DATA REPOSITORY

The lowest of the lithostratigraphic units is referred to as the unnamed Glauconitic Clays and Clayey Glauconite Sands (UGC). This unit corresponds to two intervals described by Benson (1990) in hole Oh25-02 near Lewes, Delaware: a lower "unnamed glauconitic silt unit" and an upper "unnamed glauconitic sand unit." In the Bethany Beach corehole, the unnamed glauconitic silts and sands occur from 446.75 to 432.82 m. This interval is characterized by an alternation between hard, sometimes glauconitic or silty, clays and softer glauconite sands. The glauconite sands commonly contain "tricolored" glauconite (green, black, and brown grains).

The Calvert Formation, the lowest formally named Miocene formation in Delaware, was originally described from the Calvert Cliffs, Maryland (Shattuck, 1902, 1904), where it is characterized by fossiliferous sandy clays and marls (Plum Point Member) and diatomaceous quartz sands (Fairhaven Member) at the base. In Delaware, the Calvert Formation is predominantly silt, with a few significant sand intervals; mollusk shells are common (Rasmussen et al., 1960; Benson, 1990; Ramsey, 1997). The Calvert Formation can be correlated around most of southern Delaware on geophysical logs (Ramsey, 1997). In the Bethany Beach corehole, the Calvert Formation occurs from 432.82 to 249.91 m.

The Choptank Formation comprises interbedded sand and silt, but is sandier and shellier than the underlying the Calvert Formation. The type locality of the Choptank Formation is near Easton, Maryland (Shattuck, 1902, 1904), though the best exposures are in the Calvert Cliffs where it is composed of quartz sand, sandy clay, with some clay and indurated beds. The Choptank Formation has been recognized and correlated in the subsurface of Delaware (Rasmussen et al., 1960; Benson, 1990; Ramsey, 1997). In the Bethany Beach corehole, the Choptank Formation occurs from 249.91 to 175.32 m.

The St. Marys Formation is predominantly silt, as described from exposures in St. Marys County, Maryland, (Shattuck, 1902, 1904). In Delaware, the St. Marys Formation is a well-developed fine-grained interval (Rasmussen et al., 1960) that separates the sandy Choptank Formation lithologies from a sandy, aquifer-prone, interval referred to informally as the Manokin unit (Andres, 1986; Benson, 1990). The St. Marys Formation occurs from 175.32 to 136.98 m in the Bethany Beach corehole.

Above the St. Marys Formation, the southern Delaware section typically exhibits a coarsening-upward trend, as silts gradually are replaced by sandier lithologies. This coarsening-upward interval comprises the Manokin beds, which is characterized by an upward succession from sandy silt to silty sand to clean quartz sand, with local lignitic, gravelly, and shelly beds (Andres, 1986; Benson, 1990). Manokin is an informal name derived from the aquifer designation for the sandy upper portion (Andres, 1986). The Manokin beds occurs from 136.98 to 60.17 m in the Bethany Beach corehole.

Overlying the Manokin beds are the Bethany beds. This is another informal unit first described based on an aquifer-bearing interval in a well near the location of the Bethany Beach corehole (Andres, 1986). It is a lithologically complex unit of interbedded sand, clay, and sandy silt with common lignite, mollusk shells, and a "sawtooth" gamma log pattern (Andres, 1986; Benson, 1990). The Bethany beds occurs from 60.17 to 35.81 m in the Bethany Beach corehole.

Rasmussen, W.C., Wilkens, R.A., Beall, R.M., et al., 1960, Water resources of Sussex County, Delaware: Delaware Geological Survey Bulletin 8, 228 p.Shattuck, G.B., 1902, The Miocene Formation of Maryland: Science, v. 15, p. 906.