

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) (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	Deutsch, Kent A. dba Deutsch Oil Company
Well Name	M. RUNDELL/FREYMILLER 5-4
Doc ID	1836128

All Electric Logs Run

Dual Induction
Comp. Neutron/Density
Micro
Sonic

Geologic Report
Aaron L. Young

Drilling Time and Sample Log

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

Well Name: M. Rundell/Freymiller #5-4
API: 15-151-22605
Location: Section 4 - T26S - R11W
License Number: 3180
Spud Date: 12 / 05 / 2024
Surface Coordinates: 3630' FSL and 2970' FEL
Approx. NE - SE - NW
Region: Pratt Co., KS
Drilling Completed: 12 / 10 / 2024
Bottom Hole Coordinates:
Ground Elevation (ft): 1835' K.B. Elevation (ft): 1848'
Logged Interval (ft): 3400' To: 4200' Total Depth (ft): 4200'
Formation: Kinderhook
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
Company: Young Consulting LLC
Address: 929 W Douglas Ave
Wichita, KS 67213

General Info

CONTRACTOR: Fossil Drilling, Rig #3

BIT RECORD:

No.	Size	Make	Jets	Out	Feet	Hours
1	12-1/4	PDC RR	5-15s, 2-14s, 1-13	291'	291'	2.25
2	7-7/8	SMITH MSI616	16-16-16	4200'	3909'	68.5

Surveys: 296'-.5, 793'-1, 1300'-.75, 1805'-1.5, 2311'-.75, 2814'-.25, 3327'-.5, 3802'-.5, 4200'-.75

GENERAL DRILLING AND PUMP INFORMATION:

Drilling with 12,000 - 14,000 lbs. on bit and approx 90-100 RPM.

Running 9 stands of collars; 603.35'

Pumping approx 730 psi at standpipe @ 52 SPM

Daily Status

12-05-24 Spud well at 10:00 am. Drilled 12 1/4" hole to 266 ft. Set 6 jts. 8 5/8" 23# surface casing at 266 ft. Cemented with 225 sx. 60/40 poz, 3% gel, 2% cc., 1/4# celflake cement. Plug down at 2:15 pm. Cement circulated to surface. WOC.

12-06-24 Drilling ahead at 856 ft. at 7:00 am.

12-07-24 Drilling ahead at 2101 ft. at 7:00 am.

12-08-24 Drilling ahead at 3180 ft. at 7:00 am.

12-09-24 Drilling ahead at 3790 ft. at 7:00 am. DST #1, Hertha, 3870'-3895', 30"-60"-45"-90"

12-10-24 Tripping back in hole after DST #1. Drilled to 4200 ft. (T.D.) Run logs.

12-11-24 Tripping in hole with drill pipe at 7:00 am. Ran 99 jts. 5 1/2", 15.5# used casing. Set at 4184 ft. Plug rat hole and mouse hole with 20 sx. Cement. Cemented casing with 500 gals. mud flush, 150 sx. 60/40 poz, 2% gel, 10% salt, 5# kolseal per sx. Plug down 5:50 pm. Release rig.

DST #1

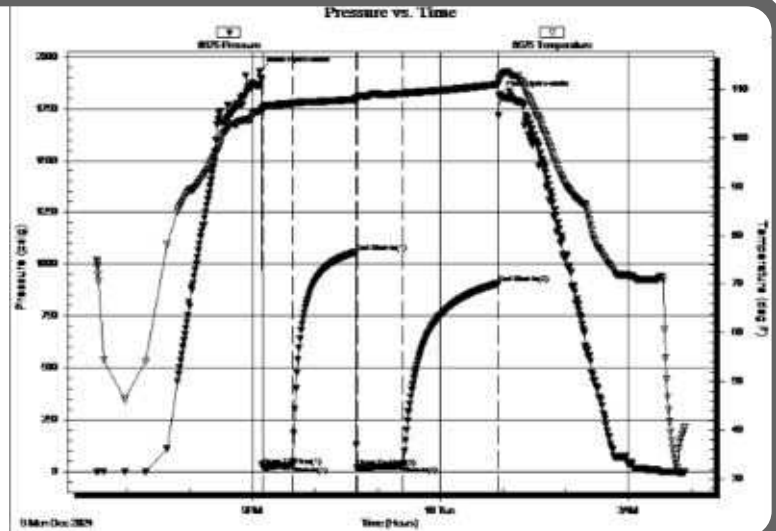
HERTHA 3870' - 3895'
30" - 60" - 45" - 90"

IF: BOB in 15 sec, built to 317"
ISI: Return built to 5.21"
FF: BOB immed, built to 311". GTS in 2 min

Rec'd: 30' GM (10% G, 90% M)

Guaged: 9.91 Mcf/d

SIP: 1058-907#
FP: 23-29#, 20-28#
HP: 1929-1814#



Log Tops

Heebner	3393	-1545
Brown Lime	3569	-1721
Lansing	3600	-1752
Hertha	3877	-2029
BKC	3925	-2077
Mississippi	4010	-2162
Kinderhook	4107	-2259

ROCK TYPES

Anhy
 Bent
 Brec
 Cht
 Clyst
 Coal
 Congl
 Dol

Gyp
 Igne
 Lmst
 Meta
 Mrlst
 Salt
 Shale
 Shcol

Shgy
 Slstst
 Ss
 Till
 Carb sh
 Dol
 Dtd
 Gry sh

Sandylms
 Shale
 Slststn
 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
- Sltly

