WELL INFORMATION

Company:	L.D. DRILLING INC.		
Address:	7 SW 26TH AVE. GREAT BEND, KS 67530		
Well Name:	MILLER A 1-5		
Location:	2090 FSL 990 FEL SEC. 5-T3S-R23W NORTON COUNTY, KS		
API:	15-137-20739-0000		
Field:	WILDCAT		
K. B. Elevation:	2343	Rotary Depth:	3711
Ground Elevation:	2338	Log Depth:	3712
Spud Date:	9/28/2016	Completed Drilling:	10/20/2016
Completed As:	REAGAN OIL WELL		
Surface Casing:	8 5/8" @ 225'	Production Casing:	5.5" set @ 3708' 10/21/2016
Formation at TD:	GRANITE		
Drilling Fluid Type:	CHEMICAL		
Rig Contractor:	L.D. DRILLING, RIG #1		
Logger:	ELI	Logs Run:	DI, CND, MICRO
Wellsite Geologist:	LARRY P. FRIEND		

FORMATION DEPTHS

COMPARED TO
CRAWFORD OIL & GAS, LLC
MILLER 1-5
2297 FSL 995 FEL, SEC 5-T3SO -

R23W

11/7/2011

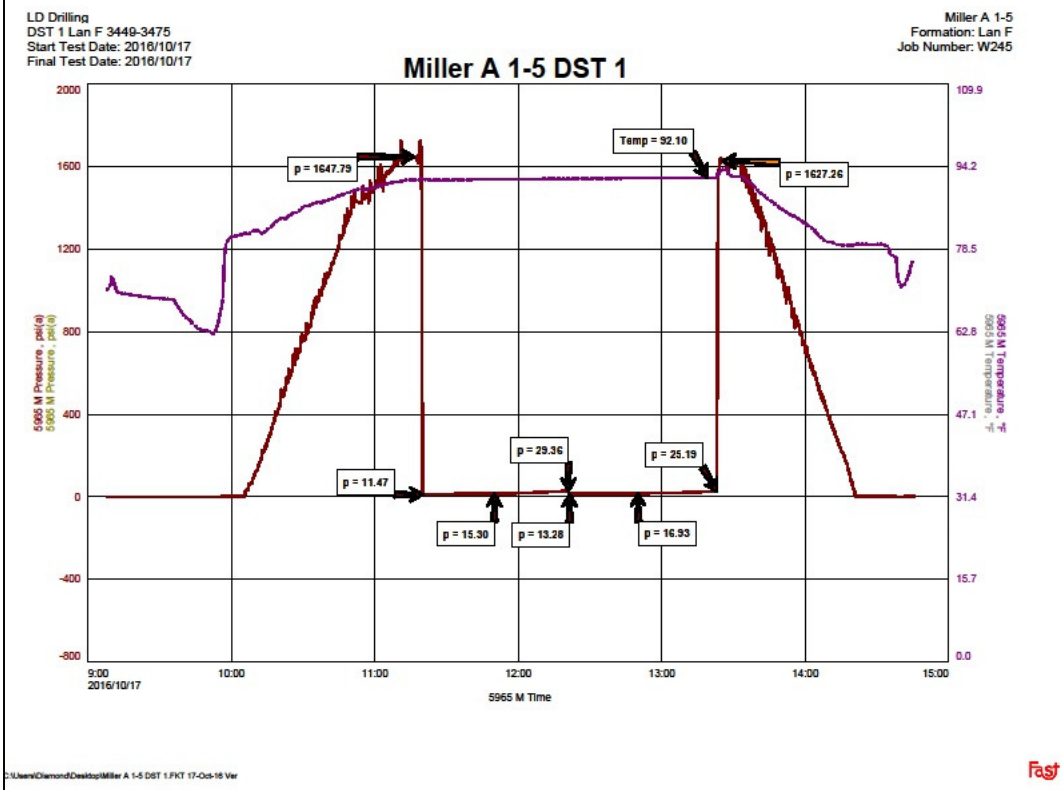
FORMATIONS	SAMPLE		LOG		
STONE CORRAL	1913	(+430)	1919	(+424)	-7
BASE	1945	(+398)	1945	(+398)	-4
HEEBNER	3357	(-1014)	3355	(-1012)	-2
LANSING	3398	(-1055)	3400	(-1057)	-4
BASE KANSAS CITY	3577	(-1234)	3581	(-1238)	-4
REAGAN SD	3615	(-1272)	3616	(-1273)	-4
GRANITE	3628	(-1285)	3629	(-1286)	NA

