

Covey

The Well Watchers

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

Well Name: ZERR #4
Location: Section 20 - Township 12 South - Range 32 West
Licence Number: 15-109-21,106. 0000 Region: Logan County, KS.
Spud Date: 19 June 2012 Drilling Completed:
Surface Coordinates: 2,310' FNL & 497' FEL , NE/4
(Approximately W/S SE SE NE)
Bottom Hole
Coordinates:
Ground Elevation (ft): 3,042' K.B. Elevation (ft): 3,052'
Logged Interval (ft): 3,450' To: Total Depth (ft):
Formation: Stotler -----> Miss (St. Louis)
Type of Drilling Fluid: Chemical; Low Solids (non-dispersed)

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

OPERATOR

Company: NEW GULF OPERATING, LLC.
Address: 6310 East 102nd Street
Tulsa, Oklahoma 74137
(918) 728-3020
POC Geologist:
Joe Baker

GEOLOGIST

Name: Curtis Covey
Company: COVEY - The Well Watchers
Address: 6548 Bedford Circle
Derby, Kansas 67037
Office: (316) 776 - 0367 Cell: (316) 258-9976

KB: 3,052'

FORMATION TOPS

GL: 3,042'

Formation	Rotary Sample Depth (Datum)	E-log Depth (Datum)
Anhydrite	2,571' (+481')	
B / Anhydrite	2,595' (+457')	
Stotler	3,662' (-610')	
Topeka	3,787' (-735')	
Heebner Shale	4,011' (-959')	
Toronto	4,035' (-983')	
Lansing	4,051' (-999')	
Muncie Creek SH	4,196' (-1,144')	
Stark SH		
B / KC		
Pawnee LS		
Cherokee Sh		
'Johnson' Zone		
Morrow SH		
Miss (Lithological)		

RTD: LTD: ATD: E-log is to rotary sample depth.

Loggers:
Log Tech - Hays, Kansas

12-1/4" Hole

7-7/8" Hole

7-7/8" Hole

19 June --- Spud @ 12:45am.
 Drill to 262'.
 Run 8-5/8" casing (23#)
 Set casing @ 258'.
 Cemented w/ 200 sx Class A
 (2% Gel + 3% CC).
 [Consolidated]
 Cement did circulate.
 Plug down @ 7:15am.
 WOC.

19 June --- WOC.
 6:30am @ 262'.
 Under surface casing @ 4:15pm.
 20 --- 6:30am @ 1,725'.
 21 --- 6:30am @ 3,095'.
 22 --- 6:30am @ 3,815'.
 Displace Mud @ 3,414'.
 S/T 25 stands @ 4,050'.
 23 --- 6:30am @ 4,185'.
 DST #1: Lansing (4,184'-4,224').
 24 --- Resumed Drilling @
 6:30am @

HOLE DEVIATION 262' - ')

DEPTH / TVD	INCLINATION	AZIMUTH	NORTH	SOUTH	EAST	WEST	DOGLEG deg/100'
262' /	--- 1.00 (Surface)						
1,250' /	--- 1.00						
2,288' /	--- 1.00						
3,285' /	--- 0.75						
4,224' /	--- (DST #1)						

STRAP @ DST #1

Board:
 Strap:
 Diff:

CONTRACTOR

VAL Energy --- Rig #4

10,500 E. Berkeley Square Parkway, Suite 1000
 Wichita, Kansas 67230
 Office: (316) 636-2090

Rig #4 - (620) 617-2793

Larry Hinderliter - (620) 804-0097

Pump: National K-500A
 6" x 15" @ 58 SPM.
 800-950 PSI @ Standpipe.

After Mudup / Main Hole:
 WOB 38M @ 75 RPM.

Drill Collars: 6-1/8" x 2.50" --- 486'. (83.5#/ft)
 Dry Collar Weight: 40,832#
 (@ 9.2 ppg / Buoyancy Factor 0.86)
 Bouyancy Collar Weight: 35,115#
 Design Factor: 15%, therefore:
 available WOB is 29,848#
 Drill Pipe: 4-1/2"XH. (16#/ft - used)

BIT RECORD

DATE	SIZE	TYPE	JET SIZE	DEPTH IN / OUT	CUM. FT.	HOURS	ROP
19 June 2012	12-1/4"	REED RR	3 / 15's	0' / 262'	262'	2.00	131.0
19 June 2012	7-7/8"	JZ QX-21S	15 - 14 - 15	262' /			

