



# Mudlog

**COMPANY:** ITB OIL, LLC  
**WELL:** MURPHY #1  
**FIELD:** JOHNSON SOUTH  
**COUNTY:** CLARK  
**STATE:** IL

**TOWNSHIP:** 9N  
**RANGE:** 14W  
**SECTION:** 26

**LOCATION:** 375N 330W SEc SW SW

**Permanent Datum:** GL **Elev:** 577

**Drilling Depth Measured From:** KB , 14 Above Perm Datum

**Logged:** 200 Ft - 3344 Ft

**Date Logged:** 12/03/2017 To 12/10/2017

**Spud Date:** 12/02/2017 **Total Depth:** 3344

**Drlg Contractor:** Les Wilson, Inc. **Rig:** #22

**Elevations**

**KB:** 591

**DF:**

**GL:** 577

## LEGEND

### Abbreviations

VSSO	Very Slight Show of Oil
SSO	Slight Show of Oil
SO	Show of Oil
GSO	Good Show of Oil
VSSG	Very Slight Show of Gas
SSG	Slight Show of Gas
SG	Show of Gas
GSG	Good Show of Gas
TGU	Total Gas Units
CN	Connection
CG	Connection Gas
DST	Drill Stem Test
Fluor	Fluorescence
KB	Kelly Bushing
DF	Derrick Floor
GL	Ground Level
LCM	Lost Circulation Material
MA	Mud Additives
NB	New Bit
ROP	Rate of Penetration
ROT	Rotating
SLD	Sliding
TD	Total Depth
TG	Trip Gas
VIS	Viscosity of Mud (S.U. seconds)
WOB	Weight on Bit
WT	Weight of Mud ppg
PP	Pump Pressure
RPM	Revolutions Per Minute
SPM	Strokes Per Minute
φ	Porosity
SHT	Straight Hole Test

### BORE HOLE RECORD

### CASING RECORD

HOLE SIZE	FROM	TO	SIZE	FROM	TO
12.25	0	186	9.625	0	185.31 KB
7.875	186		9.625	0	170 GL

**Remarks:**

## LITHOLOGY

Limestone:		Shale:	
Dolomite:		Chert:	
Sandstone:		Anhydrite:	
Siltstone:		Coal:	

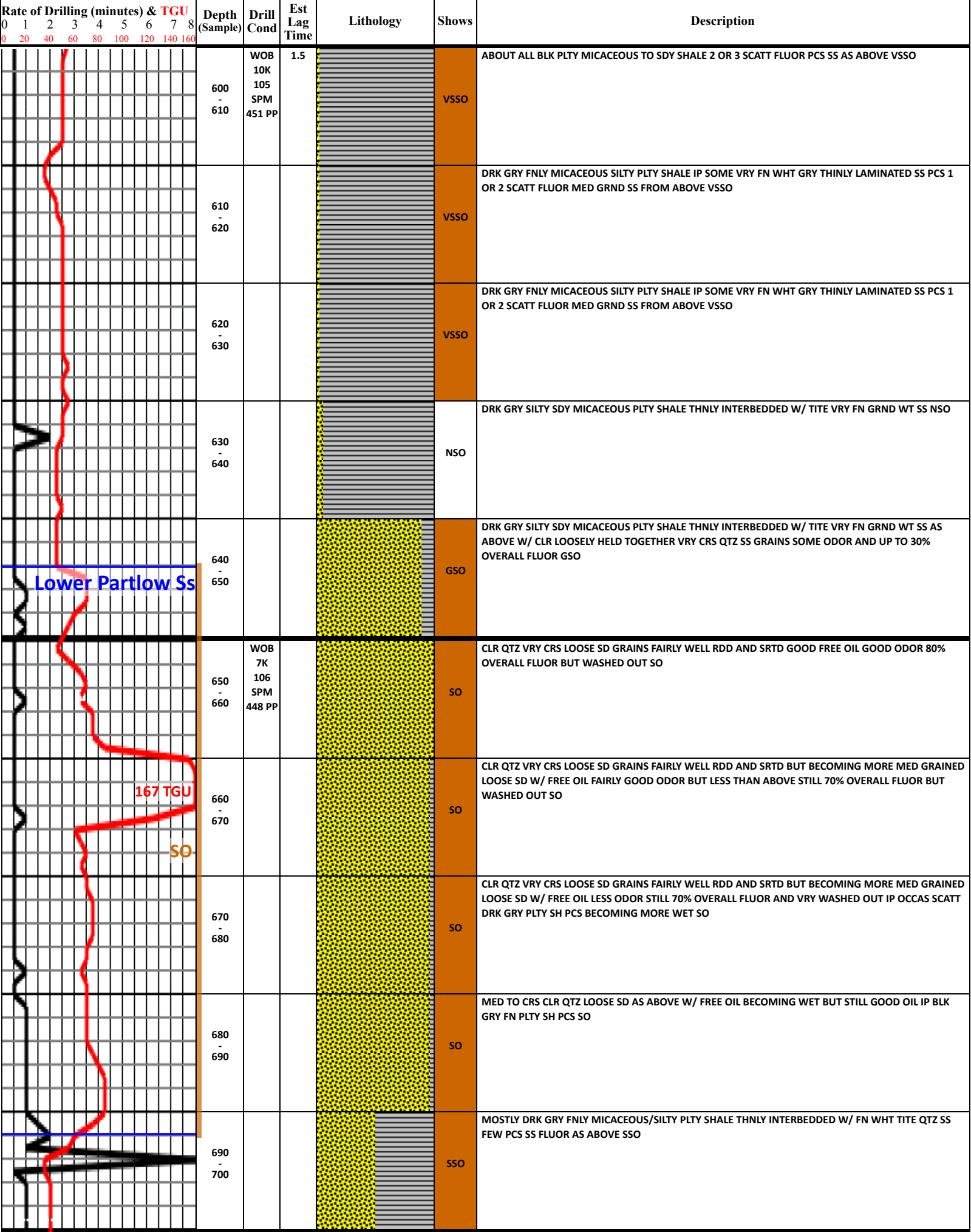
Rate of Drilling (minutes) & TGU										Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description
0	1	2	3	4	5	6	7	8							
0	20	40	60	80	100	120	140	160							
										200 - 210	WOB 2.5K 107 SPM 291 PP	0.5		VSSO to SSO	VRY FN GRY WHT SS MUCH CLAY CMT ALMOST A SILTSTONE IP MORE MED FN GRAINED PCS W/ SCATT FLUOR MOSTLY CHUNKY COAL FAIR ODOR IP FLUOR ON COAL PARTING EDGES RELEASES A LITTLE TINY OIL DROPLETS WHEN CRUSHED VSSO TO SSO
										210 - 220				VSSO	FN TO VRY FN GRND GRY WHT MUCH CMT SS IP FEW SCATT PCS MED FN W/ SOME $\phi$ W/ FLUOR AS ABOVE IP FEW PCS COAL FAINT ODOR VSSO
										220 - 230				NSO	VRY FN GRND GRY WHT MUCH CMTD SS TO ALMOST A SILTSTONE MOSTLY COAL FAINT ODOR AND NO FLUOR NSO
										230 - 240				SSO	MOSTLY VRY FN TO FN MUCH CMT GRY WHT SS IP FEW PCS MED FN GRND W/ MORE $\phi$ W/ SCATT FLUOR FAINT ODOR SSO
										240 - 250				NSO	VRY FN TO FN GRND GRY WHT MUCH CMTD SS AS ABOVE NO FLUOR IP SOME DRK AMBER STAINED DEAD OIL IP FEW PCS LIGHT TAN MICRITIC HRD LS NO ODOR NSO
										250 - 260	WOB 5K 121 SPM 395 PP			VSSO	THINLY INTERBEDDED LIGHT GRY PLTY SILTY SHALE W/ VRY FN TO SILTSTONE SIZED GRY WHT SS PCS ATTACHED TO SHALE IP FEW COAL PCS A FEW VRY SCATT MED FN GRY WHT QTZ SS PCS W/ FLUOR NO ODOR VVSO
										260 - 270					VRY FN GRND GRY WHT MUCH CLAY CMTD CALCAREOUS QTZ SS IP FEW LIGHT GRY SILTY PLTY SHALE PCS NO ODOR NO FLUOR NSO
Coal										270 - 280					ALMOST ENTIRELY COAL W/ FEW SCATT PCS OF VRY FN GRY WHT SS AS ABOVE AND FEW SCATT PCS LITE GRY SHALE AS ABOVE NSO
										280 - 290					ALMOST ENTIRELY COAL W/ FEW SCATT PCS OF VRY FN GRY WHT SS AS ABOVE W/ NO SHALE AND MORE PCS VRY FN GRY WHT CALC QTZ SS AS ABOVE NO ODOR NO FLUOR NSO
										290 - 300					ALMOST ENTIRELY COAL W/ FEW SCATT PCS OF VRY FN GRY WHT SS AS ABOVE W/ NO SHALE AND MORE PCS VRY FN GRY WHT CALC QTZ SS AS ABOVE IP PYRITE CHUNKS NO ODOR NO FLUOR NSO

Rate of Drilling (minutes) & TGU										Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description
0	1	2	3	4	5	6	7	8							
0	20	40	60	80	100	120	140	160							
										300 - 310	WOB 6K 117 SPM 426 PP	1			MOSTLY BLK CHUNKY PYRITIC COAL IP LITE GRY WHT VRY FN CALC CMTD SS AS ABOVE NSO
										310 - 320					MOSTLY COAL IP MED GRY PLTY SDY SHALE
										320 - 330					MOSTLY PYRITIC COAL IP VRY FN GRY WHT MUCH CMTD CALC QTZ SS NSO
										330 - 340					MOSTLY GRY WHT TO WHT CLAY AND CALCITE CMTD VRY FN GRND QTZ SS IP SOME PLTY GRY MICACEOUS PLTY SHALE IP MUCH COAL
										340 - 350			No Sample		
										350 - 360	WOB 6K 112 SPM 458 PP				MOSTLY MED TO DRK GRY FN PLTY SHALE IP DRK TAN GRY FN PLTY SHALE
										360 - 370					MOSTLY MED TO DRK GRY FN PLTY SHALE IP DRK TAN GRY FN PLTY SHALE
										370 - 380					VRY FN TO FN GRND GRY DRTY QTZ SS THNLY INTERBEDDED W/ GRY SDY TO SILTY PLTY SHALE NSO
										380 - 390					MOSTLY BLK ORGANIC FN PLTY SHALE AND MUCH COAL IP PLTY FN TO SDY MICACEOUS DRK GRY SHALE
										390 - 400					MOSTLY FN TO MED FN TO MED GRND GRY WHT MUCH CMTD SS IP CALCAREOUS IP FEW PCS GRY AND BLK PLTY FN SHALES IP FEW COAL PCS NSO

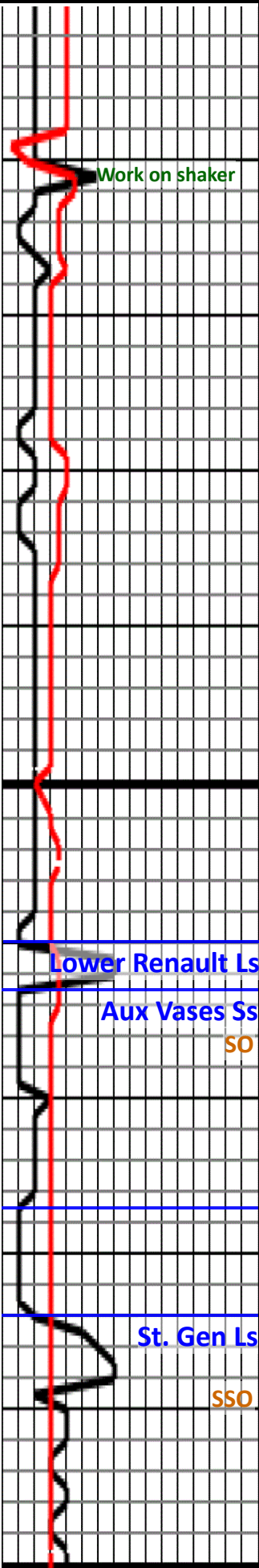
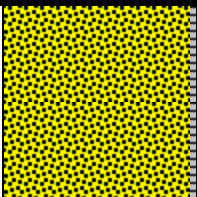
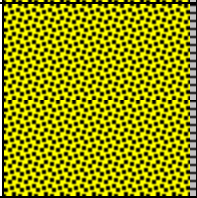
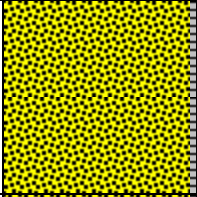
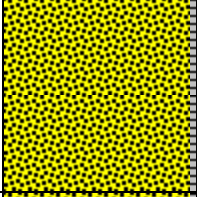
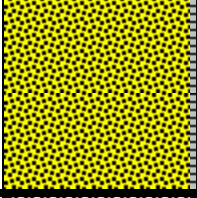
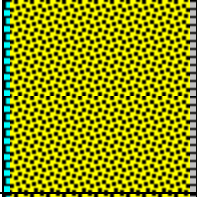
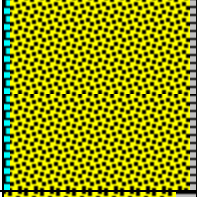
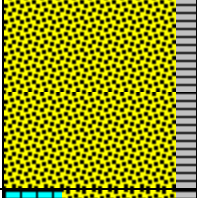
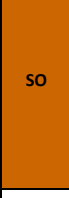
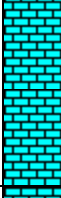
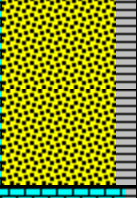
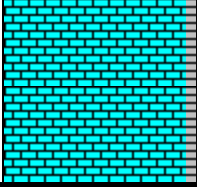
Coal

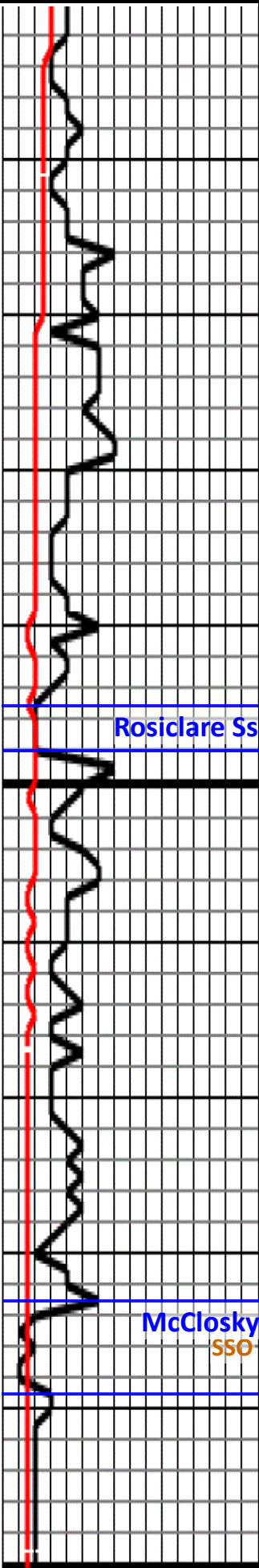
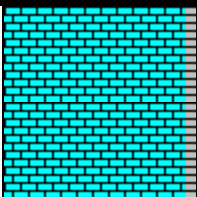
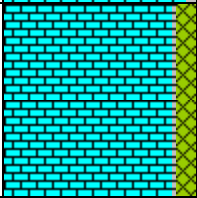
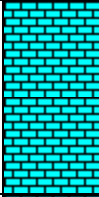
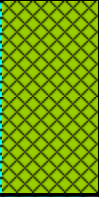
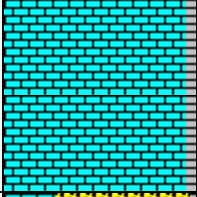
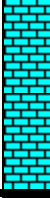
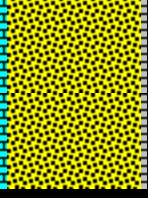
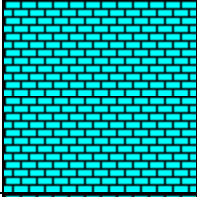
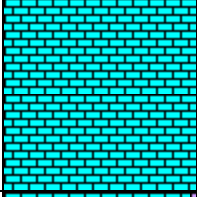
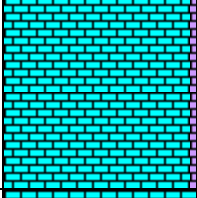
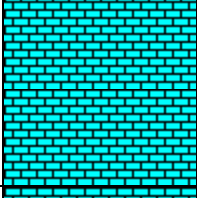
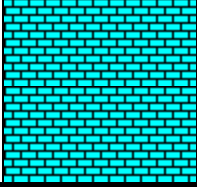
Rate of Drilling (minutes) & TGU										Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description
0	1	2	3	4	5	6	7	8							
0	20	40	60	80	100	120	140	160							
										400 - 410	WOB 10K 111 SPM 469 PP	1			INTERBEDDED VRY FN GRND MUCH CMTD CALC QTZ SS W/ THINLY SDY PLTY MICACEOUS GRY SHALES NSO
										410 - 420					INTERBEDDED VRY FN GRND MUCH CMTD CALC QTZ SS W/ THINLY SDY PLTY MICACEOUS GRY SHALES W/ SOME BLK SHALE NSO
										420 - 430					MOSTLY VRY FN GRND WHT TO GRY WHT MUCH CLAY CMTD CALC SS IP FEW PCS GRY SHALE IP SOME PCS SS TINTED BRWN W/ DEAD OIL NSO
										430 - 440					MOSTLY VRY FN GRND WHT TO GRY WHT MUCH CLAY CMTD CALC SS IP FEW PCS GRY SHALE IP SOME PCS SS TINTED BRWN W/ DEAD OIL NSO
										440 - 450					MOSTLY VRY FN GRND WHT TO GRY WHT MUCH CLAY CMTD CALC SS IP FEW PCS GRY SHALE IP SOME PCS SS TINTED BRWN NSO
										450 - 460	WOB 5K 107 SPM 462 PP				DENSE TITE VRY FN GRND GRY WHT QTZ SS W/ CMTD W/ MUCH CLAY AND IP CALCAREOUS NSO
Coal										460 - 470					MED LITE GRY TO DRK GRY FN TO CRSLY MICACEOUS AND SDY PLTY SHALES IP FEW COAL PCS IP FEW BLK PLTY SHALE PCS
										470 - 480					LITE GRY PLTY SHALE IP WHT FN SILTSTONEIP FEW PCS FN TO VRY FN GRND MUCH CMTD GRY WHT SS NSO
										480 - 490					MOSTLY BLK PLTY FN GRND SHALE IP GRY BRWN PLTY FN SHALE IP FEW PCS TAN SILTSTONE
Coal										490 - 500					MOSTLY PYRITIC COAL AND FNLY MICACEOUS PLTY BRWN BLK ORGANIC SHALE IP FEW PCS TAN SILTSTONE NSO