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

- Earthy
- Fenest
- Fracture
- Inter
- Moldic
- Organic
- Pinpoint
- Vuggy

SORTING

- Well
- Moderate
- Poor

ROUNDING

- Rounded
- Subrnd
- Subang
- Angular

OIL SHOWS

- Even
- Spotted
- Ques
- Dead
- Gas show

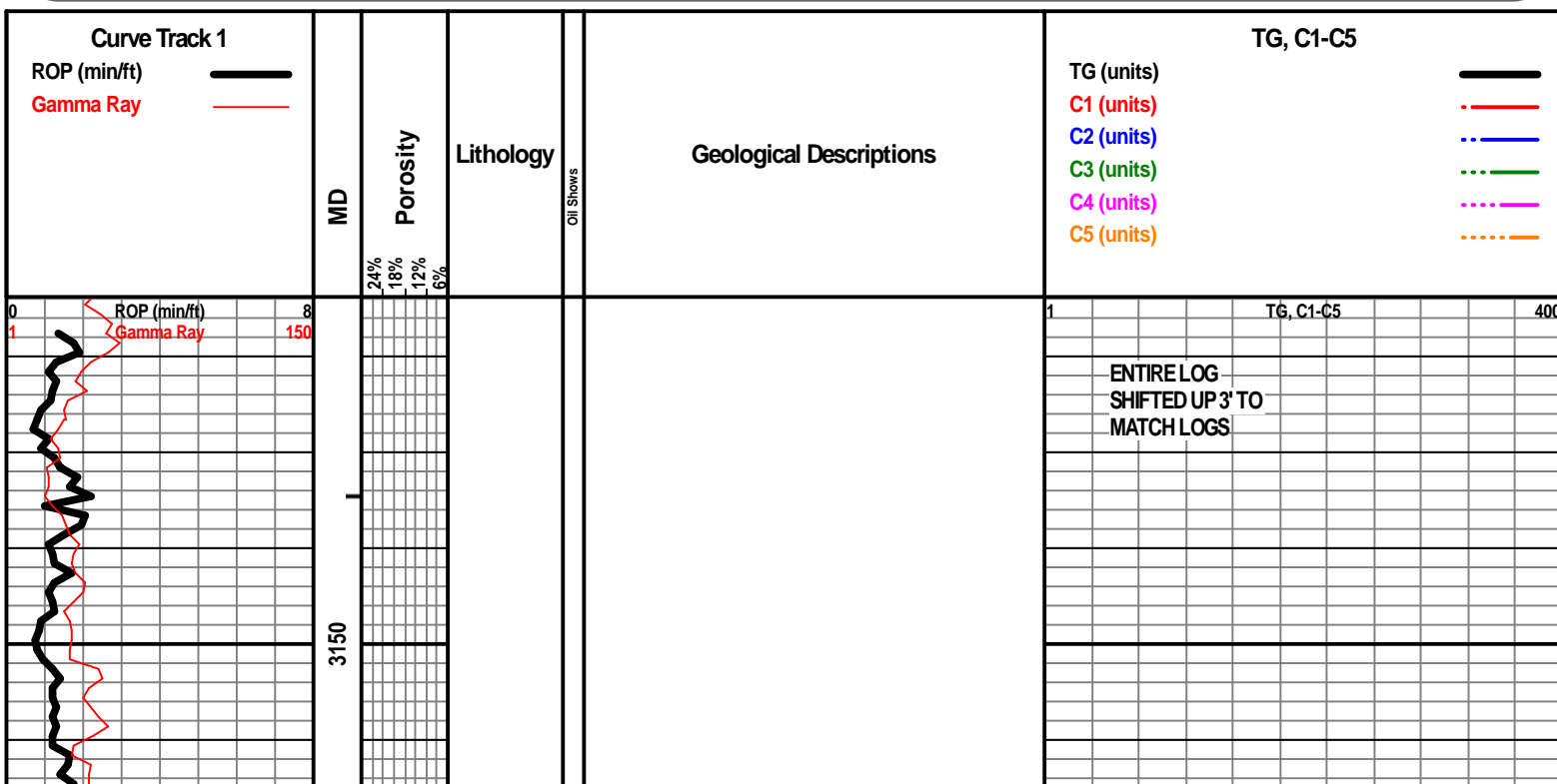
INTERVALS

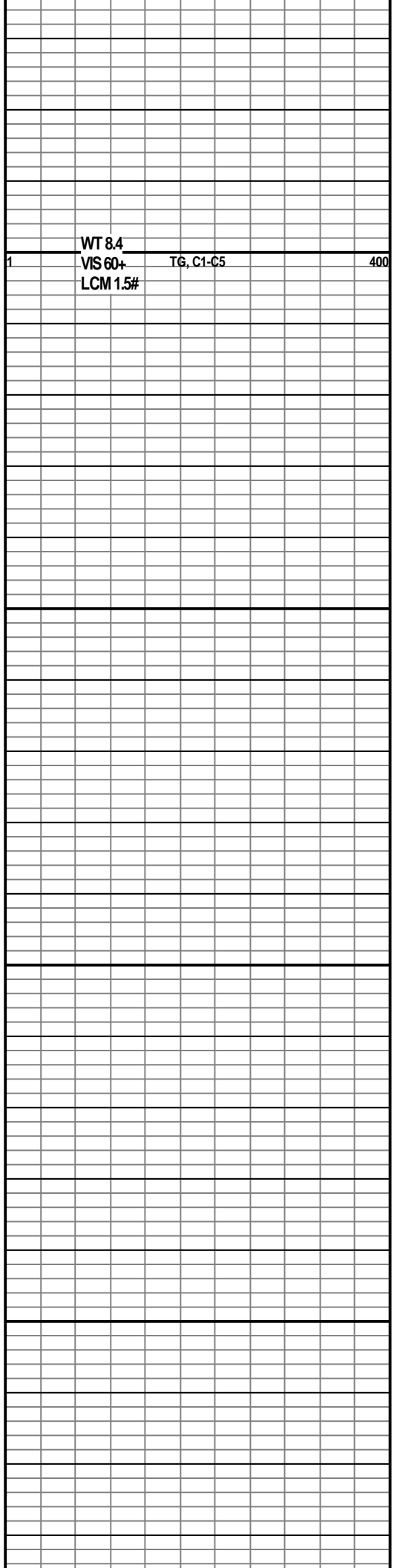
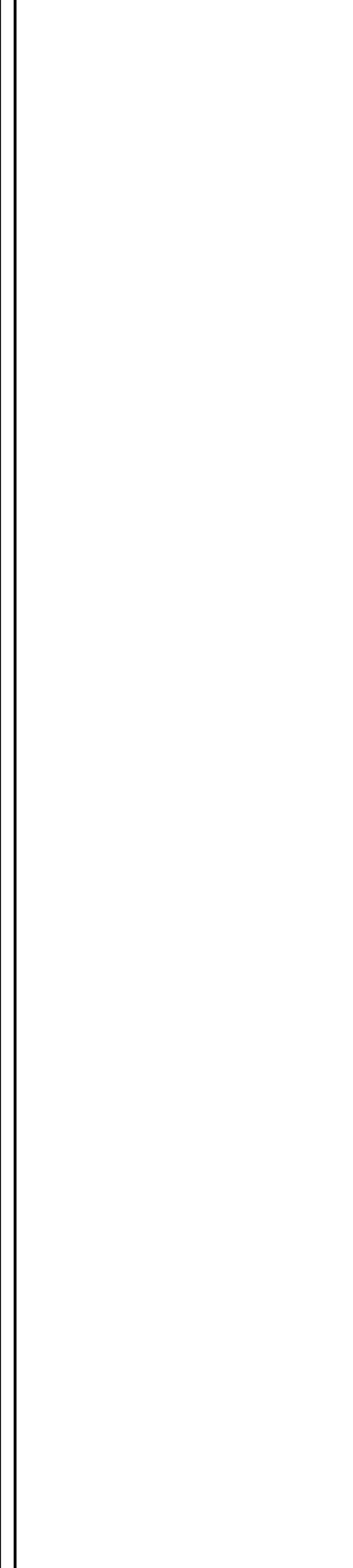
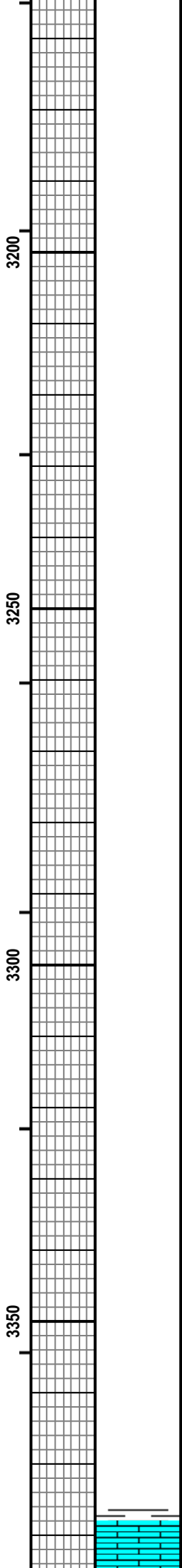
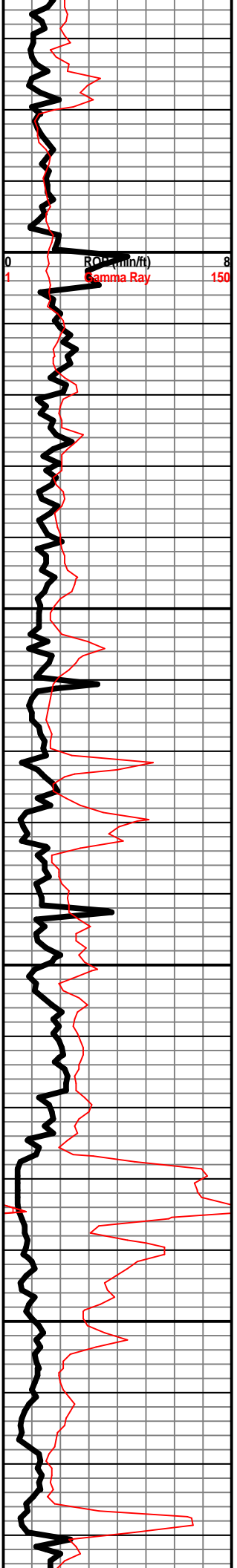
- Core
- Dst