NOTES

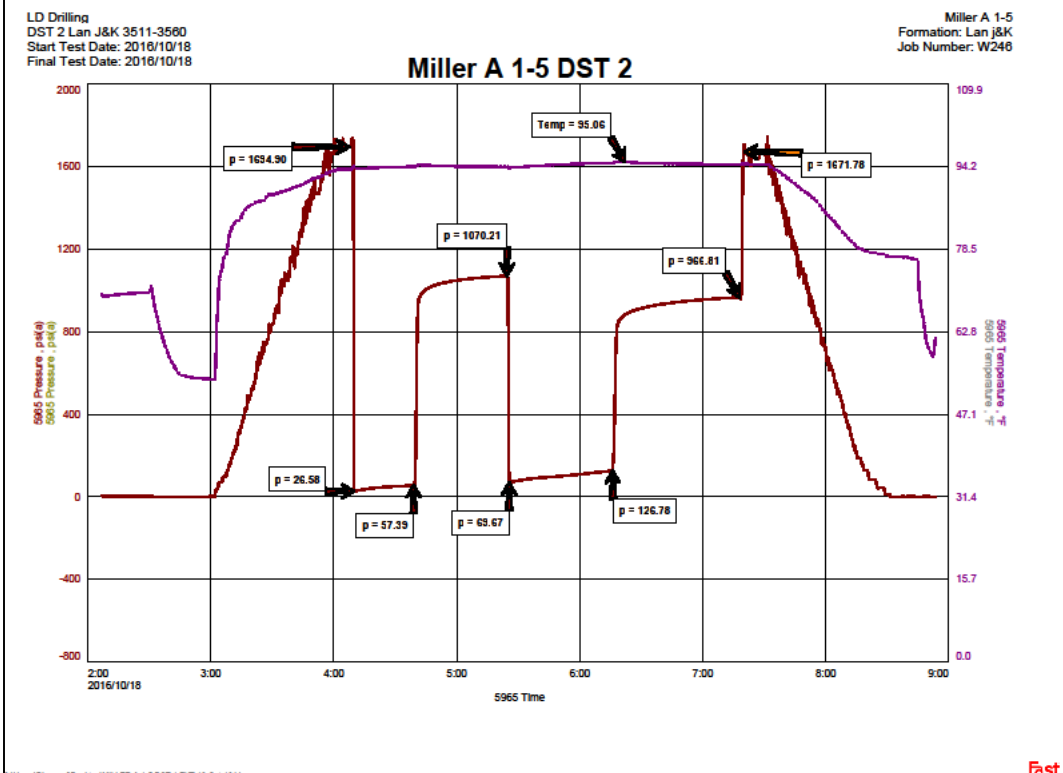
DRILLSTEM TESTS

No	Interval	Formation
1	3449 - 3475	LANSING "F" ZONE
2	3511 - 3560	KANSAS CITY "J" _"K" ZONES
3	3575 - 3619	REAGAN SAND
4	3574 - 3622	REAGAN SAND
5	3575 - 3626	REAGAN SAND