Rate of Drilling (minutes) & TGU										Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description
0	1	2	3	4	5	6	7	8							
0	20	40	60	80	100	120	140	160							
<div>SHT @ 500' 3/4 DEG</div>										500 - 510	WOB 5K 105 SPM 431 PP	1.5		SO	VRY FN GRND AMBER STAINED CLR WHT QTZ SS THNLY INTERBEDDED W/ BLK FNLY MICACEOUS PLTY SHALE ATTACHED TO SS GOOD ODOR TITE DIFFICULT TO CRUSH CRUSHING FLUOR PCS YIELDS LITTLE OIL - GASSY? 40% OVERALL FLUOR SO
<div>SO</div>										510 - 520				SO	VRY FN GRND AMBER STAINED CLR WHT QTZ SS THNLY INTERBEDDED W/ BLK FNLY MICACEOUS PLTY SHALE ATTACHED TO SS GOOD ODOR TITE DIFFICULT TO CRUSH IP YIELDING MUCH OIL 40% OVERALL FLUOR SO
										520 - 530				VSSO	MOSTLY DRK GRY TO BLK MICACEOUS PLTY SHALE ATTACHED TO FN TO VRY FN GRND SS MOST SS PCS DO NOT FLUOR AND ONLY DULL FLUOR IN OTHERS FAINT ODOR VSSO
										530 - 540				VSSO	MOSTLY MED DRK GRY MICACEOUS PLTY SILTY SHALE IP FEW VRY SCATT PCS CLR WHT VRY FN GRND TITE QTZ SS AMBER STAINED W/ FLUOR CRUSHING FLUOR PCS YIELDS LITTLE OIL VSSO
										540 - 550				SO	MOSTLY MED FN CLR QTZ CMTD GOOD $\phi$ SS INTERBEDDED W/ GRY SDY PLTY SHALE IP MED TO CRS GRND AMBER STAINED CLR QTZ SS GOOD $\phi$ GOOD BRIGHT FLUOR YIELDS GOOD OIL 40% OVERALL FLUOR GOOD STRONG OIL ODOR SO
										550 - 560	WOB 5K 110 SPM 482 PP			SO	AS ABOVE MUCH VRY FN TO SILTY GRY WHT W/ CMTD SS IP GRY SHALES AS ABOVE IP GOOD CLR QTZ SS W/ RDD AND SRTD IP FN GRND TO IP MED TO CRS GRAINED OIL SATURATED VRY GOOD ODOR UP TO 50% OVERALL FLUOR SO
<div>Upper Partlow Ss</div>										560 - 570				SO	AS ABOVE MUCH VRY FN TO SILTY GRY WHT W/ CMTD SS IP GRY SHALES AS ABOVE IP GOOD CLR QTZ SS W/ RDD AND SRTD IP FN GRND TO IP MED TO CRS GRAINED OIL SATURATED VRY GOOD ODOR UP TO 50% OVERALL FLUOR IP A FEW COAL PCS IP SOME PCS WHT TITE SILTSTONE SO
<div>SO</div>										570 - 580				GSO	MOSTLY MED GRND CLR QTZ SS GOOD OIL SAT AMBER STAIND WELL RDD AND SRTD W/ UP TO 80% OVERALL FLUOR AND FREE OIL IP TITE HRD FN WHT SILTSTONE IP FEW PCS BLK ORGANIC RICH SHALE VRY GOOD ODOR AND GSO
										580 - 590				VSSO	MOSTLY BLK PLTY ORGANIC RICH SHALE IP SS AS ABOVE W/ VRY SCATT FLUOR FAINT ODOR VSSO
										590 - 600				VSSO	MOSTLY BLK PLTY FNLY MICACEOUS ORGANIC SHALE IP FEW SCATT PCS TAN FOSSIL TO OOLITIC LS VRY VRY FEW PCS FLUOR BRKN SS AS ABOVE VSSO





Rate of Drilling (minutes) & TGU										Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description
0	1	2	3	4	5	6	7	8							
0	20	40	60	80	100	120	140	160							
										700 - 710	WOB 8K 112 SPM 505 PP	2			MED FN CLR QTZ LOOSE SD GRAINS FAIRLY WELL RDD AND SRTD IP FEW SCATT PCS DRK GRY AND BLK SHALE NO ODOR NO FLUOR NSO
										710 - 720					MED FN CLR QTZ LOOSE SD GRAINS FAIRLY WELL RDD AND SRTD IP FEW SCATT PCS DRK GRY AND BLK SHALE NO ODOR NO FLUOR NSO
										720 - 730					MED FN CLR QTZ LOOSE SD GRAINS FAIRLY WELL RDD AND SRTD IP FEW SCATT PCS DRK GRY AND BLK SHALE NO ODOR NO FLUOR NSO
										730 - 740					MED FN CLR QTZ LOOSE SD GRAINS FAIRLY WELL RDD AND SRTD IP FEW SCATT PCS DRK GRY AND BLK SHALE NO ODOR NO FLUOR NSO
										740 - 750					MED FN CLR QTZ LOOSE SD GRAINS FAIRLY WELL RDD AND SRTD IP FEW SCATT PCS DRK GRY AND BLK SHALE NO ODOR NO FLUOR NSO
										750 - 760	WOB 7.5K 117 SPM 540 PP				MED FN CLR QTZ LOOSE SD GRAINS FAIRLY WELL RDD AND SRTD BUT MORE MEDIUM GRND LOOSE QTZ SAND IP FEW PCS TAN FOSSILIFEROUS LS IP PLTY FN BLK SHALE NO ODOR NO FLUOR NSO
<b>Lower Renault Ls</b> <b>Aux Vases Ss</b> <b>SO</b>										760 - 770					MED FN CLR QTZ LOOSE SD GRAINS FAIRLY WELL RDD AND SRTD BUT MORE MEDIUM GRND LOOSE QTZ SAND IP FEW PCS TAN FOSSILIFEROUS LS IP FEW PCS PLTY FN BLK SHALE NO ODOR NO FLUOR NSO
										770 - 780			 	SO	MOSTLY LOOSE MED TO MED FN CLR QTZ SAND NO FLUOR IP AMBER STAINED FN TO MED FN CLR QTZ FRIABLE SS PCS W/ FLUOR UP TO 25% OVERALL FLUOR IP GRY AND BLK PLTY SHALE FAIR ODOR SO
<b>St. Gen Ls</b> <b>SSO</b>										780 - 790			 	NSO	MOSTLY MED GRAIND CLR QTZ LOOSE SAND IP FEW PCS LITE TAN FOSSILIFEROUS TO OOLITIC LS GRAINSTONE IP GRY AND BLK PLTY SHALES AS ABOVE NO ODOR NO FLUOR NSO
										790 - 800				SSO	MOSTLY LITE TAN HRD SUBLITHO LS IP SLIGHTLY MED OOLITIC TO FOSSILIFEROUS TEXTURED IP BLK FN PLTY SHALES DARK OIL IN CAVITIES OF OOLITIC $\phi$ LS PCS W/ FLUOR SOME CAVITY AND INTERGRANULAR OOLITIC $\phi$ FAIR ODOR UP TO 20% OVERAL FLUOR YIELDS VRY LITTLE OIL WHEN CRUSHED SSO

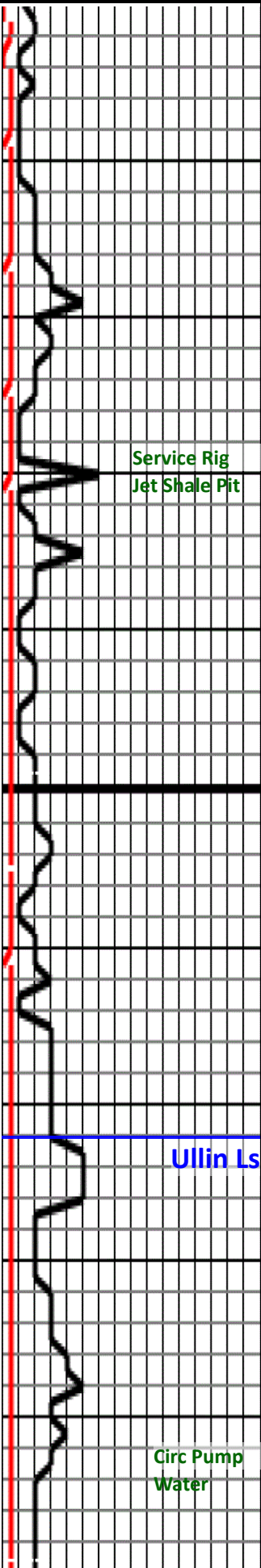
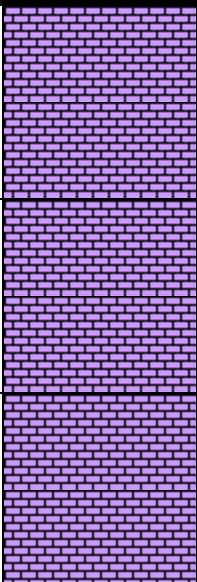
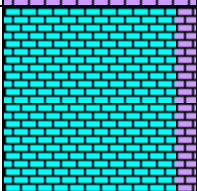
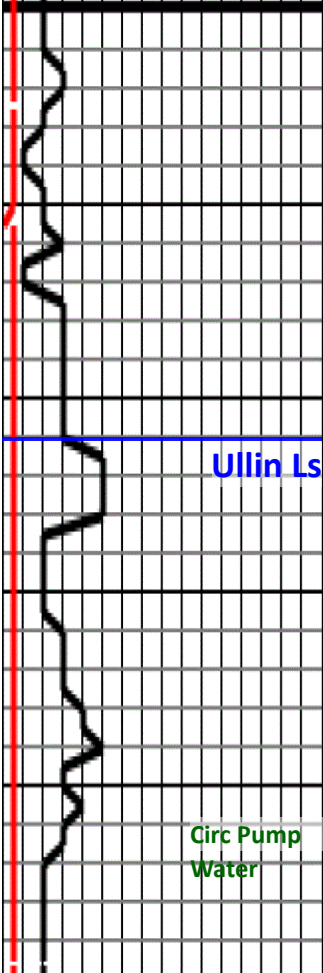
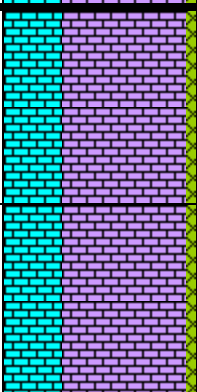
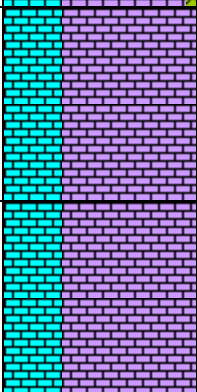

Rate of Drilling (minutes) & TGU										Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description
0	1	2	3	4	5	6	7	8							
0	20	40	60	80	100	120	140	160							
										800 - 810	WOB 11K 114 SPM 537 PP	2		VSSO	MOSTLY LITE TAN HRD SUBLITHO LS IP SLIGHTLY MED OOLITIC TO FOSSILIFEROUS TEXTURED IP BLK FN PLTY SHALES DARK OIL IN CAVITIES OF OOLITIC $\phi$ LS PCS W/ FLUOR SOME CAVITY AND INTERGRANULAR OOLITIC $\phi$ W/ VRY SCATT OOLITIC PCS THAT FLUOR NO ODOR VSSO
										810 - 820				NSO	VRY HRD TRANSLUCENT TAN CHRT W/ MUCH FN CUTTINGS OF OOLITIC LS W/ NO FLUOR IP FEW PCS BLK SHALE NSO
										820 - 830			 	VSSO	MOSTLY HONEY TRANSLUCENT TAN CHRT W/ MUCH FN OOLITIC LITE TAN LS CUTTINGS W/ SCATT FLUOR IN SOME OOLITIC PCS AS ABOVE VSSO
										830 - 840					MOSTLY HRD TAN WHT MICRITIC LS FN CUTTINGS IP GRY BLK PLTY SHALE PCS
Rosiclare Ss										840 - 850			 		MUCH MED CRS CLR QTZ RDD SS GRAINS IP LOOSELY HELD TOGETHER NO FLUOR NO ODOR NSO W/ IP HRD TAN TO TAN WHT MICRITIC LS AND FEW PCS BLK SHALE
										850 - 860	WOB 12K 115 SPM 532 PP			VSSO	MOSTLY LITE TAN WHT MICRITIC TO SLIGHTLY OOLITIC TEXTURED HRD LS W/ VRY FEW SCATT PCS OF MED TAN WHT OOLITIC LS W/ FLUOR VSSO
										860 - 870				VSSO	MOSTLY LITE TAN WHT MICRITIC TO SLIGHTLY OOLITIC TEXTURED HRD LS W/ VRY FEW SCATT PCS OF MED TAN WHT OOLITIC LS W/ FLUOR BUT MUCH WHTR COLORED OVERALL VSSO
										870 - 880				VSSO	MOSTLY LITE TAN WHT MICRITIC TO SLIGHTLY OOLITIC TEXTURED HRD LS W/ VRY FEW SCATT PCS OF MED TAN WHT OOLITIC LS W/ FLUOR BUT MUCH WHTR COLORED OVERALL STILL W/ VRY SCATTERED FEW PCS W/ SUCROSIC DOLOMITE LINING CAVITIES IN OOLITIC LS THAT FLUORESC NO ODOR VSSO
McClosky SSO										880 - 890					MOSTLY MED LITE TAN MICRITIC HRD LS IP W/ SOME OOLITIC LITE TAN LS PCS THAT DO NOT FLUORESC NO ODOR NO FLUOR NSO
										890 - 900					MED TAN COLORED HRD MICRITIC SUBLITHO LS BRKN INTO VRY FN CUTTINGS NO ODOR NO FLUOR NSO



Rate of Drilling (minutes) & TGU										Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description
0	1	2	3	4	5	6	7	8							
0	20	40	60	80	100	120	140	160							
										900 - 910	WOB 12.5K 117 SPM 562 PP	2.5		SSO	RICH TAN MICRITIC LS IP DOLOMITIC IP RICH OIL SATURATED VRY SCATTERED PCS OF VRY FN SUCROSIC DOLOMITE W/ FLUOR IP FEW VRY SCATT PCS TAN WHT MED OOLITIC LS W/ FLUOR GOOD ODOR VRY FN CUTTINGS POSSIBLY SAMPLES WASHED OUT? SSO
										910 - 920				VSSO	VRY FN CUTTINGS OF MAINLY TAN SUBLITHO LS IP SLIGHTLY DOLOMITIC W/ VRY VRY SCATT TINY OCCAS PCS OF TAN FN SUCROSIC DOL IP TAN WHT RIMMED OOLITIC LS THAT FLUOR VSSO W/ SOME ODOR
										920 - 930				VSSO	VRY FN CUTTINGS OF MAINLY TAN SUBLITHO LS IP SLIGHTLY DOLOMITIC W/ VRY VRY SCATT TINY OCCAS PCS OF TAN FN SUCROSIC DOL IP TAN WHT RIMMED OOLITIC LS THAT FLUOR VSSO W/ SOME ODOR
										930 - 940				VSSO	VRY FN CUTTINGS OF MAINLY TAN SUBLITHO LS IP SLIGHTLY DOLOMITIC W/ VRY VRY SCATT TINY OCCAS PCS OF TAN FN SUCROSIC DOL IP TAN WHT RIMMED OOLITIC LS THAT FLUOR VSSO W/ SOME ODOR
										940 - 950				VSSO	VRY FN CUTTINGS OF MAINLY TAN SUBLITHO LS IP SLIGHTLY DOLOMITIC W/ VRY VRY SCATT TINY OCCAS PCS OF TAN FN SUCROSIC DOL IP TAN WHT RIMMED OOLITIC LS THAT FLUOR VSSO W/ SOME ODOR W/ MOSTLY DRKR TAN SUBLITHO LS
										950 - 960	WOB 12.5K 115 SPM 545 PP			TRACE of OIL	VRY FN BRKN CUTTINGS OF HRD RICH TAN SUBLITHO LS IP TINY PC MED CRS QTZ SS PC W/ FLUOR TRACE
										960 - 970					VRY FN BRKN CUTTINGS OF HRD GRY TINTED TAN SUBLITHO LS NSO
										970 - 980					MOSTLY LITE GRY SUBLITHO LS OF VRY FN CUTTINGS IP TAN SUBLITHO LS AS ABOVE NSO
										980 - 990				TRACE of OIL	BACK TO MOSTLY RICH TAN FN CUTTINGS OF SUBLITHO LS IP TINY PC OR 2 OF TAN WHT OOLITIC LS FLUOR TRACE
										990 - 1000					LITE GRY TO GRY VRY FN CUTTINGS OF SUBLITHO LS IP FEW TRANSLUCENT TAN DOLOMITIC HRD LS NSO