ROCK TYPES

POROSITY

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

LITHOLOGY

- Anhy
- Bent
- Brec
- Cht
- Clyst
- Coal
- Granite wash
- Congl
- Dol lmst
- Silty dol

- Calc dol
- Dol 2
- Dol
- Gyp
- Igne
- Lmst 2
- Lmst
- Meta
- Mrlst
- Salt
- Shale 3
- Shale 3
- Shale
- Shcol
- Shgy
- Sltst
- Ss
- Till
- Ss 2

MINERAL

- Mica
- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Breccfrag
- Calc
- Carb
- Chtdk
- Chtlt
- Dol
- Feldspar
- Ferrpel
- Ferr
- Glau
- Gyp
- Hvymin
- Kaol
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- Minxl
- Nodule
- Phos
- Pyr
- Salt
- Sandy
- Silt
- Sil
- Sulphur
- Tuff
- Copper
- Ooliticastic
- Ooloid
- Oolite
- Sucrosic
- Dark specks

- Arg
 - Bent
 - Coal
 - Dol
 - Gyp
 - Ls
 - Mrst
 - Calc dol
 - Sltstrg
 - Ssstrg
 - Chalk
 - New symbol
- SHOW**
- Oil
 - Spotted
 - Ques
 - Dead
 - Gas
 - Oil/gas
 - Bed contact

STRINGER

- Calc dol
- Silty dol
- Anhy

ACCESSORIES

FOSSIL

- Algae
- Amph
- Belm
- Bioclst
- Brach
- Bryozoa
- Cephal
- Coral
- Spore
- Crin
- Echin
- Fish
- Foram
- Fossil
- Gastro

- Oolite
- Ostra
- Pelec
- Pellet
- Pisolite
- Plant
- Strom

MINERAL

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OTHER SYMBOLS

ACTIVITY

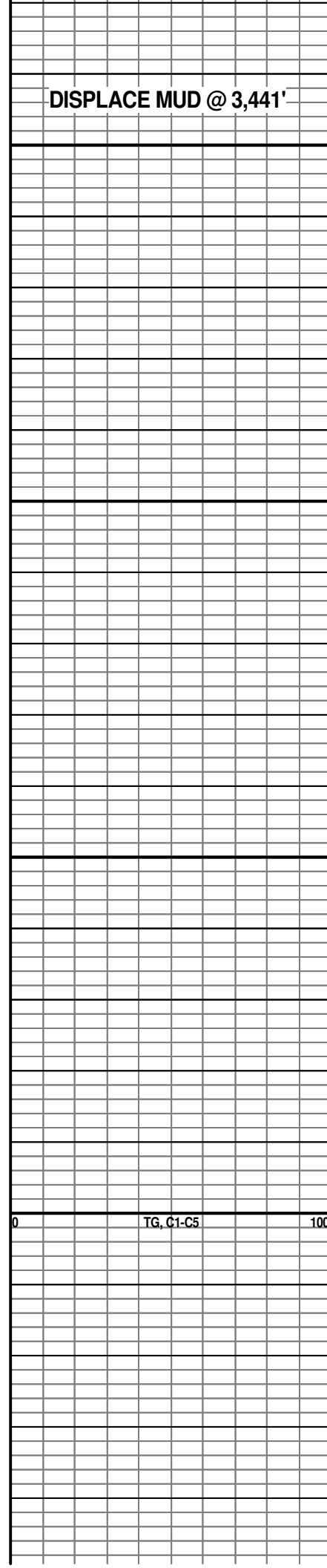
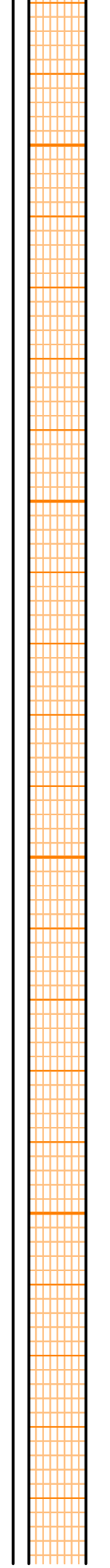
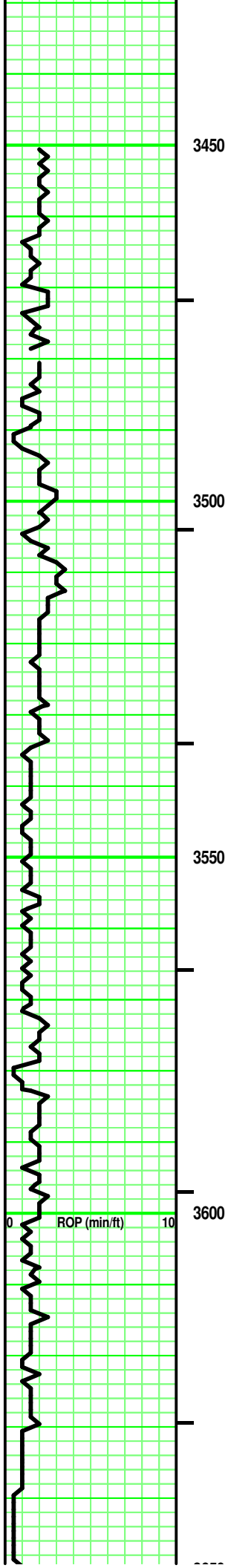
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- Circulate for same

