEEZE RECORD

Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
☐ Perforate ☐ Protect Casing ☐ Plug Back TD ☐ 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:
12/06/2018	☐ Flowing ☑ Pumping ☐ Gas Lift ☐ Other *(Explain)*

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity
	25	0	50		

DISPOSITION OF GAS:	METHOD OF COMPLETION:	PRODUCTION INTERVAL:	
		Top	Bottom
☐ Vented ☐ Sold ☑ Used on Lease *(If vented, Submit ACO-18.)*	☐ Open Hole ☑ Perf. ☐ Dually Comp. *(Submit ACO-5)* ☐ Commingled *(Submit ACO-4)*	4064	4093

Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record *(Amount and Kind of Material Used)*
1	4064	4093			1000 gals. NEFE acid, 179,500# sand, 8904 bbls. slick water.

TUBING RECORD:	Size:	Set At:	Packer At:
	2.875	4020	

Mail to: KCC - Conservation Division, 266 N. Main, Suite 220, Wichita, Kansas 67202

Form	ACO1 - Well Completion
Operator	Deutsch, Kent A. dba Deutsch Oil Company
Well Name	TRIPLE M 1-18
Doc ID	1429575

Casing

Purpose Of String	Size Hole Drilled	Size Casing Set	Weight	Setting Depth	Type Of Cement	Number of Sacks Used	Type and Percent Additives
Surface	12.25	8.625	23	304	60/40 poz	300	2%gel, 3% cc.
Production	7.875	5.5	17	4275	AA2	175	10% salt, .5% defoamer, .3% friction reducer, .4% fluid loss, 5# gelsonite/ sx.

QUALITY WELL SERVICE, INC. 6877

Federal Tax I.D. # 481187368
Home Office 30060 N. Hwy 281, Pratt, KS 67124
Mailing Address P.O. Box 468
Office 620-727-3410 **Rich's Cell 620-727-3409**
Fax 620-672-3663 **Brady's Cell 620-727-6964**

Date	Sec.	Twp.	Range	County	State	On Location	Finish
7-5-18	18	26S	11W	PRATT	KS		

Lease TRIPLE M Well No. 1-18 Location PRESTON 2N 1/2 W 5 into

Contractor Pickrell Drlg. #10 Owner

Type Job SURFACE To Quality Well Service, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.

Hole Size 12¼ T.D. 308'

Csg. 8⅝ 23# Depth 306'

Tbg. Size Depth Charge To Deutsch Oil Co

Tool Depth Street

Cement Left in Csg. 35 Shoe Joint City State

Meas Line Displace 17.6 The above was done to satisfaction and supervision of owner agent or contractor.

Cement Amount Ordered 300sx 60/40 2% GEL 3% CC ¼# CF

EQUIPMENT

Pumptrk 8	No.	TS	
Bulktrk 10	No.	Mike	
Bulktrk	No.		
Pickup	No.		

Common 180
Poz. Mix 120
Gel. 5
Calcium 10
Hulls
Salt
Flowseal 75 lbs
Kol-Seal
Mud CLR 48
CFL-117 or CD110 CAF 38
Sand
Handling 315
Mileage 20

JOB SERVICES & REMARKS

Rat Hole
Mouse Hole
Centralizers
Baskets
D/V or Port Collar

Run 7 jt's 8⅝ 23# csg set @ 306
START CSG
CSG on Bottom Hook up to csg
Break circ
START Running 10 Bbl H2O
START Mix & Pump 300sx 60/40 2% GEL 3% CC ¼# CF @ 14.7#/gal
SHUT DOWN
RELEASE Wooden Plug
Disp 17.6 Bbl Close Valve on csg 200#
Good Circ thru job
Circ Cmt to Pit

Thank You
PLEASE CALL AGAIN
TODD TO MIKE

X Signature

8⅝ FLOAT EQUIPMENT

Guide Shoe
Centralizer
Baskets
AFU Inserts
~~Float Shoe~~ 8⅝ HEAD & MANIFOLD
~~Latch Down~~ 8⅝ WOODEN PLUG
LMV 20
SERVICE SUPERVISOR
Pumptrk Charge SURFACE
Mileage 20

Tax
Discount
Total Charge

Taylor Printing, Inc.

BASiC energy services, L.P.

Prod. Casing

TREATMENT REPORT

Customer: Deutsch Oil Company	Lease No.		Date: 7-27-18
Lease: Triple M	Well #: 1-18		
Field Order #: [illegible]	Station: Pratt	Casing: 5 1/2	Depth: RTD 4200
County: Pratt	State: KS		
Type Job: Z 47 5 1/2 Long String	Formation:	Legal Description: 5-26S-11W	

PIPE DATA		PERFORATING DATA		FLUID USED	TREATMENT RESUME			
Casing Size: 5 1/2	Tubing Size	Shots/Ft		Acid: 175 sx AA-2		RATE	PRESS	ISIP
Depth: 4205.3[illegible]	Depth	From	To	Pre Pad: 12 bbl salt flush .5% [illegible]	Max	[illegible]	.3% [illegible]	5 Min. [illegible]
Volume: 97.7	Volume	From	To	Pad: 35 60/40	Min	[illegible]	2% [illegible]	10 Min.
Max Press: 1500	Max Press	From	To	Frac	Avg			15 Min.
Well Connection: [illegible]	Annulus Vol.	From	To		HHP Used			Annulus Pressure
Plug Depth: 4169.02	Packer Depth	From	To	Flush: 96.8	Gas Volume			Total Load

Customer Representative: Dave [illegible] | Station Manager: Westerman | Treater: Mattal

Service Units	83353		78962	19843		19903	19860				
Driver Names	Mattal		Franklin			[illegible]					

Time	Casing Pressure	Tubing Pressure	Bbls. Pumped	Rate	Service Log
10:50					On location/Safety meeting
2:49					Run 5 1/2 17# csng/shoe joint
					Basket on [illegible]
					Turbos on 1,3,5,7,9 [illegible]
4:35					Csng on bottom
4:45					Hook to csng/Break circ w. rig
4:49	150		12	5	Pump 12 bbl mud flush
5:31	150		5	4	Pump 5 bbl water
5:35	200			5.5	Mix 175 sx AA2 cement
6:05			4	3	Wash pump & line / Drop plug
6:09	160			6	Start displacement
6:20	200		60	6	Lift pressure
6:23	425			3	Slow rate
6:28	1500		96.5		Plug down / ([illegible])
					[illegible] thru job
6:40			7		Plug rat hole
					Job complete
					Thank you
					Mike Mattal
					Darin & Derek

10244 NE Hiway 61 • P.O. Box 8613 • Pratt, KS 67124-8613 • (620) 672-1201 • Fax (620) 672-5383

Taylor Printing, Inc. 620-672-3656

Geologic Report

Aaron L. Young

Drilling Time and Sample Log

Scale 1:240 (5"=100') Imperial
Measured Depth Log

Well Name:	**Triple M #1-18**		
API:	**15-151-22473**		
Location:	**Section 18 - T26S - R11W**		
License Number:	**3180**	**Region:**	**Pratt Co., KS**
Spud Date:	**07 / 05 / 2018**	**Drilling Completed:**	**07 / 17 / 2018**
Surface Coordinates:	**330' FNL and 330' FEL**		
	Approx. NE - NE - NE		
Bottom Hole Coordinates:			
Ground Elevation (ft):	**1858'**	**K.B. Elevation (ft):**	**1865'**
Logged Interval (ft):	**3300'** **To: 4285'**	**Total Depth (ft):**	**4285'**
Formation:	**Viola**		
Type of Drilling Fluid:	**Mud-Co**		

Printed by MudLog from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: Deutsch Oil Company
Address: 8100 E 22nd St N, Bldg 600
Wichita, KS 67226

GEOLOGIST

Name: Aaron L. Young, M. S.
Company: Young Consulting LLC
Address: 100 S Main Ste 505
Wichita, KS 67202

General Info

CONTRACTOR: Pickrell Drilling, Rig #10

BIT RECORD:

No.	Size	Make	Jets	Out	Feet	Hours
1	12-1/4	RR	15-15-15	308'	301'	3.25
2	7-7/8	JZ HA23	14-14-14	4256'	3955'	95.00
3	7-7/8	JZ RR	14-14-14	4285'	29'	2.25

Surveys: 307'-1, 825'-1, 1329'-1, 1835'-1, 2340'-.5, 2846'-.5, 3812'-1, 4285'-1

GENERAL DRILLING AND PUMP INFORMATION:
Drilling with 36,000 -38,000 lbs. on bit and approx 70-80 RPM.
Running 9 stands of collars; 533.14'
Pumping approx 850-900 psi at standpipe.

Daily Status

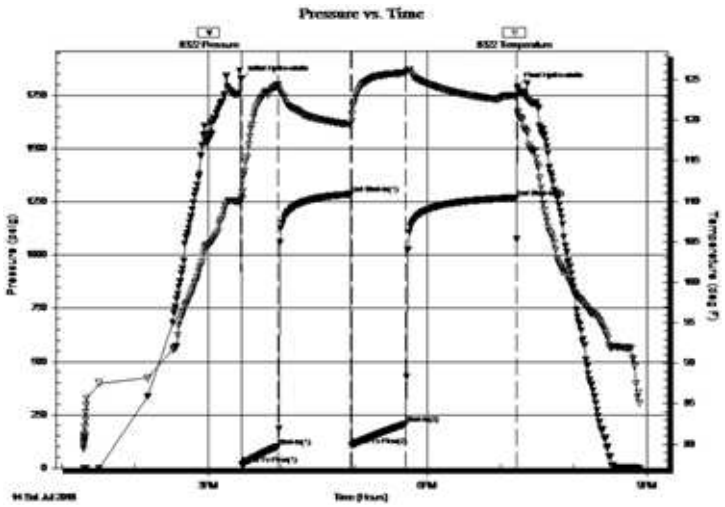
07/05/18- Spud @ 12:30pm, Drilled to 308', ran 7 jts of new 8 5/8" 23# surface casing set @ 304' (tally 292'), cemented w/ 300 sx 60/40 pozmix, 2% gel & 3% CC, 1/4# cellflake/sx. Plug down @ 8:45pm.
07/06/18 - TD 308' Working on mud pump
07/07/18 - TD 308' Working on mud pump
07/08/18 - TD 308' Working on mud pump
07/09/18 - TD 308' Working on mud pump
07/10/18 - Drilling at 575'
07/11/18 - Drilling at 1828'
07/12/18- Drilling at 2500'
07/13/18 - Drilling at 3111'
07/14/18 - DST #1 TD 3812'
07/15/18 - DST #2 TD 4097'
07/16/18 - DST #3 TD 4256'
07/17/18 - RTD 4285', ran e-logs. Ran 100 jts. of 17#, 5-1/2" production casing. Set at 4275'. Cem w/ 175 sx of AA2, 10% salt, .5% defoamer, .3% friction reducer, .4% fluid loss, 5# gilsonite/sx. Plug down at 6:15am. Cem RH with 35 sx 60/40 pozmix, 2% gel, 3% CC.

