

MR-T-1-85

WORKING
COPY

Pg 1

INTERVAL	SPECIES	QUANTITY	Lithology	environment
0-10'	No FAUNA		white to clear sd, M-VFG, mostly subangular + TR. GLAUCONITE	Fluvial
10'-20'	No FAUNA		sd, C-VFG, ~50% stained orange-yellow TR. GLAUCONITE	Fluvial
20'-30'	ppd ASP FGM	C	LAA + NISSO Lt gray silty clay	
	GPD SP. BRK	V		
	QUN SP	V	Assemblage slide picked	
	ELP	N		
	Dis SP	R		
	CASSIDULINA SP <small>(possibly a globocassidulina)</small> Juv.	R		
	bulimina SP	V		
	Cibicides	R		inner neritic
	Ostracode	V		
	RADIOLARIAN sm, globk	V		
	Globigerina falconensis	V		
30'-40'	Gastropods (Turritella ~80%)	C	Light gray silty clay	
	Pelecypods	N	+ Abundant Citred SD.C-FG + yellow stained from above	
	Oyster FGM	V		
	Scaphopod	V		
	Eliphidium SP (most cf. clavatum)	B	Note dec. diversity + marked dominance of Eliphidium.	
	Discorbis SP.	C		
	Globocassidulina SP	V ₂	Assemblage slide picked	
	Buliminella SP	V ₂		
	Ostracodes	V ₃		inner neritic

Interval	Species	Quantity	Lithology	Environment
40'-50'	Gastropods (most turrids)	A	LAA	
	Pelecypods FGMa	C		
	BARNACLES FGMa	R		
	Scaphopods	V		
	Ostracodes	R		
	Elphidium	B		
	Discorbis	R		
	Quinqueloculina brk, Abcl.	V,		
	Globocassidulina sp	V.		
50'-60'	Gastropods	C	Light grey silty clay with shell	
	Oyster ^{pecten}	R	hash + <u>AD</u> , <u>C-FG</u> , most <u>clear</u> (N2030)	
	Pelecypod	C	TR. rounded black? phosphatic grains	
	Barnacles	V	TR L# green glauconite. ~4%	
	Ostracods	R	note: glauconite in this sample is	
	Nodosaria affinis ^{L3. brk.} _(Rbk, Beaufort)	V.	<u>weathered</u> + probably was	
	Elphidium sp	A	reworked from Beaufort Fan	
	Robulus sp L5 off midwayensis ^(newk) _(somalia fan)	V.	during initial yorktown	
	Nonion sp L5	V.	transgression. This is supported	
	Cibicides sp	V	by the presence of a few	
	Discorbis sp	N	Large very abraded specimens	
	Eponides sp ^{1.5 prob. newk} _{1.5m ?}	V	which appear to be reworked.	
	Balimnella sp	V		
	Cibicides sp	V		
	Discorbis sp	V		
Globigerina sp sm cf. falconensis	V			

GND WATER INFLUENCE?

Interval	Species	Quantity	Lithology	Environ.
50'-60' cont.	Gutulina	V ₁		
	Poolina	V ₁		
	Cibicides sp	V ₁		
	Cibicides sp	V ₁		
	Cibicides sp	V ₁		
	globocassidulina sp	R		
	cibicides			
60'-70'	Nodosaria affinis	R	JTL HSA	OYS, R
	Robulus midwayensis	R		PPD A
	Elphidium sp (caved from Yorktown)	C		GPD N
	Cibicides sp			SCH V
	Robulus sp			very abund sp. c - fg, e Carr-
	Nonion sp			Angular
	Lagena sp			Glauconite pellets are
	Eponides sp			dk green, ~15%
	Discoorbis sp (caved Yorktown)			
	Globorotalia sp			
	C. bicoides sp			
	Marsinulina sp			
	Cibicides sp			
	Gyrogonina sp			
	Trochammina sp (caved Yorktown)			
	Eponides sp			
Globorotalia sp				
Cibicides				

Interval	Species	Quantity	Lithology	Environment
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60'-70' cont.

Globigerina sp

Cibicides sp

Cibicides sp

Cibicides sp

Bulminella sp

Globocassidulina sp

Note species picked for a representative assemblage slide.
 - Record abundance notes when identifying specimens

70'-80'

> 10 bivalve shell hash c
 pyenodontes + brachiopods
 + some few GPDs etc,
 some of PPD + all CPD
 probably caused Yorktown

< 10 ~ 60% dk green relat
 glauconite, ~ 40% rd c-
 fg, gray-clear, angular
 note, foram fauna is less
 abundant and less
 well preserved.

CORRELATIONS

The nearest interpreted well is MR-P-1-67 (MAR-P-7) located ~1 mile east.