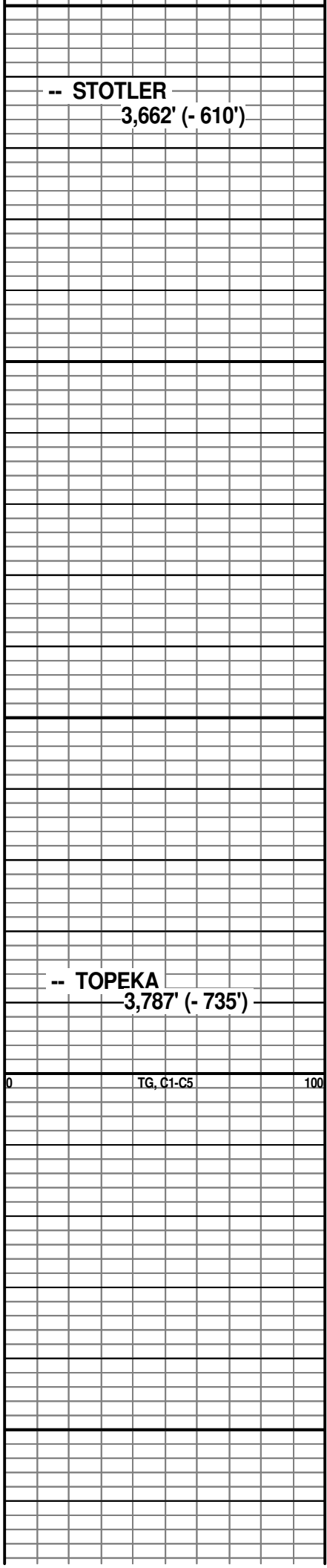
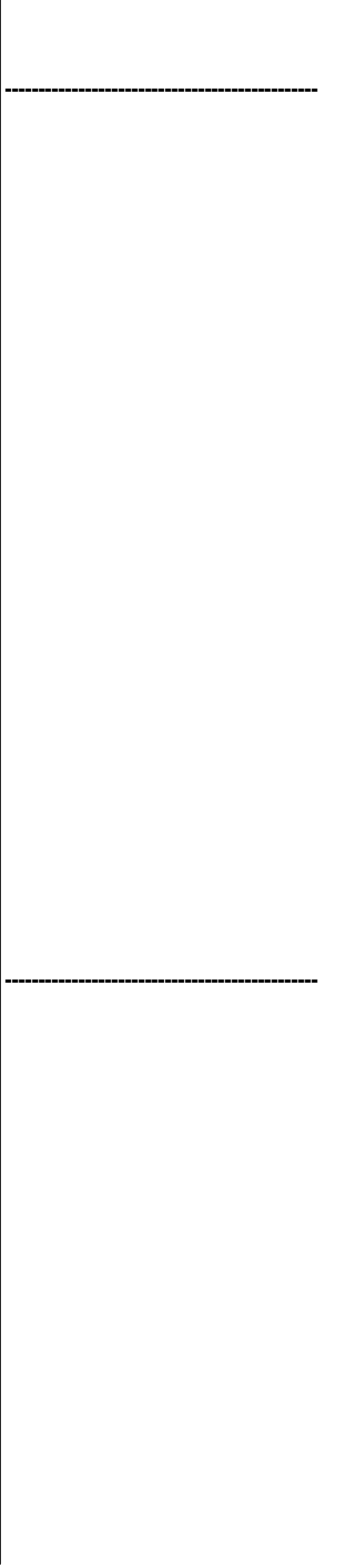
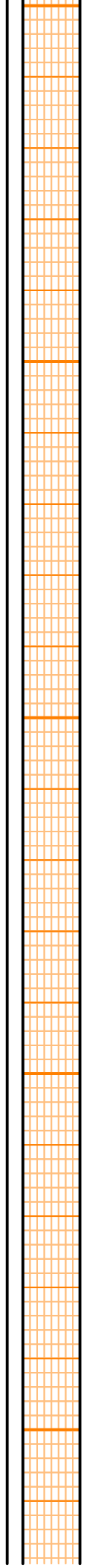
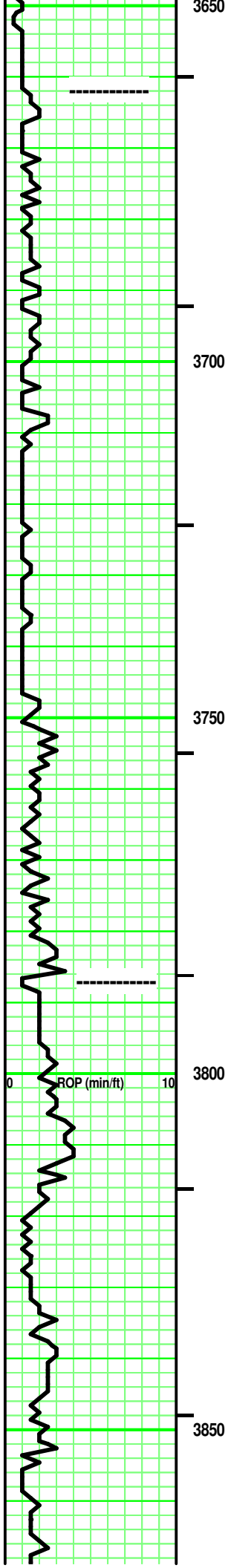
- Circulate for same
- Rtd
- Trip

