INTERVAL SHEET

WWCR - 68

Page 1 of 1

Date rec'd: April 19, 1967

PROP: Nindes Store

COMP: Douglas & Dickinson

COUNTY: King George (Nindes Store)

VDMR Well No: 1860

Sample Interval: from 0 to 596

Number of samples: 57

Total Depth: 596

Oil or Gas: Water: X Exploratory:

From-To	From-To	From-To	From-To
0 - 10	315 - 326	-	-
10 - 21	326 - 336	-	-
21 - 31	336 - 347	-	-
31 - 42	347 - 357	-	-
42 - 52	357 - 368	-	-
52 - 63	368 - 378	-	-
63 - 73	378 - 389	-	-
73 - 84	389 - 399	-	-
84 - 94	399 - 410	-	-
94 - 105	410 - 420	-	-
105 - 115	420 - 431	-	-
115 - 126	431 - 441	-	-
126 - 137	441 - 452	-	-
137 - 147	452 - 462	-	-
147 - 157	462 - 473	-	-
157 - 168	473 - 483	-	-
168 - 178	483 - 495	-	-
178 - 189	495 - 505	-	-
189 - 199	505 - 516	-	-
199 - 210	516 - 527	-	-
210 - 220	527 - 538	-	-
220 - 231	538 - 548	-	-
231 - 241	548 - 555	-	-
241 - 252	555 - 565	-	-
252 - 263	565 - 575	-	-
263 - 273	575 - 585	-	-
273 - 284	585 - 596	-	-
284 - 294	-	-	-
294 - 305	-	-	-
305 - 315	-	-	-

No washed samples

OWNER: Douglas & Dickinson, Inc. VDMR - 1860
DRILLER: Douglas & Dickinson, Inc. WWCR - 68
COUNTY: King George (Ninde Store) TOTAL DEPTH - 596'

GEOLOGIC LOG

Depth in feet

COLUMBIA GROUP (0-42)

0 - 10	Sand —	orange, slightly clayey; fine- to medium-grained, well sorted, angular to subangular; traces of weathered feldspar and glauconite.
10 - 21	Sand —	orange-brown, slightly clayey, a few very small pebbles; fine- to very coarse-grained, rather poorly-sorted, variably rounded; dull-white, weathered feldspar fairly abundant; trace glauconite; abundant plant fragments.
21 - 31	"	a very few plant fragments.
31 - 42	"	"

CALVERT FORMATION (42 - 137)

42 - 52	Sand —	medium brownish-gray, moderately clayey; very fine-grained, very well-sorted, angular; trace of glauconite.
52 - 63	"	
63 - 73	"	
73 - 84	"	
84 - 94	Silt —	brownish-gray, clayey, a few small pebbles; 10-20% poorly-sorted sand; trace of feldspar.
94 - 105	"	phosphatic nodules and bone fragments common, but not abundant.
105 - 115	Sand —	dark brownish-gray, moderately clayey, silty; fine- to very fine-grained, fairly well-sorted, angular; 10% glauconitic; very slightly micaceous (muscovite); a few plant fragments and bone fragments.
115 - 126	"	trace of glauconite.

126 - 137 Sand — gray, moderately clayey, a very few small pebbles and phosphate nodules; fine- to coarse-grained, poorly sorted, variably rounded; about 15% glauconite; about 15% pelecypod shell fragments; a few bone fragments.

NANJEMOY FORMATION (137-199)

137 - 147 Sand — dark gray, moderately clayey; medium-grained, fairly well-sorted; 30-40% glauconite, 60-70% subangular to subrounded quartz; very slightly micaceous; a few shell fragments, trace of bone fragments.

147 - 157 Sand — dark gray, very clayey; very fine- to medium-grained, moderately sorted (skewed fine), variably rounded; 10-20% glauconite; small amounts of phosphorite and muscovite; 2-5% shell debris, and a few plant fragments.

157 - 168 " 5-10% pelecypod shell fragments, and a few foraminifers.

168 - 178 Clay — dark gray, silty, slightly sandy; very slightly glauconitic and micaceous; 2-5% pelecypods and a few gastropods (Turritella).