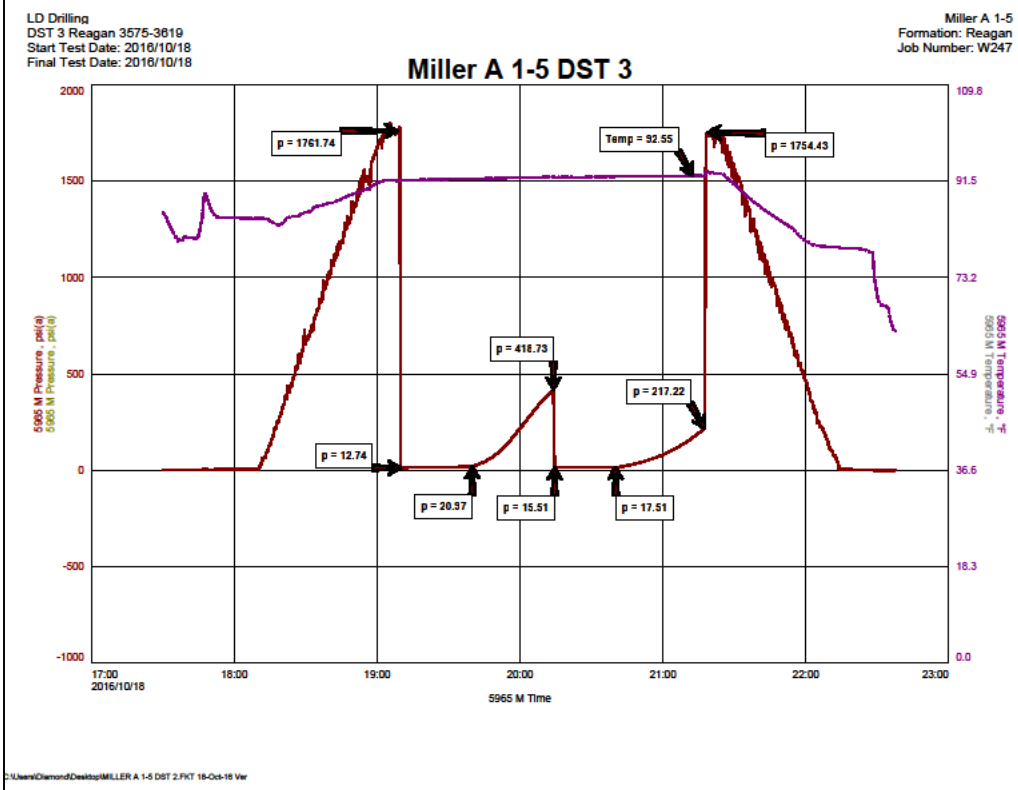
DST #1 : LANSING "F" ZONE (3449 - 3475)



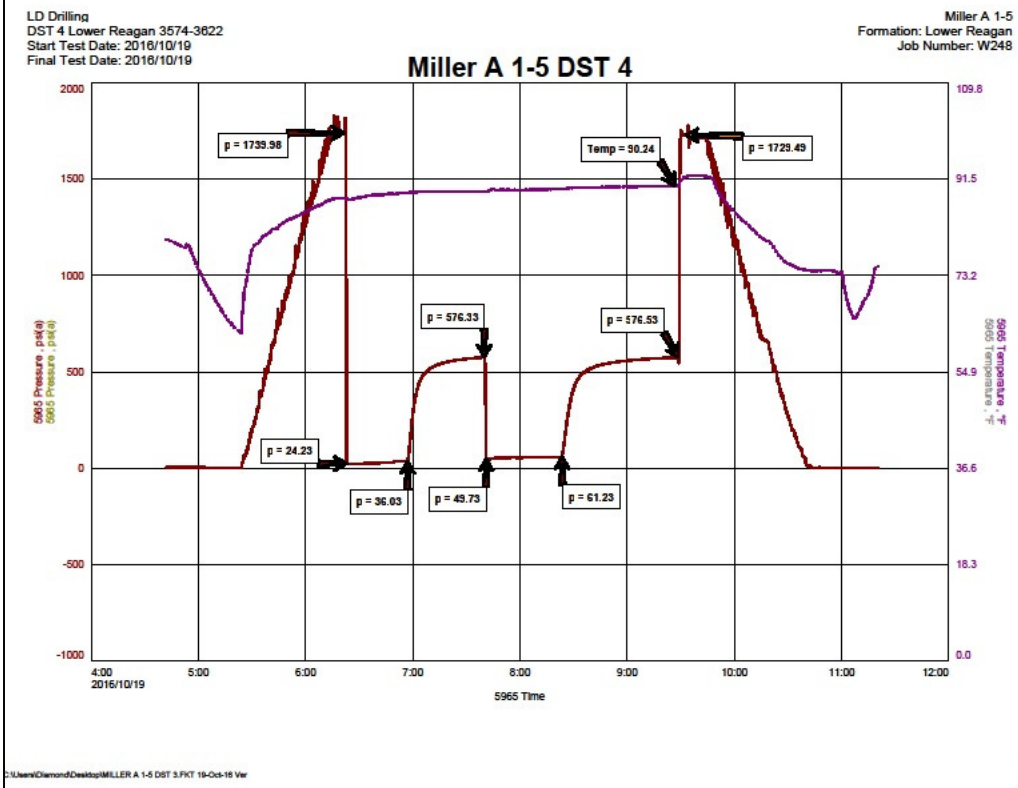
DST #2 - KANSAS CITY "J" AND "K" ZONES (3511 - 3560)