TD = 665' EL = 60'

E-log available no samples

E-log correlations are good through about the 300' depth of T-1-85. The top of the Beaufort and top of Cretaceous have been picked at the same log points and are 10'-15' higher on the T-1-85 when the logs are hung on sea level datum. The A-B contact of the P-1-67 well would correlate to the Peedee(?) - Black Creek Equivalent(?) call on the T-1-85 well where it is about 20' higher on SLD. The B-C contact of P-1-67 would fall at 162' on the T-1-85 well.

On P-1-67, unit D is picked at 464' (-404') whereas on P-1-85 lithic D (Cape Fear Equivalent(?)) is called at 280'. Without samples for P-1-67 this major difference is impossible to evaluate. Below 300' of the T-1-85 well the sections are markedly different, the P-1-67 well showing considerably more sand development.

If the C-D call on P-1-67 is valid, then one must suspect a fault between these two wells. The N-S section of the

Roanoke River just upstream from Williamston projects between these two wells and may reflect a fault. Faulting would be constrained to "C-time" because post-C units are relatively flat.

Basement data would be helpful in substantiating the above speculation.

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12/85

SURFICIALS - (0'-12') consist of sandy clay overlying med-use sandstone bed. Unit is floodplain deposit

YORKTOWN FORMATION - (12'-66') - gradually appears in 10/20 thru 30/40 samples because of caving of surficial sand unit. Upper 2/3 of Yorktown is mixed sand, silt, & clay. E-log indicates this zone is sandier in upper part. Fossils are fairly ubiquitous but Turritella are especially abundant in 30/40 and 40/50 samples.

Lower 1/3 of Yorktown is sandstone which contains abundant glauconite and common phosphate. Phosphate is probably concentrated toward base of unit.

NOTE: Clayey material within the Yorktown tended to ball-up and collect sand to form large clay-sand aggregates that severely contaminated upper 200'-300' of samples. These were removed (and saved in marked packages) by #10 sieve. Unfortunately this process removed ~~most~~ of other, non-contaminated such as shell fragments, phosphate and quartz pebbles but was necessary to make reasonable interpretations of the samples. No-screening was done below 300'

BEAUFORT FORMATION - (66'-91') Dark green glauconite, typical of the Beaufort, begins to appear in the 60/70 sample. This was correlated to the gamma high at 66' and assigned at the top

of the unit. The 70/80 and 80/90 samples contain very abundant ($\pm 25\%$) glauconite. The coarse fraction ($\geq \#10$ screen) contains fragments of the Brachiopod Aleneothyris. These shells are large and brownish grey in color and contrast with Yorktown shells which are generally whitish. I suspect the Brachiopods are concentrated in muddier lenses but am not too sure if that is a valid suspicion. Dolomite cemented glauconitic sandstone is prominent in the 80/90 sample and was logged coincident with a resistivity high.

PEEDEE FORMATION (91'-140') - The 90/100 sample is fairly mixed but by the 100/110 sample the fine-grained glauconitic sand is fairly obvious. Small fossil frags and micritic cemented aggregates are also common. The sand is all quartz and the overall color of the washed sample is grayish. Microfossils are relatively abundant. The Peedee (?) glauconite is lighter green versus above.

BLACK CREEK EQUIVALENT(?) (140'-280') - Except for the 218'-245' sand, which is a medium-to-coarse-grained, clean quartz sand, the muddy fine-grained glauconitic sandstone of this unit is very much like that of the Peedee (?). However, with the 140/150 sample a very subtle change is noticeable. This is most obvious in macroscopic examination

of trays containing material from above and below the ^{140'} depth. The grayish aspect described above is replaced by a whitish aspect. Under the scope, the higher material is "brighter" and the lower material is "duller". This is probably due to the fact that quartz ^{grains} of the lower material are ~~not~~ smaller vs. the vitreous quartz of the Peedee (?). There may also be some feldspar mixed in with the ~~cross~~ quartz of the lower material.

The 204'-214' resistivity kick does not show well in the samples. A change in the glauconite to a paler green is noticeable in the 190/200 and 200/210 samples and may have something to do with the kick, however nothing definitive can be established.

The 218'-245' sand is fairly distinct in the samples. It is a quartz sand that may ~~be~~ represent an offshore bar. Below this point fine-grained glauconitic sandstone very much like the 146'-200' material reappears. The lower fine-grained sand exhibits some oxidation staining that distinguishes it from above.

CAPE FEAR EQUIVALENT (?) 280'-500'

With the 280/290 sample tan and, to a lesser degree, red/orange/yellow mottled clay/siltstone makes its first appearance. This lithology, along with medium-to coarse-grained sand (quartz & feldspar) pretty much accounts for the rest of the well. Sand becomes so ubiquitous within the samples that

the logs are the basis for the lithologic calls. The gamma and E-logs pretty much agree as to lithology except the large gamma peak at 350' has no good correlation to the E-log nor to anything in the cuttings. I would assume it is a very tight clay bed.

Up-dip this material is a mixture of coarse to fine sand with silt and clay to varying degrees, often occurring as graded beds ranging from pebbly lenses to tight clays. That may well be what is happening here with a lot of fines being washed out.

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12/85