



# WHITEHALL EXPLORATION

87 De France Way • Golden, Colorado • (303) 279-6894

## GEOLOGIST'S REPORT DRILLING TIME AND SAMPLE LOG

OPERATOR SHAKESPEARE OIL CO., INC.  
 LEASE TEETER WELL NO. 2  
 FIELD WILDCAT  
 LOCATION 660' FNL & 330' FEL  
 SEC. 10 TWP. 13S RGE. 32 W  
 COUNTY LOGAN STATE KS

ELEVATION  
 KB 3,025'  
 DF \_\_\_\_\_  
 GL 3,020'  
 Measurements Are All  
 From K.B.

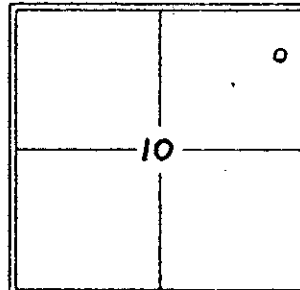
CONTRACTOR MURFIN DRILLING - RIG 24  
 COMM. NOV. 28, 2003 COMP. DEC. 7, 2003  
 RTD 4,730' LOG TO 4,732'  
 SAMPLES SAVED FROM 3,800' TO 4,730'  
 DRILLING TIME KEPT FROM 3,800' TO 4,730'  
 SAMPLES EXAMINED FROM 3,800' TO 4,730'  
 GEOLOGICAL SUPERVISION FROM 3,800' TO 4,730'  
 MUD UP 3.734' TYPE MUD CHEMICAL  
 WELL SITE GEOLOGIST RICHARD J. HALL - CPG #5820

CASING RECORD  
 SURFACE 8 5/8" @ 218'  
 \_\_\_\_\_  
 PRODUCTION 5 1/2" @ 4,728'

### ELECTRICAL SURVEYS

- LOG-TECH  
 - DUAL INDUCTION  
 - COMP. NEUTRON/DENSITY  
 - MICRO LOG  
 - SONIC LOG

| FORMATION     | LOG  |       | SAMPLE |       | STRUCT. COMP. |
|---------------|------|-------|--------|-------|---------------|
|               | TOP  | DATUM | TOP    | DATUM |               |
| HEEBNER SH.   | 3992 | -967  | 3993   |       | +2            |
| LANSING       | 4034 | -1009 | 4034   |       | +2            |
| B/KC          | 4333 | -1308 | 4332   |       | +1            |
| CHEROKEE SH.  | 4542 | -1517 | 4539   |       | +3            |
| JOHNSON ZONE  | 4583 | -1558 | 4581   |       | +5            |
| MISSISSIPPIAN | 4628 | -1603 | 4627   |       | +6            |
|               |      |       |        |       |               |
|               |      |       |        |       |               |
|               |      |       |        |       |               |
|               |      |       |        |       |               |
|               |      |       |        |       |               |



REFERENCE WELL FOR STRUCTURAL COMPARISON SHAKESPEARE OIL CO., INC., TEETER  
No. 1, 930' FNL & 990' FEL, SEC. 10 - T13S - R 32W, LOGAN CO, KS  
KB 3031'

REMARKS

LITHOLOGIC DESCRIPTION

DRILLING TIME

H1c

1507

LITHOLOGY NOT ADJUSTED FOR LAG

LS, TAN, BRN, VE XLN, HA, MOD, SCAT  
 BOB, FINE, BOB, TL, NO VIS FOR, NS

LS, TAN, MED GR, VE XLN, HD - DMS, MOD-  
 VY SHLY, DISTY, NO VIS FOR

CALC SH, DK - MED GR, OCC SHY

LS, BE-TAN, VE XLN, DMS, SLR, NO VIS  
 FOR, NS

SH, VY CLAY, MED-DK GR, IL, GNH-60,  
 SUBBLY

LS, BF, E-VE XLN, FC, GR, GYST, BRN, FIRM,  
 MOD, BRN, VE GR, BOB, FINE, FINE, YARD  
 CHUKY, CAN FOR, FR, GR, INTXN, FOR,  
 NESC