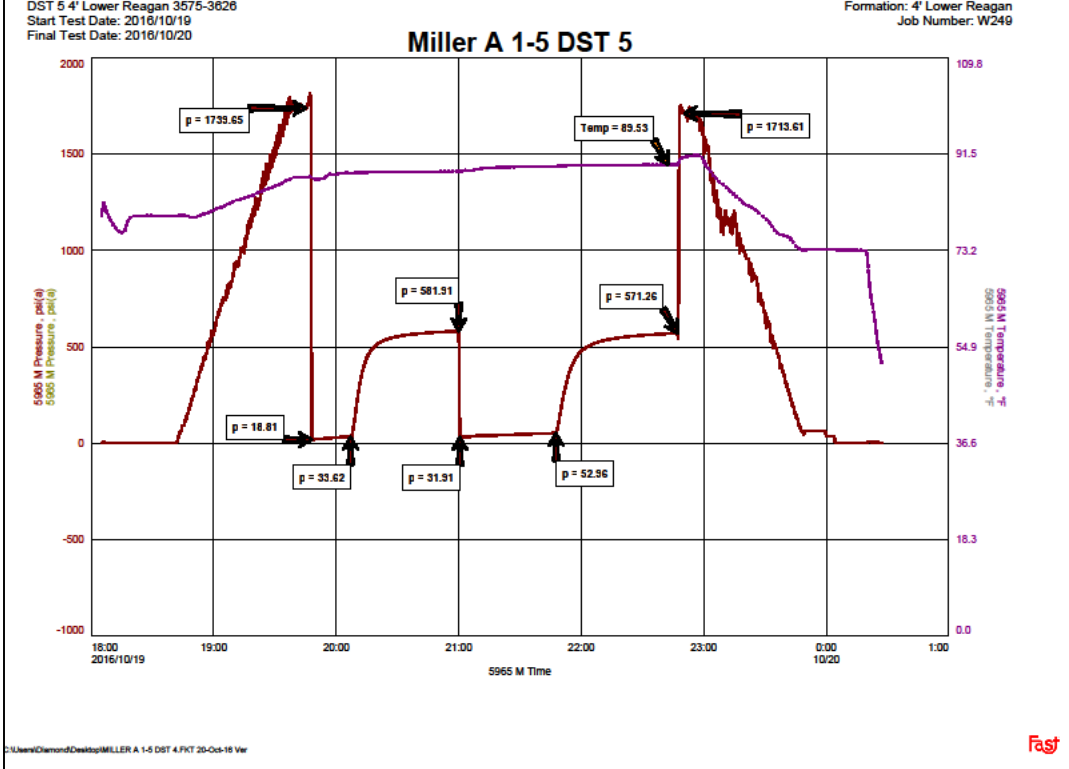
DST #3 - REAGAN SAND (3575 - 3619)



DST #4 - REAGAN SAND (3574 - 3622)



DST # 5 - REAGAN SAND (3575 - 3626)