- Dst

EVENTS

- Rft
- Sidewall
- Conn





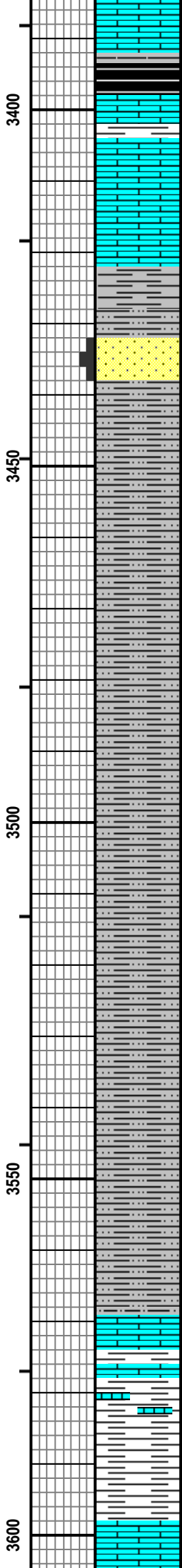
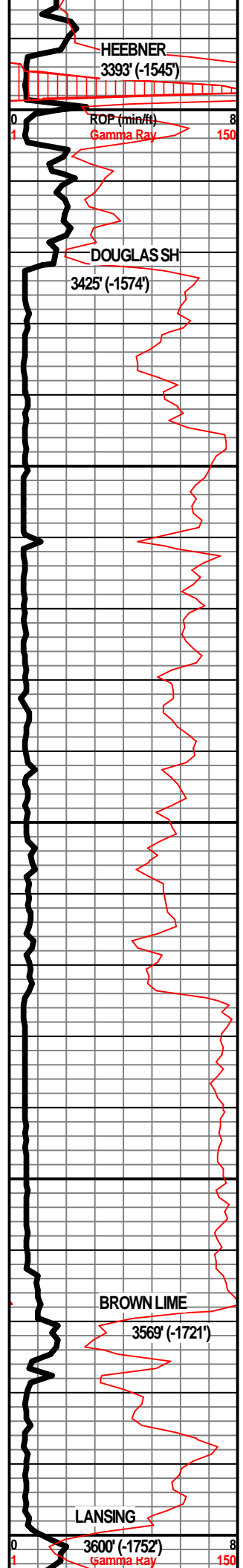
WT 8.4

VIS 60+

LCM 1.5#

TG, C1-C5

400



SH - BLK, CARB, W/LS - CRM/TAN, F XLN, MOD DNS/DNS

LS - CRM/TAN, VF/F XLN, SUBCHKY/MO DNS

SH - LT/GRN/LT GY, SLI SLTY IN PT

SS - GY/CLR, VF GR, SUB-ANG, W SRTD, MOD/W CEM, GLAUC IN PT, P INTERGR POR, NS, NO ODOR, NO FLUOR

SH - LT GY, V SOFT IN PT, SLI SLTY IN PT

SH - LT GY/GY/DK GY IN PT, SOFT/V SOFT, SLI SLTY

SH - LT GY/GY, SLI SLTY IN PT, GLAUC IN PT

SH - LT GY/GY, V SLTY

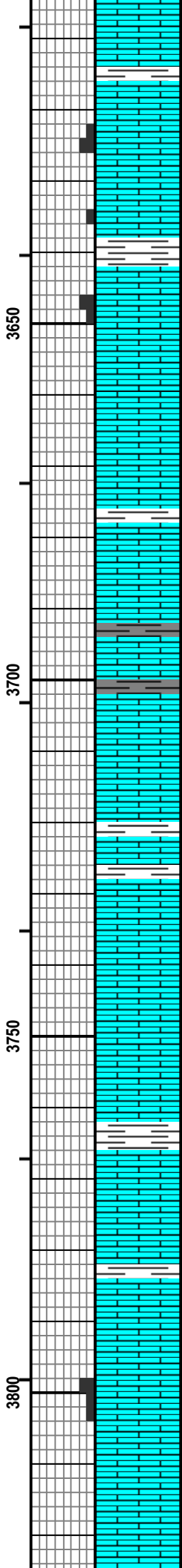
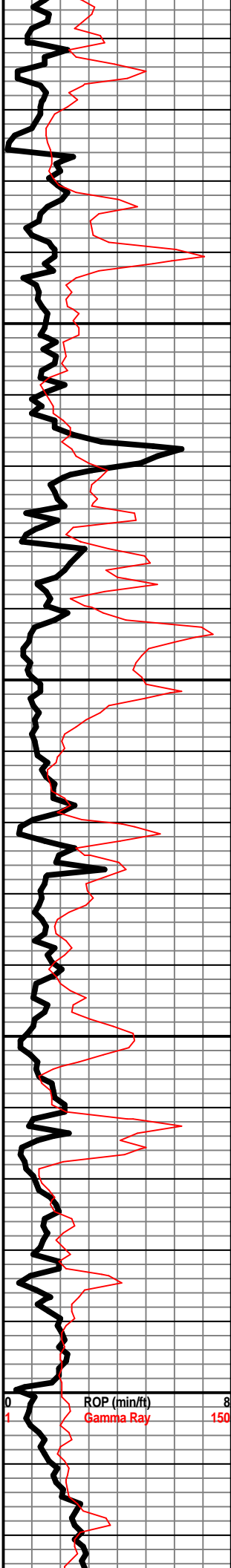
SH - LT GY/GY, SLTY, MOD DNS