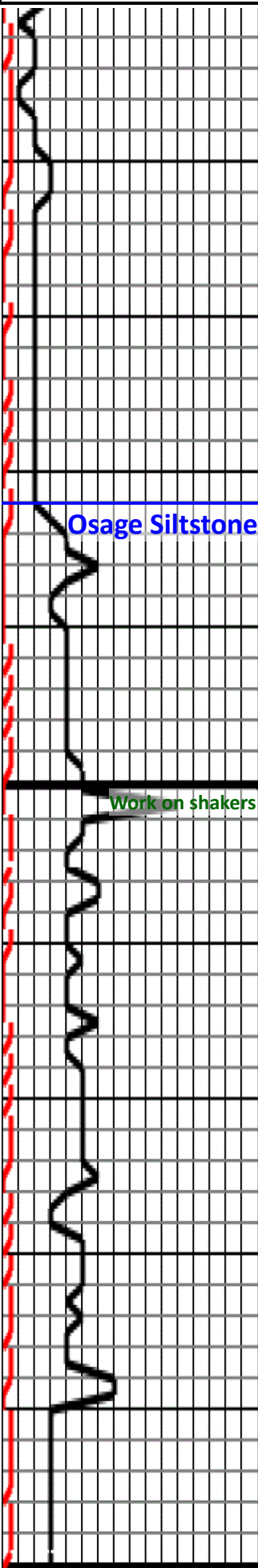
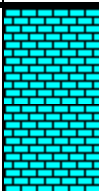
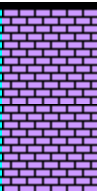
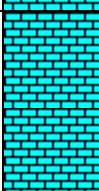
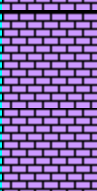
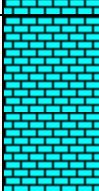
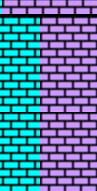
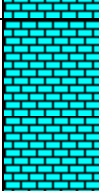
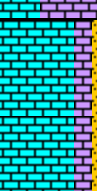
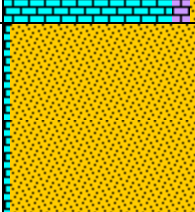
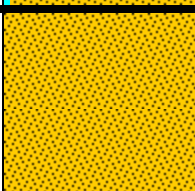
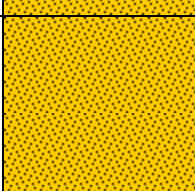
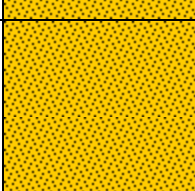
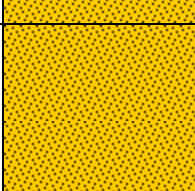
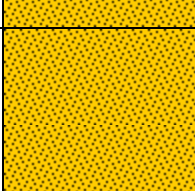
Rate of Drilling (minutes) & TGU										Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description
0	1	2	3	4	5	6	7	8							
0	20	40	60	80	100	120	140	160							
<div>SHT @ 1000' 1 DEG</div>										1000 - 1010	WOB 9.5K 111 SPM 529 PP	2.5			VRY FN CUTTINGS TAN WHT SUBLITHO LS IP FEW PCS RICH TRANSLUCENT TAN SLIGHTLY DOLOMITIC LS NSO
										1010 - 1020					TRANSLUCENT HONEY COLORED VRY FNLY SUC DOL LS IP LITE TAN WHT SLIGHTLY OOLITIC SUBLITHO LS VRY FN CUTTINGS NSO
										1020 - 1030				TRACE of OIL	VRY FNLY VRY DOLOMITIC TAN TO TAN WHT LS IP W/ TINY PC OR 2 OIL SAT FLUORESCING SUCROSIC DOL TRACE OF OIL
										1030 - 1040					VRY FN CUTTINGS LITE TAN MED SIZED OOLITIC TEXTURED LS W/ WHT RIMS AND TAN CENTERS NSO
										1040 - 1050					MOSTLY DOLOMITIZED MED TAN SUBLITHO LS VRY DOLOMITIC NO ODOR NO FLUOR NSO
<div>No ROP From 1042' - 1076'</div>										1050 - 1060					MOSTLY DOLOMITIZED MED TAN SUBLITHO LS VRY DOLOMITIC W/ VRY FN SUCROSIC DOLOMITE NO ODOR NO FLUOR NSO
<div>Pason Down Drill Times Not Taken</div>										1060 - 1070					TAN FOSSILIFEROUS TO OOLITIC LS IP VRY DOLOMITIC NO ODOR NO FLUOR NSO
<div>No Gas Data From 1042'-1104'</div>										1070 - 1080					MOSTLY HRD LITE TAN MICRITIC SUBLITHO LS BRKN INTO VRY SMALL PCS NSO
										1080 - 1090					VRY FOSSILIFEROUS LITE TAN LS W/ OCCASSIONAL LARGE TAN TO WHT FOSSIL FRAGS IP W/ WHT CALCITE CMT BETWEEN FOSSIL PCS NSO
<div>Salem Ls</div>										1090 - 1100					VRY DOLOMITIC VRY FN TAN SUCROSIC DOL IP W/ TAN FOSSILIFEROUS LS AS ABOVE NSO

Rate of Drilling (minutes) & TGU										Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description
0	1	2	3	4	5	6	7	8							
0	20	40	60	80	100	120	140	160							
No Gas Data From 1042'-1104'										1100 - 1110	WOB 4K 115 SPM 564 PP	3			VRY DOLOMITIC VRY FN TAN SUCROSIC DOL IP W/ TAN FOSSILIFEROUS LS AS ABOVE NSO
										1110 - 1120				TRACE of OIL	VRY DOLOMITIC VRY FN TAN SUCROSIC DOL IP W/ TAN FOSSILIFEROUS LS AS ABOVE W/ ON TINY PC OF MED OOLITIC LS W/ WHT RIMS AND TAN CENTERS W/ SOME OIL BETWEEN OOLITHS THAT FLUOR NO ODOR TRACE OF OIL
										1120 - 1130					MOSTLY MED LITE TAN VRY FNLY SUCROSIC DOLOMITE W/ OCCASSIONAL LARGE WHT TO TAN FOSSIL FRAG LS NO ODOR NO FLUOR NSO
										1130 - 1140					MOSTLY CRSLY FOSSILIFEROUS BOUNDSTONE W/ CHALKY WHT CMT BETWEEN FOSSIL FRAGS IP LITE TAN FN SUCROSIC DOL AS ABOVE NSO
										1140 - 1150					MOSTLY CRSLY FOSSILIFEROUS BOUNDSTONE W/ CHALKY WHT CMT BETWEEN FOSSIL FRAGS IP LITE TAN FN SUCROSIC DOL AS ABOVE BRKN INTO VRY SMALL CUTTINGS NSO
										1150 - 1160	WOB 11K 103 SPM 466 PP				MOSTLY CRSLY FOSSILIFEROUS BOUNDSTONE W/ CHALKY WHT CMT BETWEEN FOSSIL FRAGS IP LITE TAN FN SUCROSIC DOL AS ABOVE NSO
										1160 - 1170					MOSTLY CRSLY FOSSILIFEROUS BOUNDSTONE W/ CHALKY WHT CMT BETWEEN FOSSIL FRAGS IP LITE TAN FN SUCROSIC DOL AS ABOVE NSO
										1170 - 1180					MOSTLY CRSLY OOLITIC LS W/ TAN CENTERED OOLITHS AND WHT RIMS BOUND TOGETHER W/ CHALKY WHT CMT BETWEEN GRAINS FAIRLY FRIABLE NSO
										1180 - 1190					MOSTLY CRSLY OOLITIC LS W/ TAN CENTERED OOLITHS AND WHT RIMS BOUND TOGETHER W/ CHALKY WHT CMT BETWEEN GRAINS FAIRLY FRIABLE BUT BECOMING MORE WHT COLORED AND IP CRSLY FOSSILIFEROUS IP VRY FN TAN WHT SUCROSIC DOLOMITE NSO
										1190 - 1200					VRY VRY FN CUTTINGS OF WHT TO TAN WHT OOLITIC TO FOSSILIFEROUS LS AND IP WHT VRY FN TITE SUCROSIC DOL NSO

Rate of Drilling (minutes) & TGU										Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description
0	1	2	3	4	5	6	7	8							
0	20	40	60	80	100	120	140	160							
 <div>Service Rig Jet Shale Pit</div>										1200 - 1210	WOB 11K 117 SPM 581 PP	3			BEIGE WHT TO WHT VRY FNLY SUCROSIC DOL IP W/ GOOD VUGULAR $\phi$ BETWEEN OOLITIC AND FOSSILIFEROUS CAST REMNANTS BUT NO ODOR NO FLUOR NSO
										1210 - 1220					BEIGE WHT TO WHT VRY FNLY SUCROSIC DOL IP W/ GOOD VUGULAR $\phi$ BETWEEN OOLITIC AND FOSSILIFEROUS CAST REMNANTS W/ OCCASIONAL XLN CLEAR CALCITE FILLING VOIDS BUT NO ODOR NO FLUOR NSO
										1220 - 1230					BEIGE WHT TO WHT VRY FNLY SUCROSIC DOL IP W/ GOOD VUGULAR $\phi$ BETWEEN OOLITIC AND FOSSILIFEROUS CAST REMNANTS W/ OCCASIONAL XLN CLEAR CALCITE FILLING VOIDS IP VRY OOLITIC TEXTURED W/ OOLITIC CAST REMNANTS BUT NO ODOR NO FLUOR NSO
										1230 - 1240					MOSTLY WHT TO BEIGE WHT OOLITIC TEXTURED DOLOMITIC LS NSO
										1240 - 1250					MOSTLY WHT TO BEIGE WHT VRY FN SUCROSIC DOLOMITE IP OOLITIC TEXTURED LS IP TRANSLUCENT HONEY COLORED CONCHOIDAL CHRT NSO
 <div>Ullin Ls</div>										1250 - 1260	WOB 8K 116 SPM 613 PP				MOSTLY WHT TO BEIGE WHT VRY FN SUCROSIC DOLOMITE IP OOLITIC TEXTURED LS IP TRANSLUCENT HONEY COLORED CONCHOIDAL CHRT IP CRSLY FOSSILIFEROUS LS NSO
										1260 - 1270					MOSTLY WHT TO BEIGE WHT VRY FN SUCROSIC DOLOMITE IP OOLITIC TEXTURED LS IP TRANSLUCENT HONEY COLORED CONCHOIDAL CHRT IP CRSLY FOSSILIFEROUS LS NSO
										1270 - 1280					MOSTLY VRY FN GRND BEIGE TAN WHT SUCROSIC DOL IP CRSLY FOSSILIFEROUS TO OOLITIC TEXTURED DOLOMITIC LS NSO
										1280 - 1290					MOSTLY VRY FN GRND BEIGE TAN WHT SUCROSIC DOL IP CRSLY FOSSILIFEROUS TO OOLITIC TEXTURED DOLOMITIC LS W/ VRY VRY FN CUTTINGS NSO
										1290 - 1300					MOSTLY BEIGE WHT TO WHT MED OOLITIC LS W/ CALCITE MATRIX BETWEEN GRAINS IP WHT TO TAN FN SUCROSIC DOL THAT IS IP MICROVUGULAR NSO
 <div>Circ Pump Water</div>															

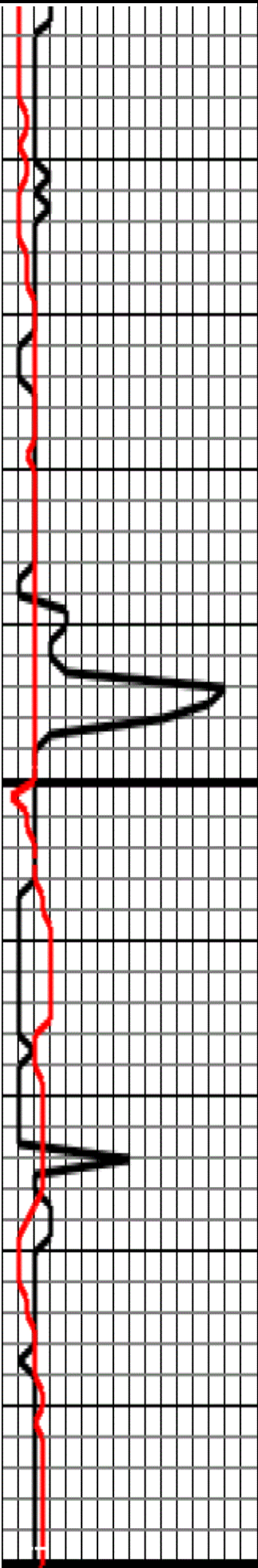
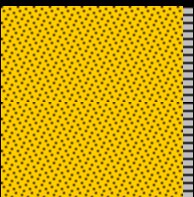
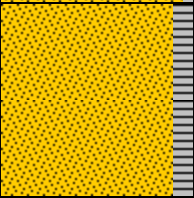
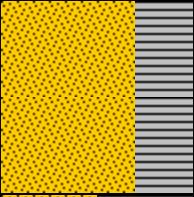
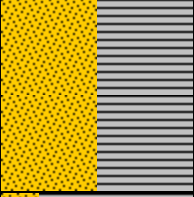







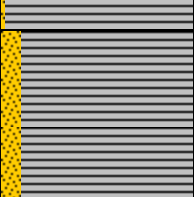
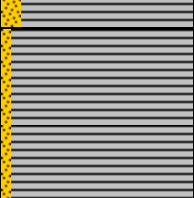
Rate of Drilling (minutes) & TGU										Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description
0	1	2	3	4	5	6	7	8							
0	20	40	60	80	100	120	140	160							
										1300 - 1310	WOB 10K 110 SPM 586 PP	3.5			LITE WHT TO TAN WHT CRSLY FOSSILIFEROUS TO OOLITIC FRIABLE LS IP SOME VRY FN TAN TO WHT SUCROSIC DOL NSO
										1310 - 1320					VRY SMALL CUTTINGS OF VRY FN LITE TAN TO WHT SUCROSIC DOL IP FEW TINY BRKN PCS OF WHT OOLITIC/FOSSILIFEROUS LS AS ABOVE NSO
										1320 - 1330					VRY SMALL CUTTINGS OF VRY FN LITE TAN TO WHT SUCROSIC DOL IP FEW TINY BRKN PCS OF WHT OOLITIC/FOSSILIFEROUS LS AS ABOVE W/ MORE FNLY BRKN WHT LS AS ABOVE NSO
										1330 - 1340					VRY SMALL CUTTINGS OF VRY FN LITE TAN TO WHT SUCROSIC DOL IP FEW TINY BRKN PCS OF WHT OOLITIC/FOSSILIFEROUS LS AS ABOVE W/ MORE FNLY BRKN WHT LS AS ABOVE NSO
										1340 - 1350					VRY SMALL CUTTINGS OF VRY FN LITE TAN TO WHT SUCROSIC DOL IP FEW TINY BRKN PCS OF WHT OOLITIC/FOSSILIFEROUS LS AS ABOVE W/ MORE FNLY BRKN WHT LS AS ABOVE NSO
										1350 - 1360	WOB 10K 115 SPM 597 PP				ALMOST ALL VRY FN CUTTINGS OF WHT OOLITIC TO FOSSILIFEROUS FRIABLE LS NSO
										1360 - 1370					ALMOST ALL VRY FN CUTTINGS OF WHT OOLITIC TO FOSSILIFEROUS FRIABLE LS W/ SOME CLR WHT VRY FN SUCROSIC DOL NSO
										1370 - 1380					ALMOST ALL VRY FN CUTTINGS OF WHT OOLITIC TO FOSSILIFEROUS FRIABLE LS W/ SOME CLR WHT VRY FN SUCROSIC DOL NSO
										1380 - 1390					ALMOST ALL VRY FN CUTTINGS OF WHT OOLITIC TO FOSSILIFEROUS FRIABLE LS W/ SOME CLR WHT VRY FN SUCROSIC DOL NSO
										1390 - 1400					MOSTLY FN TAN WHT VRY FN SUCROSIC DOL VRY FN CUTTINGS IP SOME WHT FOSSIL TO OOLITIC LS AS ABOVE IP HRD MICRITIC TAN WHT LS NSO
										Ft. Payne Ls					

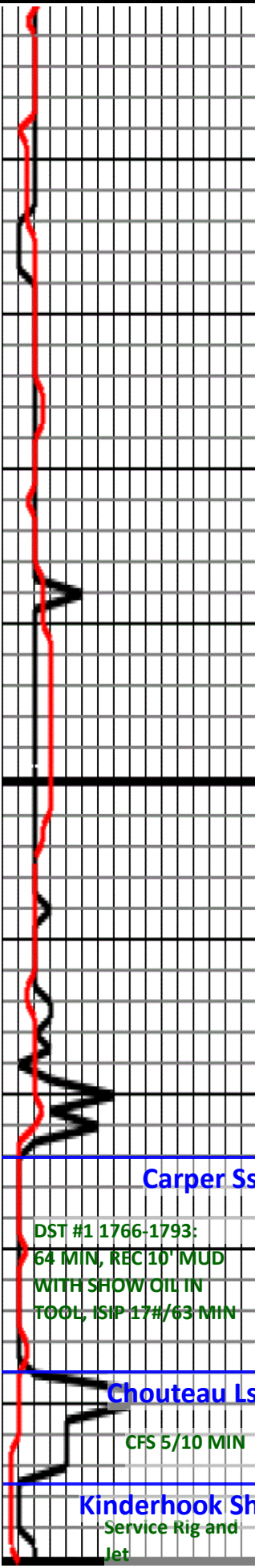
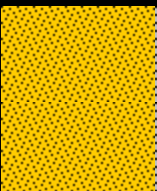