ROCK TYPES

Coal
Congl
Igneacidic
Lmst fw7>
Ss
Shcol
Sltst

ACCESSORIES

MINERAL
- Calcareous
- Silty

FOSSIL
- Oolite

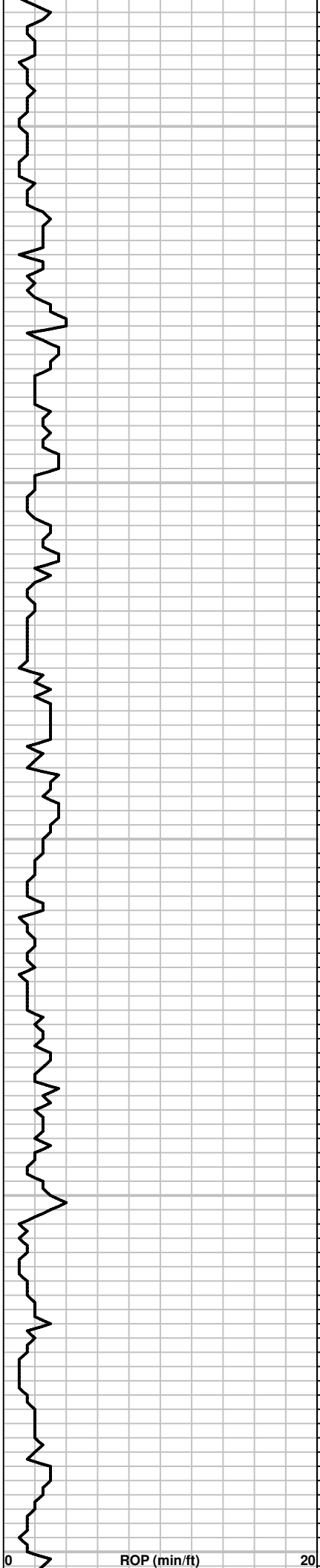
OTHER SYMBOLS

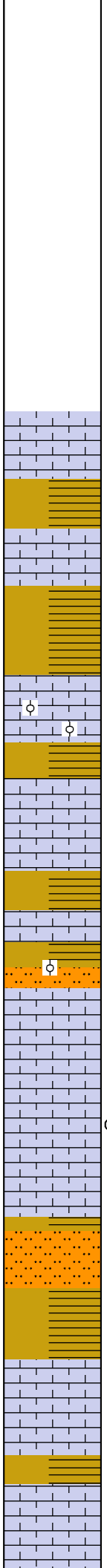
OIL SHOWS
- Even Stn
- Spotted Stn 50 - 75 %
- Spotted Stn 25 - 50 %
- Spotted Stn 1 - 25 %
- Questionable Stn
- Dead Oil Stn
- Fluorescence

INTERVALS
- Core
- DST

Printed by GEOstrip VC Striplog version 4.0.8.15 (www.grsi.ca)

Curve Track #01 ROP (min/ft) 1:240 Imperial	Cored Interval	Depth | Intervals	DST Interval	Interpreted Lithology	Oil Shows	Geological Descriptions	Comment
0 ROP (min/ft) 20							MUD UP AT 2900'. DEV. SURVEYS: 0.75 DEGREES @ 227 1.5 DEGREES @ 3475





20: LS, GRY TO BRN, SLI. GLAUC, SOME V. FOSS, FR. - TR. GD. POR.; NS

40: TR. SOFT RED SHALE; LS AS ABOVE; NS

60: OOLITIC LS, GRY, SOFT, SHLY TO TR. BRN DSE LS; TR. TR. GRN SHALE

80: LS, BRN, VF-FXLN, DSE; TR. RED SHALE.

100: LS, GRY-TAN, FXLN, FOSS, PR - FR. VIS. POR; GRY SILTSTONE; NS

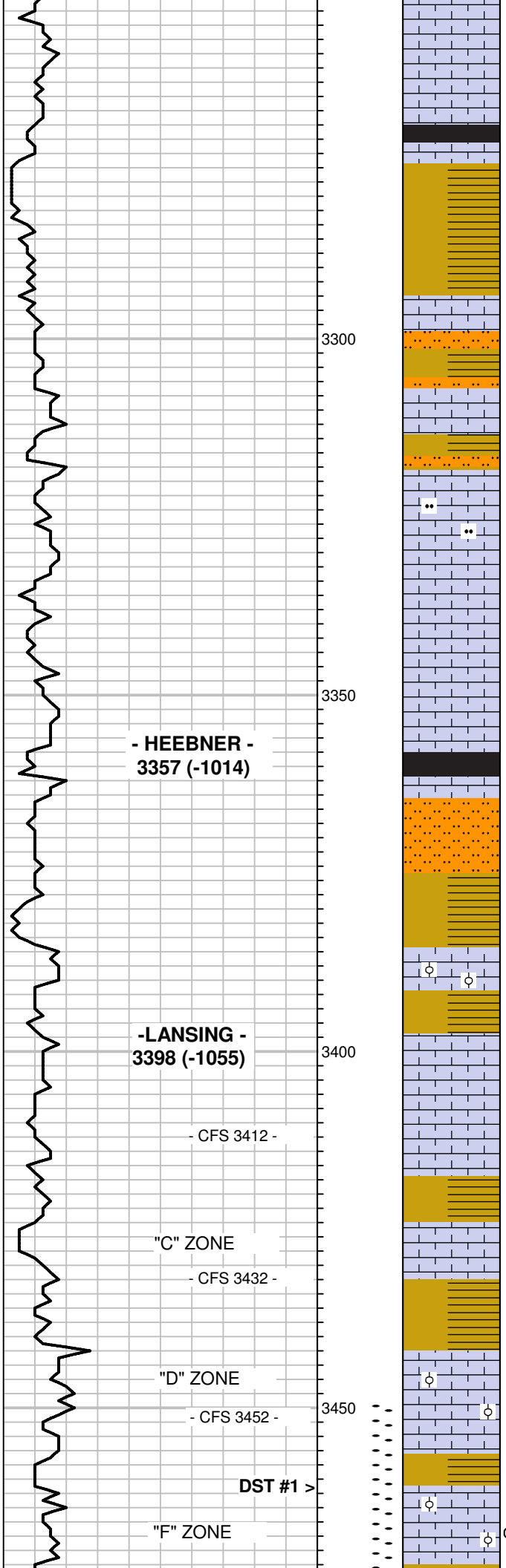
20: LS, TAN, FXLN, V. FOSS, PR - FR. POR (TR. GILSONITIC STNING?); LS, BRN, DSE; GRN SHLY SILTSTN; NS