MARLBORO CLAY MEMBER (178-199)

178 - 189 Clay — gray, silty clay (60%), and pink, sand-free, slightly-glauconitic clay (40%); a few shell fragments.

189 - 199 "

AQUIA FORMATION (199 - 284)

199 - 210 Sand — dark gray, silty and clayey; very fine-grained, very well-sorted, angular; slightly micaceous (muscovite) and glauconitic; 5-10% pelecypod and gastropod shell debris.

210 - 220 Sand — black, with greenish cast, moderately clayey; fine grained, well sorted, angular; 20% glauconite; trace of muscovite; 5% shell debris, and a very few foraminifers.

220 - 231 "

231 - 241 " about 10% glauconite, 5-10% shell debris.

241 - 252 " about 5% glauconite, 25-30% shell debris.

252 - 263 Sand — black, moderately clayey; medium grained, well sorted; 60-70% angular to subangular quartz, 30-40% glauconite; very slightly micaceous; small amounts of shell fragments, bone fragments and plant fragments.

263 - 273 Sand — medium gray, clayey; very fine- to medium-grained, rather poorly-sorted, variably rounded; moderately glauconitic, slightly micaceous, locally limonitic; a few shell and plant fragments.

273 - 284 " small amount of fine-grained gravel; plant fragments abundant.

MATTAPONI FORMATION (284-538)

284 - 294 Clay — variegated (grays, browns, yellow, red), silty, moderately sandy; small amounts of glauconite and white, weathered feldspar; trace phosphorite; a few shell fragments, plant fragments, and spores.

294 - 305 "

305 - 315 Sand — moderately clayey to clayey, clay is reddish-brown, mottled light-gray; medium-grained, moderately sorted, subrounded; moderately feldspathic, very slightly glauconitic; trace of shell and plant fragments.

315 - 326 "

326 - 336 " abundant plant fragments.

336 - 347 Clay — reddish-brown, mottled light-gray, yellow, very sandy; sand is fine- to coarse-grained, rather poorly-sorted, subangular to subrounded; moderately feldspathic, blue quartz common, trace of glauconite; trace of shell and plant fragments.

347 - 357 Sand — brown, abundant matrix of variegated clay; fine- to coarse-grained, poorly sorted, subangular to subrounded; slightly feldspathic and glauconitic; trace of phosphate; a few plant fragments and shell fragments.

357 - 368 "

368 - 378 "

378 - 389 Clay — variegated (gray, greenish-gray, brown, yellow), silty, sandy; sand is poorly sorted, moderately feldspathic, slightly glauconitic; a few plant fragments and shell fragments.

389 - 399 " gray, trace of glauconite.

399 - 410 " "

410 - 420 Sand — brownish gray, very clayey; medium-grained, fairly well-sorted, subrounded; feldspathic; trace of glauconite; a few plant fragments.

420 - 431 Clay — variegated, sandy; sand is medium- to coarse-grained, rather poorly-sorted, subrounded; moderately feldspathic; trace of glauconite; trace of shell.

431 - 441 "

441 - 452 " abundant white (kaolinitic ?) clay.

452 - 462 " "

462 - 473 Sand — brownish-gray, abundant matrix of brown and white clay; medium to coarse-grained, fairly well-sorted, subangular to subrounded; slightly feldspathic; a few plant fragments.

473 - 483 "

483 - 495 Sand — brown, moderately clayey; medium- to coarse-grained, moderately sorted, subangular to subrounded; moderately feldspathic; traces of glauconite and magnetite; a few shell and plant fragments.

495 - 505 Clay — greenish-gray, mottled brown, orange, sandy; sand is fine- to coarse-grained, rather poorly-sorted; slightly feldspathic; trace of glauconite.

505 - 516 "

516 - 527 "

527 - 538 " abundant white clay.

POTOMAC GROUP (538 - 596)

538 - 548 Sand — light gray, slightly silty and clayey; medium- to very coarse-grained, fairly well-sorted (skewed coarse), subrounded to rounded; moderately feldspathic; abundant blue quartz; trace of glauconite.

548 - 555 Clay — greenish-brown, mottled gray and reddish brown, slightly sandy; sand is slightly feldspathic.

555 - 565 Sand — light gray, trace of clay, 5% granule gravel; fine- to very coarse-grained, fairly well-sorted (skewed coarse), subrounded to rounded; moderately feldspathic; abundant blue quartz.