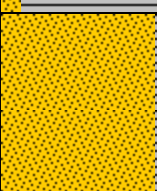


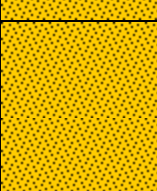


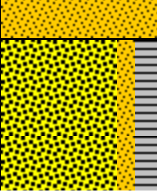







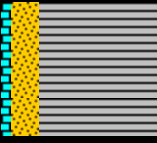



Rate of Drilling (minutes) & TGU									Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description	
0	1	2	3	4	5	6	7	8							
0	20	40	60	80	100	120	140	160							
									1400 - 1410	WOB 10K 111 SPM 562 PP	3.5				MOSTLY FN TAN WHT VRY FN SUCROSIC DOL VRY FN CUTTINGS IP SOME WHT FOSSIL TO OOLITIC LS AS ABOVE IP HRD MICRITIC TAN WHT LS W/ IP HRD MICRITIC TAN WHT SUBLITHO LS NSO
									1410 - 1420						BEIGE WHT MICRITIC LS IP MUCH VRY FN GRND BEIGE WHT SUCROSIC DOL VRY FN CUTTINGS NSO
									1420 - 1430						BEIGE WHT TO IP SLIGHT PINK TINTED WHT SUBLITHO LS IP FN BEIGE WHT DOL AS ABOVE NSO
<b>Osage Siltstone</b>									1430 - 1440						BEIGE WHT TO IP SLIGHT PINK TINTED WHT SUBLITHO LS IP FN BEIGE WHT DOL AS ABOVE IP OOLITIC LS W/ SOME GRY SDY SILTY CALCAREOUS SHALE/SILTSTONE COMING IN NSO
									1440 - 1450						ALMOST ENTIRELY MED GRY SDY/SILTY SUBPLTY CALCAREOUS SILTSTONE IP STILL SOME WHT LS AS ABOVE NSO
<b>Work on shakers</b>									1450 - 1460	WOB 10.5K 114 SPM 572 PP					MED TO LITE GRY SUBPLTY FN TO SILTY CALCAREOUS SILTSTONE
									1460 - 1470						MED TO LITE GRY SUBPLTY FN TO SILTY CALCAREOUS SILTSTONE
									1470 - 1480						MED TO LITE GRY SUBPLTY FN TO SILTY CALCAREOUS SILTSTONE
									1480 - 1490						MED TO LITE GRY SUBPLTY FN TO SILTY CALCAREOUS SILTSTONE
									1490 - 1500						MED TO LITE GRY SUBPLTY FN TO SILTY CALCAREOUS SILTSTONE DRKR GRY COLORED



Rate of Drilling (minutes) & TGU										Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description
0	1	2	3	4	5	6	7	8							
0	20	40	60	80	100	120	140	160							
										1500 - 1510	WOB 13.5K 112 SPM 587 PP	4			MED DRK GRY FN TO SILTY PLTY TO SUBPLTY CALCAREOUS SILTSTONE NSO
										1510 - 1520	WT 9.0 VIS 40				MED DRK GRY FN TO SILTY PLTY TO SUBPLTY CALCAREOUS SILTSTONE W/ SOME PCS WHT TO PINK WHT OOLITIC TO MICRITIC LS AS ABOVE IP WHT FN DOL FROM ABOVE? NSO
										1520 - 1530					MED DRK GRY CALCAREOUS SILTSTONE NSO
										1530 - 1540					MED DRK GRY CALCAREOUS SILTSTONE NSO
										1540 - 1550					MED DRK GRY CALCAREOUS SILTSTONE NSO
										1550 - 1560	WOB 13K 101 SPM 549 PP				MED DRK GRY CALCAREOUS SILTSTONE NSO
										1560 - 1570					MED DRK GRY CALCAREOUS SILTSTONE NSO
										1570 - 1580					MED DRK GRY CALCAREOUS SILTSTONE NSO
										1580 - 1590					MED DRK GRY CALCAREOUS SILTSTONE NSO
										1590 - 1600					MED DRK GRY CALCAREOUS SILTSTONE NSO

Rate of Drilling (minutes) & TGU										Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description
0	1	2	3	4	5	6	7	8							
0	20	40	60	80	100	120	140	160							
										1600 - 1610	WOB 12K 103 SPM 537 PP	4			DRK GRY VRY FN SHALE/SILTSTONE CALCAREOUS PLTY TO SUBPLTY NSO
										1610 - 1620					DRK GRY VRY FN SHALE/SILTSTONE CALCAREOUS PLTY TO SUBPLTY NSO
										1620 - 1630					DRK GRY VRY FN SHALE/SILTSTONE CALCAREOUS PLTY TO SUBPLTY NSO
										1630 - 1640					DRK GRY VRY FN SHALE/SILTSTONE CALCAREOUS PLTY TO SUBPLTY NSO
										1640 - 1650					DRK GRY VRY FN SHALE/SILTSTONE CALCAREOUS PLTY TO SUBPLTY W/ SOME PCS LITE GRY BRWN COLORED AND MORE FRM AND HRD TRYING TO BECOME VRY VRY FN SDY NO ODOR NO FLUOR NSO
										1650 - 1655	WOB 9K 93 SPM				DRK GRY FN CALCAREOUS PLTY SILTY SHALE
										1655 - 1660	468 PP				DRK GRY FN CALCAREOUS PLTY SILTY SHALE
										1660 - 1665					DRK GRY FN CALCAREOUS PLTY SILTY SHALE
										1665 - 1670					DRK GRY FN PLTY CALCAREOUS SILTY SHSLE W/ VRY FAINT LITER SILTSTONE STREAKS NSO
										1670 - 1675					DRK GRY FN CALCAREOUS PLTY SILTY SHALE
										1675 - 1680					DRK GRY FN CALCAREOUS PLTY SILTY SHALE
										1680 - 1690					DRK GRY FN CALCAREOUS PLTY SILTY SHALE W/ NUMEROUS LITER GRY STREAKS OF SILTSTONE
										1690 - 1700					DRK GRY FN CALCAREOUS PLTY SILTY SHALE W/ LESS STREAKS LITE GRY SILTSTONE NSO

Rate of Drilling (minutes) & TGU										Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description
0	1	2	3	4	5	6	7	8							
0	20	40	60	80	100	120	140	160							
															
										1700 - 1710	WOB 9K 114 SPM 675 PP	4.5			DRK GRY CALCAREOUS SUBPLTY SILTSTONE TO SILTY SHALE
										1710 - 1720				TRACE of OIL	MOSTLY DRK GRY FN CALCAREOUS SILICEOUS SUBPLTY SILTY SHALE IP ONE SMALL PC BLUE-GREEN TINTED GRY WHT FN GRND SS W/ FLUOR TRACE OF OIL
										1720 - 1730					DRK GRY SUBPLTY CALCAREOUS SILTSTONE TO SILTY SHALE NSO
										1730 - 1740					DRK GRY SUBPLTY CALCAREOUS SILTSTONE NSO
										1740 - 1750					DRK GRY SUBPLTY CALCAREOUS SILTSTONE W/ SOME PCS LITE GRY BRWN COLORED AND MORE FRM AND HRD TRYING TO BECOME VRY VRY FN SDY NO ODOR NO FLUOR NSO
										1750 - 1760	WOB 8K 111 SPM 653 PP				DRK GRY SUBPLTY CALCAREOUS SILTSTONE W/ SOME PCS LITE GRY BRWN COLORED AND MORE FRM AND HRD TRYING TO BECOME VRY VRY FN SDY NO ODOR NO FLUOR NSO
										1760 - 1770	WT 9.0 VIS 55				DRK GRY SUBPLTY CALCAREOUS SILTSTONE W/ SOME PCS LITE GRY BRWN COLORED AND MORE FRM AND HRD TRYING TO BECOME VRY VRY FN SDY NO ODOR NO FLUOR NSO
										1770 - 1780					LITE BLUE-GREEN TINTED GRY WHT VRY FN GRND SS W/ UP TO 60% OVERALL FLUOR IP A FEW PCS FADE OVER TIME BUT MOST YIELDS SOME OIL IP DRK GRY CALCAREOUS SILTY TO SILTSTONE AS ABOVE GOOD ODOR SO
Carper Ss															
DST #1 1766-1793: 64 MIN, REC 10' MUD WITH SHOW OIL IN TOOL, ISIP 17# / 63 MIN										1780 - 1790					MOSTLY DRK BRWN SUBPLTY SILTY SHALE IP SFT VRY FN PLTY BLUE-GREEN SHALE IP SCATT FLUOR PCS OF BLUE-GREEN TINTED GRY WHT SS AS ABOVE NO ODOR SSO
Chouteau Ls										1790 - 1793					DRK BRWN SUBPLTY SILTY SHALE IP SFT VRY FN PLTY BLUE-GREEN SHALE W/ VRY SLT SCATT SS FLUOR PCS AND MUCH TAN WHT TO IP TINTED BLUE-GREEN HRD SUBLITH CHOUTEAU LS NO ODOR VSSO
CFS 5/10 MIN										1793 - 1800					HRD TAN WHT SUBLITHO CHOUTEAU LS IP SFT GREEN GRY PLTY KINDERHOOK SHALE IP DRK BRWN GRY SUBPLTY SILTSTONE FROM ABOVE NSO
Kinderhook Sh Service Rig and Jet															

Rate of Drilling (minutes) & TGU								Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description
0	1	2	3	4	5	6	7	8					
0	20	40	60	80	100	120	140	160					
									1800 - 1810	WOB 10.5K 112 SPM 718 PP	4.5		No Sample
Grassy Creek Sh									1810 - 1820	WT 9.1 VIS 51		SG	MOSTLY FN PLTY GREEN GRY SFT TO FRM KINDERHOOK SHALE IP MUCH BRWN BLK CARBONACEOUS PLTY FNLY MICACEOUS SHALE IP W/ GOOD SPORE FLUOR GAS ODOR SG
									1820 - 1830			SG	ALMOST ENTIRELY BRWN BLK FNLY MICACEOUS PLTY CARBONACEOUS SHALE W/ GOOD SPORE FLUOR AND GAS ODOR SG
171 TGU									1830 - 1840			SG	BRWN BLK FNLY MICACEOUS CARB PLTY SHALE W/ GOOD SPORE FLUOR SG
160 TGU									1840 - 1850			SG	BRWN BLK FNLY MICACEOUS CARB PLTY SHALE W/ GOOD SPORE FLUOR SG
									1850 - 1860	WOB 9.5K 109 SPM 687 PP		SG	BRWN BLK FNLY MICACEOUS CARB PLTY SHALE W/ GOOD SPORE FLUOR W/ VRY MUCH DENSELY STACKED SPORE FLUOR SG
198 TGU									1860 - 1870	WT 9.1 VIS 45		SG	BRWN BLK FNLY MICACEOUS CARB PLTY SHALE W/ GOOD SPORE FLUOR W/LESS SPORE FLUOR SG
Sweetland Creek Sh									1870 - 1880			SG	BRWN BLK FNLY MICACEOUS CARB PLTY SHALE W/ GOOD SPORE FLUOR W/ QUITE A BIT OF LITE GRY PLTY DOLOMITIC SWEETLAND CREEK SHALE COMING IN SG
166 TGU									1880 - 1890			SG	BRWN BLK FNLY MICACEOUS CARB PLTY SHALE W/ GOOD SPORE FLUOR W/ DOLOMITIC LIGHT GRY BRWN SWEETLAND CREEK ALONG W/ DRK BLK GRASSY CREEK W/ SPORE FLUOR SG
158 TGU									1890 - 1900			SG	BRWN BLK FNLY MICACEOUS CARB PLTY SHALE W/ GOOD SPORE FLUOR W/ DOLOMITIC LIGHT GRY BRWN SWEETLAND CREEK ALONG W/ DRK BLK GRASSY CREEK W/ SPORE FLUOR SG

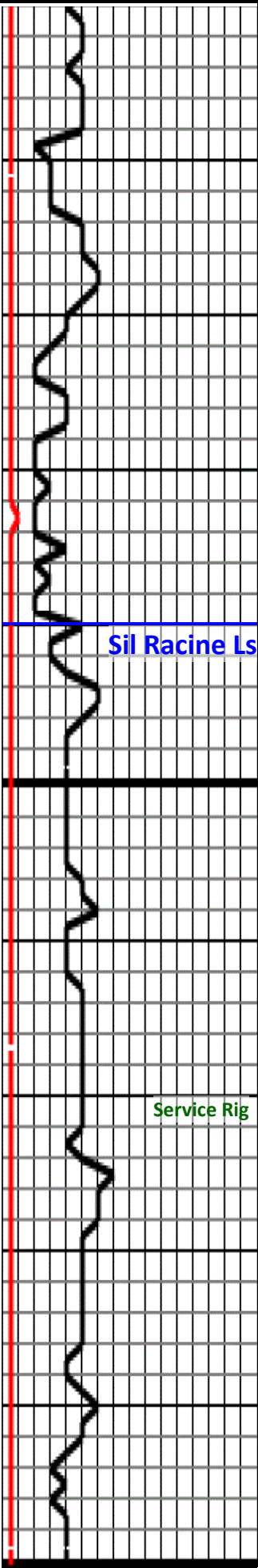
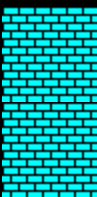
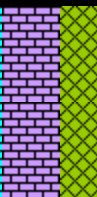

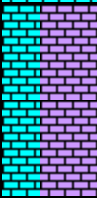
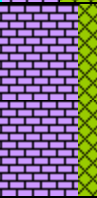

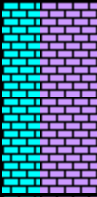
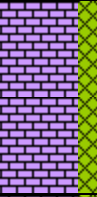

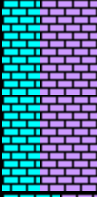
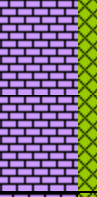

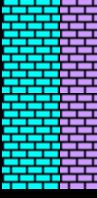
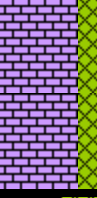

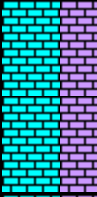
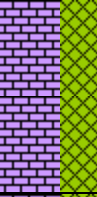

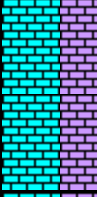
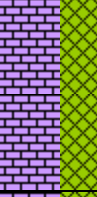

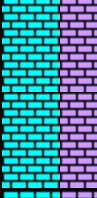
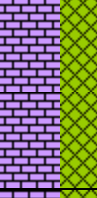

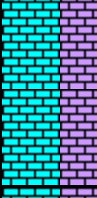
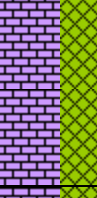

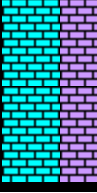
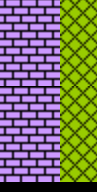