DST #1 LKC 'H'
3792' - 3812'

IF: BOB in 24 min, 13.5 inches
ISI: No blow back
FF: BOB in 29 min, 15 inches
FSI: No blow back

Rec'd: 124' MW (20% M, 80% W), 279' MW (5% M, 95% W)

SIP: 1286-1270#, FP: 16-102#, 106-207#, HP: 1825-1790#

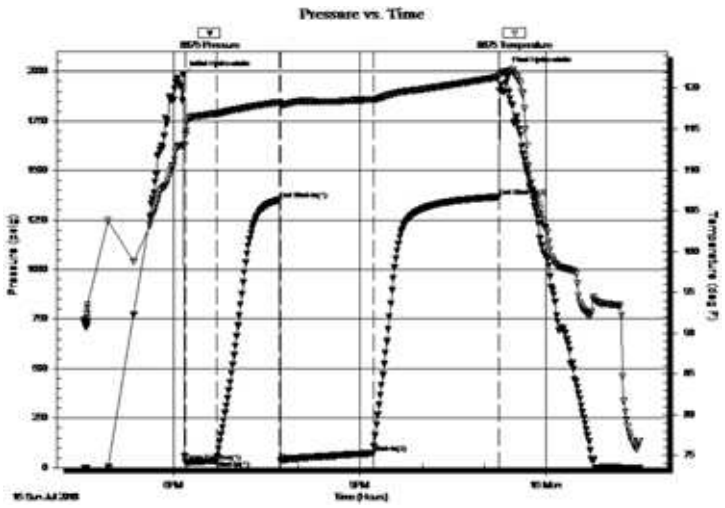


DST #2 Mississippi
4038'-4097'

IF: BOB in 2 min, 120 inches
ISI: No blow back
FF: BOB immediately, 334 inches
FSI: No blow back

Rec'd: 3296' GIP, 120' GOCM (20% G, 20% O, 60% M)

SIP: 1351-1367#, FP: 28-37#, 34-74#, HP: 1983-2003#

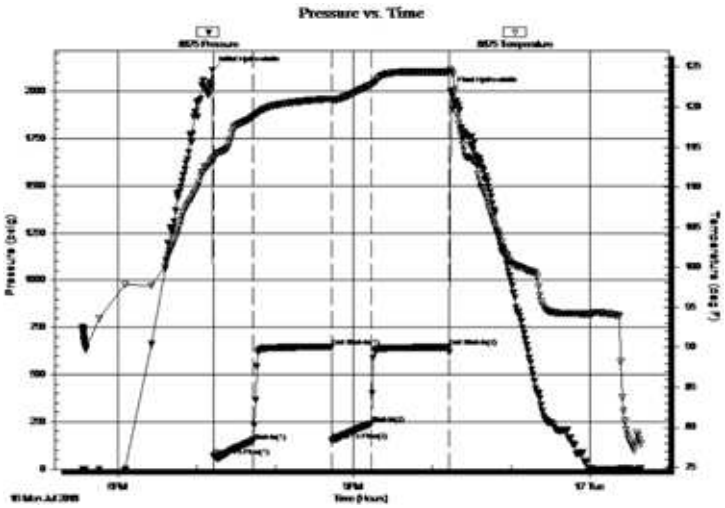


DST #3 Viola
4146' - 4256'

IF: BOB in 90 sec, 60.5 inches
ISI: No blow back
FF: BOB in 8 min, 38.5 inches
FSI: No blow back

Rec'd: 372' MCW (30% M, 70% W), 92' GMCW (5% G, 20% W, 75% M)

SIP: 646-645#, FP: 67-148#, 152-239#, HP: 2112-2003#



ROCK TYPES

- Anhy
- Bent
- Brec
- Cht
- Clyst
- Coal
- Congl
- Dol
- Gyp
- Igne
- Lmst
- Meta
- Mrlst
- Salt
- Shale
- Shcol
- Shgy
- Sltst
- Ss
- Till
- Carb sh
- Dol
- Dtd
- Gry sh
- Sandylms
- Shale
- Sltstn
- Shlyslts
- Sltysh
- Lms

ACCESSORIES

MINERAL

- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Brecfrag
- Calc
- Carb
- Chtdk
- Chtlt
- Dol
- Feldspar
- Ferrpel
- Ferr
- Glau
- Gyp
- Hvymin
- Kaol
- Marl
- Minxl
- Nodule
- Phos
- Pyr
- Salt
- Sandy
- Silt
- Sil
- Sulphur
- Tuff
- Chlorite
- Dol
- Sand
- Slty

FOSSIL

- Algae
- Amph
- Belm
- Bioclst
- Brach
- Bryozoa
- Cephal
- Coral
- Crin
- Echin
- Fish
- Foram
- Fossil
- Gastro
- Oolite
- Ostra
- Pelec
- Pellet
- Pisolite
- Plant
- Strom
- Fuss
- Oomold

STRINGER

- Anhy
- Arg
- Bent
- Coal
- Dol
- Gyp
- Ls
- Mrst
- Sltstrg
- Ssstrg
- Carbsh
- Clystn
- Dol
- Grysh
- Gryslt
- Lms
- Sandylms
- Sh
- Sltstn

TEXTURE

- Boundst
- Chalky
- Cryxln
- Earthy
- Finexln
- Grainst
- Lithogr
- Microxln
- Mudst
- Packst
- Wackest

OTHER SYMBOLS

POROSITY TYPE
- E Earthy
- Fenest
- F Fracture
- Inter
- Moldic
- O Organic
- P Pinpoint
- V Vuggy

SORTING
- W Well
- M Moderate
- P Poor

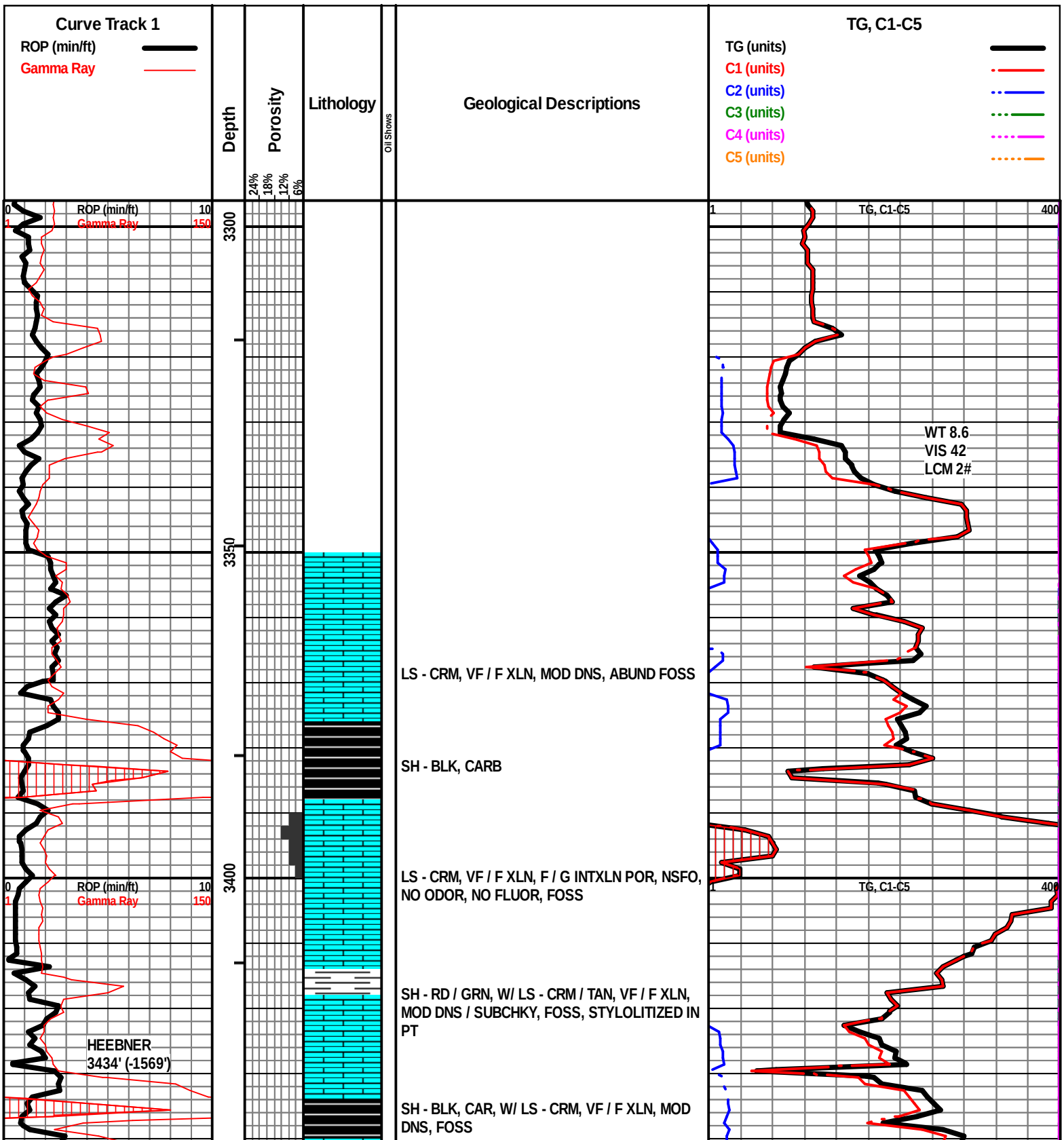
ROUNDING
- R Rounded
- r Subrnd
- a Subang
- A Angular