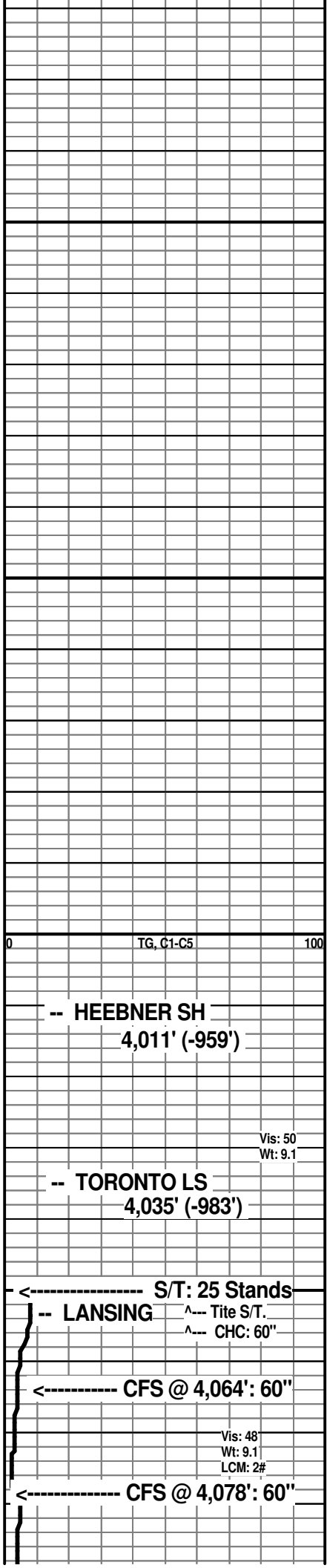
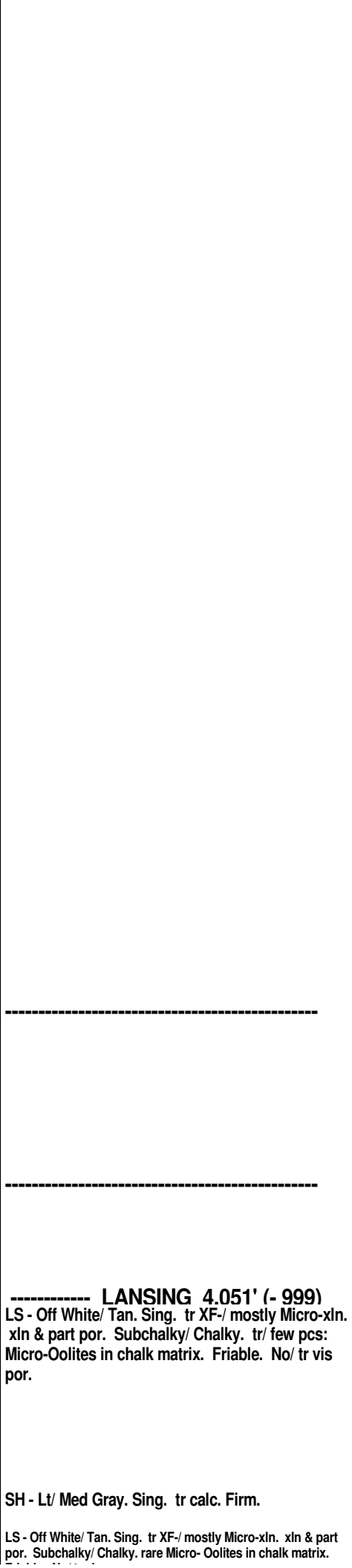
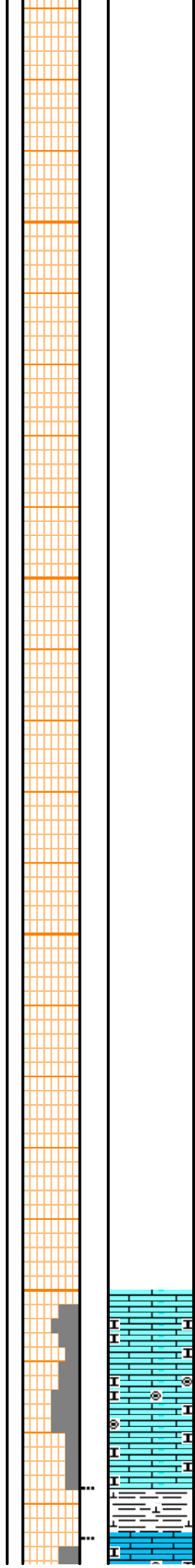
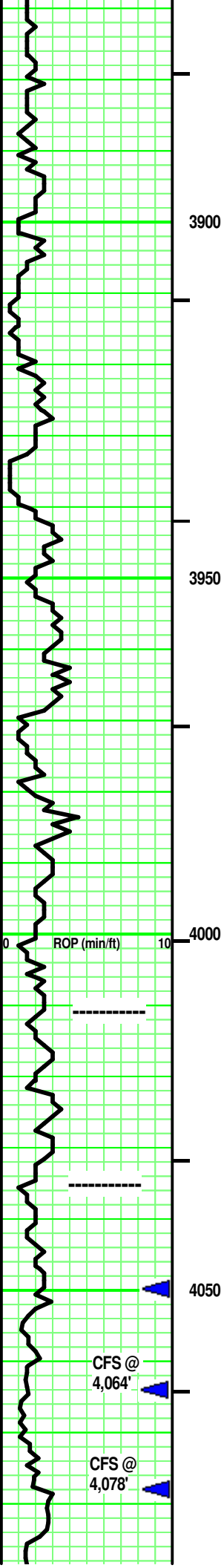
- Connection
- Rft

