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EVANS " K" 1
C-SE SW SEC. 14
T16S R43W
CHEYENNE, COUNTY
COLORADO

RICHARD E. BACON
GEOLOGIST



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RESUME

OPERATOR: TEXAS OIL & GAS PRODUCTION CORP.

WELL NAME & LOCATION: EVANS "K" 1 C-SE SW SEC. 14 T16S R43W

COUNTY: CHEYENNE

STATE: COLORADO

SPUD DATE: JANUARY 21, 1984

COMPLETION DATE (TD): JANUARY 30, 1984

ELEVATIONS: 3995' GL 4005' KB

TOTAL DEPTHS: 5011' DRILLER 5010' LOGGER

CONTRACTOR: J.W. GIBSON DRILLING CO. RIG#93

GEOLOGIST: RICHARD E. BACON

TOOL PUSHER: DALE CARBERRY

MUD CO.: SERVICE MUD LLOYD WELLS ENGINEER

TYPE DRILLING MUD: CHEMICAL GEL

HOLE SIZES: 12 1/4" to 417' 7 7/8" to 5411'

CASING: 10 JOINTS 8 5/8" 24# K-55 SET AT 413'. CEMENT WITH
285 SACKS CLASS C 3% CaCl₂

MUD LOGGING BY: TOOKE ENGINEERING UNMANED HOTWIRE

CORES: NONE

DST DEPTHS: 978-996 CODELL SAND SEE DST REPORT



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WELL CHRONOLOGY

DATE	7:00am DEPTH	ACTIVITY
1-21-84	-	SPUD 10:30pm
1-22-84	417'	RUN CASING, 10 JOINTS 8 5/8" 24# K-55 SET AT 413' CEMENT WITH 285 SACKS CLASS C 3% CaCl ₂ PLUG DOWN 9:00am W.O.C.
1-23-84	1697'	TRIP OUT AT 1:30am 2 1/4 HOURS DEV. 1/2° 1460'
1-24-84	2926'	DRILLING
1-25-84	3594'	DRILLING
1-26-84	4039'	BIT TRIP AT 4112' 5 1/2 HOURS DEV. 3/4°
1-27-84	4308'	DRILLING
1-28-84	4720'	DRILLING
1-29-84	5065'	DRILLING
1-30-84	5380'	TD AT 5411' at 9:00am CONDITION HOLE DEV. 2° FOR LOGS COMMENCE LOGGING AT 5:45pm COMPLETE LOGGING AT 12:30am
1-31-84	5410	WAIT ON ORDERS
2-1-84		DST RUN ON THE CODELL SAND SEE REPORT PLUGGED AND ABANDONED ACCORDING TO STATE ORDEPS



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MUD RECORD

DEPTH	WEIGHT	VISCOSITY	pH	WATER LOSS	CHLORIDES
4071	9.4	38	9.0	17.6	36,000
4395	9.2	43	10.0	16.6	30,000
4789	9.2	44	10.0	9.8	26,000
5157	9.1	49	10.0	8.0	22,000
5411	9.1	62	10.0	9.8	17,000

BIT RECORD

NO.	SIZE	MAKE	TYPE	DEPTH OUT	FOOTAGE	HOURS
1	12 1/4	STC	FTD	417	417	6 1/4
2	7 7/8	STC	DT	1460	1043	8
3	7 7/8	HTC	J22	4213	2753	82 1/2
4	7 7/8	WM	053	5411	1198	75 3/4

DRILLING PARAMETERS

DEPTH	RPM	WEIGHT	PRESSURE	SPM
1650	70/75	25/35	1100	72
2390	65/70	30/35	1200	72
3585	65/70	30/40	1200	72
4213	60/65	30/35	1050	72
4937	60/65	40	1200/1250	72
5283	50/58	40	1200	72



LITHOLOGIC TOPS

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EVANS "K" 1

CHAMPLIN EVANS 1

FT. HAYS	906	+3099	910	+3089
CODELL	982	+3023	984	+3015
CARLILE	1024	+2981	1026	+2973
GREENHORN	1086	+2919	1092	+2907
GRANEROS	1240	+2765	1245	+2754
DAKOTA	1381	+2624	1394	+2605
KIOWA	1588	+2417	1576	+2423
CHEYENNE	1720	+2285	1720	+2279
MORPISON	1811	+2194	1800	+2199
STONE CORRAL	2766	+1239	2749	+1250
NEVA	3498	+507	3479	+520
FORAKER	3571	+434	3549	+450
WABAUNSEE	3704	+301	3681	+318
TOPEKA	3936	+69	3914	+85
HEEBNER	4164	-159	4138	-139
LANSING	4286	-281	4248	-249
MARMATON	4668	-663	4634	-635
FT. SCOTT	4754	-749	4716	-717
CHEROKEE	4800	-795	4760	-761
ATOKA	4941	-936	4893	-894
MORROW	5120	-1115	5064	-1065
LOWER SAND	5198	-1193	5139	-1140
LOWER LIME	5214	-1209	5174	-1175
STE. GENEVIEVE	5238	-1233	5190	-1191
ST. LOUIS	5320	-1315	5224	-1225

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SUMMARY

THE EVANS "K" 1 WAS DRILLED TO A DEPTH OF 5410' -1405. THE PRIMARY OBJECTIVE WAS THE LOWER MORROW SAND.