LS - TAN/LT BRN, F XLN, MOD DNS/DNS, W/SH - GY/DK GY, SLI SLTY IN PT, MOD DNS

LOST CIRCULATION AND MISSED SAMPLE

1 TG, C1-C5 400

WT 8.9
VIS 57
LCM 3#
1 TG, C1-C5 400



LS - TAN / CRM, F XLN, MOD DNS / DNS, W / SH - RD-ORNG, GRN / GY

LS - CRM / TAN, F XLN, PRED MOD DNS / DNS, P INTERXLN POR IN FEW PT, NSFO OIL, OIL SHEEN WHEN BROKN, F ODOR WHEN BRKN - POOR SAMPLE QUALITY AFTER LOSING CIRC

LS - CRM / TAN, F / VF XLN, PRED MOD DNS / SUBCHKY, VP / P INTERXLN POR, G INTERXLN POR IN FEW PIECES, COMP SAT STN IN G POR, VSSFO IN SUBCHKY PIECES, MOD YEL-GRN FLUOR, F CUP ODOR

LS - CRM / TAN, VF / F XLN, MOD DNS / SUBCHKY, W / SH - GRN / GY

LS - CRM / LT GY, VF XLN, MOD DNS / SUBCHKY, W / SH - DK GY / BLK, SLI CARB

LS - DK TAN / TAN / CRM, VF XLN, MOD DNS / SUBCHKY

LS - CRM / TAN, F XLN, MOD DNS / SUBCHKY, W / SH - RD-ORNG, GRN / GY

LS - CRM / TAN, VF / F XLN, PRED MOD DNS, SUBCHKY IN PT

LS - CRM / TAN, VF / F XLN, MOD DNS / SUBCHKY, W / SH - LT GY / LT GRN

LS - CRM / TAN, F / VF XLN, PRED MOD DNS / DNS, SUBCHKY IN PT, P INTERXLN POR IN PT, NS, W / SH - MAR / GRN / GY

LS - CRM / TAN, F XLN, MOD DNS / DNS

LOST CIRC @ 3625'

WT 8.7
VIS 57
LCM 7#

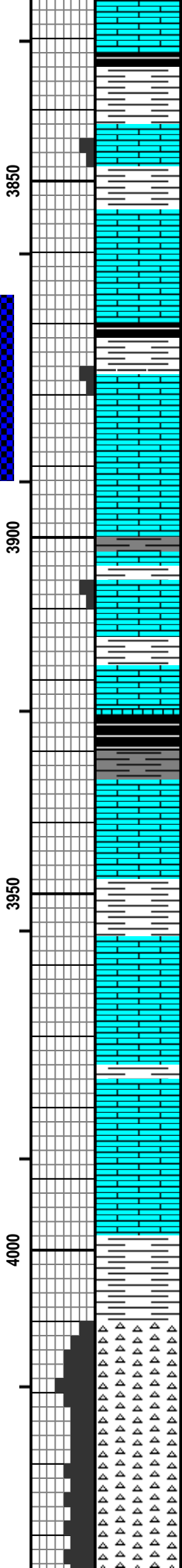
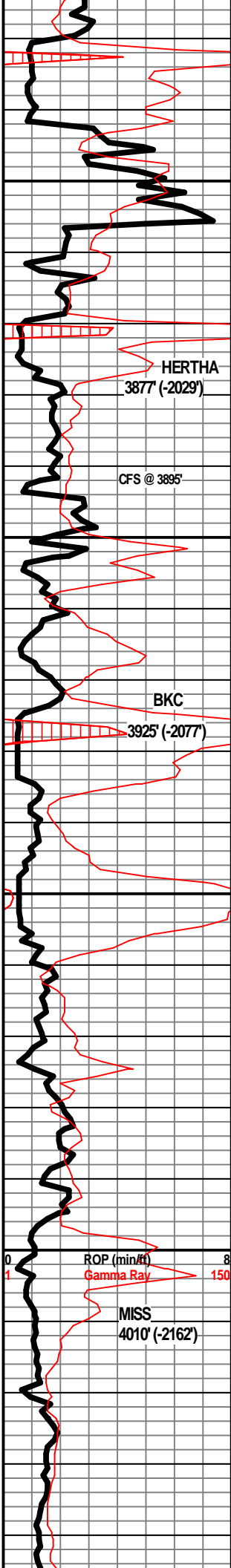
HOLE STARTED TO TAKE FLUID

WT 8.5
VIS 57
LCM 16#

ADD 100 BBLS OF VOLUME

WT 8.5
VIS 55
LCM 10#

TG, C1-C5 400



SH - BLK, CARB, W/SH - GY /GRN, W/LS - CRM/TAN, PRED DNS, P INTERXLN POR IN PT, VSSFO IN 2 PIECES, LT BRN OIL, MOD YEL-GRN FLUOR IN SHO ROCKS

LS - CRM/TAN, F XLN, MOD DNS/DNS, FOSS IN PT

LS - CRM/TAN, VF / F XLN, MOD DNS/SUBCHKY IN PT

SH - BLK, CARB, W/SH - GRN /GY /RDISH-ORNG / MAR

LS - CRM/TAN /GY, F XLN, FOSS IN PT, PRED DNS, P /F INTERXLN POR IN PT, TITE, FSFO WHEN BRKN, F SHO OF GAS, BLEEDING OIL AND GAS, SLI CUP ODOR, MOD YEL-GRN FLUOR IN SHO ROCKS