40: SOME V.C. SHALE; TR. SILTSTN; LS AS ABOVE.

60: LS, TAN, FXLN, TR. FOSS, PR - FR. XLN. POR; V.C. SHALE; NS

80: LS, CRM - TAN, FN - TR. CSE XLN, SLI.

MUD AT 3128:
WT: 8.9
VIS: 57
FILTRATE: 6.4
CHLOR: 800
LCM: 2#



FOSS, PR - GD. XLN POR; NS

100: LS, BRN, FXLN, SLI. FOSS, CALCITIC, PR - FR. XLN. POR; TR. BLK SHALE; NS

10: MOSTLY SOFT MAROON SHALE.

20: LS, TAN, FOSS, PR - FR. XLN. POR; GRY LMY SILTSTN; RED & GRN SHALE; NS

30: LS, AS ABOVE; GRY - GRN LMY SILTSTN, HARD; V.C. SHALE; NS

40: LS, TAN - BRN, FXLN, SLI. FOSS, SLI. SILTY, PR - FR. XLN POR; SILTSTN AS ABV. NS

50: LS, CRM CHALKY, SOFT TO BRN VFXLN DSE; NS

60: LS, BRN, DSE TO LS, TAN FXLN, SUCROSIC W/ FR. XLN. POR; NS

70: SHALE BLACK W/ FR. ODOR; LS, CRM- TAN, SOME SLI. CHLKY, PR- FR. XLN. POR; NS

80: SOFT GRY-GRN SILTY SHALE; LS, TAN- BRN, VF- FN. XLN, PR- FR. XLN & TR. VUG. POR; NS

90: AA; TR. LMY SILTSTN; NS

MOSTLY RED SHALE

LS, TAN, OOLITIC/ FOSS, PR. - TR. FR. XLN. POR; NS

3412 CIRC: LS, CRM- TAN, FXLN, PR. - FR. XLN. POR; NS, NF.

30: LS, TAN, FXLN, PR - TR. FR. XLN. POR; NS

3432 CIRC: TR. CRM - BRN CHERTY LS, V. OOL / FOSS, HARD, TR. PR. PPT. POR; NS

SHALE, V. COLORED.