LS, BE-TAN, VE XLN, HD - DMS, PAED, SLN,  
 TL, NO VIS FOR, NS

SH, BK, SUBBLY, CABR, FINE, FIRM

LS, BE-TAN, E XLN, FIRM, GR, DEN, SL  
 ABED, VE GR, MOD, CHUKY, FR - ED, INTXN FOR,  
 NESC, OCC, SHLY

SS, MOD-VY CALC, LTY, LT, MED, DK GR, VE GR,  
 BOB, VY, WSL, SGT, FR, CMC, MOD-VY SHLY,  
 BK - INTXN, INTXN FOR, NS

MUD - 3907'  
 WT. 8.9  
 VIS. 45  
 FIL. 8.8  
 PH 10.5  
 CHL 22.00  
 USM /#

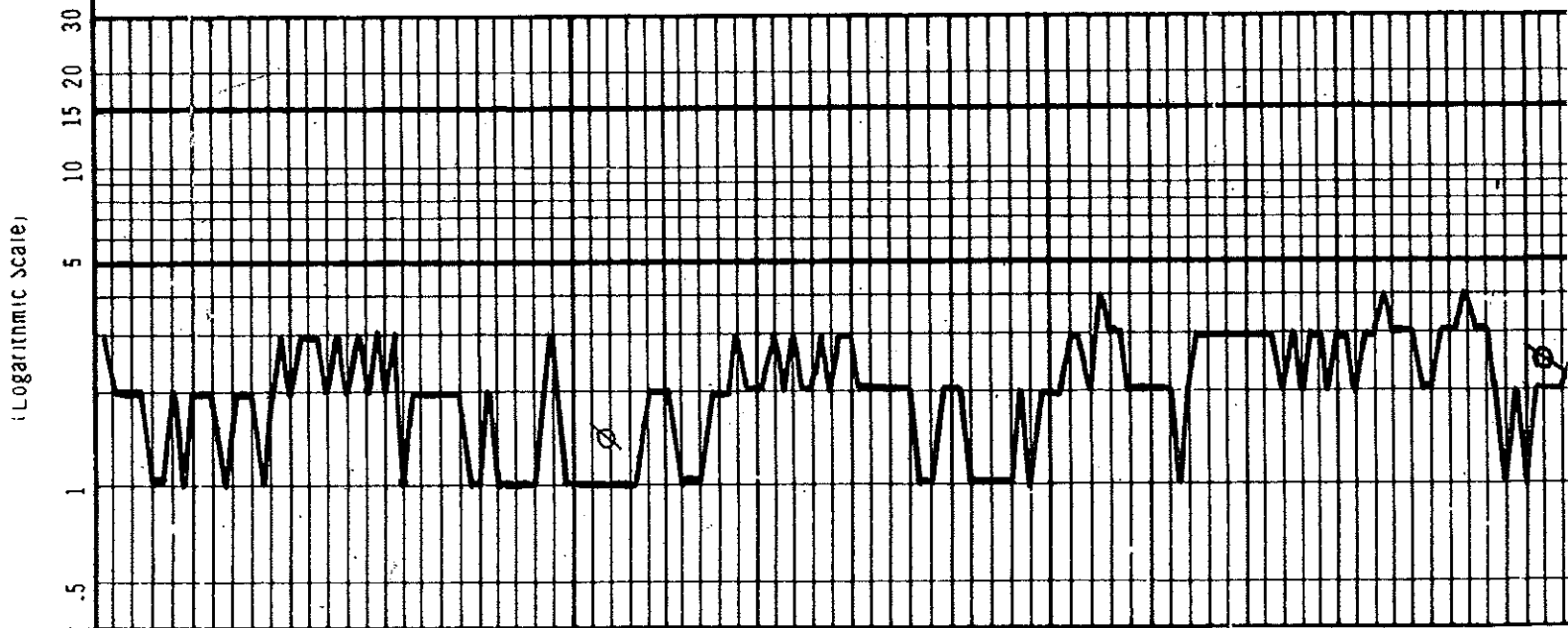
LS, OFF, WH - BE, E-VY, E XLN, HD, GEN -  
 SL, BOB, ABED, TL, NO VIS FOR, NS

LS, LT, GR, BE, VE - OCC, MICO, XLN, HD - DMS,  
 TL, NO VIS FOR, JL - MOD, SHLY

LS, BE, OCC, LT, TAN, VE - MICRO, XLN, DMS,  
 MICR, SM RES, MOD, BOB, TL, NO VIS FOR, NESC

SH, VY, DK GR, PLY - SUBBLY

LS, PRED, BE - SL, OFF, WH, E XLN, FIRM - HD,  
 FR - GR, GYST, DMS, SHLY, SCAT, CAN, INTXN,  
 FR, BOB, FR - ED, INTXN, FOR, FR, VY, PAGE



