

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF CONSERVATION AND ECONOMIC DEVELOPMENT

MAILING ADDRESS:

DIVISION OF MINERAL RESOURCES

OFFICE ADDRESS:

Box 3667
Charlottesville, VA 22903

JAMES L. CALVER, COMMISSIONER

McCormick Road
Charlottesville, Virginia

WATER WELL COMPLETION REPORT

OWNER: Groundwater Research Station TW SE 77-6 Mailing Address: _____

TENANT: _____ Mailing Address: _____

DRILLER: _____ Mailing Address: _____

WELL LOCATION: County Surry Approx. _____ feet miles North end of (direction) of
Hogg Island and _____ feet miles _____ (direction) of _____

(GIVE DIRECTION AND DISTANCE IN FEET OR MILES FROM TWO REFERENCE POINTS - ROADS, TOWNS, RIVERS, ETC. - ON COUNTY HIGHWAY OR OTHER MAP.)

DATE STARTED: 3/29/77 DATE COMPLETED: 5/3/77

TYPE OF DRILL RIG USED: _____ TOTAL DEPTH 1240 feet

WATER LEVEL: Stands _____ feet below surface OR
has NATURAL flow of _____ gallons per minute.

YIELD TEST: Method _____
Drawdown _____ feet
Rate _____ gal. per min.
Duration _____ hrs., _____ min.

HOLE SIZE: 6½ inches from _____ to _____ feet
_____ inches from _____ to _____ feet
_____ inches from _____ to _____ feet
SCREEN SIZE: _____ inches from 1170 to 1185 feet

WATER ZONES: from _____ to _____ feet
from _____ to _____ feet
from _____ to _____ feet

_____ inches from _____ to _____ feet
_____ inches from _____ to _____ feet
CASE SIZE: 4 inches from _____ to _____ feet
_____ inches from _____ to _____ feet
_____ inches from _____ to _____ feet

WATER: Color _____ Taste _____
Odor _____ Temp. _____ °F

GROUTING: Method _____
Material _____ Depth _____ feet

WELL TO SUPPLY: (check one) Home _____
Farm _____ Town _____ School _____
Industry _____ Other _____

PUMP: Type _____
Capacity _____ gal. per min
Depth of intake _____ feet

WATER ANALYSIS AVAILABLE: Yes _____ No _____
DRILL CUTTINGS SAVED: Yes _____ No _____

(DRILL CUTTINGS SHOULD BE COLLECTED AT 10 FOOT INTERVALS. THESE SAMPLES MAY BE SHIPPED TO THIS OFFICE EXPRESS COLLECT. SAMPLE BAGS ARE FURNISHED FREE OF CHARGE UPON REQUEST.)

REMARKS: _____

VIRGINIA DIVISION OF MINERAL RESOURCES
Box 3667, Charlottesville, VA 22903

INTERVAL SHEET

Page 1 of 2

Well Repository No: W-4880
C- 138

Date rec'd: 8/29/77 Date Processed: 9/2/77

Sample Interval: from: 0 to: 1240

State Water Control Board

PROPERTY: (GW Station TW SE 77-6)

Number of samples: 124

COMPANY: SWCB

Total Depth: 1240'

COUNTY: Surry (Hogg Island)

Oil or Gas: WaterX Exploratory:

From-To	From-To	From-To	From-To
0- 10	250 - 260	500 - 510	750 - 760
10- 20	260 - 270	510 - 520	760 - 770
20- 30	270 - 280	520 - 530	770 - 780
30- 40	280 - 290	530 - 540	780 - 790
40- 50	290 - 300	540 - 550	790 - 800
50- 60	300 - 310	550 - 560	800 - 810
60- 70	310 - 320	560 - 570	810 - 820
70- 80	320 - 330	570 - 580	820 - 830
80- 90	330 - 340	580 - 590	830 - 840
90- 100	340 - 350	590 - 600	840 - 850
100- 110	350 - 360	600 - 610	850 - 860
110- 120	360 - 370	610 - 620	860 - 870
120- 130	370 - 380	620 - 630	870 - 880
130- 140	380 - 390	630 - 640	880 - 890
140- 150	390 - 400	640 - 650	890 - 900
150- 160	400 - 410	650 - 660	900 - 910
160- 170	410 - 420	660 - 670	910 - 920
170- 180	420 - 430	670 - 680	920 - 930
180- 190	430 - 440	680 - 690	930 - 940
190- 200	440 - 450	690 - 700	940 - 950
200- 210	450 - 460	700 - 710	950 - 960
210- 220	460 - 470	710 - 720	960 - 970
220- 230	470 - 480	720 - 730	970 - 980
230- 240	480 - 490	730 - 740	980 - 990
240- 250	490 - 500	740 - 750	990 - 1000