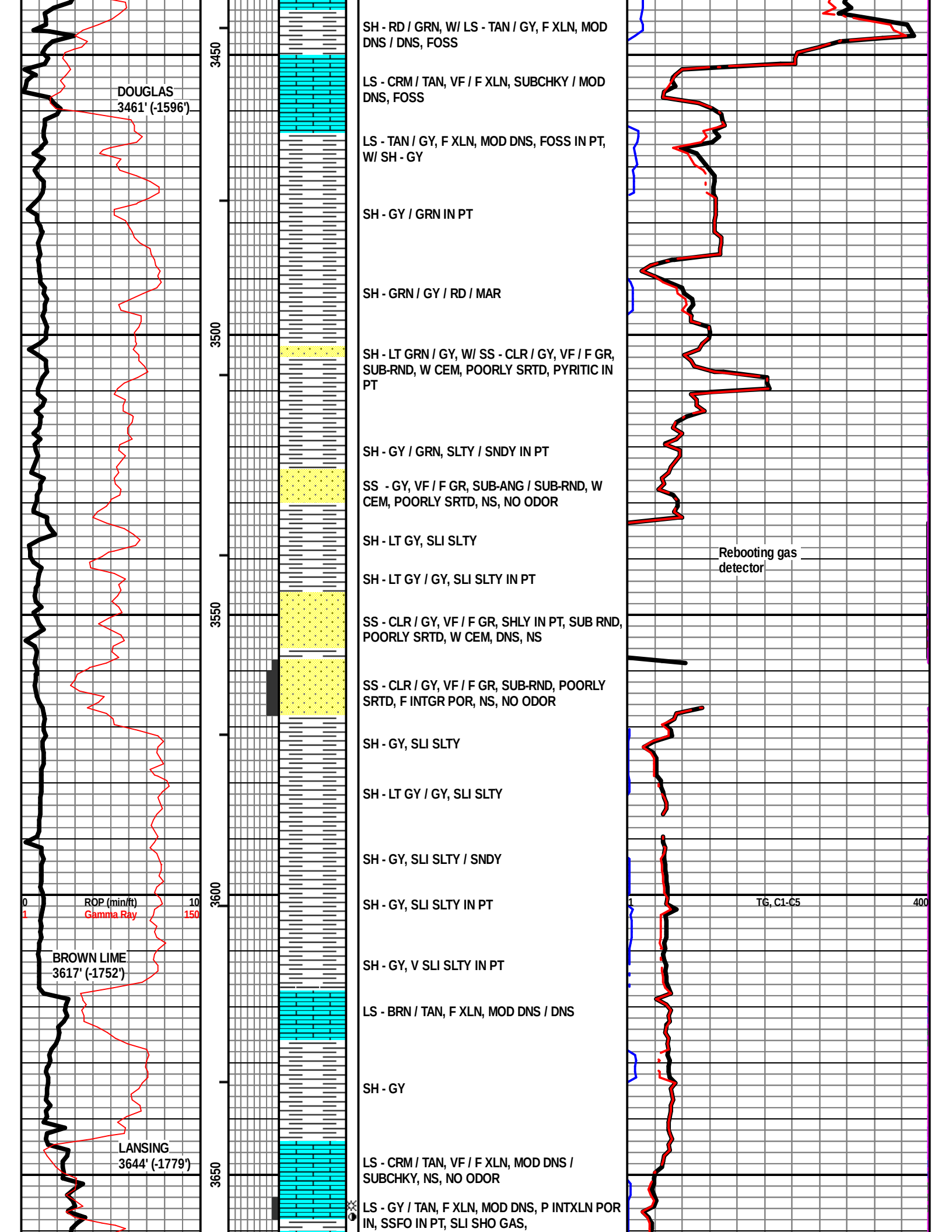
OIL SHOWS
- Even
- Spotted
- Ques
- D Dead
- Gas show