SH - DK GY /BLK, SLI CARB, W/SH - GRN /GY, W/LS - CRM/TAN, F XLN, MOD DNS/DNS, FOSS IN PT, OOLITIC IN PT, P/F INTERXLN & INTER OOLITIC POR IN PT, SSFO WHEN BRKN, SLI YEL-GRN FLUOR IN SHO ROCKS

SH - MAR /GRN /GY, V SOFT, MUDDY, W/LS - CRM /TAN, F XLN, MOD DNS/DNS

SH - BLK, CARB, W/SH - GRN /GY, W/LS - LT GY /CRM/TAN, F XLN, MOD DNS/DNS

SH - GRN /GY, W/LS - CRM/TAN, F XLN, MOD DNS /DNS

LS - TAN /GY /CRM, F XLN, DNS/MOD DNS, FOSS IN PT, W/SH - GRN /GY /MAR /RD-ORNG

SH - TURQ /PALE GRN, W/LS - CRM /TAN, DNS /MOD DNS

CHT - WHT /GY /CRM, OPAQ & TRANSLUCNT, 30% FRSH, 70% F/G WEATH & TRIP POR, VUG POR IN PT, GSFO, G SHO OF GAS, ABUND OIL SHEEN, V LT BRN OIL, BRI YEL-GRN FLUOR IN PT

CHT - WHT /GY /CRM, PRED OPAQ, 50% FRSH, 50% F/G WEATH & TRIP POR, FSFO, ABUND OIL SHEEN, G CUP ODOR, BRI YEL-GRN FLUOR IN SHO ROCKS

WT 8.8
VIS 51
LCM 10#

SPOTTED PILL ON BOTTOM WITH LOWER LCM BEFORE TEST

DST #1
HERTHA 3870' - 3895'
30" - 60" - 45" - 90"

IF: BOB in 15 sec, built to 317"
IS: Return built to 5.21"
FF: BOB immed, built to 311". GTS in 2 min

Rec'd: 30' GM (10% G, 90% M)

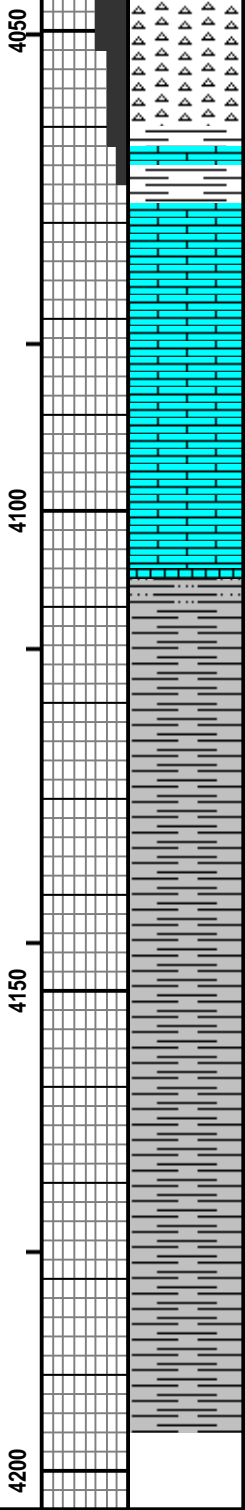
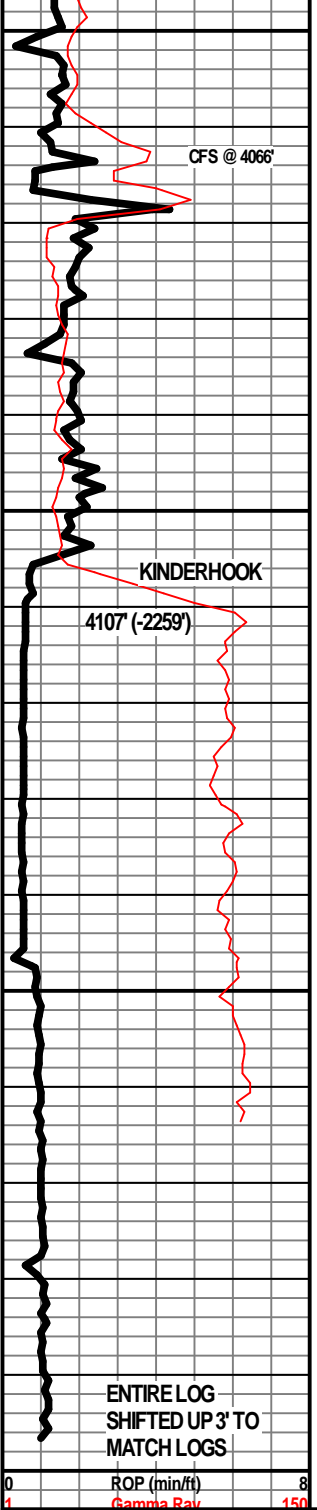
Guaged: 9.91 Mcf/d

SIP: 1058-907#
FP: 23-29#, 20-28#
HP: 1929-1814#

WT 8.9
VIS 54
LCM 8.5#

TG, C1-C5

400



CHT - WHT / GY, OPAQ AND TRANSLUCNT, 80%
 FRSH, 20% F WEATH & TRIP POR, SSFO, F OIL
 SHEEN, G CUP ODOR, BRI YEL-GRN FLUOR IN SHO
 ROCKS

LS - CRM / TAN, VF / F XLN, MOD DNS/DNS,
 SUBCHKY IN PT

LS - GY / TAN, F / M XLN, DNS

LS - TAN / GY, VF / F XLN, MOD DNS / DNS

SH - LT GY / GY, SLTY IN PT

SH - DK GY, MOD DNS

SH - GY / DK GY

SH - GY

RTD 4200'

WT 9.1
 VIS 56
 LCM 8#

ENTIRE LOG
 SHIFTED UP 3' TO
 MATCH LOGS

0 ROP (min/ft) 8
 1 Gamma Ray 150

1 TG, C1-C5 400

QUALITY WELL SERVICE, INC.