THIS WELL, A WILD CAT, WAS DRILLED AS AN OFFSET TO THE CHAMPLIN EVANS 1. DRILLED FIVE YEARS EARLIER AS A SPERGEN TEST THE MORROW SAND WAS NOT REALLY TESTED. LOGS FROM THIS WELL SHOWED PROMISE IF STRUCTURE COULD BE OBTAINED ON THE EVANS "K" 1.

THE ONLY SHOW WAS ENCOUNTERED FROM 4540-4550. A DENSE, CRYPTO-CRYSTALLINE LIMESTONE WITH NO VISIBLE POROSITY DISPLAYED A TRACE OF SPOTTY BRIGHT YELLOW-GREEN FLUORESCENCE. A VERY FAINT PALE YELLOW STREAMING AND LEFT A VERY FAINT PALE YELLOW RING. LOGS PRECLUDED TESTING THIS ZONE.

THE LOWER MORROW SAND CAME IN 53 FEET LOW TO THE CHAMPLIN-EVANS 1 AND WAS WITHOUT FLUORESCENCE OR CUT. THE SAND WAS VERY TIGHT AS VERIFIED BY LOG CALCULATIONS. UPHOLE, HOWEVER, THE CODELL SAND LOOKED WORTH TESTING BUT A DST RECOVERED 5 FEET OF MUD. THOUGHT WET THIS FORMATION WILL BE LOOKED AT MORE CLOSELY IN FUTURE WELLS IN THE AREA.

WRS	
FIP	
UHM	
JAM	
RCC	
LAR	
CGM	
LD	



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SAMPLE DESCRIPTIONS
(NOT LAGGED)

- 500-590 SH-100% light-medium grey, grey brown, soft-firm, subfissile, blocky, very calcareous, trace bentonitic
Trace LS-white, cryptoxln, firm, dense, stylolite
- 590-650 SH-100% light-medium grey, grey brown, soft-firm, subfissile, blocky, very calc, trace bentonitic
Trace LS-white, cryptoxln, firm, dense, stylolite
- 650-710 SH-100% light-medium grey, grey brown, soft-firm, subfissile, blocky, very calc, trace bentonitic
Trace LS-white, cryptoxln, firm, dense, stylolite
- 710-770 SH-100% light-medium grey, grey brown, soft-firm, subfissile, blocky, very calc, trace bentonitic
- 770-830 SH-100% light-medium grey, grey brown, soft-firm, subfissile, blocky, very calc, trace bentonitic
Trace LS-white, cream, light tan, firm, dense, cryptoxln, pyritic in part
- 830-890 SH-100% grey brown, medium-light grey, soft, blocky, very calcareous
- 890-950 LS-90% white, light grey, cryptoxln, firm, dense, chalky, some with imbedded sand grains
SH-10% light-medium grey brown, as above
- 950-1010 LS-60% white, light grey as above becoming more arenaceous also tan, cryptoxln, hard, lithic, pyritic
SS-30% dirty white, light-medium grey, medium grain, subround-subangular, firm, calc, clay filled, trace pyritic, tight some traces pinpoint Ø NO SHOW
SH-10% light-medium grey, grey brown as above
- 1010-1070 SH-95% dark grey, grey brown, firm, flakey, slightly bentonitic in part
SS-5% dirty white, light-medium grey as above
Trace LS-white, light grey, tan as above free pyrite
- 1070-1220 SH-100% dark grey-black, firm, blocky, calc, speckled, bentonitic, trace stylolite LS free pyrite
- 1220-1250 SH-95% dark grey-black, as above some interbedded LS
LS-5% light grey, cryptoxln, firm dense, also tan, cryptoxln, firm, lithic
Trace BENT-light grey soft
- 1250-1280 SH-100% dark grey-black, firm, blocky as above
Trace LS-light-medium tan, cryptoxln-medium xln, firm-hard, dense, stylolite in part, trace light grey, cryptoxln, firm, dense, pyritic free pyrite