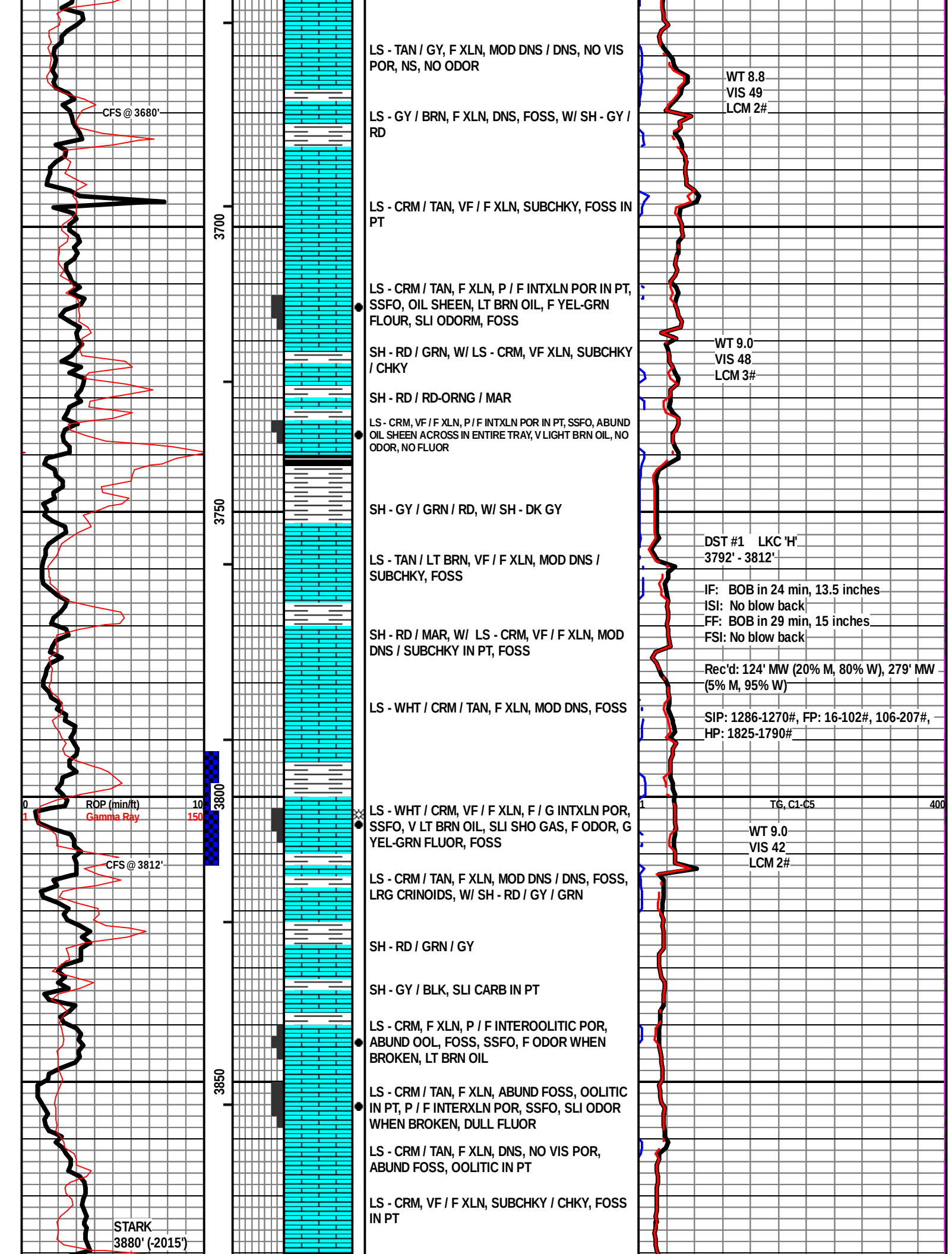
INTERVALS
- Core
- Dst

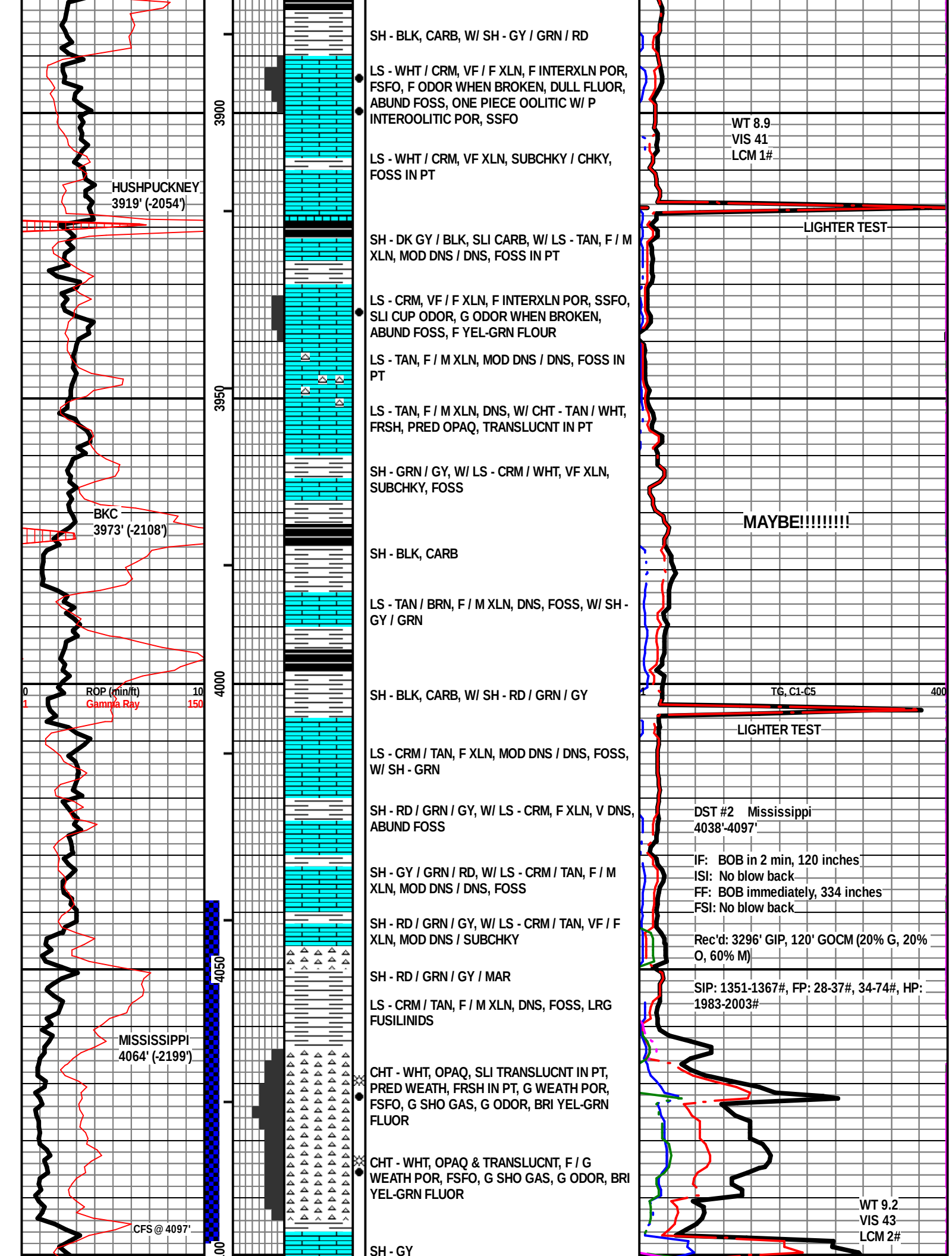
- Dst

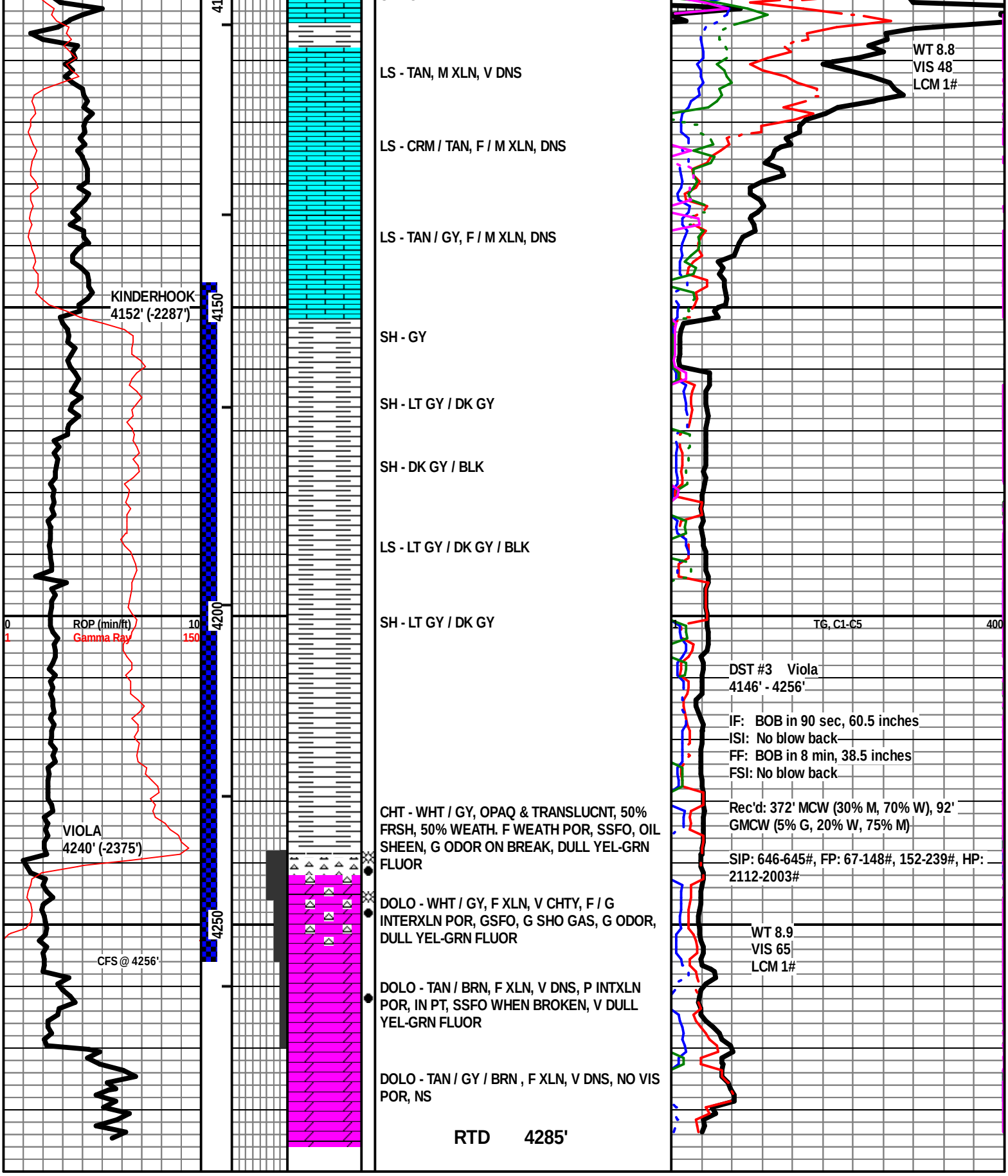
EVENTS
- Rft
- Sidewall
- Conn




DOUGLAS
3461' (-1596')
BROWN LIME
3617' (-1752')
LANSING
3644' (-1779')
3450
3500
3550
3600
3650
0
ROP (min/ft)
10
1
Gamma Ray
150
SH - RD / GRN, W/ LS - TAN / GY, F XLN, MOD DNS / DNS, FOSS
LS - CRM / TAN, VF / F XLN, SUBCHKY / MOD DNS, FOSS
LS - TAN / GY, F XLN, MOD DNS, FOSS IN PT, W/ SH - GY
SH - GY / GRN IN PT
SH - GRN / GY / RD / MAR
SH - LT GRN / GY, W/ SS - CLR / GY, VF / F GR, SUB-RND, W CEM, POORLY SRTD, PYRITIC IN PT
SH - GY / GRN, SLTY / SNDY IN PT
SS - GY, VF / F GR, SUB-ANG / SUB-RND, W CEM, POORLY SRTD, NS, NO ODOR
SH - LT GY, SLI SLTY
SH - LT GY / GY, SLI SLTY IN PT
SS - CLR / GY, VF / F GR, SHLY IN PT, SUB RND, POORLY SRTD, W CEM, DNS, NS
SS - CLR / GY, VF / F GR, SUB-RND, POORLY SRTD, F INTGR POR, NS, NO ODOR
SH - GY, SLI SLTY
SH - LT GY / GY, SLI SLTY
SH - GY, SLI SLTY / SNDY
SH - GY, SLI SLTY IN PT
SH - GY, V SLI SLTY IN PT
LS - BRN / TAN, F XLN, MOD DNS / DNS
SH - GY
LS - CRM / TAN, VF / F XLN, MOD DNS / SUBCHKY, NS, NO ODOR
LS - GY / TAN, F XLN, MOD DNS, P INTXLN POR IN, SSFO IN PT, SLI SHO GAS,
Rebooting gas detector
1
TG, C1-C5
400


LS - TAN / GY, F XLN, MOD DNS / DNS, NO VIS POR, NS, NO ODOR
WT 8.8
VIS 49
LCM 2#
CFS @ 3680'
LS - GY / BRN, F XLN, DNS, FOSS, W/ SH - GY / RD
LS - CRM / TAN, VF / F XLN, SUBCHKY, FOSS IN PT
3700
LS - CRM / TAN, F XLN, P / F INTXLN POR IN PT, SSFO, OIL SHEEN, LT BRN OIL, F YEL-GRN FLOUR, SLI ODORM, FOSS
SH - RD / GRN, W/ LS - CRM, VF XLN, SUBCHKY / CHKY
WT 9.0
VIS 48
LCM 3#
SH - RD / RD-ORNG / MAR
LS - CRM, VF / F XLN, P / F INTXLN POR IN PT, SSFO, ABUND OIL SHEEN ACROSS IN ENTIRE TRAY, V LIGHT BRN OIL, NO ODOR, NO FLUOR
SH - GY / GRN / RD, W/ SH - DK GY
3750
DST #1 LKC 'H'
3792' - 3812'
LS - TAN / LT BRN, VF / F XLN, MOD DNS / SUBCHKY, FOSS
IF: BOB in 24 min, 13.5 inches
ISI: No blow back
FF: BOB in 29 min, 15 inches
FSI: No blow back
SH - RD / MAR, W/ LS - CRM, VF / F XLN, MOD DNS / SUBCHKY IN PT, FOSS
Rec'd: 124' MW (20% M, 80% W), 279' MW (5% M, 95% W)
LS - WHT / CRM / TAN, F XLN, MOD DNS, FOSS
SIP: 1286-1270#, FP: 16-102#, 106-207#, HP: 1825-1790#
3800
0
ROP (min/ft)
100
1
Gamma Ray
150
1
TG, C1-C5
400
LS - WHT / CRM, VF / F XLN, F / G INTXLN POR, SSFO, V LT BRN OIL, SLI SHO GAS, F ODOR, G YEL-GRN FLUOR, FOSS
WT 9.0
VIS 42
LCM 2#
CFS @ 3812'
LS - CRM / TAN, F XLN, MOD DNS / DNS, FOSS, LRG CRINOIDS, W/ SH - RD / GY / GRN
SH - RD / GRN / GY
SH - GY / BLK, SLI CARB IN PT
LS - CRM, F XLN, P / F INTEROOLITIC POR, ABUND OOL, FOSS, SSFO, F ODOR WHEN BROKEN, LT BRN OIL
3850
LS - CRM / TAN, F XLN, ABUND FOSS, OOLITIC IN PT, P / F INTERXLN POR, SSFO, SLI ODOR WHEN BROKEN, DULL FLUOR
LS - CRM / TAN, F XLN, DNS, NO VIS POR, ABUND FOSS, OOLITIC IN PT
LS - CRM, VF / F XLN, SUBCHKY / CHKY, FOSS IN PT
STARK
3880' (-2015')


HUSHPUCKNEY
3919' (-2054')
BKC
3973' (-2108')
MISSISSIPPI
4064' (-2199')
CFS @ 4097'
0
ROP (min/ft)
10
1
Gamma Ray
150
3900
3950
4000
4050
SH - BLK, CARB, W/ SH - GY / GRN / RD
LS - WHT / CRM, VF / F XLN, F INTERXLN POR, FSFO, F ODOR WHEN BROKEN, DULL FLUOR, ABUND FOSS, ONE PIECE OOLITIC W/ P INTEROOLITIC POR, SSFO
LS - WHT / CRM, VF XLN, SUBCHKY / CHKY, FOSS IN PT
SH - DK GY / BLK, SLI CARB, W/ LS - TAN, F / M XLN, MOD DNS / DNS, FOSS IN PT
LS - CRM, VF / F XLN, F INTERXLN POR, SSFO, SLI CUP ODOR, G ODOR WHEN BROKEN, ABUND FOSS, F YEL-GRN FLOUR
LS - TAN, F / M XLN, MOD DNS / DNS, FOSS IN PT
LS - TAN, F / M XLN, DNS, W/ CHT - TAN / WHT, FRSH, PRED OPAQ, TRANSLUCNT IN PT
SH - GRN / GY, W/ LS - CRM / WHT, VF XLN, SUBCHKY, FOSS
SH - BLK, CARB
LS - TAN / BRN, F / M XLN, DNS, FOSS, W/ SH - GY / GRN
SH - BLK, CARB, W/ SH - RD / GRN / GY
LS - CRM / TAN, F XLN, MOD DNS / DNS, FOSS, W/ SH - GRN
SH - RD / GRN / GY, W/ LS - CRM, F XLN, V DNS, ABUND FOSS
SH - GY / GRN / RD, W/ LS - CRM / TAN, F / M XLN, MOD DNS / DNS, FOSS
SH - RD / GRN / GY, W/ LS - CRM / TAN, VF / F XLN, MOD DNS / SUBCHKY
SH - RD / GRN / GY / MAR
LS - CRM / TAN, F / M XLN, DNS, FOSS, LRG FUSILINIDS
CHT - WHT, OPAQ, SLI TRANSLUCNT IN PT, PRED WEATH, FRSH IN PT, G WEATH POR, FSFO, G SHO GAS, G ODOR, BRI YEL-GRN FLUOR
CHT - WHT, OPAQ & TRANSLUCNT, F / G WEATH POR, FSFO, G SHO GAS, G ODOR, BRI YEL-GRN FLUOR
SH - GY
WT 8.9
VIS 41
LCM 1#
LIGHTER TEST
MAYBE!!!!!!!!!
1
TG, C1-C5
400
LIGHTER TEST
DST #2 Mississippi
4038'-4097'
IF: BOB in 2 min, 120 inches
ISI: No blow back
FF: BOB immediately, 334 inches
FSI: No blow back
Rec'd: 3296' GIP, 120' GOCM (20% G, 20% O, 60% M)
SIP: 1351-1367#, FP: 28-37#, 34-74#, HP: 1983-2003#
WT 9.2
VIS 43
LCM 2#