8658

Federal Tax I.D. # 481187368

Home Office 30060 N. Hwy 281, Pratt, KS 67124

Mailing Address P.O. Box 468

Office 620-786-6992
Fax 620-672-3663

Todd's Cell 620-388-4967
Brady's Cell 620-727-6964

Date	Sec.	Twp.	Range	County	State	On Location	Finish	
12-5-24	4	26S	11W	PRATT	KS			
Case	M. Kundell / FREV Mill		Well No.	S-4				Location
Contractor	FOSSIL DRIG			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.				
Well Size	12/4		T.D.	291				
Csg.	95/8 23"		Depth	269				
Charge To	DEUTSCH OIL CO.							
Job Size	Depth			Street				
Tool	Depth			City State				
Cement Left in Csg.	Shoe Joint: 20'			The above was done to satisfaction and supervision of owner agent or contractor.				
Leas Line	Displace 15.9			Cement Amount Ordered 290 SK (COMMON)				
EQUIPMENT				2% GEL 3 1/2" CL 1/2" PS USED 225 SK				
Pumptrk	3 No.			Common 225 SK				
Bulktrk	15 No.			Poz. Mix				
Bulktrk	No.			Gel. 423 lbs				
Pickup	No.			Calcium 635 lbs				
JOB SERVICES & REMARKS				Hulls				
Rat Hole				Salt				
Mouse Hole				Flowseal 113 lbs				
Centralizers				Kol-Seal				
Baskets				Mud CLR 48				
D/V or Port Collar				CFL-117 or CD110 CAF 38				
Run 6 H's 95/8 23" CSG SET @ 264'				Sand				
START CSG CSG on Bottom				Handling 310				
Hookup to CSG & BREAK CIRC W/ RIG				Mileage 20 / 1200				
START Pumping H's				FLOAT EQUIPMENT				
START MIX ! Pump 225 SK COMMON				Guide Shoe				
2% GEL 3 1/2" CL 1/2" PS @ 14.8"/GAL				Centralizer				
START DISP				Baskets				
CLOSE VALVE ON CSG 15.9 Bbls total				AFU Inserts				
CIRC CMT thro JOB				Float Shoe				
CIRC CMT TO BIT				Latch Down				
LET SET 45 JET CELLAR				SERVICE SUPV 1 EA				
				LMV 20				
				Pumptrk Charge SURFACE				
				Mileage 40				
THANK YOU PLEASE CALL AGAIN DOD MATT HITCHER JACKSON [Signature]				Tax				
				Discount				
				Total Charge				

QUALITY WELL SERVICE, INC.

8660

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Mailing Address P.O. Box 468

Office 620-786-6992

Fax 620-672-3663

Todd's Cell 620-388-4967

Brady's Cell 620-727-6964

Date	12-11-24	Sec.	4	Twp.	26S	Range	11W	County	Pratt	State	Ks	On Location	Finish	
Lease	M. RUNDLE-FREY Mill		Well No.	5-4		Location								
Contractor	Fossil Drilling							Owner						
Type Job	5 1/2 LS							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	7 7/8		T.D.	4200'		Charge To								
Csg.	5 1/2 15.5 USED		Depth	4195		DEUTSCH OIL COMPANY								
Tbg. Size			Depth			Street								
Tool			Depth			City								
Cement Left in Csg.			Shoe Joint	42.12		State								
Meas Line			Displace	98.6		The above was done to satisfaction and supervision of owner agent or contractor.								
EQUIPMENT												Cement Amount Ordered	2005x Proc 2' GEL 10' SALT	
Pumptrk	3	No.												
Bulktrk	10	No.												
Bulktrk		No.												
Pickup		No.												
JOB SERVICES & REMARKS												5 1/2 Kol Seal .6% C16A .25% C41P 85 1/2 P1		
Rat Hole	30x													
Mouse Hole	20x													
Centralizers	1-3-5-7-9-11-13													
Baskets														
D/V or Port Collar	USED													
Run 99 H'S 5 1/2 15.5 CS6 SET @ 4185														
START CS6 CS6 on Bottom: TAG														
lock up to CS6: BREAK CIRC w/ air														
DROP Ball: Rotate CS6														
START Pumping 10 Bbls H ₂ O 12 Bbls MF 10 Bbls H ₂ O														
START Plug R-M Holes 50x														
START mix: Bump 15051 Proc L & CS6 @ 14.8 GAL														
SHUT DOWN Wash up to RELEASE 6 1/2 LO Pbls														
START Disp w/ 2 1/2 KLL														
EFT PSI: 83 out 650														
Plug Down 98.6 1100"														
PSI up CS6 1700"														
RELEASE HELD 1/2 Bbl BACK														
Good Circ thru JOM														
THANK YOU														
PLEASE CALL AGAIN														
nature														
												Tax		
												Discount		
												Total Charge		

