CORE LAB Graphology

CORE LABORATORIES, INC.

COMPANY: THE ANSCHUTZ CORP., NCRA, DOW CHEMICAL
WELL: NO 1 SWARTZ
FIELD: WILDCAT
COUNTY: HARRISON STATE: MISSOURI
LOCATION: NE SE 34 64N 29W ELEVATION: 1048 KB

DEPTH LOGGED FROM: SURFACE TO 2285' FT.
DATE LOGGED: 1-28-75 TO 2-5-75
CREW CHIEF: CHARLES L. ARD FILE NO.: 100 L FL 274
DRLG. FLUID: WATER 302' TO 1220' FT.
CHEM WEIGHTED, MUD 1220' TO 2285' FT.

08-20001

LEGEND

ABBREVIATIONS

- NB = NEW BIT
- NCB = NEW CORE BIT
- CO = CIRCULATED OUT
- DST = DRILL STEM TEST
- LAT = LOGGED AFTER TRIP
- TG = TRIP GAS
- NR = NO RETURNS
- DS = DIRECTIONAL SURVEY
- DC = DEPTH CORRECTION

DEPTHS CORRESPOND TO DRILL PIPE MEASUREMENTS

RESISTIVITY, OHM-METERS

- Rm = MUD
- Rmc = MUD CAKE
- Rmf = MUD FILTRATE

MUD DATA

- CK = CAKE THICKNESS 32nds
- V = VISCOSITY API SECONDS
- F = FILTRATE API CC'S
- W = WEIGHT
- S = SALINITY, ppm Cl

LITHOLOGY

SAND, SALT, COAL, CONG, CLAY, DOLOMITE, ANHYDRITE OR GYPSUM, SHALE, CHERT, LIMESTONE, CHALK, SILTSTONE

DRILLING RATE MIN/FT ☐ FT/HR ☐	POR G F P % VISUAL	LITH	DEPTH	HYDROCARBON ANALYSIS: PHD CHROMATOGRAPH (Methane; Ethane & Propane; Butane & Pentane) Units/Div	FLUOR P F G	HOT WIRE TOTAL GAS & METHANE Units/Div, MUD	REMARKS: FORMATION DESCRIPTION, MUD DATA, DRILL STEM TESTS, etc.

ALL DATES AS OF 12:01 AM

DRILLING WITH WATER

8 5/8" CASING

NO SAMPLE

NOTE: NO SAMPLES FROM 300' TO 400' DUE TO SAMPLER MALFUNCTION.