LITH

3800

50

3900

50

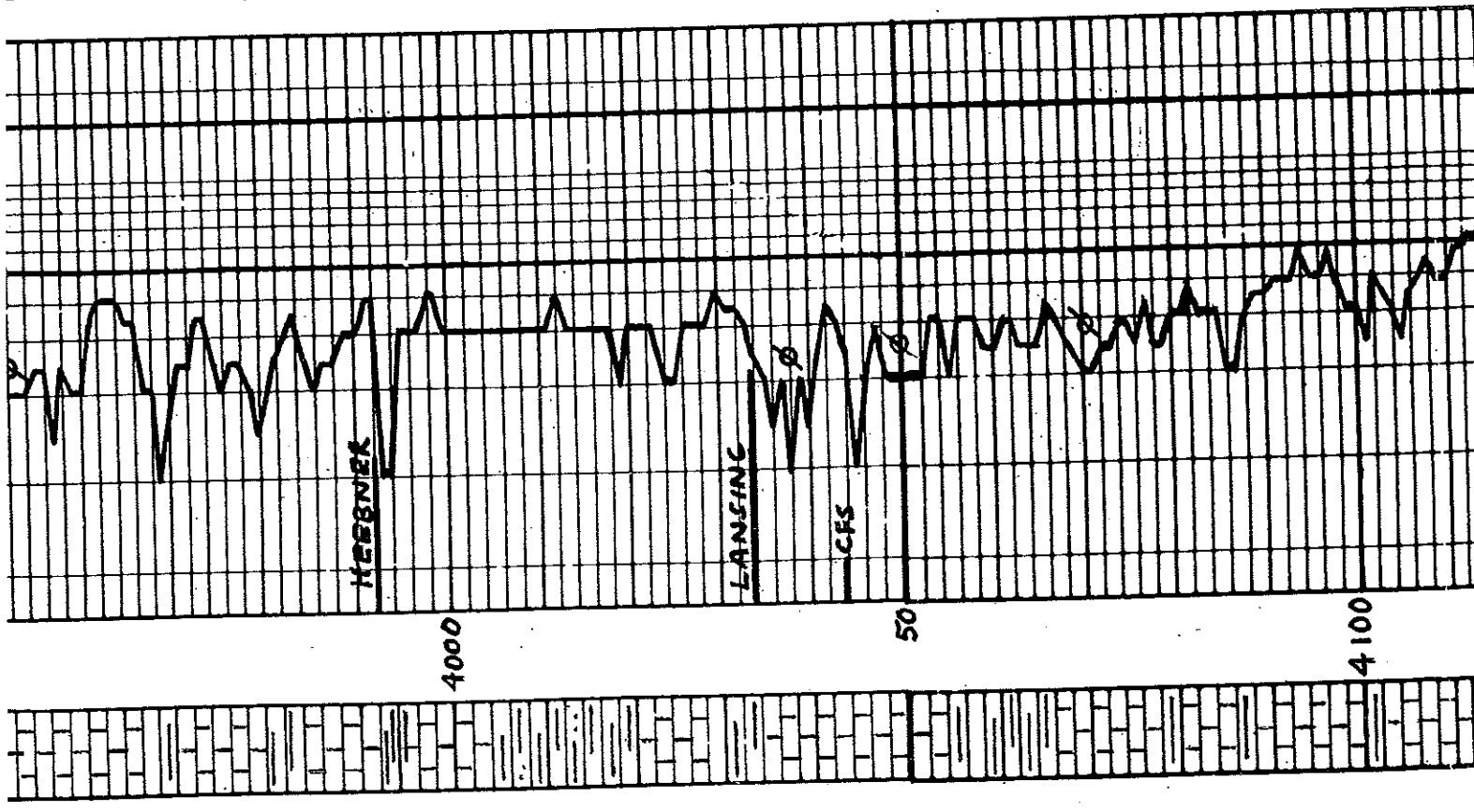
\* GOOD SHOW  
 3950' - 7:00 AM TD  
 12/2/03