OWNER: State Water Control Board
(GW Station TW SE 77-6)
DRILLER: State Water Control Board
COUNTY: Surry

W#: 4880
C#: 138
TOTAL DEPTH: 1240'

GEOLOGIC LOG

Depth
(feet)

NORFOLK FORMATION (0-60')

- 0-10 Clay - light olive brown and dark yellowish orange; moderate sand; very fine to medium grained; subangular to subrounded; moderately sorted; quartz; feldspar; opaques; muscovite; few grains of glauconite.
- 10-20 Sand - dark yellowish orange; lightly stained; slightly clayey; fine to medium grained; subangular to subrounded; well sorted; quartz; feldspar; 3% opaques; muscovite.
- 20-30 Sand - dark orange; heavily stained; slightly clayey; coarse grained to granular; subangular to subrounded; moderately sorted; quartz; feldspar; muscovite; spines; few opaques.
- 30-40 Sand - dark orange; heavily stained; slightly clayey; fine to very coarse grained, few granules; subangular to subrounded; poorly sorted; quartz; feldspar; some black phosphatic material; spines.
- 40-50 Sand - grayish orange; heavily stained; moderate clay; granular with some medium and coarse grains; subrounded; poorly sorted; quartz; feldspar; some shell fragments; glauconite; muscovite; few spines.
- 50-60 Sand - dark yellowish orange; heavily stained; moderate clay; coarse to very coarse grained; few granules; subrounded; moderately well sorted quartz; feldspar; few black phosphatic fragments.

CALVERT FORMATION (60-190')

- 60-70 Clay - olive light gray; abundant sand; very fine to fine grained, few granules, pebbles; subangular to subrounded; moderately well sorted; quartz; 3% shell fragments; spines; muscovite; few black phosphatic fragments; forams (inc. Bulimina).
- 70-80 Clay and gravel - olive light gray; sandy; very fine to fine grained, few granules; subangular to subrounded; poorly sorted; quartz; some-shell fragments; muscovite; glauconite; few bone fragments; forams (inc. Nonion and Buccella).
- 80-90 As above plus few spines and Bulimina; no Buccella.
- 90-100 As above plus some spines and fish bone.
- 100-110 Clay and gravel - olive light gray; slightly sandy; very fine to fine grained; subangular to subrounded; poorly sorted; quartz; shell fragments; glauconite; few black phosphatic fragments; forams (inc. Nonion and Bulimina).

Depth
(feet)

