

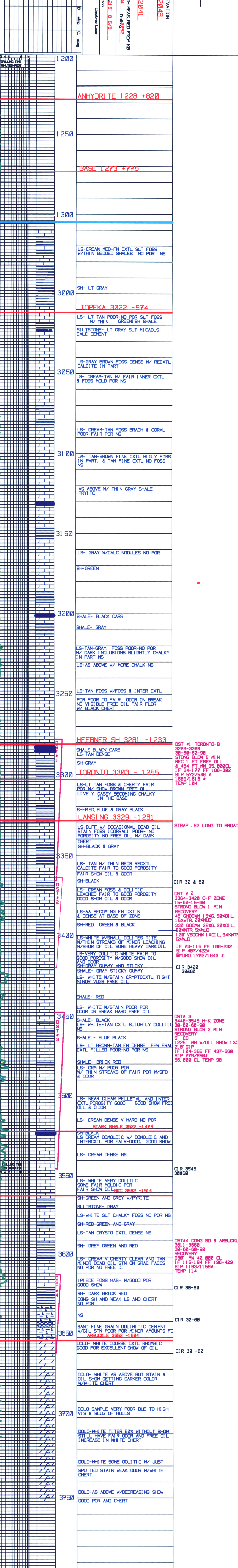
API # 15-051-26466
GEOLOGICAL REPORT
 DRILLING TIME & SAMPLE LOGS

REPORT PREPARED BY: GRACE ORSLEY/GEOL.DGS/ST
 COMPANY: MURFIN DRILLING CO.
 LEASE: FEM #1-33
 FIELD: _____
 LOCATION: 1625th FINL & 50th FWH
 SEC 33 TWP 14S R3C 18W
 COUNTY: ELLIS STATE: KANSAS
 CONTRACTOR: MURFIN RIG #16
 SPUD: 1/6/2013 COMP: 1/23/2013
 SAMPLES SAVED FROM: 9220 TO 10

ELEVATION: K 8, 2048
 D.F.: _____
 G.L.: 2041
 DEPTH MEASURED FROM KB: 2764
 Ditch: 252
 Production: 21.6' 8.5/8'
 Electric Log: _____

FORMATION	SAMPLE	ELOG	DATHM	A	GR	B	ALOG	C	ALOG
ANHYDRITE	1228-828	1227	-821						
BASE ANHY	1273-879	1278	-778						
LANSING SH	3022-879	3028	-888						
LANSING SH	3021-128	3028	-1283						
LANSING SH	3022-1474	3028	-1474						
STARK SH	3522-1814	3522	-1814						
KOC	3522-1814	3522	-1814						
ARBUCKLE	3652-1884	3649	-1884						
ARBUCKLE	3652-1794	3649	-1794						