LS - TAN, M XLN, V DNS
LS - CRM / TAN, F / M XLN, DNS
LS - TAN / GY, F / M XLN, DNS
KINDERHOOK
4152' (-2287')
SH - GY
SH - LT GY / DK GY
SH - DK GY / BLK
LS - LT GY / DK GY / BLK
SH - LT GY / DK GY
ROP (min/ft)
Gamma Ray
TG, C1-C5
VIOLA
4240' (-2375')
CHT - WHT / GY, OPAQ & TRANSLUCNT, 50% FRSH, 50% WEATH. F WEATH POR, SSFO, OIL SHEEN, G ODOR ON BREAK, DULL YEL-GRN FLUOR
DOLO - WHT / GY, F XLN, V CHTY, F / G INTERXLN POR, GSFO, G SHO GAS, G ODOR, DULL YEL-GRN FLUOR
CFS @ 4256'
DOLO - TAN / BRN, F XLN, V DNS, P INTXLN POR, IN PT, SSFO WHEN BROKEN, V DULL YEL-GRN FLUOR
DOLO - TAN / GY / BRN , F XLN, V DNS, NO VIS POR, NS
RTD 4285'
WT 8.8
VIS 48
LCM 1#
DST #3 Viola
4146' - 4256'
IF: BOB in 90 sec, 60.5 inches
ISI: No blow back
FF: BOB in 8 min, 38.5 inches
FSI: No blow back
Rec'd: 372' MCW (30% M, 70% W), 92' GMCW (5% G, 20% W, 75% M)
SIP: 646-645#, FP: 67-148#, 152-239#, HP: 2112-2003#
WT 8.9
VIS 65
LCM 1#

DRILL STEM TEST REPORT

Deutsch Oil Co

8100 E 22nd Street North
Building 800
Wichita, Kansas 67226
ATTN: Aaron Young

18/26S/11W/Pratt

Triple M #1-18

Job Ticket: 63886 **DST#: 1**

Test Start: 2018.07.14 @ 13:18:00

GENERAL INFORMATION:

Formation: **Lansing/Kansas City**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 15:27:47
Time Test Ended: 20:54:02

Test Type: Conventional Bottom Hole (Initial)
Tester: Ken Swinney
Unit No: 72 Pratt 30

Interval: 3792.00 ft (KB) To 3812.00 ft (KB) (TVD)
Total Depth: 3812.00 ft (KB) (TVD)
Hole Diameter: 7.80 inches Hole Condition: Fair

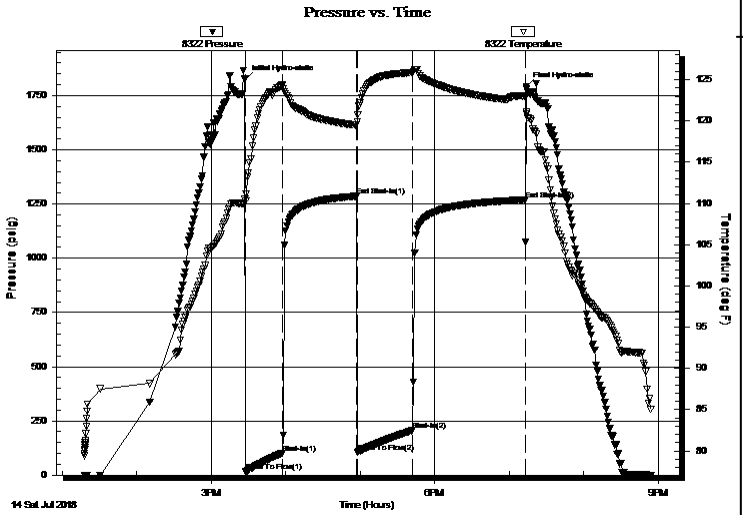
Reference Elevations: 1865.00 ft (KB)
1858.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8322 **Inside**

Press@RunDepth: 206.83 psig @ 3793.00 ft (KB)
Start Date: 2018.07.14 End Date: 2018.07.14
Start Time: 13:18:01 End Time: 20:54:02

Capacity: psig
Last Calib.: 2018.07.14
Time On Btm: 2018.07.14 @ 15:27:17
Time Off Btm: 2018.07.14 @ 19:13:47

TEST COMMENT: I.F. 30 Minutes/ Blow built to BOB in 24 minutes/ Total build 13 1/2 inches
I.S.I. 60 Minutes/ No blow back
F.F. 45 Minutes/ Blow built to BOB in 29 minutes/ Total build 15 inches
F.S.I. 90 Minutes/ No blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1824.86	110.58	Initial Hydro-static
1	15.71	110.30	Open To Flow (1)
30	101.90	124.33	Shut-In(1)
90	1285.77	119.50	End Shut-In(1)
91	106.02	119.92	Open To Flow (2)
135	206.83	125.88	Shut-In(2)
226	1269.91	122.94	End Shut-In(2)
227	1789.80	121.06	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
124.00	Muddy Water/ Mud 20% Water 80%	1.74
279.00	Muddy Water/ Mud 5% Water 95%	3.91

Gas Rates

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

DRILL STEM TEST REPORT

Deutsch Oil Co

8100 E 22nd Street North
Building 800
Wichita, Kansas 67226
ATTN: Aaron Young

18/26S/11W/Pratt

Triple M #1-18

Job Ticket: 63886 **DST#: 1**

Test Start: 2018.07.14 @ 13:18:00

GENERAL INFORMATION:

Formation: **Lansing/Kansas City**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 15:27:47
Time Test Ended: 20:54:02

Test Type: Conventional Bottom Hole (Initial)
Tester: Ken Swinney
Unit No: 72 Pratt 30

Interval: 3792.00 ft (KB) To 3812.00 ft (KB) (TVD)
Total Depth: 3812.00 ft (KB) (TVD)
Hole Diameter: 7.80 inches Hole Condition: Fair

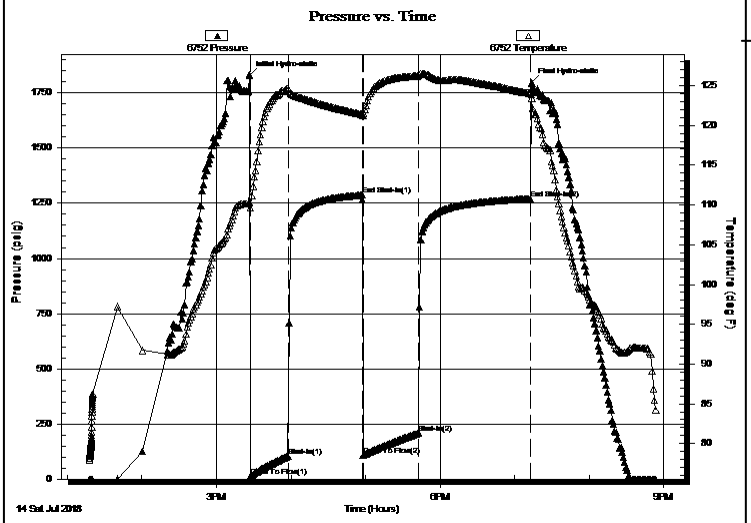
Reference Elevations: 1865.00 ft (KB)
1858.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 6752 **Outside**

Press@RunDepth: 1271.37 psig @ 3794.00 ft (KB)
Start Date: 2018.07.14 End Date: 2018.07.14
Start Time: 13:18:01 End Time: 20:54:02

Capacity: psig
Last Calib.: 2018.07.14
Time On Btm: 2018.07.14 @ 15:26:47
Time Off Btm: 2018.07.14 @ 19:13:47

TEST COMMENT: I.F. 30 Minutes/ Blow built to BOB in 24 minutes/ Total build 13 1/2 inches
I.S.I. 60 Minutes/ No blow back
F.F. 45 Minutes/ Blow built to BOB in 29 minutes/ Total build 15 inches
F.S.I. 90 Minutes/ No blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1829.63	110.36	Initial Hydro-static
1	14.91	109.66	Open To Flow (1)
31	104.70	124.56	Shut-In(1)
91	1287.30	121.39	End Shut-In(1)
92	107.90	121.22	Open To Flow (2)
136	208.01	126.23	Shut-In(2)
226	1271.37	124.02	End Shut-In(2)
227	1794.43	123.32	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
124.00	Muddy Water/ Mud 20% Water 80%	1.74
279.00	Muddy Water/ Mud 5% Water 95%	3.91

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Deutsch Oil Co

8100 E 22nd Street North
Building 800
Wichita, Kansas 67226
ATTN: Aaron Young

18/26S/11W/Pratt

Triple M #1-18

Job Ticket: 63886 **DST#: 1**

Test Start: 2018.07.14 @ 13:18:00

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:	50000 ppm
Viscosity:	42.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	10.39 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	6000.00 ppm				
Filter Cake:	1.00 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
124.00	Muddy Water/ Mud 20% Water 80%	1.739
279.00	Muddy Water/ Mud 5% Water 95%	3.914

Total Length: 403.00 ft Total Volume: 5.653 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

Recovery Comments: Recovery Resistivity .120 @ 83 deg.