- 110-120 Clay and gravel - olive light gray; quartz; shell fragments; few black phosphatic fragments; forams scarce (inc. Textularia).
- 120-130 Clay and gravel - olive light gray; sandy; very fine to fine grained; subangular to subrounded; poorly sorted; quartz; some glauconite; black phosphatic material; forams (inc. Nonion and Bulimina).
- 130-140 Clay - light olive gray; 5% shell fragments; fish tooth.
- 140-150 Clay - light olive gray; shell fragments inc. gastropod; forams common (inc. Nonion and Quinqueloculina).
- 150-160 Clay - light olive gray; shell fragments; muscovite; forams (inc. Bulimina, Buccella, Textularia, and Nonion).
- 160-170 Clay - light olive gray; slightly sandy; fine to medium grained; subangular to subrounded; moderately well sorted; quartz; shell fragments; muscovite; few black phosphatic fragments; forams (inc. Nonion, Bulimina, and Buccella).
- 170-180 Clay - light olive gray; sandy; fine to medium grained; subangular to subrounded; moderately well sorted; quartz; 3% black phosphatic material inc. fish teeth; forams (inc. Nonion and Pyrulina).
- 180-190 Clay - light olive gray; some shell fragments; black phosphatic material; forams (inc. Nonion).
- NANJEMOY FORMATION (190-260')
- 190-200 Sand and clay - light olive gray; abundant clay; moderate sand; medium to coarse grained; subangular to subrounded; moderately sorted; quartz; 10% shell fragments; black phosphatic material; forams (inc. Siphogenerina, Nonion, Marginulina, Robulus); few spines; ostracode.
- 200-210 Sand - olive light gray; abundant clay; medium grained; subangular to subrounded; moderately well sorted; quartz; 5% shell fragments; black phosphatic material inc. shark's teeth; forams (inc. Siphogenerina, Marginulina, Nonion, Uvigerina, Bulimina, and Robulus) few spines; few bone fragments; few highly weathered limestone fragments (altered to clay).
- 210-220 Sand - olive light gray; abundant clay; fine to coarse grained, few granules; subangular to subrounded; moderately sorted; quartz; 3% shell fragments; black phosphatic material; few bone fragments; forams abundant (inc. Siphogenerina, Textularia, Robulus, Bulimina, Nonion, Uvigerina, and Cibicides); spines; few limestone fragments; ostracode.

Depth
(feet)

- 220-230 Sand - olive light gray; abundant clay; fine to coarse grained, some granules; subangular to rounded; poorly sorted; quartz; 15% glauconite; shell fragments; black phosphatic material; few bone fragments; forams abundant (inc. Siphogenerina, Marginulina, Textularia, Globigerina, Nonion, Buccella, Robulus, Nonionelle, and Dentalina); spines; limestone fragments; pyrite; ostracode.
- 230-240 Sand - greenish gray; abundant clay; fine to coarse grained; some granules; subangular to rounded; poorly sorted; quartz; 25% glauconite; shell fragments; spines; few black phosphatic fragments; forams abundant (inc. Siphogenerina, Marginulina, Bulimina, Uvigerina, Robulus, Buccella, Globigerina, Textularia, Cibicides, and Pyrulina ?); limestone fragments; pyrite.
- 240-250 Sand - light olive gray; abundant clay; medium to coarse grained; few granules; subangular to rounded; moderately sorted; quartz; 40% glauconite; shell fragments; spines; forams (inc. Guttulina ?); limestone fragments; pyrite; ostracode.
- 250-260 Sand and clay - moderate olive brown; abundant clay; moderate sand; fine to coarse grained; some granules; subangular to rounded; moderately sorted; quartz; 40% glauconite; shell fragments; limestone fragments; few spines; forams (inc. Siphogenerina and Buccella).
- MATTAPONI FORMATION (260-320')
- 260-270 Sand - grayish olive; moderate clay; medium grained with some coarse grains; rounded; moderately well sorted; 70% glauconite; quartz; limestone fragments; pyrite.
- 270-280 As above.
- 280-290 As above.
- 290-300 Sand - dark yellowish green; abundant clay-brown, green; medium grained with some coarse grains; rounded; moderately well sorted; 75% glauconite; quartz; limestone fragments; forams rare (inc. Nodosaria); pyrite.
- 300-310 Sand - dark yellowish green; abundant clay - brown, green; fine to medium grained; rounded; moderately well sorted; 60% glauconite; quartz; few limestone fragments; spines; pyrite; forams (inc. Bulimina, Nodosaria, and Dentalina).
- 310-320 Sand - grayish green; moderate clay; medium grained with some coarse grains; rounded; moderately well sorted; 60% glauconite; quartz; 12% sandy limestone fragments; pyrite; forams (inc. Nodosaria and Textularia).