10/21/02

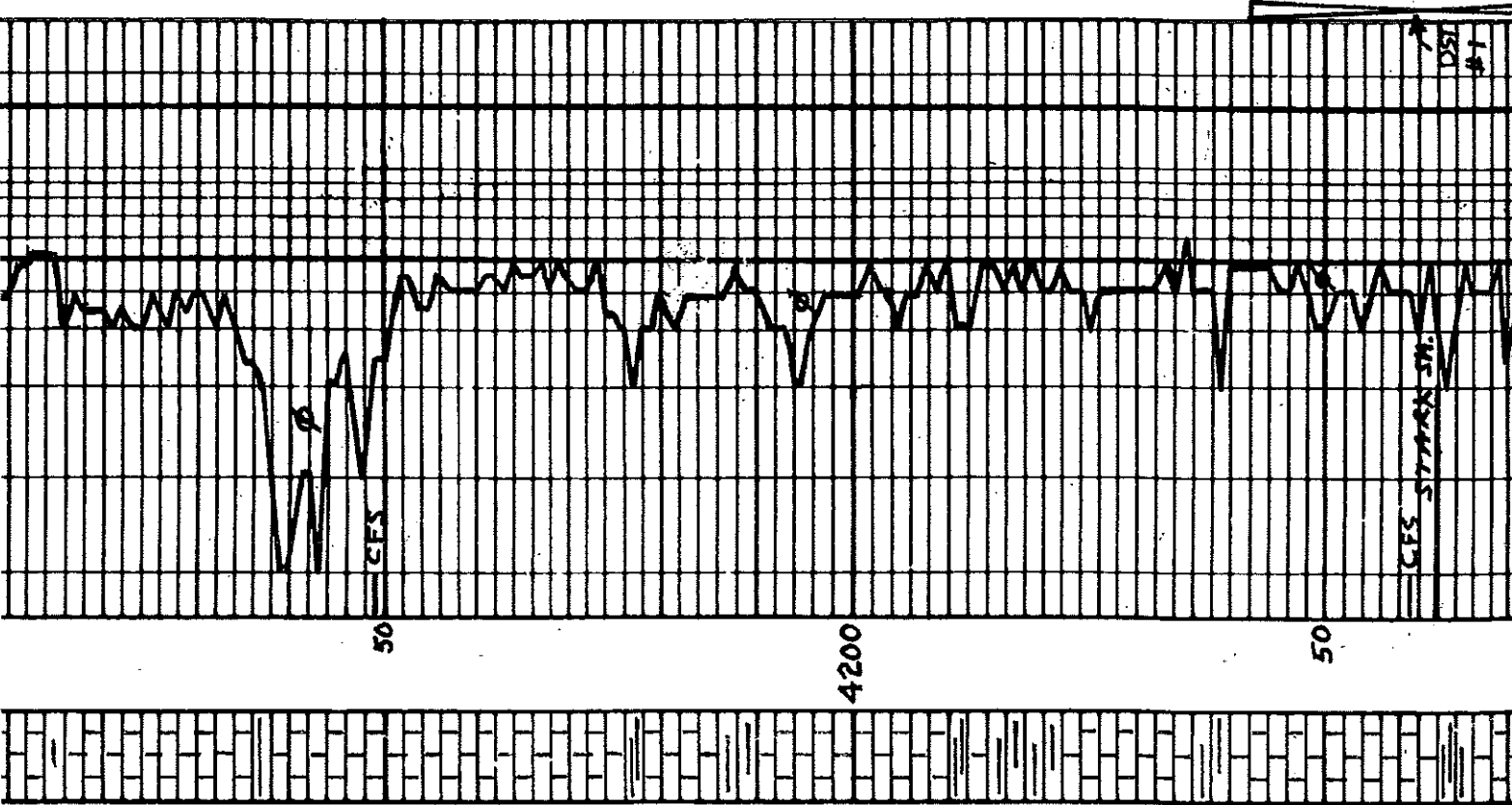
|   |
|---|
| KS OOL. F. S. ...<br>VEL EL SL OOL. VY GD BRCHT VEL STRANG<br>CUT. EX VELLY MILKY CUT. STTY DK RN-BK<br>STN FR SPDRUNED 3 BLKSDING. FER. EX<br>BRCHT VEL RESID. DRIP HANG CUT.  |
| SH. MED-DK GY. SUBBLK. FIRM   |
| LS. BE-LT TAN. PRED VE XLN. OCC F. MICRO<br>XLN. TR. FOS FRAG. PRED TI. SEAT SHRY<br>AT TAN-BE PEG. NO VIS POR. NS  |
| SLTST. MED G. VY AREN. VEF GR. CALS.<br>HD. NO VIF POR. NS  |
| LS. BE. F. XLN. FIRM. CHUKY. TAN OOL. IF<br>OCC. FOS. FOS FRAG. GRST DEV. IP. FR. INTMED<br>INTXN. POR. NS  |
| SH. BK. SUBBLK. - PLY/BLORY. FIRM. CABO.<br>FESS  |
| SH. SLTST. LT. DE. GY. PLY. SUBBLK. OCC. SOY. SH<br>CON-GY. CALS. FIRM-HB   |
| LS. OFF. WH-BE. PRED VE XLN. W/SM. F. XLN.<br>HD. VY. SL. CALS. F. S. N. ER. PR. INTXN. POR.<br>NFSOC. ABNT. CHUKY/MICRO XLN. DNS. EL. OOL.<br>TI. NO VIS POR. TR. CHUKY.   |
| LS. RN-GY. VE. XLN. SL. SHLY. TI. INGR. NO. VIF. POR.<br>SLTST. MED. DK. GY. HD. BK. CABO. MEL.   |
| LS. OFF. OWH-BE. VE. XLN. HD. WMD-VY<br>CHUKY. SM. F. XLN. IF. S. N. PR. INTXN.<br>POR. ER. MED. PP. POR. NO. OD. VY. SL. PULL<br>EL. STTY. LT. RN. STN. IP. NISEO. NO. CUT.  |
| LS. OFF. WH-LT. GY. VE. PRED. MICRO<br>XLN. DNS. CLN. TI. NO. VIF. POR. NS<br>LS. BE. F. VE. XLN. HD. MOP. GR. BUDU.<br>CHUKY. OOL. ER. INTXN. POR. NFSOC.<br>AOSB. LAS. 2.06<br>LS. LT. GY. BE. PRED. VE. XLN. CALS. IP<br>GRAT. OOL. MOST. TI. ER. INTXN. POR. IP<br>ER. PULL. EL. NO. OD. SPOTTY. BK. STN<br>IP. ER. SEO/GRUSHED. VY. GR. VEL. STRONG<br>CUT. EX. YEL. MILKY. CUT. BK. BAK. HI<br>VEL. PRED. HALO. CUT. LS. BE. F. VE<br>XLN. HD. CHUKY. ER. INTXN. POR. SO. NA.<br>SH. LMY. HD. DK. GY. SUBBLK. |
| LS. BE-DK. TAN. VE. MICRO XLN.<br>DNS. SCAT. OOL. MOSTLY. TI. PR. NO<br>VIS. POR. NFSOC.  |
| SLTST. MED. GY. J. SP. SOFT.  |
| CHRT. LT. GY. SL. DIRTY. F. B. H.   |
| LS. BE-TAN. VE. MICRO XLN. HD. DNS.<br>CAL. MEL. SM. OOL. SL. CHUKY. PLS. PRED.<br>TI. PR. ER. INTXN. POR. NS   |
| CALS. SH. SLTST. GY. MICRO. 2.06. IP.   |