- Sidewall

Curve Track 1 ROP (min/ft)	Depth	Porosity Porosity Type 24% 18% 12% 6%	Shows	Lithology	Geological Descriptions	TG, C1-C5 TG (Units) ——— C1 (units) - - - - - C2 (units) C3 (units) - - - - - C4 (units) - - - - - C5 (units) - - - - -
	0 10 2500 2550 2600				<p>----- AnHydrite 2,571' (+481')</p> <p>----- B/AnHydrite 2,595' (+457')</p>	0 100 TG, C1-C5 Dry Wt of Collars: 40,832# [489' x 83.5#/ft = 40,832#] Drill Collars: 6-1/8" x 2.5" Buoyancy Wt of Collars: 35,115# [40,832 x .860 (9.2ppg) = 35,115#] Available WOB: 29,848# [35,115# x .85 = 29,848#] Weight Indicator Check @ 4,095' Dry Wt of: DC - (See Above) = 40,832# DP - 3,566' x 16#/ft = 57,056# Total Dry Wt = 97,888# Buoyancy Wt = 87,151# [97,888# x .86 (9.2ppg) = 84,184#] Buoyancy Wt + Surface Equipment = String Weight [84,184# + 20,000# = 104,184#] String Weight = 104,184# Weight Indicator shows 110M; therefore, weight indicator is 6% heavy Contractor reports running 38M# on bit by WI and has actually 35.7M# WOB. -vs- Calculated available WOB of 29,848#. Contractor is running all of the buoyanced Drill Collar weight on bit.
0 10 ROP (min/ft)	XXX XXXXX XXX					0 100 TG, C1-C5