Depth
(feet)

PATUXENT FORMATION (320-1240')

- 320-330 Clay - grayish green; abundant sand; medium to coarse grained; sub-angular to rounded; moderately sorted; 50% glauconite; 30% sandy limestone fragments; quartz; forams rare (inc. Nodosaria, Robulus, and Siphogenerina); ostracodes.
- 330-340 Clay and sand - greenish gray; abundant clay; medium sand; fine to medium grained; subangular to rounded; moderately sorted; 40% glauconite; quartz; 10% forams (inc. Guttulina ?, Globulina ?, Robulus, Bolivina, Textularia, Globigerina, and Marginulina); limestone fragments; spines; feldspar; garnet; ostracode.
- 340-350 Sand and clay - yellowish gray; moderate clay; abundant sand; fine to medium grained; subangular to rounded; moderately sorted; quartz (some green); 25% glauconite; muscovite; feldspar; forams scarce (inc. Nodosaria and Buccella); ostracodes.
- 350-360 Clay and sand - yellowish gray and green; abundant clay; moderate sand; fine to coarse grained, some granules; subangular to rounded; poorly sorted; quartz; 25% glauconite; feldspar; muscovite; forams; ostracodes; pyrite; fish tooth.
- 360-370 Clay - yellowish gray and green; abundant sand; fine grained to granular; subangular to rounded; poorly sorted; quartz; 20% glauconite; feldspar; muscovite; forams (inc. Marginulina); ostracode.
- 370-380 Sand - yellowish gray; abundant clay; fine grained to granular; subangular to rounded; poorly sorted; quartz; 35% glauconite; feldspar; muscovite; sandy limestone fragment; fish tooth; forams; pyrite.
- 380-390 Sand - light gray; slightly clayey; medium grained to granular, some pebbles; subangular to subrounded; moderately sorted; quartz; feldspar; 3% glauconite; muscovite; forams rare (inc. Robulus and Textularia ?).
- 390-400 As above except moderate clay; 7% glauconite; no Robulus.
- 400-410 As above plus garnet and Nodosaria.
- 410-420 Sand - yellowish gray; abundant clay; fine grained to granular, some pebbles; subangular to subrounded; poorly sorted; quartz; feldspar; 3% glauconite; muscovite; foram.
- 420-430 Sand and clay - yellowish gray; moderate clay-yellow, dark orange; abundant sand; fine to very coarse grained, some granules; subangular to subrounded; poorly sorted; quartz; feldspar; 10% glauconite; few flakes of muscovite.

Depth
(feet)

- 430-440 Clay and sand - yellowish gray; abundant clay; silty; moderate sand; fine to coarse grained; some granules; subangular to subrounded; poorly sorted; quartz; feldspar; 7% glauconite; muscovite; forams (inc. Siphogenerina and Nodosaria).
- 440-450 Clay - yellowish gray, dark orange and green; moderate sand; medium grained with some fine and coarse grains, few granules; subangular to rounded; moderately sorted; quartz; feldspar; 20% glauconite; muscovite; few grains of garnet.
- 450-460 Sand and clay - yellowish gray and green; medium to coarse grained, few granules; subangular to subrounded; moderately sorted; quartz; feldspar; 15% glauconite; muscovite.
- 460-470 Sand - yellowish gray; abundant clay; medium to coarse grained with some fine grains, few granules; subangular to subrounded; moderately sorted; quartz; feldspar; 7% glauconite; muscovite.
- 470-480 As above except fine to coarse grained; poorly sorted.
- 480-490 Sand - yellowish gray; moderate clay; medium grained to granular with some fine grains, some pebbles; subangular to subrounded; poorly sorted; quartz; feldspar; 7% glauconite; garnet; pyrite; fish tooth.
- 490-500 Sand - light olive gray; moderate clay; medium to very coarse grained, some granules; subangular to rounded; moderately sorted; quartz; feldspar; 15% glauconite.
- 500-510 Sand and clay - olive light gray; abundant clay; moderate sand; medium to very coarse grained, some granules, few pebbles; subangular to subrounded; poorly sorted; quartz; feldspar; 3% glauconite; muscovite.
- 510-520 As above except 10% glauconite.
- 520-530 As above plus few grains of garnet; 3% glauconite.
- 530-540 Sand - white; moderate clay; coarse grained to granular with some medium grains, some pebbles; subrounded; moderately sorted; quartz; feldspar; few grains of glauconite.
- 540-550 Sand - white; moderate clays (clasts); coarse grained to granular with some medium grains, some pebbles; subrounded; moderately well sorted; quartz; feldspar; some glauconite; muscovite; garnet; pyrite.
- 550-560 Sand and clay - olive light gray; moderate clay - yellow, red; abundant sand; coarse grained to granular with some medium grains, few pebbles, few pieces of gravel; subrounded; moderately sorted; quartz; feldspar; some glauconite.
- 560-570 As above plus some green and gray clays; yellow stain on quartz grains.