DRILL STEM TEST REPORT

Deutsch Oil Co

8100 E 22nd Street North
Building 800
Wichita, Kansas 67226
ATTN: Aaron Young

18-26S-11W Pratt

Triple M 1-18

Job Ticket: 63987 **DST#: 2**

Test Start: 2018.07.15 @ 16:34:04

GENERAL INFORMATION:

Formation: **Mississippi**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 18:11:51
Time Test Ended: 01:29:51

Test Type: Conventional Bottom Hole (Reset)
Tester: Leal Cason
Unit No: 74

Interval: 4038.00 ft (KB) To 4097.00 ft (KB) (TVD)
Total Depth: 4097.00 ft (KB) (TVD)
Hole Diameter: 7.80 inches Hole Condition: Good

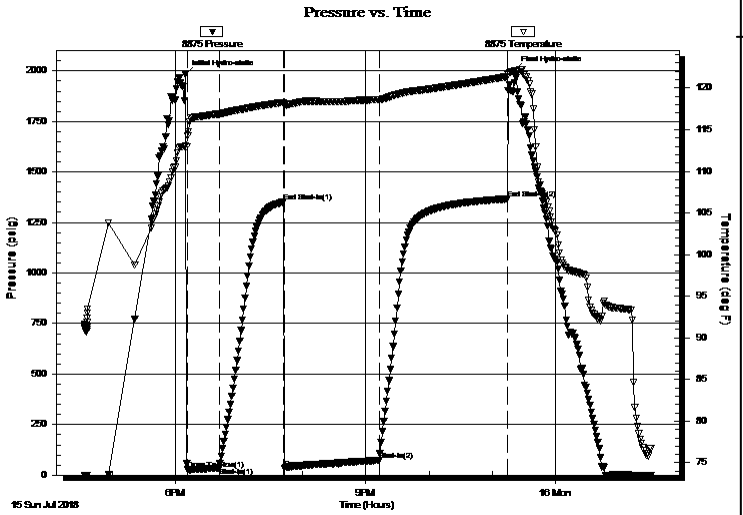
Reference Elevations: 1865.00 ft (KB)
1858.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8875 **Inside**

Press@RunDepth: 74.02 psig @ 4039.00 ft (KB)
Start Date: 2018.07.15 End Date: 2018.07.16
Start Time: 16:34:05 End Time: 01:29:51

Capacity: psig
Last Calib.: 2018.07.16
Time On Btm: 2018.07.15 @ 18:09:36
Time Off Btm: 2018.07.15 @ 23:20:36

TEST COMMENT: IF: Strong Blow , BOB in 2 minutes, Built to 120 inches
ISI: No Blow Back
FF: Strong Blow , BOB immediate, Built to 334 inches
FSI: No Blow Back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1983.18	113.12	Initial Hydro-static
3	27.89	114.31	Open To Flow (1)
32	36.62	116.88	Shut-In(1)
93	1350.75	118.25	End Shut-In(1)
94	34.35	117.89	Open To Flow (2)
183	74.02	118.60	Shut-In(2)
305	1366.70	121.41	End Shut-In(2)
311	2002.66	121.97	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	3296 GIP	0.00
120.00	GOCM 20%G 20%O 60%M	1.68

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

TRILOBITE TESTING, INC.

Deutsch Oil Co

8100 E 22nd Street North
Building 800
Wichita, Kansas 67226
ATTN: Aaron Young

18-26S-11W Pratt

Triple M 1-18

Job Ticket: 63987 **DST#: 2**

Test Start: 2018.07.15 @ 16:34:04

GENERAL INFORMATION:

Formation: **Mississippi**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 18:11:51
Time Test Ended: 01:29:51

Test Type: Conventional Bottom Hole (Reset)
Tester: Leal Cason
Unit No: 74

Interval: 4038.00 ft (KB) To 4097.00 ft (KB) (TVD)
Total Depth: 4097.00 ft (KB) (TVD)
Hole Diameter: 7.80 inches Hole Condition: Good

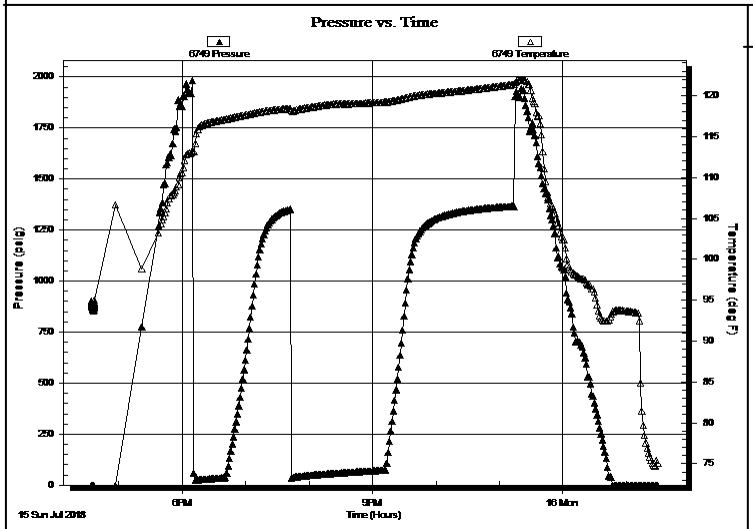
Reference Elevations: 1865.00 ft (KB)
1858.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 6749 **Outside**

Press@RunDepth: psig @ 4039.00 ft (KB)
Start Date: 2018.07.15 End Date: 2018.07.16
Start Time: 16:34:15 End Time: 01:30:01

Capacity: psig
Last Calib.: 2018.07.16
Time On Btm:
Time Off Btm:

TEST COMMENT: IF: Strong Blow , BOB in 2 minutes, Built to 120 inches
ISI: No Blow Back
FF: Strong Blow , BOB immediate, Built to 334 inches
FSI: No Blow Back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

Recovery

Length (ft)	Description	Volume (bbl)
0.00	3296 GIP	0.00
120.00	GOCM 20%G 20%O 60%M	1.68

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Deutsch Oil Co

8100 E 22nd Street North
Building 800
Wichita, Kansas 67226
ATTN: Aaron Young

18-26S-11W Pratt

Triple M 1-18

Job Ticket: 63987 **DST#: 2**

Test Start: 2018.07.15 @ 16:34:04

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:	43.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	12.39 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	11000.00 ppm				
Filter Cake:	0.02 inches				

Recovery Information

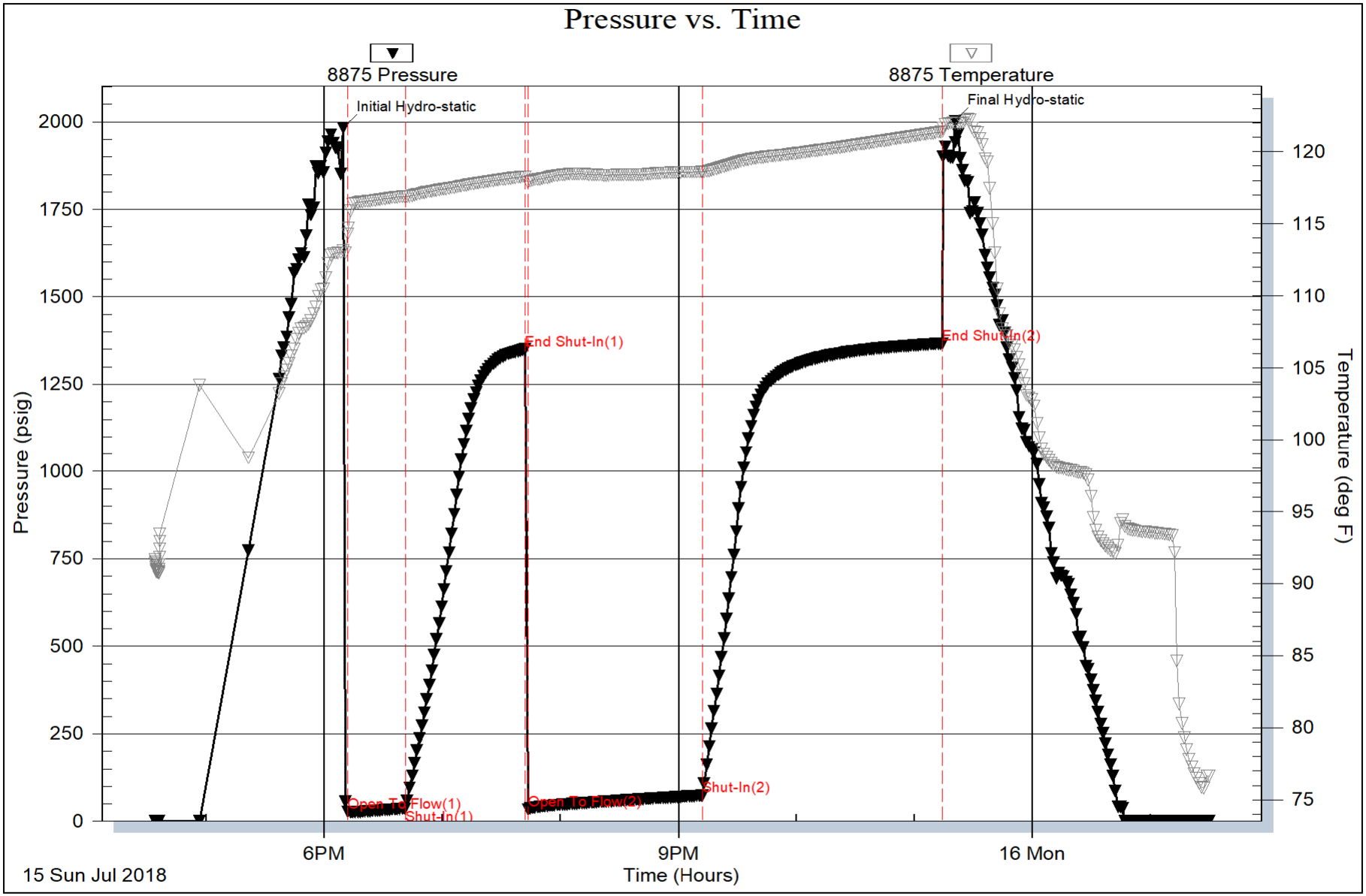
Recovery Table

Length ft	Description	Volume bbl
0.00	3296 GIP	0.000
120.00	GOCM 20%G 20%O 60%M	1.683