SS - WHT, CLR, S & P, F-VFG, FRI, WL-MOD/CONS, SUB-RND - SUB ANG, MOD/SRTD, PYRITE, GLAUC, TR MICA, OCC GDNG TO SLTST

LS - WHT, TAN, BRN, BUFF, HD-FRM, MSTLY MASSIVE, N/XTLN 'MUDSTONE', CHLKY IP

SAMPLE QUALITY POOR 450 - 580

SH - GY, GRN, LBRN, FRM, DNS, S/SLTY IP, VS/CALC, EARTHY-SUB WXY

LS - WHT, LBRN, 'DRTY' MOTTLED, SFT, CHLKY, V/ARGIL

GAS TRAP SYSTEM CHECKED

CARBIDE LAG CHECK 4 MIN FROM BOTTOM OF HOLE

SH - VARICOLORED, FRM, DNS, SLTY IP, VS/CALC

SLTST - WHT, LBRN, SFT DRTY, MOTTLED, V/CALC, CHLKY IP, OCC GDNG TO LS

LS - TAN, LBRN, SFT-MED/HD, V/SLTY, DOLO IP

SS - WHT, CLR, S & P, VFG, FRI, MOD CONS, MOD-PR/SRTD, SUB-RND, GLAUC

SLTST - GY, GRN, LGRN, FRM-SFT, SNDY IP, S/CALC

SH - VARICOLORED, FRM, SFT, SLTY, SNDY, BLKY

SS - WHT, CLR, S&P, F-VFG, FRI, WL CONS, MOD-PR SRTD, SUB-ANG, GLAUC, PYRIC,

SLTST - GY, GRN, BLK, V/SFT, SNDY IP

SS - WHT, CLR, S&P, F-VFG, WL CONS, MOD-PR SRTD, SUB-ANG, GLAUC, CALC CMTD

SLTST - GRN, GY, SFT, SNDY IP

SH - BLK, SFT, FIS, PYRIC IP

LS - GY, TAN, LBRN, CALC, N/FOS MSTLY, OCC OOLITES, MASSIVE

SLTST - GY, GRN, SFT, SNDY IP

SH - BLK, FRM, FIS, VS/CALC

SLTST - GY, GRN, SFT, SNDY IP

SS - CLR, S&P, VFG, MOD/SRTD, SUB/RND, FRI, GLAUC, VS/CALC, SLTY IP

SLTST - GY, GRN, SFT, SNDY IP

NO SAMPLE

SH - BLK, GY, GRN, SFT, FIS, SLTY IP

SS - CLR, LBRN, S&P, SUB/RND, SUB/ANG, MOD/SRTD, VS/CALC, FG, FRI

LS - WHT, TAN, LBRN, CALC, MASSIVE, FEATURELESS, HD, DNS

SH - BLK, GY, GRN, FRM-SFT, FIS, COALLY IP

SS - CLR, LBRN, S&P, SUB/RND, SUB/ANG, MOD/SRTD, VS/CALC FG, FRI

LS - WHT, CLR, MSTLY XTLN, OCC SFT CHLKY

SH - BLK, FRM-SFT, S/CALC, GY, LGY, SFT, SLTY, SNDY IP, V/SOL

SH - BLK, FRM-HD, SLTY IP, BRTL, FIS, LIG, TR COAL

ABUN PYRITE

CARBIDE LAG CHECK 11 MIN FROM BOTTOM OF HOLE

GAS TRAP AND INSTRUMENTS CHECKED FOR SENSITIVITY

SS - WHT, CLR, F-VFG, WL CONS, FRI, WL/SRTD, SUB/RND, SLTY IP TR PYRITE

SH - BLK, FRM-HD, FIS, BRTL, LIG, SLTY IP

SS - GDNG TO SLTST

SH - BLK, FRM-HD, FIS, BRTL, MICAC, ABUN PYRITE

SLTST - WHT, GY, FRM-HD, SNDY IP, S/CALC

SS - WHT, CLR, F-VFG, WL CONS, WL SRTD, FRI, SUB/RND, SUB/ANG, PYRIC

SLTST - WHT, GY, FRM-HD, SNDY IP, S/CALC

SS - WHT, CLR, M-CG, PRLY-MOD/CONS, WL-mod/SRTD, V/FRI, RND-SUB/RND, PYRIC

SS - WHT, CLR, M-CG, PRLY-MOD/CONS, WL-MOD/SRTD, V/FRI, RND-SUB/RND, PYRIC

LS - TAN, LBRN, HD, DNS, N/XTLN, MASSIVE FEATURELESS, N/FOS, N/POR

SH - GY, GRN, FRM, SNDY IP, SLTY IP

LS - WHT, TAN, LBRN, HD, DNS, MSTLY STLN, SLTY, SNDY, OCC CHLK PYRIC, V/CHRTY

LS - TAN, LBRN, HD, FRAGMENTAL, XTLN, PR POR, OCC CHLKY, SFT, SLTY, ABUN ChRT

CHRT - BRN, TAN, LGY, HD, BRTL, TRANSLUCE, CONC FRAC

NOTE: CIRCULATION LOST. NO RETURNS TO 1300'