Depth
(feet)

- 570-580 Sand - light brownish gray; moderate clay-red, yellow, gray (some clasts); coarse grained to granular; subrounded; moderately well sorted; quartz; feldspar; 2% glauconite.
- 580-590 Clay - grayish orange, red, green; abundant sand; medium to very coarse grained; few granules; subangular to subrounded; moderately sorted; quartz; feldspar; 3% glauconite; muscovite.
- 590-600 Sand - brownish gray; abundant clay-yellow, red; medium to very coarse grained, some granules; subangular to subrounded; poorly sorted; quartz; feldspar; 3% glauconite; muscovite.
- 600-610 Sand and clay - yellowish gray; moderate clay-gray, red; abundant sand; medium to very coarse grained, some granules; subangular to subrounded; moderately sorted; quartz; feldspar; some glauconite; muscovite.
- 610-620 Clay and sand - yellowish gray; abundant clay-gray, dark orange, red; moderate sand; medium to coarse grained, some granules; subangular to subrounded; moderately sorted; quartz; feldspar; some glauconite; few shell fragments.
- 620-630 Sand - yellowish gray; abundant clay-gray, red; coarse grained to granular with some medium grains; subangular to subrounded; poorly sorted; quartz; feldspar; some glauconite.
- 630-640 Sand - white; slightly clayey; medium grained to granular; subangular to subrounded; poorly sorted; quartz; feldspar; some glauconite.
- 640-650 As above plus garnet.
- 650-660 Sand - yellowish gray; moderate clay; coarse grained to granular with some medium grains; subangular to subrounded; moderately well sorted; quartz; feldspar; some glauconite.
- 660-670 Sand - white; slightly clayey; coarse grained to granular, some pebbles; 30% granules; subrounded; moderately well sorted; quartz; feldspar; some glauconite; pyrite.
- 670-680 As above except moderate clay; few pebbles; 10% granules; few grains of glauconite.
- 680-690 Sand and clay - light olive brown; abundant clay-gray, red; moderate sand; coarse to very coarse grained, some granules; subangular to subrounded; moderately well sorted; quartz; feldspar; 2% glauconite; few shell fragments; pyrite.

Depth
(feet)

- 690-700 Sand and clay - light olive brown; abundant clay-gray, red; moderate sand; medium to coarse grained, some granules; subangular to sub-rounded; moderately sorted; quartz; feldspar; 2% glauconite; few grains of garnet; pyrite.
- 700-710 Sand - white; moderate clay; coarse to very coarse grained with some medium grains, few granules; subrounded; moderately well sorted; quartz; feldspar; some glauconite.
- 710-720 As above plus some orange clay.
- 720-730 Sand and gravel - salt and pepper; coarse to very coarse grained with some medium grains, some granules, 15% gravel; subangular to sub-rounded; poorly sorted; quartz; feldspar; glauconite; 15% of sand sized fraction; shell fragments; pyrite; forams (inc. Textularia).
- 730-740 Clay - light olive gray; abundant sand; medium to very coarse grained, some granules, 10% pebbles; subangular to rounded; poorly sorted; quartz; feldspar; glauconite 30% of sand sized fraction; shell fragments inc. gastropod; pyrite; forams (inc. Bulimina); siltstone fragment.
- 740-750 Clay and sand - light brown; abundant clay-orange, gray, red; moderate sand; medium to coarse grained, some granules, few pebbles; subangular to rounded; moderately sorted; quartz; feldspar; 7% glauconite; few shell fragments inc. gastropod.
- 750-760 Clay - light brown, red, orange; moderate sand; medium to coarse grained, few granules, few pebbles; subangular to rounded; moderately sorted; quartz; feldspar; some glauconite; muscovite; forams rare (inc. Siphogenerina).
- 760-770 As above plus gastropod.
- 770-780 Clay and sand - light brown; abundant clay-red, gray, orange; abundant sand; medium to coarse grained, few granules; subangular to rounded; moderately well sorted; quartz; feldspar; 15% glauconite; few shell fragments.
- 780-790 Clay - orange, gray, red; moderate sand; medium grained with some coarse grains, few granules; subangular to rounded; moderately well sorted; quartz; feldspar; glauconite; few shell fragments; muscovite; forams scarce (inc. Nonion and Siphogenerina).
- 790-800 As above plus pyrite; no Nonion.
- 800-810 Clay - gray, red; abundant sand; medium to coarse grained with some fine grains, few granules; subangular to subrounded; moderately sorted; quartz; feldspar; few grains of glauconite; muscovite; pyrite.

