

INTERVAL SHEET

WWCR - 95

Page 1 of 1

VDMR Well No: 1854

Date rec'd: 4/12/67

Sample Interval: from 0 to 595

PROP: Black Stump Water Co. (F. Lackert)

Number of samples: 58

COMP: Douglas & Dickinson

Total Depth: 595

COUNTY: Lancaster (Kilmarnock)

Oil or Gas: Water: <sup>X</sup> Exploratory:

| From-To   | From-To   | From-To | From-To |
|-----------|-----------|---------|---------|
| 0 - 10    | 315 - 325 | -       | -       |
| 10 - 21   | 325 - 336 | -       | -       |
| 21 - 31   | 336 - 346 | -       | -       |
| 31 - 42   | 346 - 357 | -       | -       |
| 42 - 52   | 357 - 367 | -       | -       |
| 52 - 63   | 367 - 378 | -       | -       |
| 63 - 73   | 378 - 388 | -       | -       |
| 73 - 84   | 388 - 399 | -       | -       |
| 84 - 94   | 399 - 409 | -       | -       |
| 94 - 105  | 409 - 420 | -       | -       |
| 105 - 115 | 420 - 430 | -       | -       |
| 115 - 126 | 430 - 441 | -       | -       |
| 126 - 136 | 441 - 451 | -       | -       |
| 136 - 147 | 451 - 462 | -       | -       |
| 147 - 157 | 462 - 472 | -       | -       |
| 157 - 168 | 472 - 483 | -       | -       |
| 168 - 178 | 483 - 493 | -       | -       |
| 178 - 189 | 493 - 504 | -       | -       |
| 189 - 199 | 504 - 514 | -       | -       |
| 199 - 210 | 514 - 525 | -       | -       |
| 210 - 220 | 525 - 535 | -       | -       |
| 220 - 231 | 535 - 546 | -       | -       |
| 231 - 241 | 546 - 550 | -       | -       |
| 241 - 252 | 550 - 561 | -       | -       |
| 252 - 262 | 561 - 571 | -       | -       |
| 262 - 273 | 571 - 581 | -       | -       |
| 273 - 283 | 581 - 591 | -       | -       |
| 283 - 294 | 591 - 595 | -       | -       |
| 294 - 304 | -         | -       | -       |
| 304 - 315 | -         | -       | -       |

No washed samples

OWNER: Black Stump Water System  
DRILLER: Douglas & Dickinson, Inc.  
COUNTY: Lancaster (Kilmarnock)

VDMR: 1854  
WWCR: 95  
TOTAL DEPTH: 595'

GEOLOGIC LOG

Depth in feet

ST. MARY'S AND CALVERT FORMATIONS (0'-168')

- 0-10 Clay - gray, locally yellow (limonitic), moderate amounts of silt and fine sand; traces of glauconite and muscovite; a few plant fragments.
- 10-21 Clay - mottled gray and yellowish-brown, very slightly sandy; slightly micaceous (muscovite); a few plant fragments.
- 21-31 Sand - brownish-gray, slightly clayey; coarse-grained, well sorted, subrounded to rounded; traces of glauconite and carbonaceous matter.
- 31-42 Shell - pelecypod shell fragments, and a few gastropods (Turritella), scaphopods, and echinoid spines; matrix of fine- to medium-grained quartz sand, and gray and brown clay.
- 42-52 "
- 52-63 "
- 63-73 Shell and Sand - slightly to moderately clayey; 30% coarse molluscan shell fragments; 50% fine- to very fine-grained, very well-sorted, angular sand; trace of glauconite; a few plant fragments.
- 73-84 Clay - gray, with purple cast, locally greenish-gray; a few coarse shell fragments.
- 84-94 "
- 94-105 Silt and Clay - gray, with greenish cast; subequal amounts of coarse-grained silt and clay; a few plant and shell fragments.
- 105-115 "
- 115-126 "
- 126-136 Clay - light-gray; abundant plant fragments.

OWNER: Black Stump Water System

#1854

- 136-147 Sand - dark-gray, with greenish cast, clayey; very fine-grained, very well-sorted, angular; a few plant and shell fragments.
- 147-157 "
- 157-168 Clay - dark-gray, with greenish cast, moderate amount of coarse silt and fine sand; a few plant fragments.

CALVERT FORMATION (168'-273')

- 168-178 Clay - light-gray, with greenish cast, moderately silty, trace of sand; a few plant fragments and fragments of carbonaceous matter; slightly diatomaceous.
- 178-189 Clay - light-gray, with greenish cast, uniformly moderately silty; a few plant fragments; diatomaceous.
- 189-199 "
- 199-210 " very diatomaceous.
- 210-220 " very diatomaceous.
- 220-231 " very diatomaceous; foraminifers (Siphogenerina) common.
- 231-241 Clay - light-gray; a few plant and shell fragments; extremely diatomaceous (Diatomaceous earth?).
- 241-252 Clay - light-gray, slightly sandy; foraminifers moderately abundant (mostly Siphogenerina, a few Nonion, Robulus, Dentalina); a few plant and shell fragments; very diatomaceous.
- 252-262 Clay - light- and medium-gray, variably silty and sandy; 10% pelecypod shell fragments; foraminifers (Siphogenerina) common but not abundant; moderately diatomaceous.
- 262-273 Sand and Clay - dark brownish-gray; 50% medium- to coarse-grained, fairly well-sorted, subrounded sand; 40% dark-brown, sand-free clay; 10% pelecypod shell fragments; a few plant fragments, phosphatic shell fragments, and foraminifers (Siphogenerina).