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- 1280-1310 SH-100% dark grey-black, firm, blocky, calc. speckled, bentonitic
- 1310-1340 SH-100% dark grey-black, firm as above
Trace SS-medium grey, very fine-medium grain, subround-subangular, friable, calc. micaceous, poor sorting, pyritic, argillaceous, tight NO SHOW
- 1340-1370 SH-100% medium-dark grey, firm, blocky, calcareous, speckled
Trace LS-cream, light-medium tan, crypto-microxln, firm-hard, dense, lithic, some stylo
Trace BENT-light grey, soft free pyrite
- 1370-1400 SH-100% medium-dark grey, firm as above
- 1400-1430 SH-95% medium-dark grey, firm as above
LS-5% tan, cryptoxln, hard, dense
- 1430-1460 SH-80% medium-dark grey, firm as above
SS-20% light-medium grey, white, very fine-medium grain, subround friable-firm, calcareous-slightly calcareous, slightly to very glauconitic, some carbonaceous, some fair to good intergranular porosity, NO SHOW
Trace LS-tan, crypto-microxln, firm-hard, dense, lithic, light tan, microxln, hard, dense, dolomitic
- 1460-1490 SH-90% medium-dark grey, firm as above
SS-10% light-medium grey, white as above
Trace LS-white, tan, cryptoxln, firm-hard, dense, lithic, chalky
- 1490-1520 SH-95% medium-dark grey, firm, blocky, less calcareous, less speckled
SS-5% light-medium grey, white, as above
- 1520-1550 SH-95% medium-dark grey, as above
SS-5% light-medium grey, white, very fine-medium grain, subround friable-firm, calcareous in part. glauconitic in part, some fair intergranular porosity NO SHOW
Trace BENT-light grey, soft free pyrite
- 1550-1580 SH-90% medium-dark grey, firm as above
SS-10% light-medium grey, white, as above also white, very fine grain, subround, friable-firm, slightly calcareous, fair sorting, fair intergranular porosity NO SHOW



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- 1580-1610 SS-60% buff, very fine-fine grain, subangular, friable, firm, clay filled, fair sorting, tight NO SHOW
also clear, fine-medium grain, firm, some intergranular porosity poor, NO SHOW
also light grey, fine-medium grain, subround-subangular, firm, calcareous, glauconitic, poor sorting, argillaceous, tight NO SHOW
SH-40% medium-dark grey, firm, blocky, calcareous speckled in part
Trace LS-white, tan, cryptoxln, firm-hard, dense, lithic, chalky
- 1610-1640 SH-60% medium-dark grey, as above becoming less speckled
SS-40% buff, light grey, clear as above free pyrite
- 1640-1670 SH-50% medium-dark grey, firm as above
SS-50% light-medium grey, very fine-fine grain subangular, firm, calcareous, glauconitic, poor sorting, tight NO SHOW
- 1670-1700 SH-50% medium-dark grey, grey brown, soft-firm, blocky, micromicaceous
SS-50% light-medium grey, very fine-fine grain as above free pyrite
- 1700-1730 SH-75% medium-dark grey, grey brown as above
SS-25% light-medium grey as above also clear-white, very fine-fine grain, subangular-subround, firm, calcareous, trace pyritic, some poor intergranular
- 1730-1760 SH-80% medium-dark grey, grey brown as above
SS-20% light-medium grey, clear-white, fine-medium grain, as above
- 1760-1790 SS-50% light-medium grey, clear-white as above also clear-translucent, coarse-very coarse grain, subround, unconsolidated
SH-50% medium-dark grey, grey brown, tan, firm, blocky, calcareous, waxy in part free pyrite
- 1790-1820 SH-60% medium-dark grey, grey brown, tan as above
also light grey, firm, blocky, arenaceous
SS-40% light-medium grey, clear-white, clear-translucent as above
Trace LS-white, translucent, cryptoxln, firm, dense free pyrite
- 1820-1850 SH-40% light-medium grey, grey brown, grey green, light tan, firm, flakey, splintery, micromicaceous some arenaceous
SS-60% white, clear, light grey, very fine-coarse grain, firm-friable, poor to fair sorting, calc in some clay filled, trace pyritic, some fair to good intergranular porosity also unconsolidated, clear-translucent, medium-very coarse grain NO SHOW
abundant free pyrite