Depth
(feet)

810-820 As above.

820-830 As above.

830-840 Sand - light brown; moderate clay; coarse grained to granular; subangular to subrounded; moderately well sorted; quartz; feldspar; some glauconite; few grains of garnet.

840-850 As above except medium grained to granular; moderately sorted.

850-860 As above.

860-870 Sand - white; moderate clay-gray, red, yellow; coarse grained to granular; subrounded; moderately well sorted; quartz; feldspar.

870-880 As above except slightly clayey; some pebbles; some glauconite.

880-890 Sand and clay - light brown; moderate clay-red, gray, yellow; abundant sand; coarse grained to granular with some medium grains, few pebbles; subangular to subrounded; moderately sorted; quartz; feldspar; some glauconite; few grains of garnet.

890-900 Sand - brownish gray; abundant clay; coarse grained to granular, some pebbles; subrounded; moderately well sorted; quartz; feldspar; some glauconite.

900-910 Sand - pale yellowish brown; moderate clay-gray, red, yellow; coarse grained to granular, some pebbles; subrounded; moderately sorted; quartz; feldspar.

910-920 Sand - white; slightly clayey; coarse grained to granular, 30% granules, 10% pebbles; subrounded; moderately well sorted; quartz; feldspar.

920-930 As above plus garnet; few grains of glauconite; pyrite; only 10% granules; 5% pebbles.

930-940 Sand - white; slightly clayey-gray, red; coarse grained to granular with some medium grains, some pebbles; subrounded; moderately sorted; quartz; feldspar; some glauconite; garnet.

940-950 Clay - moderate yellowish brown; abundant sand; medium to coarse grained, some granules, few pebbles; subangular to rounded; poorly sorted; quartz; feldspar; 3% glauconite; pyrite; forams scarce (inc. Nonion).

950-960 Clay - light brown, red; abundant sand; coarse grained to granular with some medium grains, some pebbles; subangular to subrounded; poorly sorted; quartz; feldspar; 2% glauconite; garnet; muscovite.

Depth
(feet)