Total Length: 120.00 ft Total Volume: 1.683 bbl

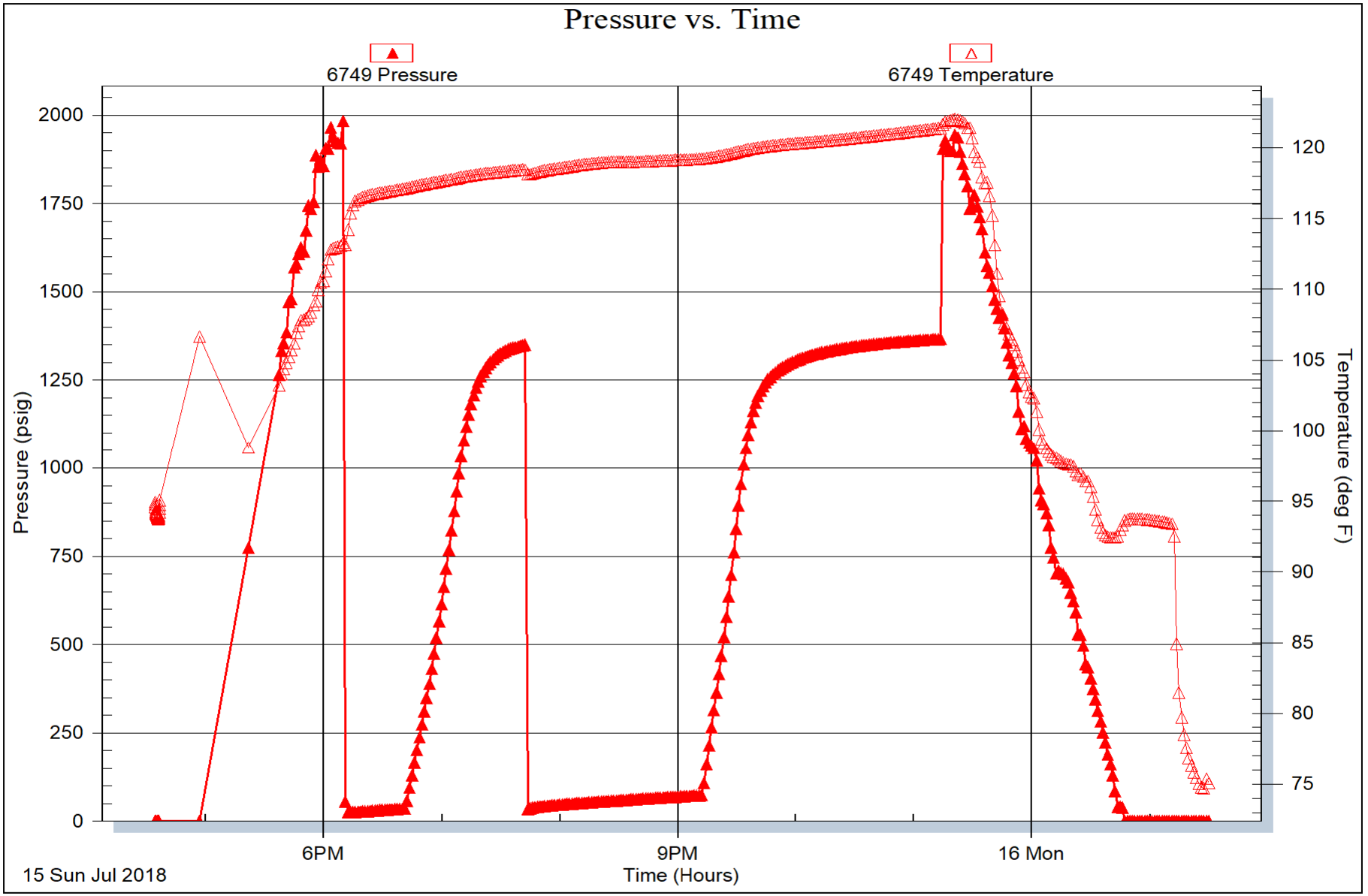
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8875 **Inside** Deutsch Oil Co Triple M1-18 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 63987 Printed: 2018.07.16 @ 07:18:10

Serial #: 6749 **Outside** Deutsch Oil Co Triple M1-18 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 63987 Printed: 2018.07.16 @ 07:18:10

DRILL STEM TEST REPORT

Deutsch Oil Co

8100 E 22nd Street North
Building 800
Wichita, Kansas 67226
ATTN: Aaron Young

18-26S-11W Pratt

Triple M 1-18

Job Ticket: 63988 **DST#: 3**

Test Start: 2018.07.16 @ 17:32:56

GENERAL INFORMATION:

Formation: **Viola**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 19:12:58
Time Test Ended: 00:38:58

Test Type: Conventional Bottom Hole (Reset)
Tester: Leal Cason
Unit No: 74

Interval: 4146.00 ft (KB) To 4256.00 ft (KB) (TVD)
Total Depth: 4256.00 ft (KB) (TVD)
Hole Diameter: 7.80 inches Hole Condition: Good

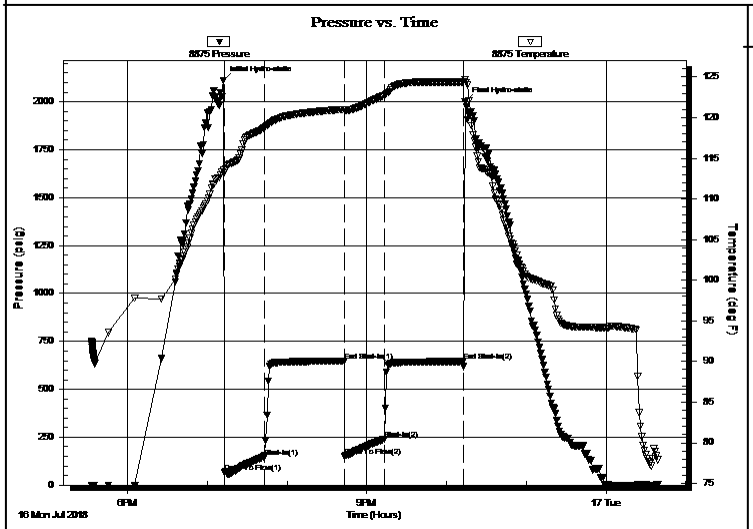
Reference Elevations: 1865.00 ft (KB)
1858.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8875 **Inside**

Press@RunDepth: 238.70 psig @ 4147.00 ft (KB)
Start Date: 2018.07.16 End Date: 2018.07.17
Start Time: 17:32:57 End Time: 00:38:58

Capacity: psig
Last Calib.: 2018.07.17
Time On Btm: 2018.07.16 @ 19:11:58
Time Off Btm: 2018.07.16 @ 22:13:58

TEST COMMENT: IF: Strong Blow , BOB in 90 seconds, Built to 60.5 inches
ISI: No Blow Back
FF: Fair Blow , BOB in 8 minutes, Built to 38.5 inches
FSI: No Blow Back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2112.11	113.53	Initial Hydro-static
1	66.69	113.20	Open To Flow (1)
31	148.23	118.68	Shut-In(1)
91	646.02	120.98	End Shut-In(1)
92	152.00	120.95	Open To Flow (2)
121	238.70	122.73	Shut-In(2)
181	645.38	124.41	End Shut-In(2)
182	2002.80	124.69	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
372.00	MCW 30%M 70%W	5.22
92.00	GWCM 5%G 20%W 75%M	1.29

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Deutsch Oil Co

8100 E 22nd Street North
Building 800
Wichita, Kansas 67226
ATTN: Aaron Young

18-26S-11W Pratt

Triple M 1-18

Job Ticket: 63988 **DST#: 3**

Test Start: 2018.07.16 @ 17:32:56

GENERAL INFORMATION:

Formation: **Viola**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 19:12:58
Time Test Ended: 00:38:58

Test Type: Conventional Bottom Hole (Reset)
Tester: Leal Cason
Unit No: 74

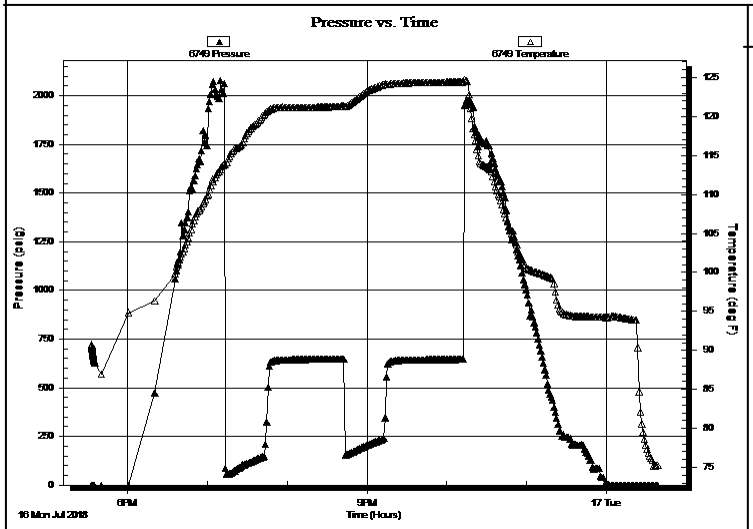
Interval: 4146.00 ft (KB) To 4256.00 ft (KB) (TVD)
Total Depth: 4256.00 ft (KB) (TVD)
Hole Diameter: 7.80 inches Hole Condition: Good

Reference Elevations: 1865.00 ft (KB)
1858.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 6749 **Outside**
Press@RunDepth: psig @ 4147.00 ft (KB)
Start Date: 2018.07.16 End Date: 2018.07.17
Start Time: 17:32:53 End Time: 00:38:54

Capacity: psig
Last Calib.: 2018.07.17
Time On Btm:
Time Off Btm:

TEST COMMENT: IF: Strong Blow , BOB in 90 seconds, Built to 60.5 inches
ISI: No Blow Back
FF: Fair Blow , BOB in 8 minutes, Built to 38.5 inches
FSI: No Blow Back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

Recovery

Length (ft)	Description	Volume (bbl)
372.00	MCW 30%M 70%W	5.22
92.00	GWCM 5%G 20%W 75%M	1.29

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Deutsch Oil Co

8100 E 22nd Street North
Building 800
Wichita, Kansas 67226
ATTN: Aaron Young

18-26S-11W Pratt

Triple M 1-18

Job Ticket: 63988 **DST#: 3**

Test Start: 2018.07.16 @ 17:32:56

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:	48.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	13.59 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	11000.00 ppm				
Filter Cake:	0.02 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
372.00	MCW 30%M 70%W	5.218
92.00	GWCM 5%G 20%W 75%M	1.291