\* SLIGHT SHOW

\* INTERMEDIATE SHOW

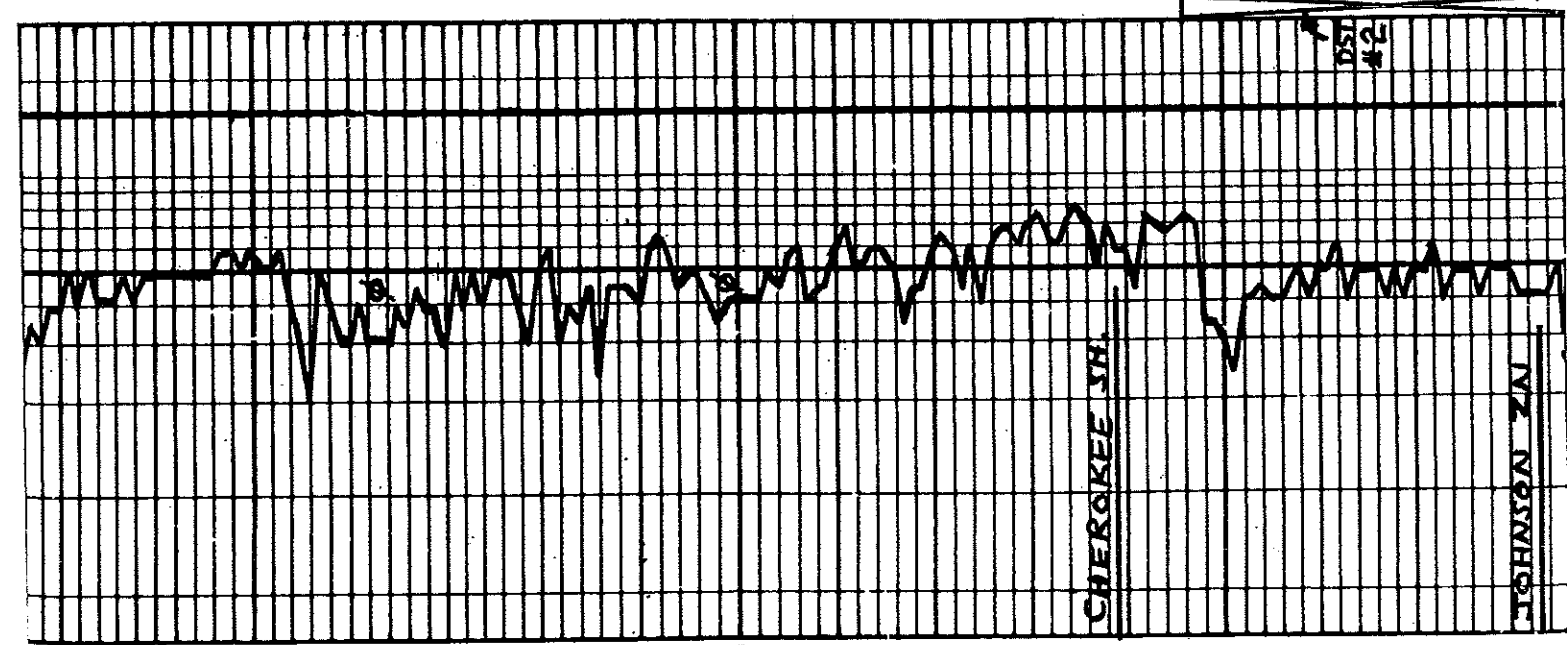


|  |                     |
|--|---------------------|
| CALLS SH/STRET, SA, MICA # 278 IP.   |                     |
| LS LT 6Y-OFF WH SL BE, VE-MICRO<br>XLN HD-DNS, OCC CHRTY IP, COL-BLW,<br>OCC MOD SHY IP, PSS, NO VIS POR, NE,  |                     |
| LS BF-LT TAN VE XLN, SM MICRO<br>XLN HD, ABNT CHRTY FSS, NO VIS<br>POR, NE.  |                     |
| LS OFF WH-BE, F-VE XLN, HD<br>MOD SHKY, CAL, INCL, FR GRZ DEV,<br>SCAT WH, SHK, OCL, SOFT, FR-MED<br>INTXN POR, FR CHUKY POR, V.F. OC,<br>LS BE COL, ER, NO VIS POR, GR STN, FSD, RR, R<br>LS OFF WH-BE, LT 6Y IP, VE WLSM P<br>XLN IP, HD NONE, FR/MOD GRZ DEV, IP<br>POSIF, SHLY, FR, INTMED, INTXN POR<br>FR PALE YELISH FL, NO OP, NO SFO,<br>TR STN?, NO LIVE OR RESID CUT. | X INTERMEDIATE SHOW |
| LS OFF WH-BE, F-VE XLN, HD, VY<br>GR GRZ DEV, SM CHUKY PS, CAN, PR<br>INTXN POR, NE.   |                     |
| LS LT 6Y-BE, VE-MICRO, XLN, HD, SM<br>MICR, TI, NO VIS POR, NS, FVE, FOS, FRAS.  |                     |
| SH, BK, BLKY-SUBBLKY, MOD CARB, FISS.  |                     |
| LS TAN-BN, MICRO, GRZ, XLN, VY DNS,<br>OCC COL, TI, NO VIS POR, NS.  |                     |
| ABNT CHRT, BN, LT-M 6Y, FRSH.  |                     |
| F, RE, E-VE XLN, HD, MOD CHUKY, FR-MED<br>INTXN POR, NE.   |                     |
| DOLO LS BE, F, VE, G, HD, MOD, SUG, TEST,<br>LS, MED CHUKY, NO VIS POR, NE, GR.  |                     |