ROP (min/ft)

TG, C1-C5

CFS @
4,064'

CFS @
4,078'

LANSING 4.051' (- 999)

LS - Off White/ Tan. Sing. tr XF-/ mostly Micro-xln. xln & part por. Subchalky/ Chalky. tr/ few pcs: Micro-Oolites in chalk matrix. Friable. No/ tr vis por.

SH - Lt/ Med Gray. Sing. tr calc. Firm.

LS - Off White/ Tan. Sing. tr XF-/ mostly Micro-xln. xln & part por. Subchalky/ Chalky. rare Micro-Oolites in chalk matrix.

-- HEEBNER SH
 4,011' (-959')

-- TORONTO LS
 4,035' (-983')

S/T: 25 Stands

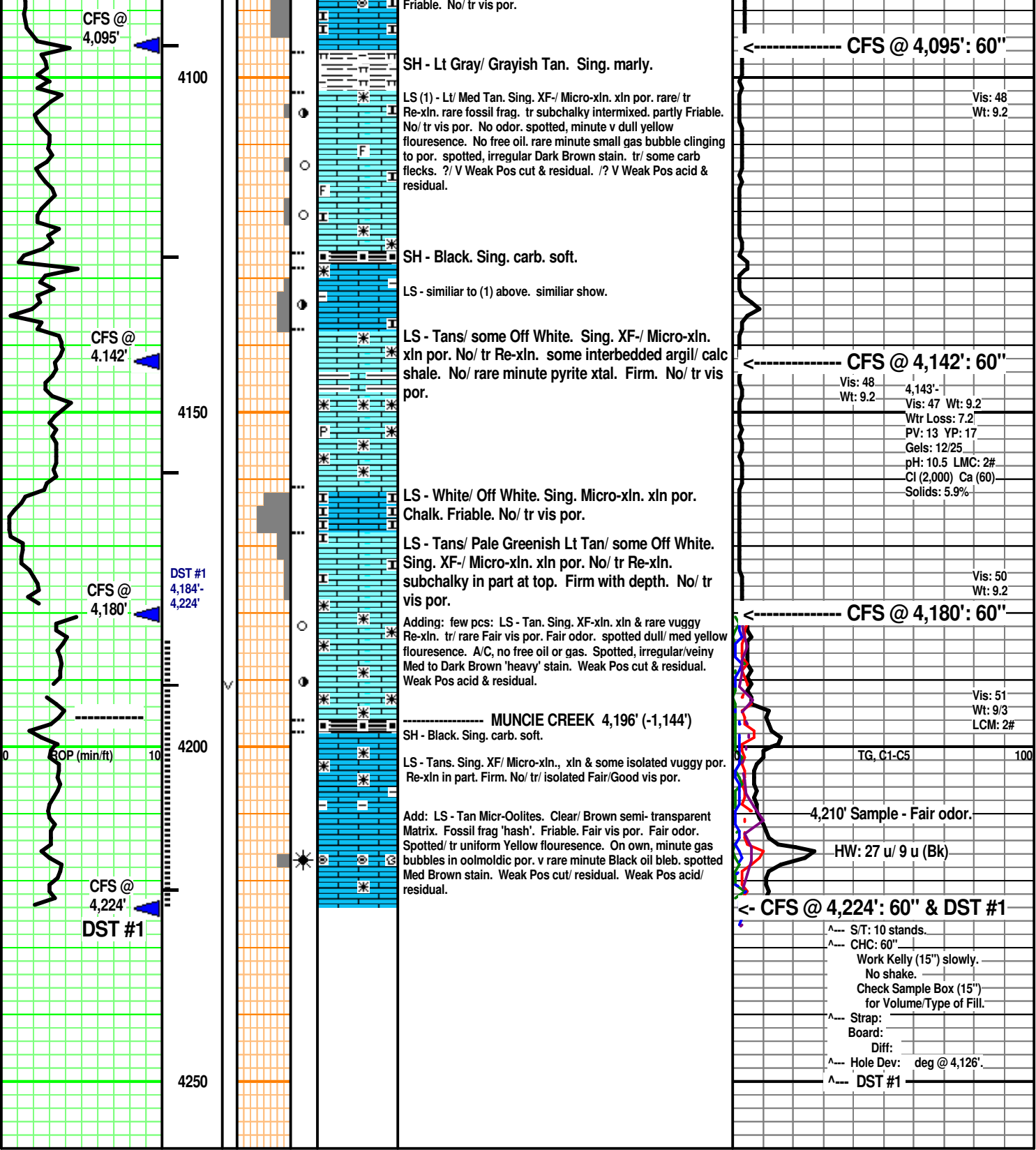
-- LANSING ^--- Tite S/T.
 ^--- CHC: 60"