Hosco Testing & Measurement, INC. Gas Analysis

GPA 2172-09 Report with GPA 2145-16 Physical Properties

Sample Information

Sample Information	
Producer	DEUTSCH OIL CO.
Sampled By	TRILOBITE TESTING INC.
Well Name	M. RUNDELL/FREYMILLER #5-4
Test #	1
Formation	HERTHA
Location	4-26S-11W PRATT, KS
H2S PPM	
Sample Date	12-26-24
Analyzed By	KASEY HAYES
Report Date	2024-12-26 08:55:01
NGA Phys. Property Data Source	GPA Standard 2145-16 (FPS)

Component Results

Component Name	Norm%	GPM (Dry) (Gal. / 1000 cu.ft.)	
Helium	0.796	0.081	
Hydrogen	0.000	0.000	
Nitrogen	15.605	1.721	
Oxygen	0.011	0.001	
Methane	70.848	12.038	
Carbon Dioxide	0.102	0.017	
Ethane	7.056	1.891	
Propane	3.420	0.944	
isobutane	0.382	0.125	
n-Butane	0.933	0.295	
isopentane	0.194	0.071	
n-Pentane	0.252	0.092	
Hexanes Plus	0.401	0.174	
Water	0.000	0.000	
Total:	100.000	17.451	

Results Summary

Result	Dry	Sat. (Base)	
Pressure Base (psia)	14.730		
Temperature Base (Deg. F)	60.00		
Flowing Temperature (Deg. F)	0.0		
Water Mole%	-	1.741	
Gross Heating Value (BTU / Ideal cu.ft.)	1010.1	992.5	
Gross Heating Value (BTU / Real cu.ft.)	1012.6	995.4	
Relative Density (Gravity), Real	0.7234	0.7219	
Compressibility (Z) Factor	0.9975	0.9971	
Gross Heating Value Dry @ 14.65	1007.134		
Gross Heating Value Sat @ 14.65	989.957		

Fracture Start Date/Time:	1/4/25 13:41
Fracture End Date/Time:	1/4/25 15:38
State:	Kansas
County:	Pratt
API Number:	(e.g. XX-XXX-XXXX-0000)
Operator Number:	
Well Name:	M. Rundell-Freymler 5-4
Federal Well:	No
Tribal Well:	No
Longitude:	
Latitude:	(optional)
Long/Lat Projection:	NAD27
True Vertical Depth (TVD):	Water Source Type
Total Clean Fluid Volume* (gals):	Water Source Percentage: 0.00
	Well Type:



Total Sheng Mass (Lbs)
3,220,404

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)**	Comments	Claimant Company	Claimant First Name	Claimant Last Name	Claimant Email	Claimant Phone (nnn-nnn-nnnn)	Is Ingredient Contained?
Water	Deutch Oil	Carrier/Base Fluid	Water	7732-18-5	100.00%	3,035,736	94.26569%							TRUE
40/70 Premium Sand	SPS	Propping Agent		Listed Below										FALSE
16/30 Premium Sand	SPS	Propping Agent		Listed Below										FALSE
16/30 Garnet Resin Sand	SPS	Propping Agent		Listed Below										FALSE
ACS-XFR	Double S Downhole	Friction Reducer		Listed Below										FALSE
GQ2510-Biocide	Flotek Chemistry	Control microbial growth		Listed Below										FALSE
KC-LC - SCS-750	Strategy Oilfield	Liquid KCl Substitute		Listed Below										FALSE
PCS Frac 3	Advanced BioCatalytics	Enhanced Recovery Fluid		Listed Below										FALSE
			Crystalline Silica	14808-60-7	100.00%	135,000	4.19202%							FALSE
			Crystalline Silica	14808-60-7	100.00%	19,000	0.58999%							FALSE
			Silica Substrate	14808-60-7	99.97%	25,992	0.80711%							FALSE
			Polyurethane Resin	57029-46-6	2.00%	520	0.01615%							FALSE
			Copolymer	Proprietary	40.00%	396	0.01230%		Double S Downhole	Bill	Shepard	bill@doubledownhole.com	405-653-5423	FALSE
			C14-C18 Olefin, paraffin blend	Proprietary	70.00%	693	0.02152%		Double S Downhole	Bill	Shepard	bill@doubledownhole.com	405-653-5424	FALSE
			Glutaraldehyde	111-30-8	30.00%	101	0.00313%							FALSE
			Quaternary ammonium comp	68424-85-1	14.99%	50	0.00156%							FALSE
			Methanol	67-56-1	4.99%	17	0.00052%							FALSE
			Ethanol, ethyl alcohol	64-17-5	4.99%	17	0.00052%							FALSE
			Choline Chloride	67-48-1	75.00%	1,271	0.03946%							FALSE
			Water	7732-18-5	25.00%	424	0.01315%							FALSE
			Mixture	Proprietary	100.00%	1,647	0.05115%		Advanced BioCatalytics	Brizette	Winkler	tech@abioxcat.com	949-442-0880	FALSE

*Total Water Volume sources may include fresh water, produced water, and/or recycled water
 ** Information is based on the maximum potential for concentration and thus the total may be over 100%
 All component information