| SHY 6Y LS, VE XLN, DNS, TI, NO VIS<br>POR, INT.  |                     |
| LS BE-TAN, SL, MOD, TT, F, XLN, IP, VE-MICRO<br>XLN IP, FR-M, MOD, HD, MOD, CHUKY, SUBBLKY,<br>COL IP, FEAT, CAL, INCL, PR, FR, INTXN POR,<br>MOD TI, FR, GR, OP, MED, MOD, BRCH, YEL<br>FL, STY, UNEVN, LT, BN, STN, FR, SHW<br>FO/CRUSH, MOD, INTMED, MILKY CUT, GR, G<br>TO SLOW STRMS, CUT, GR, PALE, YEL<br>DRIED HALO CUT.   |                     |
| LS LT 6Y-SL, GNISH, VE-MICRO, XLN, VY DNS,<br>CHN-VY SL, ARG, TI, TRIC, NO VIS POR, NS   |                     |
| LS BE-F-VE XLN, HD, FR, GR, GRZ DEV<br>CLN, FR-MED, INTXN POR, NO OP, FR, FACE<br>VELLGH, FL, EX, F, WHEN CUT, ABNT, APPLD<br>GR, SLOW, MOD, VY, BRCH, YEL, STRMS, CUT, GR<br>MILKY CUT, STY, BN, SOK, STN, THRU, CUT, FR<br>SFO-CRUSHED, FR, PALE, YELISH, DRIED<br>RESID, HARD CUT, MOD TI,<br>SH, BK, CARB, SUBBLKY, FISS, FL, FRM.   |                     |
| LS, BN, VE-MICRO, XLN, DNS, TI, NO VIS POR,<br>DST NO. 1   |                     |
| 4282'-4,288'<br>OPEN HOLE TEST<br>30-30-30-60'<br>IFP: WK BLW BLDG TO<br>B.O.B. IN 5"<br>IFP: WK 1/4" Blow Back<br>FFP: WK Blow BLDG TO<br>B.O.B. IN 9"<br>PSIP: WK 1/4" Blow Back<br>REC: 1,175' GIP  |                     |
| 496' FLUIDS:<br>310' CLEAN OIL<br>62' G.M.O. (50% G,<br>40% O, 10% M)  |                     |
| 124' MW (15% W, 25% M)<br>IHF: 2091<br>IFP: 60-120<br>ISIP: 1186<br>FFP: 158-196<br>PSIP: 1161<br>FHP: 2061<br>BHT: 112  |                     |