WT 10.0
VIS 120

DOLO - WHT, LTAN, HD, F-M/XTLN, NO INTER-XTLN POR, ABUN WHT CHRT, ABUN CHLKY V/SFT LS

WT 9.2
VIS 83

CHRT - WHT, LBLUE, V/HD, BRTL, TRANLUCENT

WT 8.8
VIS 45

LS - LGY, GY, HD, N/XTLN, MASSIVE, SILIC, FEATURELESS, OCC GRDNG TO SLTST, TR DOLO LS

CHRT - WHT, LBLUE, V/HD, BRTL, TRANSLUCENT

LS - LGY, GY, HD, N/XTLN, MASSIVE, SILIC, FEATURELESS, GRDN TO SLTST, TR DOLO LS

QUALITY OF SAMPLES VERY POOR DUE TO HEAVY MUD HIGH VISCOSITY, AND VOLUME OF LOST CIRCULATION MATERIAL

LS - BRN, TAN, XTLN, FRAGMENTAL, HD, DNS NO VIS POR, ABUN FOS FRAG, PYRIC

SH - LGRN, GRN, FRM, FIS, PLTY, EARTHY,

SH - DGY, DBRN, FRM, V/FIS, PLTY, VS/CALC, OCC V/CALC

SAMPLES IMPROVED

LS - TAN, BRN, HD-SFT, OCC CHLKY, MSTLY N/XTLN, MOTTLED, DRTY, SLTY, OCC PYRIC

LS - TAN, GY, HD, OCC XTLN, OCC FRAG, DRTY, MOTTLED, SLTY, WHT, SFT, chlky OCC DOLO, CHRTY

SLTST - SLTST, GY, LGY, LGRN, FRM-HD, S/CALC, PYRIC

LS - TaN, BRN, LBRN, HD-SFT, N/XTLN, "LIME MUD" OCC CHLKY PYRIC

SH - BLK, FIS, SLTY IP S/CALC

LS - TAN, BRN, LBRN, HD, DNS, FEATURELESS "LIME MUD", ABUN BRN STAIN, NO FLUor, NO CUT

LS - WHT, CRM, HD, DNS M/XTLN, NO VIS POR, BLK FILLED STYOLITES NO FLUOR, NO CUT

LS - TAN, BRN, GY, LGY HD-FRM, MSTLY N/XTLN SLTY-V/SLTY, NO VIS POR, OCC DOLO, BLK STAIN, NO FLUOR, NO CUT

LS - WHT, CRM, LGY, HD, DNS, N/XTLN, MASSIVE, WHT, CRM, SFT-V/SFT, CHLKY TR CHRT

WT 8.9
VIS 40

LS - BRN, HD, DNS, N/XTLN, FEATURELESS LIME MUDSTONE, OCC PYRITE

DOLO - D/BRN, HD, PR POR, GRANULAR, SILT & SHALE STRINGERS

LS - WHT, SFT, CHLKY, PYRIC

DOLO - BRN, LBRN, GY, HD, GRANULAR, SLTY

LS - WHT, LGY, CRM, HD DNS, N/XTLN, PYRIC, FEATURELESS

DOLO - BRN, DBRN, HD, GRANULAR, SLTY IP, PR POR, NO FLUOR, NO CUT

LS - GY, DGY, HD, DNS N/XTLN, MASSIVE, OCC DOLO

LS - WHT, LGY, V/SFT, CHLKY

LS - WHT, TAN, GY, LGY FRM-HD, SLTY, DOLO IP

DOLO - WHT, CLR, HD, M-C/XTLN, GOOD DOLO XTLS & RHOMBS, PR POR, DEAD STAIN, NO FLuoR, NO CUT

LS - TAN, GY, FRM-HD, SLTY, DOLO IP

DOLO - WHT, CLR, HD-SFT, SLTY-CHLKY TEX, BRN, DBRN, HD, GRANULAR TEX, V/TITE, OCC VUG POR, NO FLUOR, NO CUT

SS - WHT, CLR, HD, M-CG, PRLY-MOD CONS, V/FRI, FAIR-GOOD POR, WL/SRTD, WL/RND-ANG, S/DOLO CMT, GRADES TO WL/CONS, BRTL, DOLO CMT AND A SNDY DOLO DK STAINS, NO FLUOR NO CUT

Dolo - WHT, LGY, GY, DGY, HD, XTLN POR PR, C/XTLN, NO FLUOR, NO CUT

TR PYRITE

DOLO - WHT, HD, V/XTLN TRANSLUCENT, OCC GD RHOMBIC DEV, VP POR, VS/HALO CUT TO BOTT

DOLO - WHT, HD, V/XTLN TRANSLUCENT, OCC GD RHOMBIC DEV, VP POR, VS/HALO CUT

DOLO - GY, DGY, HD, V/XTLN, OCC SUCROSIC PR POR, NO CUT

TR CHERT

Dolo - GY, DGY, HD, V/XTLN, OCC SUCROSIC PR POR, NO CUT

WT 8.8
VIS 50

DOLO - WHT, TAN, MOTtled, HD-SFT, SLTY, CHLKY IP, OCC DBRN STAIN, NO FLUOR, VS/HALO CUT

DOLO - WHT, TAN, BRN, FRM-V/SFT, SLTY-V/SLTY, PR XTAL STRUC, "DRTY", OCC PINPOINT FLUOR, FAIR-GOOD STREAMING CUT

DOLO - WHT, TAN, FRM-HD, CHLKY IP, XTLN IP, V/ABUN CHRT, NO FLUOR, NO CUT

DOLO - BRN, TAN, DBRN, FRM-HD, SLTY IP, SHLY IP, CHLKY, PYRIC, PR POR, NO FLUOR, FAINT CUT, ABUN CHRT, ABUN UNC QTZ GRAINS

DOLO - LBRN, TAN, HD, V/XTLN, SUCROSIC, PR-FR INTER/XTLN POR NO FLUOR, VS/HALO CUT, SFT, CHLKY, SLTY DOLO HAD GOOD CUT

DOLO - BRN, TAN, DBRN, HD, XTLN, GD RHOMBIC XTALS, PR POR, ABUN BLK RES, NO FLUOR, FR-GD CUT

DOLO - GY, LGY, HD, XTLN IP, PYRIC, V/PR POR, NO FLUOR, NO CUT

Dolo - BRN, DBRN, FRM-HD, SHLY, BLK STNG, GIVES FAIR CUT, PR POR

SS - CLR, WL RND, M-CG, UNCONS QTZ GRNS

SH - GRN, SFT, WXY-SUB/WXY, FIS

WT 8.8
VIS 48

DOLO - BRN, LBRN, HD, DNS, VF/XTLN, V/POR POR, NO CUT

DOLO - LTAN, HD, VF/XTLN, OCC S/SUCROSIC, SLTY IP, NO POR, NO CUT

SS - CLR, CG QTZ GRNS, UNC QTZ GRNS, PYRIC

DOLO - WHT, LGY, FRM-HD, VF/XTLN, SLTY IP, V/POOR POR, NO FLUOR, NO CUT

PIPE STRAP COMING OUT OF HOLE INDICATES ERROR OF 0.85'