CFS @ 4,064': 60"

CFS @ 4,078': 60"

Vis: 50
 Wt: 9.1

Vis: 48
 Wt: 9.1
 LCM: 2#



Friable. No/ tr vis por.

SH - Lt Gray/ Grayish Tan. Sing. marly.

LS (1) - Lt/ Med Tan. Sing. XF-/ Micro-xln. xln por. rare/ tr Re-xln. rare fossil frag. tr subchalky intermixed. partly Friable. No/ tr vis por. No odor. spotted, minute v dull yellow fluorescence. No free oil. rare minute small gas bubble clinging to por. spotted, irregular Dark Brown stain. tr/ some carb flecks. ?/ V Weak Pos cut & residual. /? V Weak Pos acid & residual.

SH - Black. Sing. carb. soft.

LS - similar to (1) above. similar show.

LS - Tans/ some Off White. Sing. XF-/ Micro-xln. xln por. No/ tr Re-xln. some interbedded argil/ calc shale. No/ rare minute pyrite xtal. Firm. No/ tr vis por.

LS - White/ Off White. Sing. Micro-xln. xln por. Chalk. Friable. No/ tr vis por.

LS - Tans/ Pale Greenish Lt Tan/ some Off White. Sing. XF-/ Micro-xln. xln por. No/ tr Re-xln. subchalky in part at top. Firm with depth. No/ tr vis por.

Adding: few pcs: LS - Tan. Sing. XF-xln. xln & rare vuggy Re-xln. tr/ rare Fair vis por. Fair odor. spotted dull/ med yellow fluorescence. A/C, no free oil or gas. Spotted, irregular/veiny Med to Dark Brown 'heavy' stain. Weak Pos cut & residual. Weak Pos acid & residual.

----- MUNCIE CREEK 4,196' (-1,144')
SH - Black. Sing. carb. soft.

LS - Tans. Sing. XF/ Micro-xln., xln & some isolated vuggy por. Re-xln in part. Firm. No/ tr/ isolated Fair/Good vis por.

Add: LS - Tan Micr-Oolites. Clear/ Brown semi-transparent Matrix. Fossil frag 'hash'. Friable. Fair vis por. Fair odor. Spotted/ tr uniform Yellow fluorescence. On own, minute gas bubbles in oolmoldic por. v rare minute Black oil bleb. spotted Med Brown stain. Weak Pos cut/ residual. Weak Pos acid/ residual.

CFS @ 4,095': 60"

Vis: 48
Wt: 9.2

CFS @ 4,142': 60"

Vis: 48
Wt: 9.2
4,143'-
Vis: 47 Wt: 9.2
Wtr Loss: 7.2
PV: 13 YP: 17
Gels: 12/25
pH: 10.5 LMC: 2#
Cl (2,000) Ca (60)
Solids: 5.9%

Vis: 50
Wt: 9.2

CFS @ 4,180': 60"

Vis: 51
Wt: 9/3
LCM: 2#

TG, C1-C5 100

4,210' Sample - Fair odor.

HW: 27 u/ 9 u (Bk)

CFS @ 4,224': 60" & DST #1

^- S/T: 10 stands.
^- CHC: 60"
Work Kelly (15") slowly.
No shake.
Check Sample Box (15")
for Volume/Type of Fill.
^- Strap: _____
Board: _____
Diff: _____
^- Hole Dev: deg @ 4,126'
^- DST #1