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LS- CREAM MED-FN CXTL SLT FOSS W/THIN BEDDED SHALES, NO POR, NS
 SH- LT GRAY
 LS- LT TAN POOR-NO POR SLT FOSS W/ THIN GREENISH SHALE
 SILTSTONE- LT GRAY SLT MICACOUS CALC CEMENT
 LS- GRAY BROWN FOSS DENSE W/ RECTL CALCITE IN PART
 LS- CREAM-TAN W/ FAIR INNER CXTL & FOSS MOLD POR NS
 LS- CREAM-TAN FOSS BRACH & CORAL POR-FAIR POR NS
 LM- TAN-BROWN FINE CXTL HIGLY FOSS IN PART, & TAN FINE CXTL NO FOSS NS
 AS ABOVE W/ THIN GRAY SHALE FRYTC
 LS- GRAY W/CALC NODULES NO POR
 SH-GREEN
 SHALE- BLACK CARB
 SHALE- GRAY
 LS-TAN-GRAY, FOSS POOR-NO POR W/ DARK INCLUSIONS SLIGHTLY CHALKY IN PART NS
 LS-AS ABOVE W/ MORE CHALK NS
 LS-TAN FOSS W/FOSS & INTER CXTL POR POOR TO FAIR, OODR ON BREAK NO VISIBLE FREE OIL FAIR FLOR W/ BLACK CHERT
 SHALE BLACK CARB
 LS-TAN DENSE
 SH-GRAY
 TORONTO 3303 - 1255
 LS-LT TAN FOSS & CHERY FAIR POR W/ SHOW BROWN FREE OIL L VELY GASSY BECOMING CHALKY IN THE BASE
 SH-RED, BLUE & GRAY BLACK
 LANSING 3329 -1281
 LS-BUFF W/ OCCASIONAL DEAD OIL STAIN FOSS (CORRAL) POOR-NO POROSITY NO FREE OIL W/ DARK CHERT SH-BLACK & GRAY
 LS- TAN W/ THIN BEDS RECTL CALCITE FAIR TO GOOD POROSITY FAIR SHOW OIL & OODR
 SH-BLACK
 LS- CREAM FOSS & OOLITIC LEACHED FAIR TO GOOD POROSITY GOOD SHOW OIL & OODR
 LS-AA BECOMING FN CXTLN & DENSE AT BASE OF ZONE
 SH-RED, GREEN & BLACK
 LS-WHITE W/SMALL OOLITES TITE W/THIN STREAKS OF MINOR LEACHING W/SHOW OF OIL SOME HEAVY DARK OIL
 LS-VERY OOLITIC WHITE FAIR TO GOOD POROSITY W/GOOD SHOW OIL AND OODR
 SH-GRAY GUMMY AND SILCKY SHALE- GRAY STICKY GUMMY
 LS- WHITE W/STAIN CRYPTOXTL TIGHT MINOR VUGS FREE OIL
 SHALE- RED
 LS- WHITE W/STAIN POOR POR OODR ON BREAK HARD FREE OIL
 SHALE- BLACK
 LS- WHITE-TAN CXTL SLIGHTLY OOLITIC NS
 SHALE - BLUE BLACK
 LS- LT BROWN-TAN FN DENSE FEW FRAG CXTL FILLED POOR-NO POR NS
 SHALE- BRCK RED
 LS- CRM W/ POOR POR W/ THIN STREAKS OF FAIR POR W/SFO & OODR
 LS- NEAR CLEAR PELLETAL AND INTER CXTL POROSITY GOOD GOOD SHOW FREE OIL & OODR
 LS- CREAM DENSE V HARD NO POR
 STARK SHALE 3522 -1474
 SH-BLACK
 LS CREAM OOMOLDIC W/ OOMOLDIC AND INTERCXTL POR FAIR-GOOD, GOOD SHOW
 LS- CREAM DENSE NS
 LS- WHITE VERY OOLITIC SOME FAIR MOLDIC POR FAIR SHOW OIL
 KOC 3522 -1474
 SH-GREEN AND GREY W/PYRITE
 SILTSTONE- GRAY
 LS-WHITE SLT CHALKY FOSS NO POR NS
 SH-RED GREEN AND GRAY
 LS-TAN CRYSTO CXTL DENSE NS
 SH- GREY GREEN AND RED
 LS- DREAD V CHERY CLEAR ANJ TAN MINOR DEAD OIL STN ON GRAC FACES NO POR NO FREE OIL
 1 PIECE FOSS HASH W/GOOD POR GOOD SHOW
 SH- DARK BRCK RED
 CONG SH AND WEAK LS AND CHERT NO POR
 NS
 SAND FINE GRAIN DOLIMITIC CEMENT W/GIL STN POOR POR MINOR AMOUNTS FC
 ARBUCKLE 3652 -1884
 DOLO- WHITE COARSE CXTL RHOMBIC GOOD POR EXCELLENT SHOW OF OIL
 DOLO- WHITE AS ABOVE BUT STAIN & OIL SHOW GETTING DARKER COLOR W/WHITE CHERT
 DOLO-SAMPLE VERY POOR DUE TO HIGH VLS & SLUG OF HULLS
 DOLO-WHITE TITER 50% WITHOUT SHOW STILL HAVE FAIR OODR AND FREE OIL INCREASE IN WHITE CHERT
 DOLO-WHITE SOME OOLITIC W/ JUST SPOTTED STAIN WEAK OODR W/WHITE CHERT
 DOLO-AS ABOVE W/DECREASING SHOW GOOD POR AND CHERT

DST #1 TORONTO-B
 3278-3368
 30-60-60-90
 STONG BLOW 5 MIN
 REC 1 FT FREE OIL
 & 494 FT MN 95.000CL
 IF 64-177 FF 186-302
 SLP 572/548 #
 1899/618 #
 TEMP 184

DST # 2
 3364-3420 C-F ZONE
 15-60-15-60
 STRONG BLOW 1 MIN
 RECOVERY
 45' GOODM 15XG 50XOIL
 15XWTR 20XWTR
 330' GOODM 25XG 20XOIL
 60%WTR 5XWTR
 120' VSOCMM 1XOIL 94%WTR
 5XWTR
 IF 73-115 FF 188-232
 SLP 487/422 #
 BRYDRO 1702/1643 #

DST # 3
 3448-3545 H-K ZONE
 30-60-60-90
 STRONG BLOW 2 MIN
 RECOVERY
 5' CD
 1225' MW W/OIL SHOW 1XOIL
 210' OIP
 IF 104-355 FF 437-660
 SLP 779/850 #
 56.000 CL TEMP 98

DST#4 CONG SD & ARBUCKLE
 3611-3660
 30-60-60-90
 RECOVERY
 930' MW 40.000 CL
 IF 115-194 FF 196-429
 SLP 1193/1159 #
 TEMP 114

DST # 1
 3278-3368
 30-60-60-90
 STRONG BLOW 5 MIN
 REC 1 FT FREE OIL
 & 494 FT MN 95.000CL
 IF 64-177 FF 186-302
 SLP 572/548 #
 1899/618 #
 TEMP 184

STRAP .82 LONG TO BROAD

CIR 30 & 60

CIR 30 & 60

CIR 3420
 30860

CIR 3545
 30860

CIR 30-60

CIR 30-60

CIR 30-60

CIR 30 -50