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- 1850-1880 SH-50% light-medium grey, grey brown, grey green, light tan, firm, waxy, flakey, splintery, micromica in part, some arenaceous,
SS-50% white, clear, light grey, very fine-coarse grain, firm-friable, poor to fair sorting, calc in part, some clay filled, trace pyritic, some fair-good intergranular porosity also unconsolidated clear-translucent, medium-very coarse grain NO SHOW free pyrite
- 1880-1910 LS-90% buff-cream, cryptoxln, firm, dense
SH-10% light-medium grey, grey brown as above
Trace SS-white, clear, light grey as above
Trace CHT-clear opaque
- 1910-1940 LS-90% buff-cream, cryptoxln, firm, dense
SH-10% light-medium grey, grey brown as above
Trace SS-white, clear, light grey as above
Trace CHT-white
- 1940-1970 LS-80% buff-cream, cryptoxln, firm, dense
SH-20% light-medium grey, grey brown as above also light brown, cryptoxln, soft, blocky, silty, calc
Trace SS-white-clear, fine grain, subround, firm, friable, calcareous, fair sorting, tight NO SHOW
Trace ANHY-white, firm, dense, free pyrite
- 1970-2000 LS-80% buff-cream, cryptoxln, firm, dense
SH-20% light-medium grey, grey green, light brown as above
Trace SS-white, clear, dirty white, as above trace pyritic
Trace CHT-white, opaque
Trace ANHY-white, firm, dense
- 2000-2030 ANHY-80% white, opaque, firm, dense
SH-20% dark grey-black, grey green, soft-firm, waxy in part, flakey, splintery
- 2030-2060 SH-90% red-orange, dark grey, grey green, firm, flakey, splintery, blocky, silty in part
ANHY-10% white, opaque, firm, dense
- 2060-2090 SS-50% red-orange, very fine grain, subround, friable-firm, clay filled, fair sorting, tight grading to red-orange SH NO SHOW
SH-50% red-orange, dark grey, grey green as above
- 2090-2120 SH-80% red-orange, dark grey, grey green, as above
SS-20% red-orange, very fine grain as above
- 2120-2150 SS-50% red-orange, very fine grain, subround, friable-firm, clay filled, fair sorting, tight NO SHOW
SH-50% red-orange, dark grey, grey green, as above
- 2150-2180 SH-70% red-orange, dark grey, grey green, as above
SS-30% red-orange, very fine grain as above



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- 2180-2210 SH-90% red-orange, dark grey, grey green, firm, flakey, splintery, blocky, silty in part
SS-10% red-orange, very fine grain, subround, friable, firm, clay filled, fair sorting, tight NO SHOW
- 2210-2240 SH-95% red-orange, dark grey, grey green waxy in part
SS-5% red-orange, very fine grain as above
Trace CHT-clear white
- 2240-2270 SH-70% red-orange, dark grey, grey green as above
ANHY-30% white, translucent, soft-firm, dense
Trace LS-light grey, cryptoxln, firm, dense, dolmitic
- 2270-2300 ANHY-60% white, translucent, soft-firm, dense, xln
SH-40% red-orange, medium-dark grey, grey green as above
- 2300-2330 ANHY-40% white, translucent, soft-firm, dense, xln
SH-60% red-orange, medium-dark grey, grey green as above
- 2330-2360 ANHY-75% white, translucent, soft-firm, dense, xln,
SH-25% red-orange, medium-dark grey, grey green, soft-firm, flakey, splintery, blocky, silty in part, waxy in part
- 2360-2390 ANHY-60% white, translucent, soft-firm, dense, xln
SH-40% red-orange, medium-dark grey, grey green, pyritic in part as above
- 2390-2420 SH-60% red-orange, medium-dark grey, grey green as above
ANHY-40% white, translucent, soft-firm, dense, xln
- 2420-2450 SH-60% red-orange, medium-dark grey, grey green as above
ANHY-40% white, translucent, soft-firm, dense, xln
- 2450-2480 SH-90% red-orange, medium-dark grey, grey green as above
ANHY-10% white, translucent, soft-firm, dense, xln
- 2480-2630 SH-100% red-orange, medium-dark grey, grey green as above
- 2630-2660 SS-50% clear, translucent, fair sorting, coarse-very coarse grain, round, unconsolidated
SH-40% red-orange, medium-dark grey, grey green as above
ANHY-10% white, translucent, soft-firm, dense, xln,
- 2660-2690 SH-60% red-orange, medium-dark grey, grey green some anhydritic inclusions, arenaceous in part
ANHY-30% white, translucent, soft-firm, dense, xln
SS-10% red-orange, very fine-grain, angular-subround, firm, clay filled, poor to fair sorting, some tight, some fair intergranular porosity, NO SHOW



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- 2690-2720 SH-70% red-orange, medium-dark grey, grey green, soft-firm, flakey, blocky, splintery, waxy, some anhydritic inclusions, some arenaceous
ANHY-25% white, translucent, soft-firm, dense, xln
DOL-5% light pink, cryptoxln, firm, dense
- 2720-2750 SS-70% red-orange, very fine-fine grain, subangular-subround, firm-friable, clay filled, poor to fair sorting, some poor intergranular porosity also unconsolidated, clear, translucent, fair sorting, coarse-very coarse grain, round NO SHOW
SH-15% red-orange, medium-dark grey, grey green as above
ANHY-10% white, translucent, soft-firm, dense, xln
DOL-5% light pink, cryptoxln, firm, dense
- 2750-2780 SH-80% red-orange, medium-dark grey, grey green as above
SS-20% red-orange, very fine-fine grain as above grading to arenaceous SH
- 2780-2810 SH-60% red-orange, medium-dark grey, grey green as above some arenaceous
ANHY-40% white, translucent, soft-firm, dense, xln
Trace DOL-light pink, cryptoxln, firm, dense
- 2810-2840 SS-90% red-orange, very fine grain to silt, subangular, firm, clay filled, tight NO SHOW
ANHY-10% white, translucent, soft-firm, dense, xln.
- 2840-2870 SS-80% red-orange, very fine grain to silt as above
SH-10% red-orange, medium-dark grey, grey green as above
ANHY-10% white, translucent, soft-firm, dense, xln
- 2870-2900- SH-90% red-orange, grey green, light-medium grey, soft-firm, blocky, flakey, silty in part, some arenaceous
SS-10% red-orange, very fine grain to silt, as above
Trace DOL-light pink, cryptoxln, firm, dense
- 2900-2930 SH-90% red-orange, grey green, light-medium grey as above
SS-5% red-orange, very fine to silt, as above
ANHY-5% white, translucent, soft-firm, dense, xln.
- 2930-2960 SH-100% red-orange, grey green, light-medium grey as above
- 2960-2990 SH-95% red-orange, greygreen, light-medium grey, as above
ANHY-5% white, translucent, soft-firm, dense, xln
- 2990-3020 SH-100% red-orange, grey green, light-medium grey becoming more arenaceous as above
- 3080-3140 SH-60% red-orange, grey green, light-medium grey as above
SS-40% red-orange, very fine grain, subround-subangular, clay filled, tight NO SHOW