- 960-970 Sand - salt and pepper; moderate clay-gray, red; medium to very coarse grained, some granules; subangular to rounded; moderately well sorted; quartz; feldspar; 20% glauconite; garnet; pyrite.
- 970-980 Sand - light brownish gray; abundant clay-gray, yellow, red; coarse grained to granular with some medium grains; subangular to sub-rounded; moderately sorted; quartz; feldspar; 3% glauconite; few shell fragments; few grains of garnet.
- 980-990 Sand - white; moderate clay-gray, red; coarse grained to granular with some medium grains, 7% pebbles; subangular to subrounded; poorly sorted; quartz; feldspar; 3% glauconite.
- 990-1000 As above except some glauconite.
- 1000-1010 Sand - white; slightly clayey; medium grained to granular; sub-angular to subrounded; moderately sorted; quartz; feldspar; 2% glauconite; muscovite; pyrite.
- 1010-1020 Sand - white; moderate clay-gray, red; coarse grained to granular with some medium grains; subangular to subrounded; poorly sorted; quartz; feldspar; some glauconite; muscovite.
- 1020-1030 As above except few pebbles; 2% glauconite.
- 1030-1040 As above plus some clay clasts-gray, yellow; some glauconite.
- 1040-1050 Sand - white; slightly clayey; coarse grained to granular, few pebbles; subrounded; moderately well sorted; quartz; feldspar; 3% glauconite; large sandy limestone fragment.
- 1050-1060 Sand - white; moderate clay with some clasts - gray, red; coarse grained to granular, some pebbles; subrounded; moderately sorted; quartz; feldspar; some glauconite; very large sandy limestone fragment.
- 1060-1070 As above except no limestone.
- 1070-1080 Sand - white; some staining; slightly clayey with some clasts; coarse grained to granular, few pebbles; subrounded; moderately sorted; quartz; feldspar; 2% glauconite.
- 1080-1090 As above except some pebbles; 5% glauconite.
- 1090-1100 Sand - white; slightly clayey-gray, red; coarse grained to granular with some medium grains, some pebbles; subrounded; moderately sorted; quartz; feldspar; 3% glauconite; pyrite.
- 1100-1110 Sand - white; moderate clay; coarse grained to granular with some medium grains; subangular to subrounded; moderately sorted; quartz; feldspar; some glauconite; gastropod.

Depth
(feet)

- 1110-1120 Sand — white; moderate clay-gray, red; coarse grained to granular with some medium grains, few pebbles; subangular to subrounded; moderately sorted; quartz; feldspar; some glauconite.
- 1120-1130 As above.
- 1130-1140 Sand — white; slightly clayey; coarse grained to granular; subrounded; moderately sorted; quartz; feldspar; some glauconite.
- 1140-1150 Sand — white; moderate clay; very coarse grained to granular with some coarse grains; subrounded; moderately well sorted; quartz; feldspar; some glauconite.
- 1150-1160 Sand — white; slightly clayey; coarse grained to granular with some medium grains, few pebbles; subangular to subrounded; poorly sorted; quartz; feldspar; few grains of glauconite.
- 1160-1170 As above except medium grained to granular; 3% glauconite.
- 1170-1180 Sand and clay — olive light gray; moderate clay (clasts)-gray, yellow, red; abundant sand; coarse grained to granular with some medium grains, some pebbles; subangular to subrounded; poorly sorted; quartz; feldspar; glauconite 10% of sand fraction; shell fragments inc. gastropods; forams scarce (inc. Nonion); pyrite; limestone fragment.
- 1180-1190 Sand — white; slightly clayey (clasts); gray, yellow, red; coarse grained to granular, 5% pebbles; subrounded; moderately sorted; quartz; feldspar; some glauconite; few shell fragments; forams rare (inc. Bulimina).
- 1190-1200 As above except 2% glauconite, pyrite; no Bulimina.
- 1200-1210 Sand — olive light gray; moderate clay (clasts); gray, red, yellow; coarse grained to granular, few pebbles; subrounded; moderately sorted; quartz; feldspar; 3% glauconite; few shell fragments.
- 1210-1220 As above plus gastropod.
- 1220-1230 As above except 5% glauconite.
- 1230-1240 Sand — olive light gray; moderate clay (clasts)-gray, red, yellow; granular with some very coarse grains, some pebbles; subrounded; moderately well sorted; quartz; feldspar; some glauconite; shell fragments inc. gastropods; sandy limestone fragments; ostracode; fish tooth.

GEOLOGIC SUMMARY

<u>Thickness (feet)</u>	<u>Rock Unit</u>	<u>Time Rock Unit</u>
60	Norfolk Formation	Pleistocene
130	Calvert Formation	Miocene-Eocene
70	Nanjemoy Formation	Eocene
60	Mattaponi Formation	Eocene-Cretaceous
920 ⁺	Patuxent Formation	Cretaceous

Virginia Division of Mineral Resources
David A. Hubbard, Jr., Geologist
July 25, 1978