|   |  |  |                                     |   |  |                                       |                                   |   |   |  |                                    |  |   |   |                              |   |  |
|---|--|--|-------------------------------------|---|--|---------------------------------------|-----------------------------------|---|---|--|------------------------------------|--|---|---|------------------------------|---|--|
| LS BE-TAN MICRO-CRYTO XLN, VY DNI,<br>TI, NO VIS FOR, NS. | LS TAN-GY, VY XLN, HD-DNI, MOD-VY<br>SH, TI, NO VIS FOR, NS. | CHRT, ABNT OPO, TAN, LT, GY, FRST, SL<br>ARG, PCE, REAH. | SH, GNSH-DK GY, SPLY-PLY, OGG, SOTY | LS TAN-LT BN, F-VF XLN, HD, MOD<br>CHKY, GNSH, MOD, ER-INTMED, INTXN<br>FOR, ER-GD MOD, BRGHT YEL, FL, ER<br>GDB, GD, MOD, FAT, STN, IS, SFO-CRUSH<br>VY GD BRGHT YEL, SLOW STRNG, LVE, CUT,<br>INTMED-GD MILKY CUT, INTMED, PALE<br>YEL, DRIED HALO CUT. | LS BE-TAN, VY F XLN, HD-DNI, CHLRY,<br>NO VIS FOR, NOS, SCAT, FOS, ERAG. | SH, BK-VY DK GY, SUBBLKY, CARB, FISS. | SH, MED-DK GY, GNS-GY, SLY, FIRM. | LS BE-LT GY, PRED, VY XLN, HD, MOD<br>CHKY, SM, MICRO, XLN, W/ SCAT, VUGS, NO<br>ER, INTXN, FOR, GD, SCAT, VUG, FOR, ER-GD<br>PALE YEL, FL, SL, ER, GD, SPLY, BN, STN, IP,<br>SL, SFO-CRUSHED, GD, SLOW MOD, BRGHT<br>VY, STRMS, CUT, GDB, IS, MILKY CUT,<br>VY, GD, MOD, BRGHT YEL, DRIED HALO CUT,<br>SH, BK, CARB, FISS. | LS TAN-GY, VY-MED, XLN, DNI,<br>TI, NO VIS FOR, NS. | LS, LT GY-BE, VY XLN, HD, VY, OGL,<br>MOD, GDB, SL, SLY, TI, NO VIS FOR, NIG,<br>SPLY, LS, DK, GY, PVB, SL, SBY. | SH, BK, SUBBLKY, CARB, FISS, FIRM. | LS BE-TAN, E-PRED, VY XLN<br>HD, MOD, CHKY, MOD, TY, ER, INTXN<br>FOR, ER, DULL, YEL, FL, ER, SBY,<br>SPLY, BN, STN, IP, TR, SFO, ER, MILKY<br>CUT, ER, DULL, DRIED, HALO CUT. | SH, MED-VY DK GY, SUBBLKY, SLY, SH, GY,<br>SPLY-PLY, MOD, VY. | LS, MED, GY, VY XLN, MOD, SLY, TI, NO VIS<br>FOR, NS. | SH, BK, SUBBLKY, CARB, FISS. | CHLRY, GY, SH, HD, SLY, SH, BN, SOTY-PLY. | LS TAN-BN, PRED, VY XLN, MOD, F, MICRO, XLN,<br>IP, SM, MOD, GDB, ER, BR, ER, FISS, SL, CHKY, ER,<br>GD, INTXN, FOR, GD, SCAT, VUGGY, POS. |
|---|--|--|-------------------------------------|---|--|---------------------------------------|-----------------------------------|---|---|--|------------------------------------|--|---|---|------------------------------|---|--|