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- 3140-3170 SH-100% red-orange, grey green, light-medium grey,
soft-firm, blocky, flakey, silty in part less
arenaceous
Trace loose quartz xls
- 3170-3200 SH-100% red-orange, grey green, light-medium grey,
as above
- 3200-3230 SH-100% red-orange, grey green, light-medium grey as above
- 3230-3260 SH-100% red-orange, grey green as above less silty & sand
- 3260-3290 SH-100% red-orange, grey green, light-medium grey as above
- 3290-3320 SH-75% red-orange, grey green, light-medium grey, as above
SS-25% white, light grey, very fine grain, angular-
subangular, friable-firm, very slightly glauconitic
fair sorting, tight NO SHOW
- 3320-3350 SS-90% white, light grey as above also red-orange,
very fine-fine grain, subangular, firm-friable,
slightly calcareous, silty, poor sorting, tight NO SHOW
SH-10% red-orange, grey green, light-medium grey as above
- 3350-3380 SH-100% red-orange, grey green as above less arenaceous
- 3380-3410 SH-100% red-orange, grey green as above more arenaceous
- 3410-3440 SH-85% red-orange, grey green, light-medium grey as above
LS-15% cream-white, cryptoxln, firm, dense
- 3440-3470 SH-90% red-orange, grey green, light-medium grey as above
LS-10% cream-white, cryptoxln, firm, dense
- 3470-3500 SH-95% red-orange, grey green, light-medium grey as above
LS-5% cream, white, cryptoxln, firm, dense
- 3500-3530 LS-80% cream-white, micro-fine xln, friable-firm,
dense, xln, sucrosic in part, slightly dolomitic
SH-20% red-orange, grey green, light-medium grey as above
- 3530-3530 SH-90% red-orange, light-medium grey as above
LS-10% cream-white, micro-fine xln as above
- 3560-3590 SH-100% red-orange, light-medium grey, light brown, soft-
firm, blocky, flakey, slightly calcareous in part
- 3590-3520 SH-60% red-orange, light-medium grey, light brown
with carbonaceous inclusions
LS-40% cream-white, micro-fine xln as above also
white, cryptoxln, firm, dense
- 3620-3650 LS-90% cream, light grey, buff, crypto-microxln, firm,
dense, lithic
SH-10% red-orange, light-medium grey, light brown as above



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- 3650-3680 SH-85% red-orange, light-medium grey, light brown, soft-firm, blocky, flakey, slightly calc in part
LS-15% cream, light grey, buff, crypto-microxln, firm, dense, lithic
- 3680-3710 LS-60% cream, light grey, white, buff, crypto-fine xln, firm, dense, lithic, micaceous in part
trace oolimidic fair porosity
- 3710-3740 LS-70% cream, light grey, white, buff as above
SH-30% red-orange, light-medium grey, light brown as above
- 3740-3770 LS-60% cream, light grey, white, buff as above
SH-40% red-orange, light-medium grey light brown as above
Trace DOL-buff, microxln, firm, dense
- 3770-3800 LS-60% cream-light grey, crypto-fine xln, firm, dense, lithic, slightly argillaceous in part, some micro-fossiliferous, trace micro-oolitic, elliptical-buff, trace oolimidic fair porosity, dolomitic in part
SH-40% red-orange, light-medium grey, light brown as above
Trace SS-white-medium grey, very fine grain, subangular-subround, friable-hard, calcareous to siliceous, slightly to very glauconitic, fair sorting, tight NO SHOW
- 3800-3830 LS-90% light-medium grey, tan, grey brown, cream-white, crypto-microxln, firm-hard, dense, lithic, argillaceous in part, some silty, trace biotite and mica
SH-10% red-orange, light-medium grey, light brown as above
FOSS-crinoid
- 3830-3860 LS-90% light-medium grey, tan, grey brown, cream-white as above some grainy
SH-10% red-orange, light-medium grey, light brown as above
- 3860-3890 LS-100% light-dark grey, cream, buff, crypto-very fine xln, firm-hard, dense, becoming very argillaceous in part, some grainy
FOSS-crinoid
- 3890-3920 LS-100% light-dark grey, cream, buff as above, trace silty, micaceous, biotite
- 3920-3950 LS-100% cream, buff, light-dark grey, crypto-fine xln, firm-hard, dense, lithic, less argillaceous
- 3950-3980 LS-100% cream, buff, crypto-very fine xln, firm-hard, dense, lithic, chalky, trace oolitic ellip-white
Trace SH-dark grey-black, soft-firm, blocky, calcareous
- 3980-4010 LS-100% cream, white, buff, crypto-fine xln, firm-hard, dense, lithic, chalky, trace oolitic ellip-white
Trace SH-dark grey, black, soft-firm, blocky, calcareous