Rate of Drilling (minutes) & TGU										Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description
0	1	2	3	4	5	6	7	8							
0	20	40	60	80	100	120	140	160							
										1900 - 1905	WOB 8.5K 105 SPM	5		SG	BRWN BLK FNLY MICACEOUS CARB PLTY SHALE W/ GOOD SPORE FLUOR W/ DOLOMITIC LIGHT GRY BRWN SWEETLAND CREEK ALONG W/ DRK BLK GRASSY CREEK W/ VRY STRONG SPORE FLUOR SG
										1905 - 1910	646 PP			SG	BRWN BLK FNLY MICACEOUS CARB PLTY SHALE W/ GOOD SPORE FLUOR W/ DOLOMITIC LIGHT GRY BRWN SWEETLAND CREEK ALONG W/ DRK BLK GRASSY CREEK W/ VRY STRONG SPORE FLUOR SG
										1915 - 1920					MOSTLY SWEETLAND CREEK AND GRASSY CREEK SHALES AS ABOVE IP HRD TAN MICRITIC SUBLITHO LS PCS NO ODOR ONLY SPORE FLUOR NSO
										1920 - 1925				SSO	MOSTLY HRD LITE TAN TO GRY TINTED TAN SUBLITHO LS IP SOME DOLOMITIC AND CHALKY WHT COLORED BLUE GREEN WHT FLUORESCENCE IN SOME PCS HAVING DOLOMITE POSSIBLY LINING VUGS OR CAVITIES SCATT FLUOR SSO GOOD ODOR CRUSHING FLUOR PCS YIELDS LITTLE TO NO OIL FLUORESCENCE SOON FADES IP SHALES AS ABOVE
										1925 - 1930				TRACE of OIL	MOSTLY HRD FNLY XLN TO SUBLITHO GRY TAN WHT LS IP PC OR 2 DOLOMITIC W/ VRY DULL MINERAL FLUOR AS ABOVE NO ODOR TRACE OIL
										1930 - 1935				VSSO	MOSTLY HRD FNLY XLN TO SUBLITHO GRY TAN WHT LS IP PC OR 2 DOLOMITIC W/ VRY DULL MINERAL FLUOR AS ABOVE SOME ODOR AND CHALKY WHT PC THAT YIELDED SOME OIL VSSO
										1935 - 1940				VSSO	MOSTLY HRD FNLY XLN TO SUBLITHO GRY TAN WHT LS IP PC OR 2 DOLOMITIC W/ VRY DULL MINERAL FLUOR AS ABOVE FAIR ODOR W/ VRY SCATT FLUORESCING PCS OF DOLOMITE TO CHALKY LS VSSO
										1940 - 1945				VSSO	MOSTLY TAN WHT SUBLITHO LS IP DOLOMITIC VRY SCATT FLUOR IN FEW PCS OF DOLOMITIC WHT TO TAN WHT LS IP POSSIBLE VUGS OR CAVITIES FAIR ODOR VSSO
										1945 - 1950				GSO	AS ABOVE BUT MOSTLY DOLOMITIC W/ UP TO 80% OVERALL FLUOR AND FREE OIL DROPLETS A FEW PCS APPEAR TO HAVE SOME CAVITIES OR VUGS YIELDS GOOD OIL GOOD ODOR GSO
										1950 - 1955	WOB 15K 105 SPM			SO	AS ABOVE BUT MOSTLY DOLOMITIC W/ UP TO 15% OVERALL FLUOR AND FREE OIL DROPLETS A FEW PCS APPEAR TO HAVE SOME CAVITIES OR VUGS YIELDS GOOD OIL IP MUCH HRD TAN WHT SUBLITHO LS GOOD ODOR SO
										1955 - 1960	649 PP			VSSO	CHALKY DOLOMITIC LT TAN WHT TO GRY WHT LS IP FEW SCATT PCS FN CHALKY FN SUCROSIC DOL NO ODOR VSSO
										1960 - 1965	WT 9.0 VIS 51			SSO	VRY DOLOMITIC FRM HRD FN DOLOMITI LS W/ IP CHALKY MATRIX BETWEEN GRAINS NUMEROUS SCATT PCS CHALKY MATRIXED FN SUCROSIC DOL W/ FLUOR CRUSHING FLUOR PCS YIELDS GOOD OIL SOME ODOR SSO
										1965 - 1970				VSSO	MOSTLY LITE GRY WHT HRD SUBLITHO LS IP VRY DOLOMITIC IP FEW FN CHALKY DOL PCS W/ FLUOR VRY SCATT FLUOR SOME ODOR VSSO
										1970 - 1975				SO	MOSTLY CHALKY MATRIXED FN SUCROSIC DOL IP W/ GOOD FLUOR FAIRLY TITE MANY PCS DO NOT FLUORESC CRUSHING FLUOR PCS YIELDS SOME OIL STINKY STRONG ODOR POSSIBLY SOME SULFUR WATER? SO
										1975 - 1980				SSO	MOSTLY TAN WHT GRY WHT CHALKY DOL LS IP SOME HRD XLN IP FOSSILIFEROUS LS W/ NUMEROUS SCATT CHALKY TAN WHT FN DOL PCS FLUORESCING AS ABOVE SOME ODOR SSO
										1980 - 1985				VSSO	MOSTLY TAN WHT SUBLITHO TO XLN LS IP MUCH IS DOLOMITIC W/ VRY FEW VRY SCATT FN DOL PCS AS ABOVE SOME ODOR VSSO
										1985 - 1990				VSSO	MOSTLY TAN WHT SUBLITHO TO XLN LS IP MUCH IS DOLOMITIC W/ VRY FEW VRY SCATT FN DOL PCS AS ABOVE SOME ODOR VSSO
										1990 - 1995	WT 9.0 VIS 52			VSSO	MOSTLY HRD WHT TO TAN WHT SUBLITHO LS W/ VRY LITTLE FN CHALKY TAN WHT DOL IP FEW DOL PCS FLUOR AS ABOVE SLIGHT ODOR VSSO
										1995 - 2000				VSSO	MOSTLY HRD WHT TO TAN WHT SUBLITHO LS W/ VRY LITTLE FN CHALKY TAN WHT DOL IP FEW DOL PCS FLUOR AS ABOVE SLIGHT ODOR VSSO

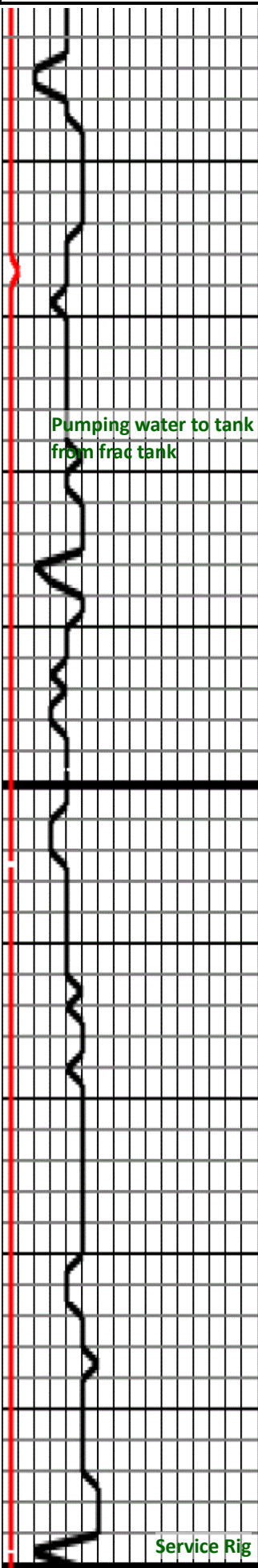
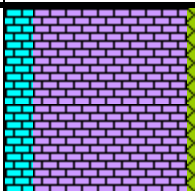
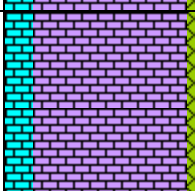
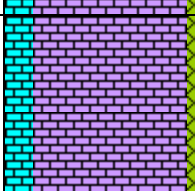
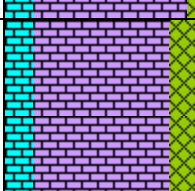
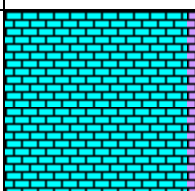
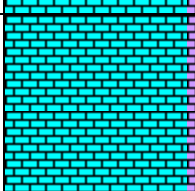
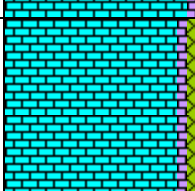


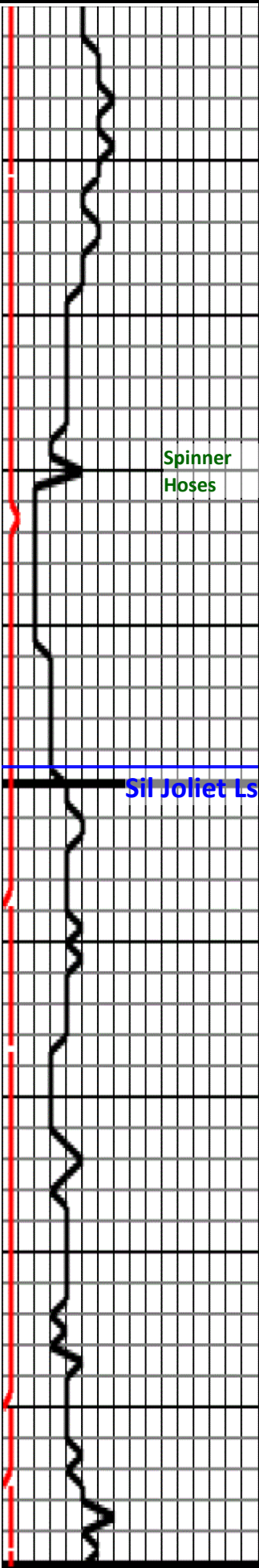
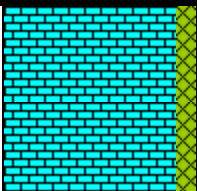
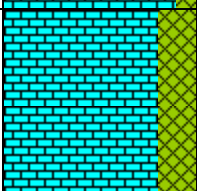
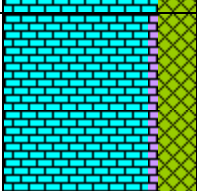
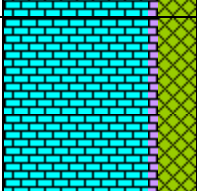
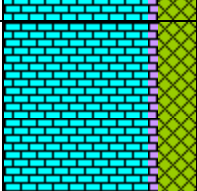
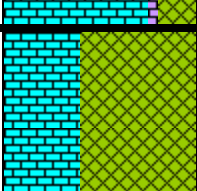
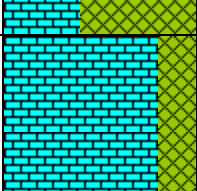
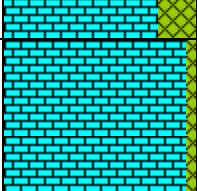
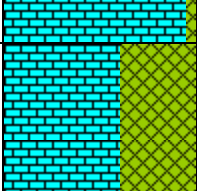
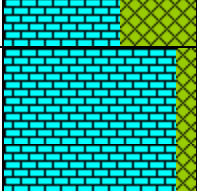
Rate of Drilling (minutes) & TGU										Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description
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0	20	40	60	80	100	120	140	160							
										2000 - 2005	WOB 15 K 113 SPM	5		VSSO	MOSTLY CHALKY DOLOMITE TAN WHT LS IP FEW VRY SCATT PCS FLUOR OF TAN WHT CHALKY FN DOL AS ABOVE SOME ODOR VSSO
										2005 - 2010	800 PP			VSSO	CHALKY TAN WHT DOLOMITIC LS IP FN CHALKY TAN WHT DOL VRY SCATT FLUOR AND SOME ODOR VSSO
										2010 - 2015				VSSO	CHALKY TAN WHT DOLOMITIC LS IP FN CHALKY TAN WHT DOL VRY SCATT FLUOR BECOMING MORE OF A SUBLITHO HRDR LS THAN ABOVE STILL VRY VRY SCATT FLUOR IN DOL PCS AS ABOVE AND FAINT ODOR VSSO
										2015 - 2020				VSSO	LITE TAN WHT VRY DOLOMITIC LS TO CHALKY SUCROSIC FN DOL SCATT FLUORESCENCE IN ONLY SOME PCS OTHER SAME LOOKING PCS DO NOT FLUOR FLUOR PCS FRIABLE SOME ODOR VSSO
										2020 - 2025				VSSO	LITE TAN WHT VRY DOLOMITIC LS TO CHALKY SUCROSIC FN DOL SCATT FLUORESCENCE IN ONLY SOME PCS OTHER SAME LOOKING PCS DO NOT FLUOR FLUOR PCS FRIABLE SOME ODOR VSSO
										2025 - 2030	WT 9.0 VIS 43			VSSO	LITE TAN WHT VRY DOLOMITIC LS TO CHALKY SUCROSIC FN DOL SCATT FLUORESCENCE IN ONLY SOME PCS OTHER SAME LOOKING PCS DO NOT FLUOR FLUOR PCS FRIABLE W/ SOME PCS WHT CONCHOIDAL CHRT SOME ODOR VSSO
										2030 - 2035	WT 9.0 VIS 48			VSSO	LITE TAN WHT VRY DOLOMITIC LS TO CHALKY SUCROSIC FN DOL SCATT FLUORESCENCE IN ONLY SOME PCS OTHER SAME LOOKING PCS DO NOT FLUOR FLUOR PCS FRIABLE W/ SOME PCS WHT CONCHOIDAL CHRT SOME ODOR VSSO
										2035 - 2040				VSSO	LITE TAN WHT VRY DOLOMITIC LS TO CHALKY SUCROSIC FN DOL SCATT FLUORESCENCE IN ONLY SOME PCS OTHER SAME LOOKING PCS DO NOT FLUOR FLUOR PCS FRIABLE W/ SOME PCS WHT CONCHOIDAL CHRT SOME ODOR VSSO
										2040 - 2045				SSO	W/ UP TO 10% OVERALL FLUOR W/ A FEW PCS GRY WHT DOLOMITIC LS AND NO CHRT SSO
										2045 - 2050				SO	W/ UP TO 20% OVERALL FLUOR W/ A FEW PCS GRY WHT DOLOMITIC LS GOOD ODOR SO
										2050 - 2055	WOB 15 K 110 SPM			VSSO	CHALKY LITE TAN FN GRND DOLOMITE IP FEW PCS GRY WHT AND TAN WHT FRM HRD DOLOMITIC LS SCATT FLUOR IN ONLY A FEW PCS VSSO
										2055 - 2060	756 PP			VSSO	CHALKY LITE TAN FN GRND DOLOMITE IP FEW PCS GRY WHT AND TAN WHT FRM HRD DOLOMITIC LS SCATT FLUOR IN ONLY A FEW PCS W/ MOST PCS IDENTICAL LOOKING DO NOT FLUORESC IP SOME SUCROSIC DOL PCS FLUOR SCATT FLUOR SOME ODOR VSSO
										2060 - 2065				VSSO	CHALKY LITE TAN FN GRND DOLOMITE IP FEW PCS GRY WHT AND TAN WHT FRM HRD DOLOMITIC LS SCATT FLUOR IN ONLY A FEW PCS W/ MOST PCS IDENTICAL LOOKING DO NOT FLUORESC IP SOME SUCROSIC DOL PCS FLUOR SCATT FLUOR IP SOME TRANSLUCENT TAN WHT CONCHOIDAL CHRT SOME ODOR VSSO
										2065 - 2070				VSSO	AMBER COLORED VRY FN CALCAREOUS SS AS ABOVE IP TAN WHT SUBLITHO LS IP TAN WHT CHALKY MAXTRIXED FN GRND DOLOMITE VRY SCATT FLUOR IN SOME SOME DOL PCS MOST DOL PCS DO NOT FLUOR IP SOME CHRT SOME ODOR VSSO
										2070 - 2075				VSSO	HRD TAN TO TAN WHT SUBLITHO LS IP FN CHALKY MATRIXED FN GRND DOLOMITE IP HRD HONEY TO WHT TRANSLUCENT CONCHOIDAL CHRT VRY SCATT FLUORIN VRY FEW PCS TAN WHT DOL SOME ODOR VSSO
										2075 - 2080				VSSO	MUCH WHT TO TAN WHT HD SUBLITHO LS IP MUCH FNLY CHALKY SUCROSIC DOL SOME FLUOR IN ONLY A FEW SUCROSIC DOL PCS SOME ODOR VSSO
										2080 - 2085				VSSO	MUCH WHT TO TAN WHT HD SUBLITHO LS IP MUCH FNLY CHALKY SUCROSIC DOL SOME FLUOR IN ONLY A FEW SUCROSIC DOL PCS SOME ODOR VSSO
										2085 - 2090				VSSO	MUCH WHT TO TAN WHT HD SUBLITHO LS IP MUCH FNLY CHALKY SUCROSIC DOL SOME FLUOR IN ONLY A FEW SUCROSIC DOL PCS SOME ODOR VSSO
										2090 - 2095				VSSO	TAN AND WHT HRD SUBLITHO LS IP TAN TO TAN WHT TO CHALKY MATRIXED FN GRND DOLOMITE IP SOME MED TO FN CLR TO AMBER COLORED QTZ DUTCH CREEK SS NO FLUOR IN SS VRY SCATT FLUOR IN A FEW SUCROSIC FN DOL PCS SOME ODOR VSSO
										2095 - 2100				VSSO	TAN AND WHT HRD SUBLITHO LS IP TAN TO TAN WHT TO CHALKY MATRIXED FN GRND DOLOMITE IP SOME MED TO FN CLR TO AMBER COLORED QTZ DUTCH CREEK SS NO FLUOR IN SS VRY SCATT FLUOR IN A FEW SUCROSIC FN DOL PCS W/ MOSTLY SS SOME ODOR VSSO