565 - 575 " fine- to coarse-grained, rather poorly-sorted, angular to rounded; fine fraction is slightly glauconitic.

575 - 585 Sand — brown, slightly silty and clayey; fine- to coarse-grained, rather poorly-sorted; slightly feldspathic; 30-35% glauconite; traces of phosphorite and garnet; a very few foraminifers.

585 - 596 " 3-5% glauconite

GEOLOGIC SUMMARY

	Rock Unit	Age
0-42	Columbia Group	Pleistocene
42-137	Calvert Formation	Miocene
137-199	Nanjemoy Formation	Eocene
	(178 - 199 Marlboro Clay Member)	
199-284	Aquia Formation	Eocene
284-538	Mattaponi Formation	Late Cretaceous
538-596	Potomac Group	Early Cretaceous

Virginia Division of Mineral Resources
Robert H. Teifke - Geologist
May 3, 1967

OWNER: Douglas & Dickinson, Inc.
DRILLER: Douglas & Dickinson, Inc.
COUNTY: King George (Ninde Store)

VDMR - 1860
WWCR - 68
TOTAL DEPTH - 596'
QUAD.:
ELEV.: 140'

GEOLOGIC LOG

Depth in feet

COLUMBIA GROUP (0-42)

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21 - 31	" a very few plant fragments.
31 - 42	" "

CALVERT FORMATION (42 - 137)

42 - 52	Sand — medium brownish-gray, moderately clayey; very fine-grained, very well-sorted, angular; trace of glauconite.
52 - 63	"
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84 - 94	Silt — brownish-gray, clayey, a few small pebbles; 10-20% poorly-sorted sand; trace of feldspar.
94 - 105	" phosphatic nodules and bone fragments common, but not abundant.
105 - 115	Sand — dark brownish-gray, moderately clayey, silty; fine- to very fine-grained, fairly well-sorted, angular; 10% glauconitic; very slightly micaceous (muscovite); a few plant fragments and bone fragments.
115 - 126	" trace of glauconite.

#1860

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137 - 147 Sand — dark gray moderately clayey; medium-grained, fairly well-sorted; 30-40% glauconite, 60-70% subangular to subrounded quartz; very slightly micaceous; a few shell fragments, trace of bone fragments.

147 - 157 Sand — dark gray, very clayey; very fine- to medium-grained, moderately sorted (skewed fine), variably rounded; 10-20% glauconite; small amounts of phosphorite and muscovite; 2-5% shell debris, and a few plant fragments.

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MATTAPONI FORMATION
[redacted] FORMATION (199 - 284)

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263 - 273 Sand — medium gray, clayey; very fine- to medium-grained, rather poorly-sorted, variably rounded; moderately glauconitic, slightly micaceous, locally limonitic; a few shell and plant fragments.

273 - 284 " small amount of fine-grained gravel; plant fragments abundant.

TRANSITIONAL BEDS
~~MATTAPONI FORMATION~~ (284-538)

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305 - 315 Sand — moderately clayey to clayey, clay is reddish-brown, mottled light-gray; medium-grained, moderately sorted, subrounded; moderately feldspathic, very slightly glauconitic; trace of shell and plant fragments.

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326 - 336 " abundant plant fragments.

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347 - 357 Sand — brown, abundant matrix of variegated clay; fine- to coarse-grained, poorly sorted, subangular to subrounded; slightly feldspathic and glauconitic; trace of phosphate; a few plant fragments and shell fragments.

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PATUXENT FORMATION

~~POTOMAC GROUP~~ (538 - 596)

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#1860

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✓ 137-199	Nanjemoy Formation (178 - 199 Marlboro Clay Member)	Eocene
✓ 199-284	~~Aquia Formation~~ Mataponi Formation	Paleocene — Late Cretaceous
✓ 284-538	~~Mataponi Formation~~ Transitional beds	Late Cretaceous
✓ 538-596	~~Potomac Group~~ Patuxent Formation	Early Cretaceous

Virginia Division of Mineral Resources
Robert H. Teifke - Geologist

~~May 3, 1967~~

~~3/3/72~~

3/3/72

Revised : March 3, 1972