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- 4010-4040 LS-100% cream, white, buff, crypto-fine xln, firm-hard, dense, lithic, chalky.
Trace SH-dark grey-black, soft-firm, blocky, calcareous
- 4040-4070 LS-100% cream, buff, white, tan, light grey, crypto-microxln, firm-hard, dense, lithic, chalky, more oolitic round-buff, elliptical-white, trace fossiliferous trace arenaceous
Trace SLTST-medium grey, arenaceous, glauconitic
- 4070-4100 LS-100% cream, white, grey brown, crypto-fine xln, firm-hard, dense, lithic, trace oolitic round-white, trace fossiliferous, trace pinpoint porosity
Trace SS-light grey, very fine grain, subangular-subround, firm, calcareous, slightly argillaceous fair sorting, slightly glauconitic, tight NO SHOW
- 4100-4130 LS-100% cream, white, buff, medium grey, light grey green, crypto-very fine xln, firm-hard, dense lithic, chalky, some argillaceous, some silty
Trace SH-medium grey, soft, blocky, very calcareous
- 4130-4160 LS-100% cream, white, buff, crypto-microxln, firm-hard, dense, lithic, chalky
Trace CHT-grey brown
- 4160-4190 LS-100% cream, white, buff, crypto-microxln, firm-hard, dense, lithic, chalky
- 4190-4220 LS-100% as above abundant cavings sample caught after bit trip
- 4220-4250 LS-100% cream-white, light grey, crypto-very fine xln, firm-hard, dense, lithic, chalky, some grainy.
Trace SH-medium-dark grey, soft, blocky, calcareous ip
- 4250-4280 LS-100% cream, white, buff, light grey, crypto-very fine xln, firm-hard, dense, lithic, chalky, trace micaceous, trace pyritic, some very argillaceous
- 4280-4310 LS-100% cream, white, crypto-microxln, firm-hard, dense, lithic, chalky
Trace SS-light grey, very fine grain, subangular, firm, calcareous, glauconitic in part, fair sorting, tight NO SHOW
- 4310-4340 LS-100% cream, white, buff, tan, crypto-microxln, firm-hard, dense, lithic, chalky
Trace CHT-white, opaque, buff, micro-fossiliferous ip
- 4340-4370 LS-100% cream, white, buff, tan, crypto-microxln, firm-hard, dense, lithic, chalky, trace arenaceous, trace pyritic
FOSS-brachiopods



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- 4370-4400 LS-100% cream, buff, white, crypto-microxln, firm-hard, dense, lithic, trace drusy, trace micro-fossiliferous
- 4400-4430 LS-100% cream, buff, light grey, crypto-fine xln, firm-hard, dense, lithic, some silty, mica, trace a renaceous
Trace SH-black, firm, blocky, slightly calcareous
- 4430-4460 LS-100% cream, light grey, buff, crypto-very fine xln, firm-hard, dense, lithic, micro-fossiliferous in part, some bioclastic, trace arenaceous, trace cherty, argillaceous in part
Trace DOL-translucent, coarse xln, firm, xln, some interxln porosity poor
- 4460-4490 LS-100% cream, light grey, buff, crypto-very fine xln, firm-hard, dense, lithic, micro-fossiliferous in part, less bioclastic, trace arenaceous, argillaceous in part
Trace SH-dark grey-black, firm, blocky, slightly calc
FOSS-crinoic, brachiopod
- 4520-4550 LS-100% cream, light grey, tan, buff, crypto-fine xln, firm-hard, dense, lithic, chalky, fossiliferous in part, some bioclastic, silty & argillaceous in part some arenaceous
- 4550-4580 LS-100% cream, light grey, tan, buff, crypto-medium xln, firm-hard, dense, lithic, chalky, fossiliferous in part, trace densely oolitic elliptical, round-white, trace oolimoldic poor \emptyset , silty & argillaceous in part, trace cherty, trace pyritic
TRACES SPOTTY BRIGHT YELLOW-GREEN FLUORESCENCE
VERY FAINT PALE YELLOW SLOW STREAMING
VERY FAINT PALE YELLOW EVEN RING NO VISIBLE \emptyset
Trace SH-dark grey-black, firm, blocky, flakey, calcareous
- 4580-4610 LS-100% cream-buff, light tan, crypto-very fine xln, firm-hard, dense, lithic, less fossiliferous & oolitic, less silty & argillaceous
Trace SH-dark grey-black, firm, blocky, calcareous
FOSS-crinoid
- 4610-4640 LS-100% cream-buff, light grey, crypto-microxln, firm-hard, dense, lithic, trace fossiliferous, some grainy
- 4640-4670 LS-100% cream, buff, tan, light grey, crypto-microxln, firm-hard, dense, lithic, some slightly argillaceous
FOSS-crinoid
Trace SH-dark grey-black, firm, blocky, calcareous