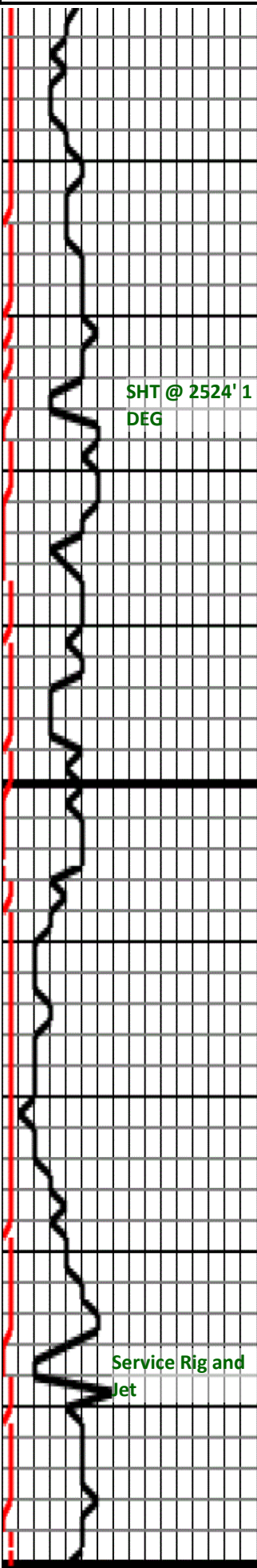


Rate of Drilling (minutes) & TGU										Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description
0	1	2	3	4	5	6	7	8							
0	20	40	60	80	100	120	140	160							
										2100 - 2110	WOB 9 K 112 SPM 804 PP	5.5		TRACE of OIL	MOSTLY HRD WHT TO BEIGE WHT SUBLITHO LS IP SOME MED TO MED CRS CLR AMBER COLORED QTZ SS AS ABOVE IP SOME WHT TAN CHALKY FN GRND DOL AS ABOVE ONE OR 2 PCS DOL FLUOR IP CLR WHT FOSSILIFEROUS CONCHOIDAL CHRT TRACE OF OIL
										2110 - 2120				TRACE of OIL	MOSTLY SLIGHTLY TINT BLUE GREEN WHT HRD SUBLITHO LS IP TAN WHT HRD DOLOMITIC LS TO WHT CHALKY DOL ONE OR 2 PCS FLUOR FROM ABOVE DOL IP CLR WHT CHRT NO ODOR TRACE OF OIL
										2120 - 2130					MOSTLY FRM HRD FN CHALKY DOL IP HRD WHT SUBLITHO LS SLIGHTLY TINTED BLUE GREEN IP SOME CHRT NSO
										2130 - 2140					MOSTLY BEIGE WHT CHALKY FRM FN DOLOMITE IP MUCH CHRT IP WHT SUBLITHO LS W/ SOME GREEN FLECKS NSO
										2140 - 2150					MOSTLY BEIGE WHT CHALKY FRM FN DOLOMITE IP MUCH CHRT IP WHT SUBLITHO LS W/ SOME GREEN FLECKS W/ MORE CHRT NSO
										2150 - 2160	WOB 13 K 117 SPM 758 PP				MOSTLY BEIGE WHT CHALKY FRM FN DOLOMITE IP MUCH CHRT IP WHT SUBLITHO LS W/ SOME GREEN FLECKS W/ MORE CHRT NSO
										2160 - 2170					MOSTLY WHT FRM HRD FN GRND DOLOMITE TO DOLOMITIC LS IP MUCH CLR WHT CONCHOIDAL CHRT W/ A FEW PCS SMOKEY TRANSLUCENT CHRT
										2170 - 2180					MOSTLY WHT FRM HRD FN GRND DOLOMITE TO DOLOMITIC LS IP MUCH CLR WHT CONCHOIDAL CHRT W/ A FEW PCS SMOKEY TRANSLUCENT CHRT
										2180 - 2190					MOSTLY WHT FRM HRD FN GRND DOLOMITE TO DOLOMITIC LS IP MUCH CLR WHT CONCHOIDAL CHRT W/ A FEW PCS SMOKEY TRANSLUCENT CHRT LESS DOLOMITE AND MORE HRD DOLOMITIC BEIGE WHT SUBLITHO LS
										2190 - 2200				TRACE of OIL	MOSTLY WHT FRM HRD FN GRND DOLOMITE TO DOLOMITIC LS IP MUCH CLR WHT CONCHOIDAL CHRT W/ A FEW PCS SMOKEY TRANSLUCENT CHRT LESS DOLOMITE AND MORE HRD DOLOMITIC BEIGE WHT SUBLITHO LS W/ ONE SMALL PC BEIGE WHT DOLOMITIC LS THAT FLUORESCES NO ODOR TRACE OF OIL

Rate of Drilling (minutes) & TGU										Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description
0	1	2	3	4	5	6	7	8							
0	20	40	60	80	100	120	140	160							
										2200 - 2210	WOB 13 K 112 SPM 817 PP	6	  		MOST WHT TO BEIGE WHT SLIGHTLY DOLOMITIC SUBLITHO LS IP MUCH CLR WHT CONCHOIDAL CHRT
										2210 - 2220			  		MOSTLY GRY TAN WHT VRY DOLOMITIC LS IP CHRT AS ABOVE NSO
										2220 - 2230			  		MOSTLY TAN TO GRY WHT FN HRD VRY DOLOMITIC LS IP CHRT AS ABOVE NSO
										2230 - 2240			  		MOSTLY TAN TO GRY WHT FN HRD VRY DOLOMITIC LS IP CHRT AS ABOVE NSO
										2240 - 2250	WT 9.2 VIS 57		  		MOSTLY TAN TO GRY WHT FN HRD VRY DOLOMITIC LS IP CHRT AS ABOVE IP W/ GREEN FLECKS IN SOME PCS HRD DOLOMITIC LS NSO
										2250 - 2260	WOB 12 K 112 SPM 821 PP		  	TRACE of OIL	MOSTLY TAN TO GRY WHT FN HRD VRY DOLOMITIC LS IP CHRT AS ABOVE IP W/ GREEN FLECKS IN SOME PCS HRD DOLOMITIC LS MORE CHRT IP ONE SMALL PC DOL TAN WHT LS POSSIBLY LINING A SMALL VUG W/ FLUOR NO ODOR TRACE OF OIL
										2260 - 2270			  		MOSTLY TAN TO GRY WHT FN HRD VRY DOLOMITIC LS IP CHRT AS ABOVE IP W/ GREEN FLECKS IN SOME PCS HRD DOLOMITIC LS NSO
										2270 - 2280	WT 9.2 VIS 57		  		MOSTLY TAN TO GRY WHT FN HRD VRY DOLOMITIC LS IP CHRT AS ABOVE IP W/ GREEN FLECKS IN SOME PCS HRD DOLOMITIC LS NSO
										2280 - 2290			  		MOSTLY TAN TO GRY WHT FN HRD VRY DOLOMITIC LS IP CHRT AS ABOVE IP W/ GREEN FLECKS IN SOME PCS HRD DOLOMITIC LS NSO
										2290 - 2300			  		MOSTLY TAN TO GRY WHT FN HRD VRY DOLOMITIC LS IP CHRT AS ABOVE IP W/ GREEN FLECKS IN SOME PCS HRD DOLOMITIC LS NSO

Rate of Drilling (minutes) & TGU									Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description	
0	1	2	3	4	5	6	7	8							
0	20	40	60	80	100	120	140	160							
 <p>Pumping water to tank from frac tank</p> <p>Service Rig</p>	2300 - 2310	WOB1 3 K 117 SPM 869 PP	6			VRY DOLOMITIC FN GRND CHALKY GRY TO TAN WHT LS IP SOME CLR WHT CHRT AS ABOVE NSO									
	2310 - 2320					VRY DOLOMITIC FN GRND CHALKY GRY TO TAN WHT LS IP SOME CLR WHT CHRT AS ABOVE NSO									
	2320 - 2330					VRY DOLOMITIC FN GRND CHALKY GRY TO TAN WHT LS IP SOME CLR WHT CHRT AS ABOVE NSO									
	2330 - 2340					BEIGE WHT FRM HRD VRY DOLOMITIC LS IP MUCH CHRT									
	2340 - 2350			No Sample											
	2350 - 2360	WOB 14 K 115 SPM 881 PP		No Sample											
	2360 - 2370			No Sample											
	2370 - 2380					HRD GRY TINTED WHT SUBLITHO MICRITIC LS IP FNLY DOLOMITIC NO ODOR NO FLUOR NSO									
	2380 - 2390					HRD GRY TINTED WHT SUBLITHO MICRITIC LS IP FNLY DOLOMITIC NO ODOR NO FLUOR NSO									
	2390 - 2400	VIS 49				HRD GRY TINTED WHT SUBLITHO MICRITIC LS IP FNLY DOLOMITIC W/ SOME CLR GRY WHT CONCHOIDAL CHRT NO ODOR NO FLUOR NSO									

Rate of Drilling (minutes) & TGU										Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description
0	1	2	3	4	5	6	7	8							
0	20	40	60	80	100	120	140	160							
										2400 - 2410	WOB 14 K 112 SPM 815 PP	6			HRD LITE GRV VRY FN MICRITIC SUBLITHO LS IP MUCH CLR WHT TO GRV WHT TRANSLUCENT CONCHOIDAL CHRT NSO
										2410 - 2420					HRD LITE GRV VRY FN MICRITIC SUBLITHO LS IP MUCH CLR WHT TO GRV WHT TRANSLUCENT CONCHOIDAL CHRT W/ MORE CHRT NSO
										2420 - 2430					HRD LITE GRV VRY FN MICRITIC SUBLITHO LS IP MUCH CLR WHT TO GRV WHT TRANSLUCENT CONCHOIDAL CHRT IP SOME PCS SLIGHTLY DOLOMITIC NSO
										2430 - 2440					HRD LITE GRV VRY FN MICRITIC SUBLITHO LS IP MUCH CLR WHT TO GRV WHT TRANSLUCENT CONCHOIDAL CHRT IP SOME PCS SLIGHTLY DOLOMITIC NSO
										2440 - 2450					HRD LITE GRV VRY FN MICRITIC SUBLITHO LS IP MUCH CLR WHT TO GRV WHT TRANSLUCENT CONCHOIDAL CHRT IP SOME PCS SLIGHTLY DOLOMITIC NSO
										2450 - 2460	WOB 15 K 112 SPM 819 PP				VRY CHRTY MOSTLY CLR WHT TRANSLUCENT CONCHOIDAL CHRT IP GRV WHT FN MICRITIC LS
										2460 - 2470					VRY CHRTY MOSTLY CLR WHT TRANSLUCENT CONCHOIDAL CHRT IP GRV WHT FN MICRITIC LS W/ LESS CHRT
										2470 - 2480					WHT HRD MICRITIC SUBLITHO LS W/ MANY PCS TINTED PINK AND MANY PCS TINTED BLUE GRV IP CLR WHT CONCHOIDAL CHRT
										2480 - 2490					WHT HRD MICRITIC SUBLITHO LS W/ MANY PCS TINTED PINK AND MANY PCS TINTED BLUE GRV IP CLR WHT CONCHOIDAL CHRT W/ ALMOST HALF CHRT
										2490 - 2500					MOSTLY PINK TINTED WHT HRD SUBLITHO LS IP SLIGHTLY TINTED BLUE GRV IP SOME CHRT AS ABOVE

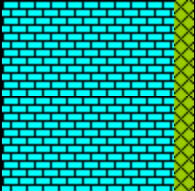
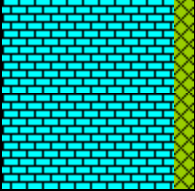
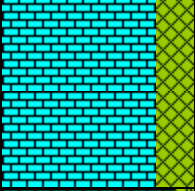
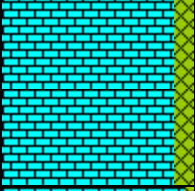
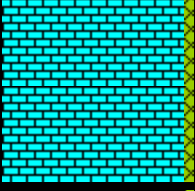
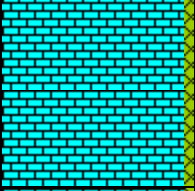
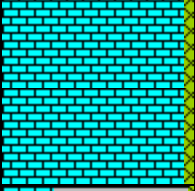
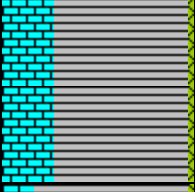
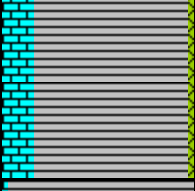

Rate of Drilling (minutes) & TGU									Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description	
0	1	2	3	4	5	6	7	8							
0	20	40	60	80	100	120	140	160							
 <div>SHT @ 2524' 1 DEG</div> <div>Service Rig and Jet</div>	2500 - 2510	WOB 16 K 112 SPM 814 PP	6.5						MOSTLY PINK TINTED WHT HRD SUBLITHO LS IP SLIGHTLY TINTED BLUE GRY IP SOME CHRT AS ABOVE						
	2510 - 2520	WT 9.3 VIS 46							MOSTLY PINK TINTED WHT HRD SUBLITHO LS IP SLIGHTLY TINTED BLUE GRY IP SOME CHRT AS ABOVE W/ A FEW PCS LITE BLUE GRY COLORED						
	2520 - 2530								MOSTLY PINK TINTED WHT HRD SUBLITHO LS IP SLIGHTLY TINTED BLUE GRY IP SOME CHRT AS ABOVE W/ A FEW PCS LITE BLUE GRY COLORED						
	2530 - 2540	WT 9.3 VIS 42							MOSTLY PINK TINTED MICRITIC HRD SUBLITHO LS IP A FEW PCS LITE BLUE GRY COLORED AND MUCH CLR WHT CONCHOIDAL CHRT						
	2540 - 2550								MOSTLY PINK TO SLIGHTLY BLUE GRY TINTED HRD SUBLITHO LS IP CLR WHT CONCHOIDAL CHRT NSO						
	2550 - 2560	WOB 17 K 114 SPM 854 PP							MOSTLY PINK TO SLIGHTLY BLUE GRY TINTED HRD SUBLITHO LS IP CLR WHT CONCHOIDAL CHRT NSO						
	2560 - 2570								HRD WHT SUBLITHO LS SLIGHTLY TINTED PINK IP SLIGHTLY TINTED BLUE GREEN IP CLR TO WHT CONCHOIDAL CHRT NSO						
	2570 - 2580								HRD WHT SUBLITHO LS SLIGHTLY TINTED PINK IP SLIGHTLY TINTED BLUE GREEN IP CLR TO WHT CONCHOIDAL CHRT MORE GRYISH COLORED WHT NSO						
	2580 - 2590								HRD WHT SUBLITHO LS SLIGHTLY TINTED PINK IP SLIGHTLY TINTED BLUE GREEN IP CLR TO WHT CONCHOIDAL CHRT BACK TO BEING MORE WHT AND PINK TINTED NSO						
	2590 - 2600								MOSTLY PINKISH TINTED WHT MICRITIC SUBLITHO LS IP MUCH CLR WHT CONCHOIDAL CHRT						



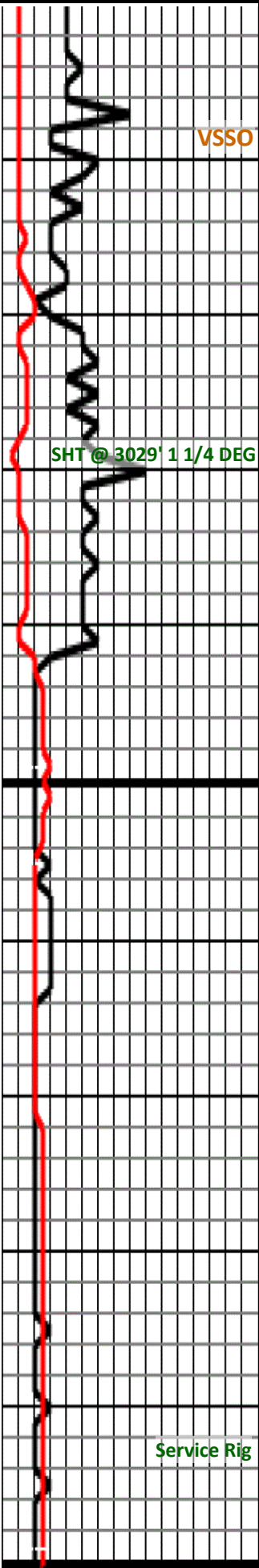
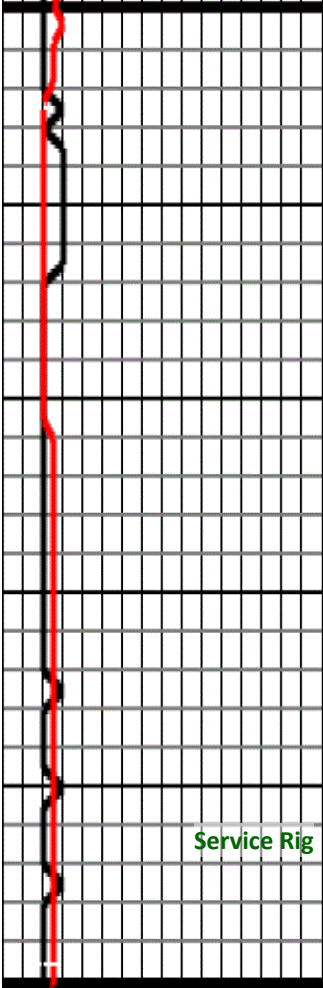
Rate of Drilling (minutes) & TGU										Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description
0	1	2	3	4	5	6	7	8							
0	20	40	60	80	100	120	140	160							
										2600 - 2610	WOB 17K 111 SPM 815 PP	7			MOSTLY PINKISH TINTED WHT MICRITIC SUBLITHO LS IP MUCH CLR WHT CONCHOIDAL CHRT
										2610 - 2620					MOSTLY PINKISH TINTED WHT MICRITIC SUBLITHO LS IP MUCH CLR WHT CONCHOIDAL CHRT
										2620 - 2630					MOSTLY PINK TINTED WHT SUBLITHO LS IP SLIGHTLY TINTED BLUE GREEN MUCH CLR WHT CONCHOIDAL CHRT IP FEW PCS SLIGHTLY DOLOMITIC NSO
										2630 - 2640					MOSTLY PINK TINTED WHT SUBLITHO LS IP SLIGHTLY TINTED BLUE GREEN MUCH CLR WHT CONCHOIDAL CHRT IP FEW PCS SLIGHTLY DOLOMITIC NSO
										2640 - 2650					MOSTLY PINK TINTED WHT SUBLITHO LS IP SLIGHTLY TINTED BLUE GREEN MUCH CLR WHT CONCHOIDAL CHRT IP FEW PCS SLIGHTLY DOLOMITIC IP MUCH MORE CHRT IP SOME CHRT SMOKEY CLR NSO
										2650 - 2660	WOB 17K 112 SPM 865 PP				MOSTLY PINK TINTED WHT SUBLITHO LS IP SLIGHTLY TINTED BLUE GREEN MUCH CLR WHT CONCHOIDAL CHRT IP FEW PCS SLIGHTLY DOLOMITIC IP MUCH CHRT IP SOME CHRT SMOKEY CLR NSO
										2660 - 2670					MOSTLY PINK TINTED WHT SUBLITHO LS IP SLIGHTLY TINTED BLUE GREEN MUCH CLR WHT CONCHOIDAL CHRT IP FEW PCS SLIGHTLY DOLOMITIC IP MUCH CHRT IP SOME CHRT SMOKEY CLR NSO
										2670 - 2680					MOSTLY PINK TINTED WHT SUBLITHO LS IP SLIGHTLY TINTED BLUE GREEN MUCH CLR WHT CONCHOIDAL CHRT IP FEW PCS SLIGHTLY DOLOMITIC IP MUCH CHRT IP SOME CHRT SMOKEY CLR NSO
										2680 - 2690					MOSTLY WHT TO PINK TINTED WHT MICRITIC HRD SUBLITHO LS W/ MUCH CLR WHT TO SMOKEY CLR TO HONEY COLORED CONCHOIDAL CHRT
										2690 - 2700					MOSTLY WHT TO PINK TINTED WHT MICRITIC HRD SUBLITHO LS W/ MUCH CLR WHT TO SMOKEY CLR TO HONEY COLORED CONCHOIDAL CHRT