CHICKAHOMINY FORMATION (273-595')

- 273-283 Sand - dark grayish-brown, very clayey; medium- to coarse-grained, moderately sorted, subrounded; clear quartz; about 10% pelecypod shell fragments; a very few plant fragments, bone fragments, echinoid spines, and Late Eocene foraminifers.
- 283-294 "
- 294-304 " about 2% pelecypod shell fragments.

OWNER: Black Stump Water System

#1854

- 304-315 Clay - medium-gray, very silty; traces of glauconite, muscovite, phosphorite, and pyrite; Late Eocene foraminifers moderately abundant; a few shell fragments and echinoid spines.
- 315-325 Sand - light-gray, moderately silty and clayey; fine- to very coarse-grained, rather poorly-sorted, angular to rounded; very slightly glauconitic and phosphatic; about 5% arenaceous, glauconitic limestone; a few shell fragments, plant fragments, and foraminifers (mostly Siphogenerina).
- 325-336 "
- 336-346 " slightly glauconitic (about 10%).
- 346-357 Sand - brown, moderately clayey; fine- to coarse-grained, moderately sorted (skewed coarse); 75-80% clear, yellow- and brown-stained, subrounded to rounded quartz; 15-20% goethite after glauconite, and 5% glauconite; a few shell and bone fragments.
- 357-367 Sand - dark grayish-brown, clayey; fine- to coarse-grained, rather poorly-sorted; subequal amounts of stained quartz and goethite after glauconite; subordinate amount fresh glauconite, trace of muscovite; a few shell bone fragments, and foraminifers.
- 367-378 "
- 378-388 "
- 388-399 "
- 399-409 " 60-70% glauconite, subordinate goethite after glauconite.
- 409-420 " "
- 420-430 Sand - gray, slightly to moderately clayey; medium-grained, fairly well-sorted; 80% fresh glauconite, 20% rounded quartz; a few shell fragments, plant fragments, and Eocene foraminifers.
- 430-441 Clay - gray, moderately sandy; sand is predominately fresh glauconite; a very few shell and plant fragments.
- 441-451 Clay - gray and moderately sandy (75%); sand is predominately glauconite: yellow and sandy; sand is predominately quartz; a very few plant and shell fragments.
- 451-462 Clay - gray, very sandy; sand is 30% glauconite; plant fragments common; a few shell fragments and foraminifers (Nodosaria).
- 462-472 "

OWNER: Black Stump Water System

#1854

- 472-483 Sand - dark-gray, slightly clayey; fine- to coarse-grained, rather poorly-sorted; 65% fresh glauconite, 35% quartz; plant fragments common; a few foraminifers (Nodosaria).
- 483-493 Clay - gray, sandy; sand is highly glauconitic; plant fragments abundant; traces of pyrite and carbonaceous matter; foraminifers (Nodosaria, Robulus, Dentalina) and ostracods common; a very few shell fragments and echinoid spines.
- 493-504 Sand - light-gray, moderately clayey; fine- to coarse-grained, moderately sorted; 70% subangular to subrounded quartz, 30% fresh glauconite; very few microfossils and plant fragments.
- 504-514 Clay - greenish-gray, abundant silt to fine-grained sand; traces of glauconite, muscovite, plant fragments, shell fragments, and echinoid spines.
- 514-525 "
- 525-535 Sand - gray, speckled, slightly to moderately clayey; fine- to very coarse-grained, moderately sorted (skewed coarse); 70% subangular to rounded quartz, 30% fresh glauconite; traces of garnet and muscovite; a few plant fragments and foraminifers (Nodosaria, Robulus, Dentalina).
- 535-546 "
- 546-550 " very few microfossils.
- 550-561 " "
- 561-571 Sand - light-gray, trace of clay; coarse- to very coarse-grained, fairly well-sorted, subangular to subrounded; 10-15% glauconite, 5-10% fresh potassic feldspar; traces of muscovite and garnet; a very few Nodosaria.
- 571-581 Sand - gray, speckled, clean; medium- to very coarse-grained, fairly well-sorted; 55% quartz, 40% fresh glauconite, and 5% feldspar; traces of muscovite and garnet.
- 581-591 "
- 591-595 Clay - greenish-brown, abundant silt to very fine-grained sand; trace of glauconite.

OWNER: Black Stump Water System

#1854

GEOLOGIC SUMMARY

|                      | <u>Rock Name</u>                     | <u>Age</u>  |
|----------------------|--------------------------------------|-------------|
| 0-168 <sup>1</sup>   | St. Mary's and Calvert<br>formations | Miocene     |
| 168-273 <sup>1</sup> | Calvert Formation                    | Miocene     |
| 273-595 <sup>1</sup> | Chickahominy Formation               | Late Eocene |

Virginia Division of Mineral Resources  
Robert H. Teifke, Geologist  
June 14, 1967