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- 4670-4700 LS-100% cream, buff, tan, grey brown, mottled,
crypto-microxln, firm-hard, dense, lithic,
trace arenaceous
FOSS-crinoid
- 4700-4730 LS-100% cream, buff, tan, light-medium grey, crypto-
very fine xln, firm-hard, dense, lithic, becoming
argillaceous, trace arenaceous
- 4730-4760 LS-100% cream, buff, tan, light-medium grey, crypto-
very fine xln, firm-hard, dense, lithic, argillaceous
- 4760-4790 LS-100% cream, buff, tan, light-medium grey, crypto-
very fine xln, firm-very hard, dense, lithic, trace
pyritic, argillaceous in part
Trace SH-dark grey-black, firm, flakey, slightly calc
Trace CHT-buff
- 4790-4820 LS-100% buff, cream, light grey, tan, crypto-microxln,
firm-very hard, dense, lithic, some fossiliferous &
bioclastic, trace pyritic
Trace SH-dark grey-black, firm, flakey, calc in part
- 4820-4850 LS-100% light-medium grey, buff, tan, crypto-microxln,
firm-very hard, dense, lithic, becoming argillaceous
some oolitic round-dark grey
Trace SH-dark grey-black, firm, flakey
- 4850-4880 LS-100% cream, buff, light grey, crypto-microxln,
firm-hard, dense, lithic, trace fossiliferous
argillaceous in part
- 4880-4910 LS-95% cream, buff, light grey, crypto-microxln,
firm-hard, dense, lithic, some fossiliferous,
argillaceous in part
SH-5% dark grey, black, firm, flakey, blocky
- 4910-4940 LS-95% cream, light grey, buff, crypto-microxln, firm-
very hard, dense, lithic, some very fossiliferous,
some silty
- 4940-4960 LS-95% cream, light grey, buff, tan, crypto-microxln,
firm-very hard, dense, lithic, less fossiliferous
SH-5% dark grey, black, soft-firm, blocky, flakey,
Trace CHT-tan, amber
- 4960-4990 LS-95% cream, light grey, buff, tan, crypto-microxln,
firm-very hard, dense, lithic, trace fossiliferous
trace pyritic
SH-5% dark grey, black, soft-firm, blocky, flakey
some very calcareous
Trace CHT-light-medium tan, amber, spotted in part



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- 4990-5010 LS-95% light-medium grey, cream, tan, crypto-very fine xln, firm-very hard, dense, lithic, becoming argillaceous
SH-5% dark grey, black, soft-firm, blocky, flakey, some calcareous
Trace CHT-tan, amber, buff, spotted in part more abundant
- 5010-5030 LS-90% light-dark grey, buff, cream, tan, crypto-microxln, firm-very hard, dense, lithic, argillaceous ip
SH-10% dark grey, black, soft-firm, blocky, flakey, some calcareous, trace pyritic
Trace CHT-tan, amber
- 5030-5050 LS-90% light -dark grey, buff, cream, tan, crypto-fine xln, firm-very hard, dense, lithic, trace cherty, argillaceous in part
SH-10% dark grey, black, soft-firm, blocky, flakey, some calcareous, trace pyritic
Trace CHT-tan
- 5050-5070 LS-95% light-dark grey, buff, cream, tan, crypto-very fine xln, firm-very hard, dense, lithic, more arg
SH-5% dark grey, black as above calcareous in part
Trace CHT-amber, spotted
- 5070-5090 LS-95% light-dark grey, buff, cream, buff, tan, crypto-microxln, firm-hard, dense, lithic, some silty, trace fossiliferous
SH-5% dark grey, black as above trace pyritic
Trace CHT-tan, grey brown, spotted free pyrite
- 5090-5110 LS-95% cream, light-dark grey, buff, tan, crypto-microxln, firm-very hard, dense, lithic, less argillaceous
SH-5% dark grey, black, as above
Trace CHT-tan, amber
- 5110-5130 LS-95% cream, light-dark grey, tan, grey brown, crypto-microxln, firm-very hard, dense, lithic, argillaceous in part, some micro-fossiliferous, trace pyritic
SH-5% dark grey, black, soft-firm, blocky, subfussile, calcareous in part
- 5130-5140 LS-95% cream, light-dark grey, tan, grey brown, crypto-microxln, firm-very hard, dense, lithic, argillaceous in part, some micro-fossiliferous, trace pyritic
SH-5% dark grey, black as above
Trace CHT-amber