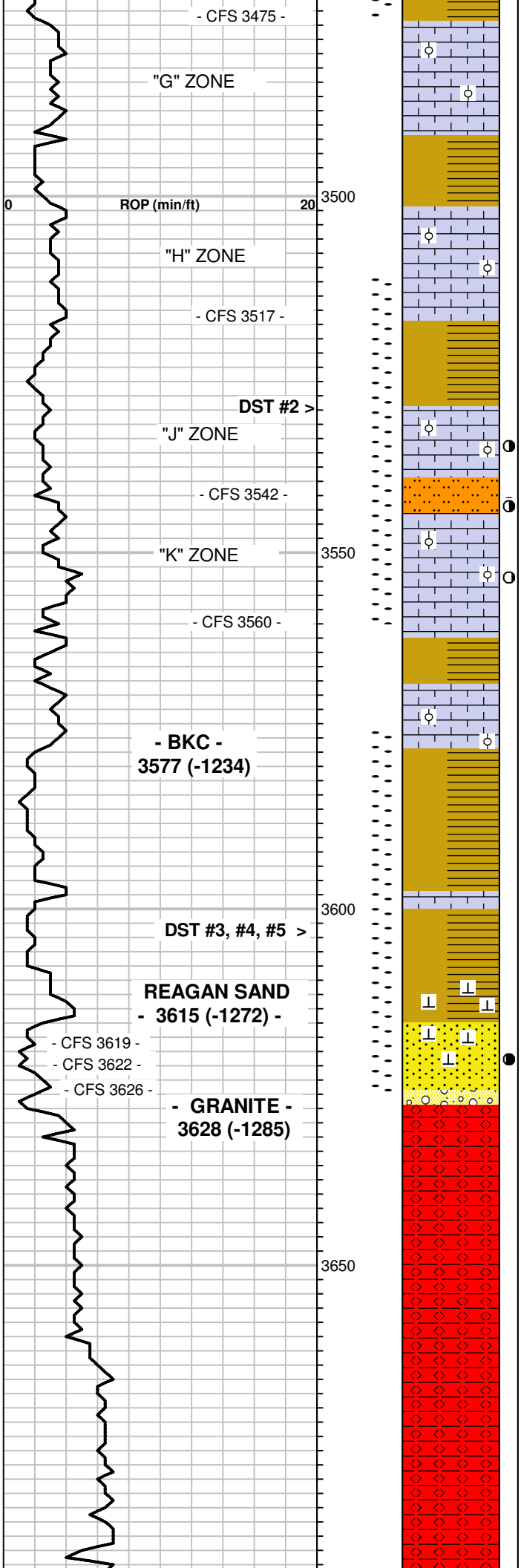
3452 CIRC: TR. LS, CRM - TAN, OOLITIC / FOSS, PR. XLN TO TR. PR. PPT. POR; NS, NF.

TR. LS, CRM - MUSTARD- RED, CSELY FOSS, PR - FR. XLN. POR; NS

3475 CIRC: LS, CRM, V. FOSS / OOLITIC, SOME CHLKY, PR. - GD. PPT-VUG POR., F- GSFO&G (BLEEDING), PR -FR. DK. BRN SPTY SAT. STN, SPTY FLUOR, FR. ODOR

DRILLING MUD @ 3475:
WT: 9.0
VIS: 55
FILTRATE 6.4
CHLOR: 1,000
LCM: 2#

DST #1: 3449 - 3475
"F" ZONE
TIMES: 30-30-30-30
1ST FL: WK BLOW DIED 15"
2ND FL: NO BLOW
REC: 5' MUD, NS
IFP: 11-15# FFP: 13-17#
SIP: 29-25#
MAX. TEMP: 92 DEGREES



LS, CRM - TAN, VF- FXLN, PR. POR; NS

LS, CRM- TAN, FXLN, V. OOLITIC, PR - FR. XLN. POR, SM. SLI. CJLKY; NS

SHALE, V. COLORED, SOFT, STICKY.

LS, CRM - TAN, FXLN, TR. V. OOLITIC, PR - FR. XLN. POR; NS

3517 CIRC: LS, AS ABV, TR. SLI. FOSS; TR. BRN SHARP CHERT; NS.

SOFT STICKY RED SHALE.

3542 CIRC: LS, GRY, FOSS. TO OOLITIC, PR - TR. FR. PPT-VUG-FOSS CAST. POR, FSFO&G (BLEEDING), PR - TR. FR. SPTY BRN SAT. STN, ONLY TR. FLUOR IN WET SMP, SLI. ODOR.

LMY SILTSTN W/ DK. OIL STN.

3560 CIRC: LS, TAN, VFXLN, FAINTLY OOLITIC, TR. PR. PPT. POR, SSFO, PR. SPTY DK. BRN SAT. STN, PR. V. SPTY FLUOR; SLI. ODOR.

SHALE, RED.

LS, CRM - TAN, FXLN, OOLITIC / FOSS, SOME SLI. CHLKY, PR- FR. XLN. POR; NS

SHALE, RED, GRY, GRN.

TR. GRY-BRN, CSELY DETRITAL LS; SHALE, RED; NS

SOFT LT. GRN, STICKY CALC. SHALE.

15-19: SST, V. LIMY, FN GRND, TITELY CEM, PR. INTERGRAN. PPT. POR, , GSFO (BLEEDING), PR. SPTY. - GD. TOT. SAT. STN, FR. ODOR.
19-22: SST, SILT - FN GRND, CLR, FRLY WELL SORT, MOSTLY TITE, SLI. CALC. CEM, FR. VIS. POR, FSFO&G, GD. DK BRN. SAT. STN, TR. WK. FLUOR, GD. ODOR

22-26: SST, VF-FN GRND, CLR, SR, PR - GD.POR, SSFO, RBSO, GD DK BRN SAT STN TO SOME SST. GRN, GLAUC, SLI. PYRITIC, TITE, SSFO, TR. SPTY. DK STN; FEW CSE GRNS FELDSPAR & RDED CLR QTZ.