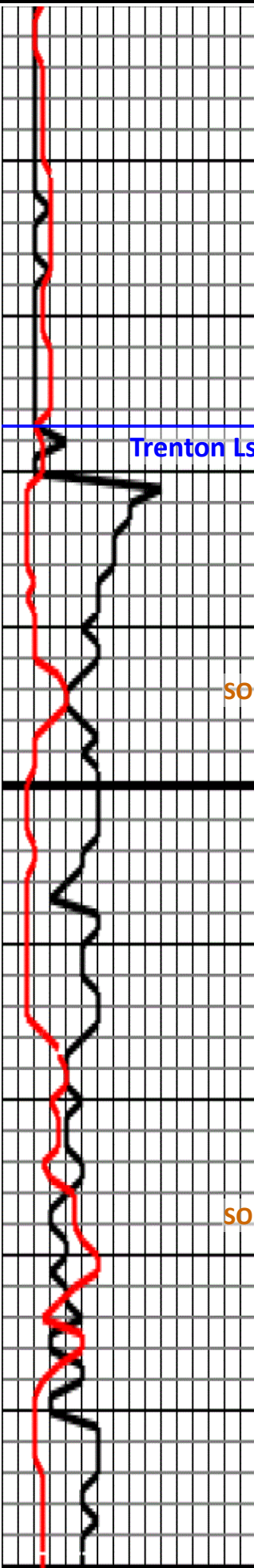


Rate of Drilling (minutes) & TGU										Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description
0	1	2	3	4	5	6	7	8							
0	20	40	60	80	100	120	140	160							
										2700 - 2710	WOB 17K 112 SPM 884 PP	7			MOSTLY BIEGE WHT HRD SUBLITHO LS IP SLIGHTLY TINTED PINK OR BLUE GRY IP CHRT AS ABOVE
										2710 - 2720					MOSTLY BIEGE WHT HRD SUBLITHO LS IP SLIGHTLY TINTED PINK OR BLUE GRY IP CHRT AS ABOVE
										2720 - 2730					MOSTLY BIEGE WHT HRD SUBLITHO LS IP SLIGHTLY TINTED PINK OR BLUE GRY IP CHRT AS ABOVE BECOMING SLIGHTLY DRKR COLORED
										2730 - 2740					MOSTLY LITE BLUE GRY WHT SUBLITHO LS IP PYRITIC W/ STILL MUCH CHRT IP SOME PCS MED BLUE GRY COLORED SUBLITHO LS
										2740 - 2750					MIXTURE RICH BLUE GRY TO RICH PINK TAN COLORED HRD SUBLITHO LS IP CLR WHT CHRT NSO
										2750 - 2760	WOB 17K 109 SPM 839 PP				MIXTURE RICH BLUE GRY TO RICH PINK TAN COLORED HRD SUBLITHO LS IP CLR WHT CHRT NSO
										2760 - 2770					MIXTURE BLUE GREEN TINTED WHT SUBLITHO LS W/ REDDISH PINK BLOTCHES IP BLUE GRY SUBLITHO LS IP MUCH RICH RED BRWN SUBLITHO LS IP CLR WHT CONCHOIDAL CHRT
										2770 - 2780					MIXTURE BLUE GREEN TINTED WHT SUBLITHO LS W/ REDDISH PINK BLOTCHES IP BLUE GRY SUBLITHO LS IP MUCH RICH RED BRWN SUBLITHO LS IP CLR WHT CONCHOIDAL CHRT W/ FEW PCS TAN COLORED SUBLITHO LS
										2780 - 2790					COLORFUL MIXTURE OF BLUE GRY, WHT, TAN GRY, AND BRWN RED SUBLITHO LS IP CLR WHT CHRT AS ABOVE
										2790 - 2800					COLORFUL MIXTURE OF BLUE GRY, WHT, TAN GRY, AND BRWN RED SUBLITHO LS IP CLR WHT CHRT AS ABOVE

Rate of Drilling (minutes) & TGU										Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description
0	1	2	3	4	5	6	7	8							
0	20	40	60	80	100	120	140	160							
<div>Service Rig &amp; Jet Pits</div> <div>SSO</div> <div>Maquoketa Sh</div> <div>SSG</div>										2800 - 2810	WOB 17K 109 SPM 834 PP	7.5			COLORFUL MIXTURE OF BLUE GRY, WHT, TAN GRY, AND BRWN RED SUBLITHO LS IP CLR WHT CHRT AS ABOVE
										2810 - 2820					COLORFUL MIXTURE OF BLUE GRY, WHT, TAN GRY, AND BRWN RED SUBLITHO LS IP CLR WHT CHRT AS ABOVE W/ SOME PCS OF WHT SUBLITHO LS HAVING RED STREAKS AND BLOTCHES
										2820 - 2830	VIS 52				BECOMING MOSTLY PINK WHT TO BLUE GRY COLORED HRD SUBLITHO LS IP TAN GRY COLORED W/ NO RED COLORED PCS STILL MUCH CLR WHT CHRT
										2830 - 2840					MOSTLY PINK WHT SUBLITHO TO XLN LS W/ ABUDANT RED STREAKS AND BLOTCHES IP SLIGHTLY TINTED BLUE GREEN WHT SUBLITHO LS IP A FEW PCS BLUE GRY SUBLITHO LS IP CLR WHT CHRT NSO
										2840 - 2850					CHANGING TO MOSTLY WHT SUBLITHO LS SLIGHTLY TINTED PINK W/ MUCH LESS RED BLOTCHES THAN ABOVE IP CHRT
<div>Service Rig &amp; Jet Pits</div> <div>SSO</div> <div>Maquoketa Sh</div> <div>SSG</div>										2850 - 2860	WOB 19K 114 SPM 886 PP			SSO	MOSTLY PINK WHT XLN LS W/ NUMEROUS RED STREAKS AND BLOTCHES IP PURE WHT SUBLITHO MICRITIC LS W/ SOME CHRT AS ABOVE IP 3 PCS OF ALMOST PURE WHT LS THAT HAS MICROVUGS W/ FLUORESCENCE WHERE CRUSHING THESE FLUOR PCS RELEASES GOOD OIL DROPS FAIRLY GOOD ODOR SSO
										2860 - 2870					MIXTURE OF TAN WHT TO TAN GRY XLN TO SUBLITHO LS IP PINK WHT W/ RED BLOTCHES XLN LS IP PURE WHT DENSE LS IP CHRT AS ABOVE STILL SOME ODOR, BUT NO FLUOR PCS DETECTED NSO
										2870 - 2880				VSSG	MUCH BLUE GREEN SFT PLTY TO SUBPLTY SLIGHTLY DOLOMITIC MAQUOKETA SHALE IP PINK WHT LS AS ABOVE IP RICH BRWN TAN SUBLITHO LS IP SOME CHRT AS ABOVE FAINT GAS ODOR VSSG
										2880 - 2890				SSG	MUCH BLUE GREEN SFT PLTY TO SUBPLTY SLIGHTLY DOLOMITIC MAQUOKETA SHALE IP PINK WHT LS AS ABOVE IP RICH BRWN TAN SUBLITHO LS IP SOME CHRT AS ABOVE W/ MORE SHALE FAINT GAS ODOR SSG
										2890 - 2900				SSG	MOSTLY DOLOMITIC PLTY TO SUBPLTY BLUE GREEN GRY MAQUOKETA SHALE W/ FEW PCS PINK WHT LS AS ABOVE GAS ODOR SSG

Rate of Drilling (minutes) & TGU										Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description
0	1	2	3	4	5	6	7	8							
0	20	40	60	80	100	120	140	160							
										2900 - 2910	WOB 10K 112 SPM 867 PP	8.5		VSSG	BLUE GREEN GRY DOLOMITIC PLTY TO SUBPLTY SHALE W/ FEW STRAY PCS OF LS FROM ABOVE FAINT GAS ODOR VSSG
										2910 - 2920				VSSG	BLUE GREEN GRY DOLOMITIC PLTY TO SUBPLTY SHALE W/ FEW STRAY PCS OF LS FROM ABOVE W/ IP PLAIN GRY COLORED PCS PLTY SHALE FAINT GAS ODOR VSSG
										2920 - 2930	WT 9.2 VIS 44				MOSTLY PLAIN MED TO DRK GRY DOLOMITIC SHALE IP SOME BLUE GRY SHALE AS ABOVE
										2930 - 2940					MOSTLY GRY PLTY SHALE AS ABOVE IP MUCH XLN TO CRSLY XLN MOTTLED CLR WHT TO GRY LS COMING IN IP SOME LS HAS GREEN FLECKS NSO
										2940 - 2950					MUCH CLR WHT GRY MOTTLED CRSLY XLN FRIABLE MICROFRACTURED LS IP GRY SHALES AS ABOVE IP SOME SMOKEY TRANSLUCENT CHRT NSO
										2950 - 2960	WOB 16.5K 118 SPM 945 PP				MOTTLED CLR WHT DRK GRY BLK CRSLY XLN FRIABLE LS IP GRY SHALES AS ABOVE NO ODOR NO FLUOR NSO
										2960 - 2970				SSO	MUCH CRSLY XLN LS MICROFRACTURED CLR WHT W/ DRK GRY STREAKS AND BLOTCHES VRY FRIABLE IP FEW PCS SCATT W BLUE GREEN WHT FLUORESCENCE NO ODOR CRUSHING FLUOR PCS YIELDS SOME OIL IP BLUE GREEN AND GRY DOLOMITIC SHALES AS ABOVE SSO
										2970 - 2980				SSO	MUCH CRSLY XLN LS MICROFRACTURED CLR WHT W/ DRK GRY STREAKS AND BLOTCHES VRY FRIABLE IP FEW PCS SCATT W BLUE GREEN WHT FLUORESCENCE NO ODOR CRUSHING FLUOR PCS YIELDS SOME OIL IP BLUE GREEN AND GRY DOLOMITIC SHALES AS ABOVE SSO
										2980 - 2990					MUCH CRSLY XLN LS MICROFRACTURED CLR WHT W/ DRK GRY STREAKS AND BLOTCHES VRY FRIABLE IP BLUE GREEN AND GRY DOLOMITIC SHALES AS ABOVE NO ODOR IP SMOKEY GRY TRANSLUCENT CHRT NSO
										2990 - 3000					MUCH CRSLY XLN LS MICROFRACTURED CLR WHT W/ DRK GRY STREAKS AND BLOTCHES VRY FRIABLE IP BLUE GREEN AND GRY DOLOMITIC SHALES AS ABOVE NO ODOR IP SMOKEY GRY TRANSLUCENT CHRT IP HRD TRANSLUCENT MOTTLED GRY WHT SUBLITHO LS NSO

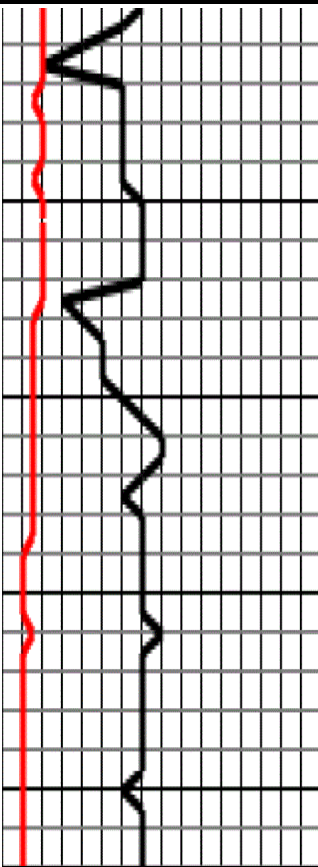
Rate of Drilling (minutes) & TGU								Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description
0	1	2	3	4	5	6	7	8					
0	20	40	60	80	100	120	140	160					
									3000 - 3010	WOB 16K 112 SPM 862 PP	9		MUCH GRY BRWN TO GRY FN GRAINSTONE LS IP MUCH TRANSLUCENT MOTTLED CLR WHT TAN TO GRY LS IP SOME GRY SH AS ABOVE NSO
									3010 - 3020	WT 9.2 VIS 42		VSSO	MUCH GRY BRWN TO GRY FN GRAINSTONE LS IP MUCH TRANSLUCENT MOTTLED CLR WHT TAN TO GRY LS IP SOME GRY SH AS ABOVE W/ AFTER LOOKING IN THREE ATTEMPTS AT SAMPLE SOME FLUOR PCS OF CRSLY XLN CLR HONEY MICROFRACTURED LS AND FLUOR IN A BLUE GREEN TINTED GRY FN GRAINSTONE LS NO ODOR FLUOR PCS YIELDED SOME OIL AND WERE FRIABLE VSSO
									3020 - 3030			VSSO	MUCH GRY BRWN TO GRY FN GRAINSTONE LS IP MUCH TRANSLUCENT MOTTLED CLR WHT TAN TO GRY LS IP SOME GRY SH AS ABOVE W/ AFTER LOOKING IN THREE ATTEMPTS AT SAMPLE SOME FLUOR PCS OF CRSLY XLN CLR HONEY MICROFRACTURED LS AND FLUOR IN A BLUE GREEN TINTED GRY FN GRAINSTONE LS NO ODOR FLUOR PCS YIELDED SOME OIL AND WERE FRIABLE VSSO
									3030 - 3040				MOSTLY DRK GRY TO MOTTLED WHT CLR GRY BRWN XLN MICROFRACTURED LS IP SOME GRY SH PCS AS ABOVE IP SOME CHRT AS ABOVE NSO
									3040 - 3050				MOSTLY DRK GRY TO MOTTLED WHT CLR GRY BRWN XLN MICROFRACTURED LS IP SOME GRY SH PCS AS ABOVE IP SOME CHRT AS ABOVE NSO
									3050 - 3060	WOB 16K 115 SPM 913 PP			MOSTLY DOLOMITIC BRWN TINTED GRY TO LITE GRY SUBPLTY SHALES IP SOME MED LITE GRY SUBLITHO LS IP SOME MOTTLED DRK BRWN GRY WHT SUBLITHO LS NSO
									3060 - 3070				MOSTLY DOLOMITIC BRWN TINTED GRY TO LITE GRY SUBPLTY SHALES IP SOME MED LITE GRY SUBLITHO LS IP SOME MOTTLED DRK BRWN GRY WHT SUBLITHO LS NSO
									3070 - 3080	WT 9.2 VIS 42			ALMOST ALL MED DRK GRY SUBPLTY DOLOMITE SHALE IP SOME STRAY LS PCS FROM ABOVE
									3080 - 3090				DRK GRY SUBPLTY DOLOMITIC SHALE
									3090 - 3100				DRK GRY SUBPLTY DOLOMITIC SHALE