50

4500

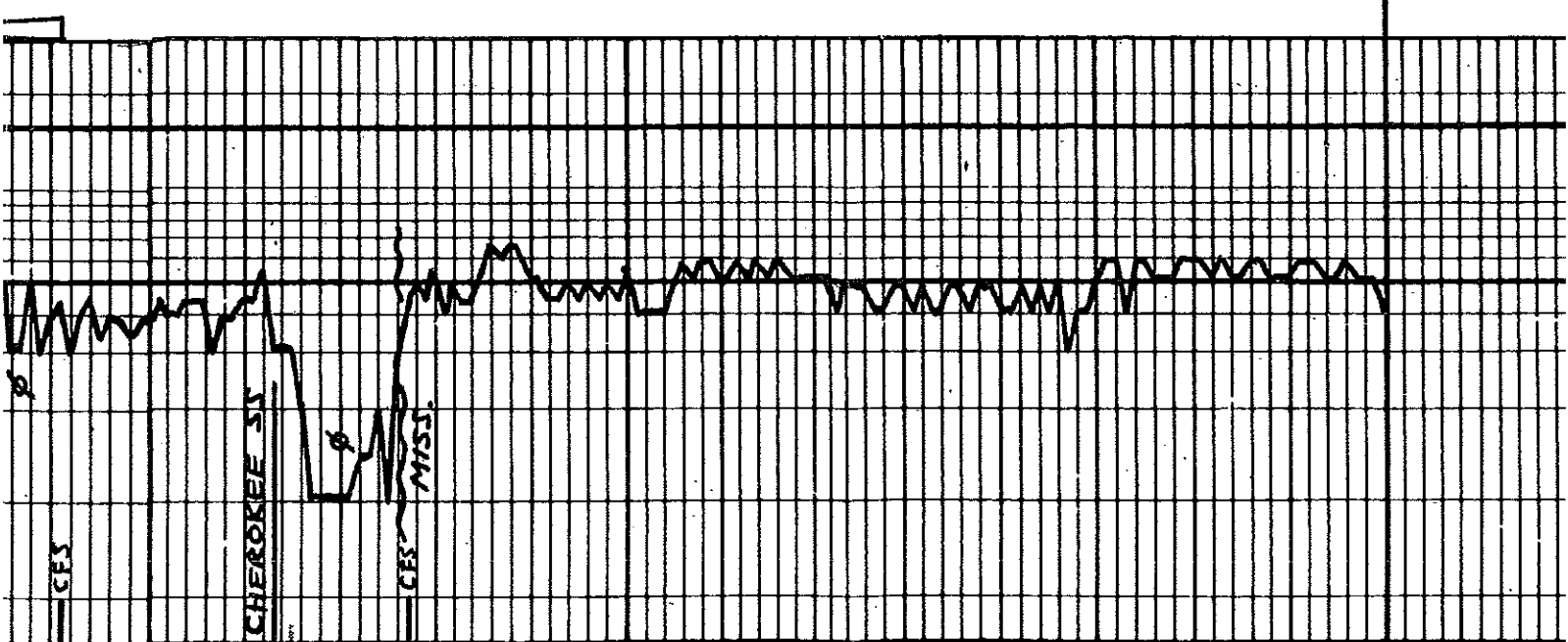
50

DST no. 2

4546'-4591'  
OPEN HOLE TEST  
30-30-30-90"  
IFF: WK BLOW BLDG TO 808  
IN 8"  
ISIP: 2 3/4" BLOW BACK  
FFP: 808. IN 4"  
ESMP: STAGN6 BLOW  
REC: 1120', GIP  
558' FLUID:  
240' MGO (10% G,  
70% O, 20% M)  
310' CLN OIL  
IHP: 2266  
ISIP: 35-147  
ESIP: 1477  
FFP: 157-232  
ESIP: 1329  
FHP: 2254  
BHT: 1220

\*EXCELLENT SHOW  
 4:59' - TD 7:00 AM  
 12/5/03  
 MUD: 4591' - WT. 9.3  
 VIS. 44  
 FIL. 7.2  
 PH. 19.0  
 CHL. 3500  
 LCM 1  
 - No Show

FR VY PALE VEL EL FR OD GD BN SAT  
 STN FR SED EX SFO-CRUSHED VY GD  
 VY FAST BRIGHT VEL STRONG SUTL EX BRIGHT  
 VEL W/ MILKY CUT EX BRIGHT VEL  
 DRIED RESID. HALO CUT.  
 LS BE-BN VE-MICRO XLN, OBE VYH  
 CHART, PRED, TUMBLER IP, ST-MOD ARG,  
 NO VIS FOR, NESOC.  
 SH, LMY, DK GY, SMITH, HP  
 SS OFF WH-VY LT GY CLUST HD TO  
 FRT VE-F LD GR RDD-TURBDN VY WEL  
 STRG, RR GD-PRED PR SL CALC SMITH  
 RR PYR INCL, BECOMING MOD ARG W/  
 DPTH, RR VEL F BK SHY INTD NEAR BASE  
 INTD-VY GD INTGR FOR NO OD NESC  
 CR MOD-DK GY CLUST, SS CR LS O-  
 CRG GR, VY BK GY SHY, SUBRDD - SUR  
 MING, OD STRG, WEL SMITH, INTD  
 INTGR FOR, NESOC.  
 LS OFF WH PRED, LT GY-SL TAN, RE EXLN IP  
 PRED VE-MICRO XLN, HD-DNS MOD-VY CHLKY,  
 MOD AREN, PR PP FOR, MOD NO VIS FOR, NS.  
 LS LT GY-SL TAN, MOD VY E-MICRO XLN,  
 CAL INCL SL AREN, PLS VY SL CHKY, T, NO  
 VIS FOR, NS.  
 LS BE-LT GR-TAN, MICRO-VE XLN, MOD-  
 VY AREN, VY T, DNS, NO VIS FOR, NS.  
 LS BE-LT TAN, MICRO-OCG, GRYD, TAN, DNS,  
 MISC, T, SL MOTT IP, CALC, NO VIS / INTXN  
 FOR, NS.  
 LS TAN-LT GY IP, VE-MICRO XLN, VY DNS,  
 SCAT COL, RR BN SHY LAM, TLNG VIS  
 FOR, NS, AMT CAL INCL.  
 LS TAN-LT BN, MICRO-CRYP XLN, DNS -  
 BRIT, MISC, T, NO VIS FOR, NS.  
 LS OFF WH IP, PRED TAN, VE XLN, HA -  
 DNS, MOD-VY DOL, MOD AREN - F GR, RAD, PR  
 INTXN - NO VIS FOR, NS.  
 LS TAN-BN, MICRO-CRYP XLN, DNS, BRIT,  
 MISC, PRST, VY TL, CLEAN, NO VIS FOR, NS.  
 LS PRED BN, MICRO-CRYP XLN, DNS,  
 RR OBE, OCG, SHRY, T, NO VIS FOR, NS.  
 LS TAN-BN, J.M. GY VE - CRYP XLN, DNS,  
 SL MOTT, T, NO VIS FOR  
 LS LT GY-TAN, BN, DNS, SUPR, MISC, MOD  
 OGL, ABNT MOD GR AREN, SUBRDD, RR  
 GLAUC INCL, CAL IP, T, NO VIS FOR, NS



CFE  
 MISS  
 4600  
 50  
 4700  
 RTD  
 4730'

Richard J. Hall  
 CPG no. 5820  
 12/6/03