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- 5140-5150 LS-90% cream, light-dark grey, tan, grey brown, crypto-microxln, firm-very hard, dense, lithic, argillaceous in part, some micro-fossiliferous
SH-10% dark grey, black, soft-firm, blocky, sub-fissile, calcareous in part
- 5150-5170 LS-90% light-dark grey, cream, grey brown, tan, crypto-microxln, firm-very hard, dense, lithic, trace fossiliferous, some argillaceous in part
SH-10% dark grey, black, firm, blocky, subfissile, slightly calcareous in part
- 5170-5180 LS-90% cream, buff, light-medium grey, mottled, crypto-microxln, firm-very hard, dense, lithic, trace fossiliferous, less argillaceous
SH-10% dark grey, black, as above
Trace CHT-buff, tan, spotted in part
- 5180-5200 LS-90% cream, grey brown, light-dark grey, tan, crypto-microxln, firm-very hard, dense, lithic, very argillaceous in part, some pyritic
SH-10% dark grey, black, as above trace grey green, waxy, flakey, glauconitic, pyritic
- 5200-5210 LS-90% cream-buff, light-dark grey, tan, grey brown, crypto-microxln, firm-very hard, dense, lithic, trace fracture, trace fossiliferous, trace pyritic
SH-10% dark grey, black, grey green as above
abundant free pyrite
- 5210-5220 LS-90% cream-buff, light-dark grey, tan, grey brown, crypto-microxln, firm-very hard, dense, lithic, also cream-buff, microxln, hard, dense, fossiliferous, densely oolitic elliptical-white, very sl glauconitic
SH-10% dark grey, black grey green as above
Trace SS-white, medium-very coarse grain, angular-subangular, firm-hard, calcareous, poor sorting, very slightly glauconitic, tight NO SHOW
- 5220-5250 LS-90% cream, buff, dark tan, grey brown, light grey, crypto-coarse xln, firm-very hard, dense, lithic, fossiliferous in part, trace slightly glauconitic, trace pyritic, trace densely oolitic round-white
SH-10% dark grey, black, grey green as above
Trace CHT-tan
- 5250-5260 LS-90% cream, buff, tan, crypto-microxln, firm-hard, dense, lithic, some very fossiliferous and densely oolitic elliptical-white
SH-10% dark grey, black as above some interbedded with pyrite slightly calcareous



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- 5260-5270 LS-90% cream, buff, tan, crypto-microxln, firm-hard,
dense, litnic, some very fossiliferous and densely
oolitic elliptical-white
SH-10% dark grey, black, soft-firm, blocky, subfissile,
slightly calcareous in part, pyritic in part
Trace DOL-white, finexln, hard, dense, micro-sucrosic
- 5270-5290 LS-90% cream, buff, tan, crypto-coarse xln, firm-
very hard, dense, litnic, trace very slightly
glauconitic, trace pyritic
SH-10% dark grey, black as above less pyritic
abundant free pyrite
- 5290-5300 LS-95% cream, buff, mottled, tan, crypto-medium xln,
firm-very hard, dense, litnic, some very fossiliferous
trace slightly glauconitic
SH-5% dark grey, black as above
- 5300-5310 LS-95% cream, buff, tan as above also cream, white,
cryptoxln, friable-firm, dense, arenaceous
SH-5% dark grey, black, as above free pyrite
- 5310-5330 LS-100% cream, buff, mottled, tan as above less
fossiliferous more cream-white, cryptoxln, friable
to firm, dense, very arenaceous becoming oolitic
elliptical-buff
- 5330-5350 LS-95% cream, buff, tan, cream-white as above
SH-5% dark grey, black as above free pyrite
- 5350-5380 LS-90% cream, white, buff, tan, crypto-very fine xln,
friable-hard, dense, some arenaceous & oolitic
SH-10% dark grey, black as above pyritic in part
abundant free pyrite
- 5380-5400 LS-95% cream, white, buff, tan crypto-very fine xln,
friable-hard, dense, lithic, arenaceous & oolitic in
becoming more buff-light tan, cryptoxln, very hard, litnic
SH-5% dark grey, black, soft-firm as above
- CIRC. 1 HOUR
LS-95% cream, white, buff, buff to tan, crypto-
very fine xln, friable-very hard, dense, lithic,
arenaceous & oolitic in part
SH-5% dark grey, black as above
- CIRC. 1 1/2 HOUR
LS-95% cream, white, buff, buff to tan as above
SH-5% dark grey, black as above
Trace CHT-white