40 - 70: GRANITE: FELDSPAR, PINK, SUBTRANSLUCENT; CLR QTZ & SCAT. BLK. BIOTITE.

80: RED GRANITE: RED FELDSPAR; CLR QTZ & SCAT. BLK. BIOTITE.

90 -10: RED GRANITE AS ABOVE: RED FELDSPAR, CLR QTZ AND SCAT. BLK. BIOTITE.

SEE CHART ABOVE.

PIPE STRAP AT 3475 WAS 2.21 FT. LONG TO BOARD.

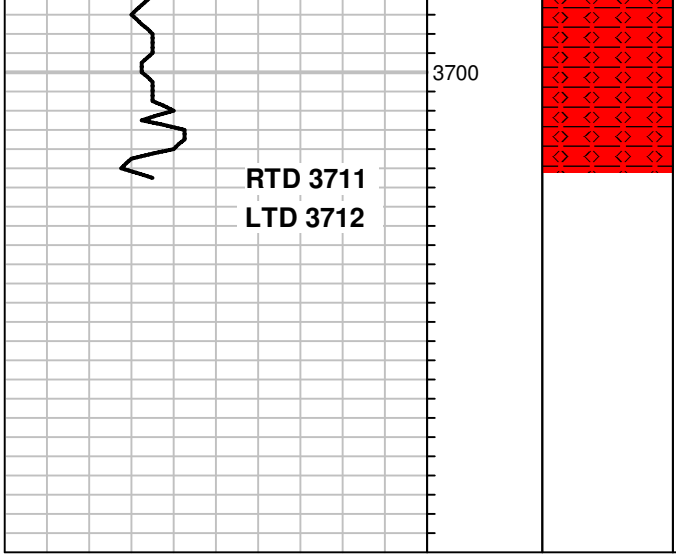
MUD AT 3560:
WT: 9.1
VIS: 54
FILTRATE: 6.8
CHLOR: 1000
LCM: 2#

DST #2: 3511 - 3560
"J" & "K" ZONES
TIMES: 30-45-45-60
1ST FL: BLOW BUILT TO 8"
2ND FL: BTM BUCKET IN 40"
NO BLOW BACK
REC: 250' MCW (25%M, 75% W)
IFP: 27-57#, FFP: 70-127#
SIP: 1070-967#
MAX. TEMP: 95 DEGREES
SEE CHART ABOVE

DST #3: 3575 - 3619
REAGAN SAND
TIMES: 30-30-30-30
1ST FL: WK SURF. BLOW
2ND FL: NO BLOW
REC: 10' MUD W/ OIL SPOTS
IFP: 13-21# FFP: 16-18#
SIP: 419 - 217#
MAX TEMP: 93 DEGREES
SEE CHART ABOVE

DST #4: 3574 - 3622
REAGAN SAND
TIMES: 30-45-45-60
1ST FL: 2.5" BLOW
2ND FL: 4" BLOW
NO BLOWBACK
REC: 10' FREE OIL (CORR. GRAVITY = 19.6)
90' WTR CUT MUD W/ OIL SPOTS (20%WTR, 80% MD)
IFP: 24-36#, FFP: 50-61#
SIP: 576 - 576#
MAX. TEMP: 90 DEGREES
SEE CHART ABOVE

DST #5: 3575 - 3626
REAGAN SAND
TIMES: 30-45-45-60
1ST FLOW: 5" BLOW
2ND FLOW: 7.5" BLOW
NO BLOWBACK
REC: 10' FREE OIL, (CORR. GRAV. 19.8),
80' WTR CUT MUD W/ OIL SPTS (20%W, 80% MD)
IFP: 19-34# FFP: 32-53#
SIP: 582 -571#
MAX. TEMP: 90 DEGREES
SEE CHART ABOVE



SEE CHART ABOVE

MUD AT 3690:
WT: 9.5
VIS: 52
FILTRATE: 6.0
CHLOR: 2,700
LCM: 1#

DEV. SURVEY @ 3711:
1.5 DEGREES