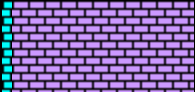
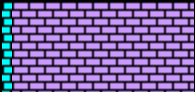
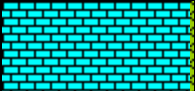
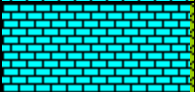
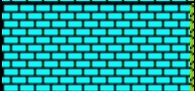
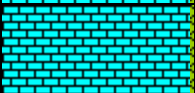
Rate of Drilling (minutes) & TGU								Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description
0	1	2	3	4	5	6	7	8					
0	20	40	60	80	100	120	140	160					
									3100 - 3110	WOB 16K 114 SPM 910 PP	9.5		DRK GRY SUBPLTY DOLOMITIC SHALE
									3110 - 3120				DRK GRY SUBPLTY DOLOMITIC SHALE W/ A FEW PCS LITE GRY VRY DOLOMITIC
									3120 - 3130				DRK GRY SUBPLTY DOLOMITIC SHALE W/ A FEW PCS LITE GRY VRY DOLOMITIC
									3130 - 3135				GRY WHT TO TAN GRY WHT EDGED HRD SUBLITHO LS IP ONE PC VRY DULL ORANGE FLUOR NO OIL WAS RELEASED WHEN CRUSHED BUT HAD SOME OIL ODOR IP SHALES AS ABOVE
									3135 - 3140			VSSO	MOSTLY MOTTLED WHT TAN GRY EDGED SUBLITHO LS TO XLN LS IP SPOTTY STREAKED FLUOR IN VRY SCATT PCS CRUSHING PCS YIELDS NO OIL IP FEW SHALE PCS FROM ABOVE FAINT ODOR VSSO
									3140 - 3145			VSSO	MOSTLY TAN GRY POSSIBLY MICROFRACTURED AND WHT EDGED HRD LS IP A FEW VRY SCATT PCS W/ SPOTTY STREAKED BLUE GREEN WHT FLUOR CRUSHING FLUOR PCS YIELDS SOME TINY OIL DROPLETS FAINT ODOR VSSO
									3145 - 3150			SSO to SO	TAN W/ WHIT EDGES MICROFRACTURED SUBLITHO LS TO XLN LS IP W/ NUMEROUS SCATT FLUOR PCS FLUOR IS BLUE GREEN WHT CRUSHING FLUOR PCS YIELDS NUMEROUS SMALL OIL DROPLETS GOOD ODOR SSO TO SO
									3150 - 3155	WOB 19K 112 SPM		TRACE of OIL	TAN WHT MICROFRACTURED XLN TO SUBLITHO LS VRY FAINT ODOR AND VRY FAINT DULL FLUOR IN VRY FEW SCATT PCS TRACE OF OIL
									3155 - 3160	882 PP			TAN W/ WHT EDGES MICROFRACTURED SUBLITHO TO XLN LS NO ODOR NO FLUOR NSO
									3160 - 3165				TAN W/ WHT EDGES MICROFRACTURED SUBLITHO TO XLN LS NO ODOR NO FLUOR NSO
									3165 - 3170			VSSO	TAN W/ WHT EDGES MICROFRACTURED SUBLITHO TO XLN LS W/ 2 PCS FLUORESCING BLUE GREEN WHT SOME ODOR VSSO
									3170 - 3175			SSO	TAN W/ WHT EDGES MICROFRACTURED SUBLITHO TO XLN LS W/ NUMEROUS SCATT FLUOR PCS SOME ODOR SSO
									3175 - 3180			SO	MOSTLY WHT TO TAN AND WHT EDGES TO MICROFRACTURES SUBLITHO TO XLN LS IP UP TO 5% OVERALL FLUOR OF BLUE WHT CRUSHING FLUOR PCS YIELDS GOOD OIL IP CLR BRWN CONCHOIDAL CHRT GOOD ODOR SO
									3180 - 3185			VSSO	TAN WHT EDGED CRSLY XLN TO SUBLITHO LS MICROFRACTURED FRIABLE TO HRD IP FEW PCS CHRT VRY SCAT BLUE WHT FLUORESCENCE SOME ODOR VSSO
									3185 - 3190			VSSO	TAN WHT EDGED CRSLY XLN TO SUBLITHO LS MICROFRACTURED FRIABLE TO HRD IP FEW PCS CHRT VRY SCAT BLUE WHT FLUORESCENCE SOME ODOR VSSO
									3190 - 3195			VSSO	TAN WHT EDGED CRSLY XLN TO SUBLITHO LS MICROFRACTURED FRIABLE TO HRD IP FEW PCS CHRT VRY SCAT BLUE WHT FLUORESCENCE SOME ODOR VSSO
									3195 - 3200			VSSO	TAN WHT EDGED CRSLY XLN TO SUBLITHO LS MICROFRACTURED FRIABLE TO HRD IP FEW PCS CHRT VRY SCAT BLUE WHT FLUORESCENCE SOME ODOR VSSO



Rate of Drilling (minutes) & TGU										Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description
0	1	2	3	4	5	6	7	8							
0	20	40	60	80	100	120	140	160							
										3200 - 3205	WOB 18K 110 SPM	9.5	SO		CHALKY WHT TAN MICROFRACTURED XLN TO SUBLITHO LS W/ WHT EDGES TO FRACTURES IP FEW PCS CLR WHT CONCHOIDAL CHRT NUMEROUS SCATT FLUOR PCS YIELD GOOD OIL DROPLETS WHEN CRUSHED GOOD ODOR SO
										3205 - 3210	859 PP				CHALKY WHT TAN MICROFRACTURED XLN TO SUBLITHO LS W/ WHT EDGES TO FRACTURES IP FEW PCS CLR WHT CONCHOIDAL CHRT NUMEROUS SCATT FLUOR PCS YIELD GOOD OIL DROPLETS WHEN CRUSHED GOOD ODOR SO
										3210 - 3215			SO		CHALKY WHT TAN MICROFRACTURED XLN TO SUBLITHO LS W/ WHT EDGES TO FRACTURES IP FEW PCS CLR WHT CONCHOIDAL CHRT NUMEROUS SCATT FLUOR PCS YIELD GOOD OIL DROPLETS WHEN CRUSHED SLIGHTLY BETTER FLUOR GOOD ODOR SO
										3215 - 3220			SO		CHALKY WHT TAN MICROFRACTURED XLN TO SUBLITHO LS W/ WHT EDGES TO FRACTURES IP FEW PCS CLR WHT CONCHOIDAL CHRT UP TO 5% OVERALL FLUOR PCS YIELD GOOD OIL DROPLETS WHEN CRUSHED EVEN BETTER FLUOR GOOD ODOR SO
										3220 - 3225			SO		CHALKY WHT TAN MICROFRACTURED XLN TO SUBLITHO LS W/ WHT EDGES TO FRACTURES IP FEW PCS CLR WHT CONCHOIDAL CHRT UP TO 3% OVERALL FLUOR PCS YIELD GOOD AND LARGE OIL DROPS WHEN CRUSHED EVEN BETTER FLUOR GOOD ODOR SO
										3225 - 3230			SSO to SO		LITE WHT TAN W/ WHT EDGES MICROFRACTURED XLN TO SUBLITHO LS AS ABOVE STILL SOME CHRT AS ABOVE W/ NUMEROUS SCATT FLUOR SOME ODOR SSO TO SO
										3230 - 3235			SO		LITE WHT TAN W/ WHT EDGES MICROFRACTURED XLN TO SUBLITHO LS AS ABOVE STILL SOME CHRT AS ABOVE IP PARTIALLY MED OOLITIC TEXTURED W/ UP TO 20% OVERALL FLUOR GOOD ODOR SO
										3235 - 3240			SO		MED FN TO CRSLY XLN TAN WHT EDGED LS W/ GOOD ABUNDANT SCATT FLUOR FRIABLE FLUOR PCS YIELDS OIL WHEN CRUSHED GOOD ODOR SO
										3240 - 3245			SO		MED FN TO CRSLY XLN TAN WHT EDGED LS W/ GOOD ABUNDANT SCATT FLUOR FRIABLE FLUOR PCS YIELDS OIL WHEN CRUSHED GOOD ODOR SO
										3245 - 3250			SO		MOSTLY TAN WHT TO TAN WHT EDGED XLN LS AS ABOVE W/ UP TO 20% OVERALL BLUE GREEN WHT FLUOR CRUSHING FLUOR PCS YIELDS GOOD OIL FAIRLY FRIABLE GOOD ODOR SO
										3250 - 3255	WOB 19.5K 110 SPM		SO		MOSTLY TAN WHT TO TAN WHT EDGED XLN LS AS ABOVE W/ UP TO 20% OVERALL BLUE GREEN WHT FLUOR CRUSHING FLUOR PCS YIELDS GOOD OIL FAIRLY FRIABLE GOOD ODOR SO
										3255 - 3260	873 PP		SO		MOSTLY TAN WHT MICROFRACTURED XLN TO SUBLITHO LS IP WHT CHRT AS ABOVE GOOD BRIGHT BLUE WHT FLUORESCENCE GOOD OIL RELEASED WHEN CRUSHED FRIABLE UP TO 20% OVERALL FLUOR VRY GOOD ODOR SO
										3260 - 3265			SO		MOSTLY TAN WHT MICROFRACTURED XLN TO SUBLITHO LS IP WHT CHRT AS ABOVE GOOD BRIGHT BLUE WHT FLUORESCENCE GOOD OIL RELEASED WHEN CRUSHED FRIABLE UP TO 20% OVERALL FLUOR GOOD ODOR SO
										3265 - 3270			SO		MOSTLY TAN WHT MICROFRACTURED XLN TO SUBLITHO LS IP WHT CHRT AS ABOVE GOOD BRIGHT BLUE WHT FLUORESCENCE GOOD OIL RELEASED WHEN CRUSHED FRIABLE W/ SOME PCS HAVING AMBER COLORED CLR XLN CALCITE POSSIBLY LINING LARGER FRACTURES UP TO 20% OVERALL FLUOR GOOD ODOR SO
										3270 - 3275			SO		LITE TAN WHT EDGED XLN TO SUBLITHO LS MICROFRACTURED AS ABOVE W/ FEW PCS WHT CONCHOIDAL CHRT GOOD FLUOR OF UP TO 15% GOOD ODOR SO
										3275 - 3280			SSO		LITE TAN WHT EDGED XLN TO SUBLITHO LS MICROFRACTURED AS ABOVE W/ FEW PCS WHT CONCHOIDAL CHRT W/ MUCH LESS FLUOR IP MUCH SFT WHT CHALKY PCS AND LESS ODOR THAN ABOVE SSO
										3280 - 3285			SO		LITE TAN WHT EDGED XLN TO SUBLITHO LS MICROFRACTURED AS ABOVE W/ FEW PCS WHT CONCHOIDAL CHRT W/ MORE FLUOR OF UP TO 5% IP MUCH SFT WHT CHALKY PCS AND FAIRLY GOOD ODOR SO
										3285 - 3290			SO		LITE TAN WHT EDGED XLN TO SUBLITHO LS MICROFRACTURED AS ABOVE W/ FEW PCS WHT CONCHOIDAL CHRT W/ ABUNDANT SCATT FLUOR IP MUCH SFT WHT CHALKY PCS NO CHRT DETECTED AND GOOD ODOR SO
										3290 - 3295			SSO		BECOMING MOSTLY HRD TAN TO TAN GRY WHT SUBLITHO MICRITIC LS STILL SOME SCATT FLUOR IN SOME OF THE MICROFRACTURED XLN TAN LS AS ABOVE SOME ODOR SSO
										3295 - 3300			SSO		BECOMING MOSTLY HRD TAN TO TAN GRY WHT SUBLITHO MICRITIC LS FLUOR ONLY IN A COUPLE PCS FROM ABOVE W/ EVEN MORE SUBLITHO TO LITHO LS IP CLR BRWN CHRT SOME ODOR VSSO



Rate of Drilling (minutes) & TGU										Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description
0	1	2	3	4	5	6	7	8							
0	20	40	60	80	100	120	140	160							
										TD 3344					
										3300 - 3305	WOB 18K 16 SPM	10		VSSO	MOSTLY HRD TAN MICRITIC LITHO LS ONLY ONE PC FLUOR OF XLN LS AS ABOVE SOME ODOR YET IP MUCH CLR BRWN CONCHOIDAL CHRT VSSO
										3305 - 3310	943 PP				HRD TAN MICRITIC LITHO LS IP A FEW VRY SCATT STRAY PCS W/ FLUOR FROM ABOVE IP A FEW PCS TRANSLUCENT TAN CHRT
										3310 - 3315					HRD TAN MICRITIC LITHO LS IP A FEW VRY SCATT STRAY PCS W/ FLUOR FROM ABOVE IP A FEW PCS TRANSLUCENT TAN CHRT
										3315 - 3320					HRD TAN MICRITIC SUBLITHO TO LITHO LS IP STRAY PC OR 2 XLN TAN WHT EDGED FRIABLE LS AS ABOVE W/ FLUOR
										3320 - 3325					HRD TAN MICRITIC SUBLITHO TO LITHO LS IP STRAY PC OR 2 XLN TAN WHT EDGED FRIABLE LS AS ABOVE W/ FLUOR
										3325 - 3330					HRD TAN MICRITIC SUBLITHO TO LITHOLS IP STILL STRAY PC OR 2 XLN TAN WHT EDGED FRIABLE LS AS ABOVE W/ FLUOR
										3330 - 3335	WT 9.2 VIS 45				HRD TAN LITHO TO SUBLITHO MICRITIC LS AS ABOVE NO FLUOR
										3335 - 3340					HRD TAN LITHO TO SUBLITHO MICRITIC LS AS ABOVE NO FLUOR W/ PC OR 2 OF HRD SMOKEY GRAY TRANSLUCENT CHRT
										3340 - 3344					HRD TAN LITHO TO SUBLITHO MICRITIC LS AS ABOVE NO FLUOR W/ PC OR 2 OF HRD SMOKEY GRAY TRANSLUCENT CHRT
										1793 CIRC 5min					MOSTLY PINKISH TAN WHT TO WHT IP BLUE-GREEN COLORED HRD SUBLITHO CHOUTEAU LS IP SOME DRK GRAY SUBPLYTALY CALCAREOUS SILTY SHALE TO SILTSTONE NSO
										1793 CIRC 10min				TRACE of OIL	MOSTLY PINKISH TAN WHT TO WHT IP BLUE-GREEN COLORED HRD SUBLITHO CHOUTEAU LS IP SOME DRK GRAY SUBPLYTALY CALCAREOUS SILTY SHALE TO SILTSTONE W/ IP PC OR 2 OF GRAY WHT CARPER SS FROM ABOVE NO ODOR TRACE OF OIL
										1914 CIRC 5min				SG	BRWN BLK FNLY MICACEOUS CARB PLTY SHALE W/ GOOD SPORE FLUOR W/ DOLOMITIC LIGHT GRAY BRWN SWEETLAND CREEK ALONG W/ DRK BLK GRASSY CREEK W/ VRY STRONG SPORE FLUOR SG
										1914 CIRC 10min				SG	BRWN BLK FNLY MICACEOUS CARB PLTY SHALE W/ GOOD SPORE FLUOR W/ DOLOMITIC LIGHT GRAY BRWN SWEETLAND CREEK ALONG W/ DRK BLK GRASSY CREEK W/ VRY STRONG SPORE FLUOR W/ MORE SWEETLAND DOLOMITIC SHALE PCS SG
										1793 CIRC 15min				SG	BRWN BLK FNLY MICACEOUS CARB PLTY SHALE W/ GOOD SPORE FLUOR W/ DOLOMITIC LIGHT GRAY BRWN SWEETLAND CREEK ALONG W/ DRK BLK GRASSY CREEK W/ VRY STRONG SPORE FLUOR W/ MORE SWEETLAND DOLOMITIC SHALE PCS SG
										1925 CIRC 5min				SSO	MOSTLY HRD LITE TAN TO GRAY TINTED TAN SUBLITHO LS IP SOME DOLOMITIC AND CHALKY WHT COLORED BLUE GREEN WHT FLUORESCENCE IN SOME PCS HAVING DOLOMITE POSSIBLY LINING VUGS OR CAVITIES SCATT FLUOR SSO GOOD ODOR CRUSHING FLUOR PCS YIELDS LITTLE TO NO OIL FLUORESCENCE SOON FADES IP SHALES AS ABOVE W/ OCCAS PC HAVING BRIGHT YELLOW WHT FLUOR
										1925 CIRC 10min				VSSO	MOSTLY HRD LITE TAN TO GRAY TINTED TAN SUBLITHO LS IP SOME DOLOMITIC AND CHALKY WHT COLORED BLUE GREEN WHT FLUORESCENCE IN SOME PCS HAVING DOLOMITE POSSIBLY LINING VUGS OR CAVITIES SCATT FLUOR VSSO GOOD ODOR CRUSHING FLUOR PCS YIELDS LITTLE TO NO OIL FLUORESCENCE SOON FADES IP SHALES AS ABOVE VRY LITTLE FLUOR LESS ODOR
										1955 CIRC 5min				SSO	MUCH HRD CRSLY XLN IP FOSSILIFEROUS MOTTLED TAN GRAY WHT LS W/ FEW SCATT PCS OF FLUOR AS ABOVE SSO
										1955 CIRC 10min				SSO	MUCH HRD CRSLY XLN IP FOSSILIFEROUS MOTTLED TAN GRAY WHT LS W/ FEW SCATT PCS OF FLUOR AS ABOVE SSO
										1955 CIRC 15min				SSO	MUCH HRD CRSLY XLN IP FOSSILIFEROUS MOTTLED TAN GRAY WHT LS W/ FEW SCATT PCS OF FLUOR AS ABOVE SSO

Rate of Drilling (minutes) & TGU										Depth (Sample)	Drill Cond	Est Lag Time	Lithology	Shows	Description
0	1	2	3	4	5	6	7	8							
0	20	40	60	80	100	120	140	160							
										2049 CIRC 5min				SSO	CHALKY TAN WHT FN SUCROSIC DOL FRIABLE IP CHALKY TAN WHT DOLOMITIC LS MOST SIMILAR LOOKING PCS DO NO FLUOR IP SOME DRKR BRWN TAN PCS DO NOT FLUOR GOOD ODOR SCATT FLUOR SSO
										2049 CIRC 10min				SO to SSO	CHALKY TAN WHT FN SUCROSIC DOL FRIABLE IP CHALKY TAN WHT DOLOMITIC LS MOST SIMILAR LOOKING PCS DO NO FLUOR IP SOME DRKR BRWN TAN PCS DO NOT FLUOR GOOD ODOR SCATT FLUOR W/ MORE FLUOR BUT MOST SIMLAR LOOKING DOL PCS DO NOT FLUOR SO TO SSO
										3344 CIRC 15min					HRD TAN LITHO TO SUBLITHO MICRITIC LS AS ABOVE NO FLUOR W/ PC OR 2 OF HRD SMOKEY GRY TRANSLUCENT CHRT
										3344 CIRC 30min					HRD TAN LITHO TO SUBLITHO MICRITIC LS AS ABOVE NO FLUOR W/ PC OR 2 OF HRD SMOKEY GRY TRANSLUCENT CHRT
										3344 CIRC 45min					HRD TAN LITHO TO SUBLITHO MICRITIC LS AS ABOVE NO FLUOR W/ PC OR 2 OF HRD SMOKEY GRY TRANSLUCENT CHRT
										3344 CIRC 1hr					HRD TAN LITHO TO SUBLITHO MICRITIC LS AS ABOVE NO FLUOR W/ PC OR 2 OF HRD SMOKEY GRY TRANSLUCENT CHRT