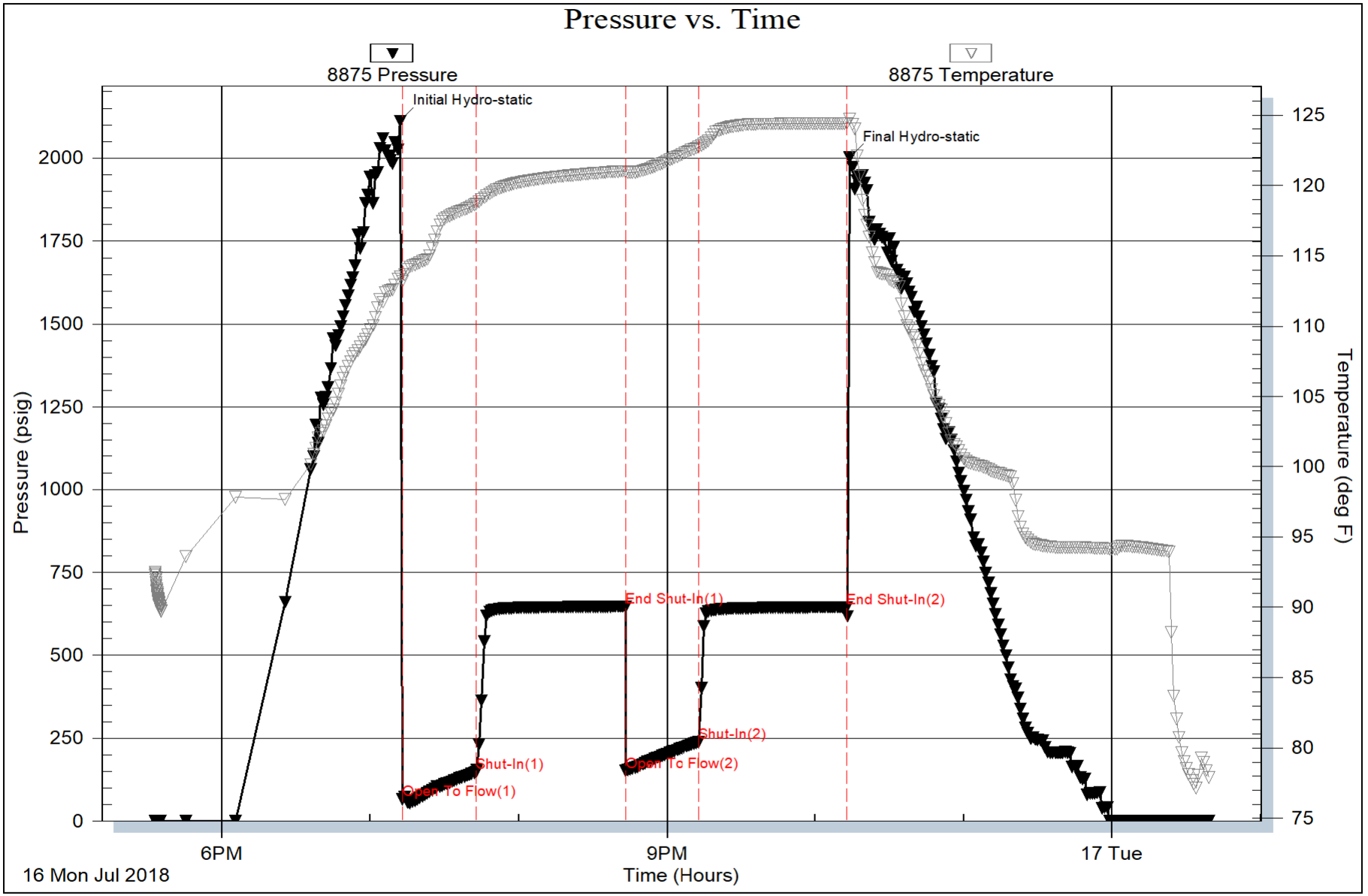
Total Length: 464.00 ft Total Volume: 6.509 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

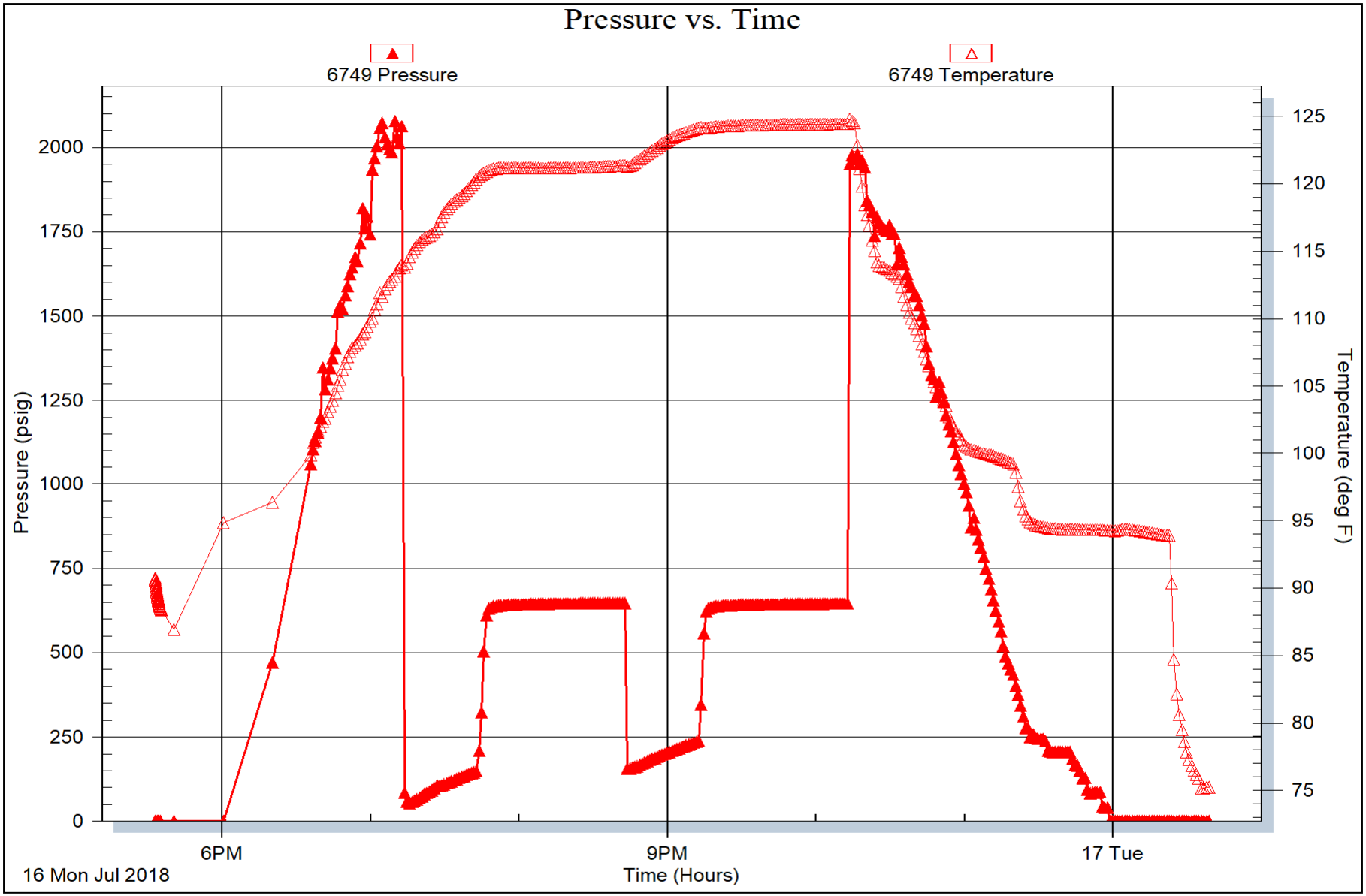
Recovery Comments: RW was .09 @ 87 degrees

Serial #: 8875 **Inside** Deutsch Oil Co Triple M1-18 DST Test Number: 3



Trilobite Testing, Inc Ref. No: 63988 Printed: 2018.07.17 @ 01:03:23

Serial #: 6749 **Outside** Deutsch Oil Co Triple M1-18 DST Test Number: 3



Trilobite Testing, Inc Ref. No: 63988 Printed: 2018.07.17 @ 01:03:23

Fracture Start Date/Time:	8/20/18 9:52
Fracture End Date/Time:	8/20/18 12:05
State:	Kansas
County:	Pratt
API Number:	15-151-22473-0000
Operator Number:	
Well Name:	Triple M 1-18
Federal Well:	No
Tribal Well:	No
Longitude:	-98.5571424
Latitude:	37.7903563
Long/Lat Projection:	NAD27
True Vertical Depth (TVD):	4,093'
Total Clean Fluid Volume* (gal):	376,447

FracFocus Chemical Disclosure Registry

(e.g. XX-XXX-XXXXX-0000)

Additive	Specific Gravity	Additive Quantity	Mass (lbs)	
WATER	1.00	376,447	3,141,450	gal
Sand	2.65	110,500	110,500	lb
Pexcide P5	0.96	37	296	gal
Plexcide P5	0.96	37	296	gal
Plexslick 957	1.11	318	2,946	gal
Plexsurf 580 ME	0.95	93	737	gal
Plexsurf 580 ME	0.95	93	737	gal
Plexsurf 580 ME	0.95	93	737	gal
Plexsurf 580 ME	0.95	93	737	gal
Plexsurf 580 ME	0.95	93	737	gal
Clayplex 650	1.15	375	3,599	gal
Plexgel Breaker XPA	1.03	74	636	gal
				gal
				gal
				gal
				gal
				gal
				gal
				gal
			Total Slurry Mass (Lbs) 3,263,410	

Ingredients Section:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Mass per Component (LBS)	Maximum Ingredient Concentration in HF Fluid (% by mass)**
Water	Operator	Carrier/Base Fluid	Water	7732-18-5	100.00%	3,141,450	96.26281%
Sand	Superior Silica Sand	Proppant	Crystalline Silica in the form of quartz	14808-60-7	100.00%	110,500	3.38503%
Plexcide P5	Chemplex	Biocide	Tributyl Tetradecyl Phosphonium Chloride	81741-28-8	1.00%	3	0.00009%
Plexcide P5	Chemplex	Biocide	Methanol	67-56-1	20.00%	59	0.00182%
Plexslick 957	Chemplex	Friction Reducer	Petroleum Hydrotreated Light Distillate	64742-47-8	25.00%	736	0.02257%
Plexsurf 580 ME	Chemplex	Surfactant	Diathanolamone	111-42-2	1.00%	7	0.00023%
Plexsurf 580 ME	Chemplex	Surfactant	Ethylene glycol monobutyl ether	111-76-2	1.00%	7	0.00023%
Plexsurf 580 ME	Chemplex	Surfactant	Methanol	67-56-1	40.00%	295	0.00904%
Plexsurf 580 ME	Chemplex	Surfactant	Oleamide Dielhanolamide	61790-66-7	2.00%	15	0.00045%
Plexsurf 580 ME	Chemplex	Surfactant	D-limonene	5989-27-5	1.00%	7	0.00023%
Clayplex 650	Chemplex	Prevents Clay Swelling	Calcium Chloride	10043-52-4	1.00%	36	0.00110%
Plexgel Breaker XPA	Chemplex	Breaks back treating fluid	Hydrogen Peroxide	7722-84-1	8.00%	51	0.00156%