

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF CONSERVATION AND ECONOMIC DEVELOPMENT

W#: 5423
C#: 203

MAILING ADDRESS:
P. 3667
Charlottesville, VA 22903

DIVISION OF MINERAL RESOURCES

JAMES L. CALVER, COMMISSIONER

OFFICE ADDRESS:
McCormick Road
Charlottesville, Virginia

WATER WELL COMPLETION REPORT

OWNER: Surburban Water Supply Mailing Address: Box 897 / Warsaw, VA / 22572

TENANT: Ebbtide Beach well #2 Mailing Address: Box 897 / Warsaw, VA / 22572

DRILLER: Mitchell's Well & Pump Co., Mailing Address: 16815 Happy Hill Rd., Colonial Hts.,

WELL LOCATION: County Westmoreland Approx. feet miles Va. 23834 (direction) of

Ebbtide Beach 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: Sept. 1977 DATE COMPLETED: May 1978

TYPE OF DRILL RIG USED: Rotary TOTAL DEPTH 975 feet (completed at 444.33')

WATER LEVEL: Stands 34.36 feet below surface OR

has NATURAL flow of gallons per minute.

YIELD TEST: Method pumped

Drawdown 66.99 * feet

Rate 67.41 gal. per min.

Duration 48 hrs., -- min.

HOLE SIZE: 12 inches from 0 to 25 feet

10 inches from 25 to 210 feet

6 inches from 210 to 975 feet

SCREEN SIZE: 4 inches from 212.50 to 222.66 feet

4 inches from 412.38 to 422.38 feet

 inches from to feet

CASE SIZE: 6 inches from +1 to 212.8 feet

4 inches from 222.6 to 412.4 feet

4 inches from 422.4 to 444.3 feet

WATER ZONES: from to feet

from to feet

from to feet

WATER: Color Taste

Odor Temp. °F

WELL TO SUPPLY: (check one) Home

Farm Town School

Industry Other Subdivision

GROUTING: Method Poured in. From surface to

cement, sand & gravel Depth 25 feet

PUMP: Type

Capacity gal. per min

Depth of intake feet

WATER ANALYSIS AVAILABLE: Yes X No

DRILL CUTTINGS SAVED: Yes X 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: * 60.06' drawdown after 15 hrs. pumping, and 101.35' drawdown after
20 hrs. pumping; no change in pumping level last 28 hrs. of pump
test.

LOG

FURNISHED BY: J. J. Mitchell, III

DATE: _____

DEPTH (feet)		TYPE OF ROCK OR SOIL PENETRATED (gravel, clay, etc., hardness, color, etc.)	REMARKS (water, caving, shot, screen, sample, etc.)
FROM	TO		
0	0	gray top soil	
	10	gray mud	
20	100	gray mud	
110	200	gray earth-shell fragments	
	210	gray & tan mud	
	220	gray mud & gravel	
230	480	gray earth & shells	
490	590	gray earth, gravel, shells	
600	640	tan clay, shells, gravel	
650	660	tan clay, shells	
670	950	tan mud	
960	975	tan gravel	

(Use additional forms if necessary)

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

INTERVAL SHEET

Page 1 of 1
Date rec'd: 11/1/78 Date Processed: 2/29/79
PROPERTY: Suburgan Water Supply (Ebbtide Beach #2)
COMPANY: Mitchell's W & P Co
COUNTY: Westmoreland (Oak Grove)

W#: 5423
Well Repository No: C#: 203
Sample Interval: from: ^{10'} to: 970'
Number of samples: 98
Total Depth: 975'
Oil or Gas: Water: Exploratory:

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

All intervals have both washed and unwashed samples.

OWNER: Suburban Water Supply
(Ebbtide Beach #2)
DRILLER: Mitchell's W & P Co.
COUNTY: Westmoreland

W#: 5423
C#: 203
TOTAL DEPTH: 975'
QUAD: Colonial Beach South

GEOLOGIC LOG

Depth
(feet)

- 0 Sand and clay - yellowish gray; moderate clay; abundant sand; fine to medium grained; subangular to subrounded; well sorted; quartz; feldspar; some lignite; few opaques.
- 0 - 10 Sand - olive light gray; slightly clayey; fine grained, few granules; subangular to subrounded; well sorted; quartz; few bone fragments; glauconite.
- 10 - 20 As above plus few black phosphatic fragments.
- 20 - 30 As above except moderate clay; some granules
- 30 - 40 Clay - yellowish gray; slightly sandy; fine grained; subangular; well sorted; quartz; few bone fragments.
- 40 - 50 As above.
- 50 - 60 As above plus 2% black phosphatic material.
- 60 - 70 Sand - light olive gray; moderate clay; fine grained, few granules; subangular; well sorted; quartz; some muscovite; some black phosphatic material; few grains of glauconite; few bone fragments.
- 70 - 80 Sand - light olive gray; moderate clay; fine grained, some granules; subangular; well sorted; quartz, 3% glauconite; 2% muscovite; few black phosphatic fragments.
- 80 - 90 Sand - light olive gray; moderate clay; fine grained, some very coarse grains, 7% granules; subangular to rounded; moderately sorted; quartz; 10% glauconite; 3% muscovite; few black phosphatic fragments; few pieces of lignite.
- 90 - 100 As above except olive light gray; 15% glauconite; few shell fragments; no lignite.
- 100 - 110 Sand - olive light gray; moderate clay; fine to medium grained; subangular to rounded; well sorted; 60% glauconite; quartz; some muscovite; some limestone and shell fragments; forams scarce (inc. Robulus and Buccella).

Depth
(feet)

- 110 - 120 As above except 50% glauconite; forams (inc. Buccella); no limestone.
- 120 - 130 As above plus few pieces of lignite.
- 130 - 140 Sand - olive light gray; moderate clay; medium grained, some fine grains; subangular to rounded; well sorted; 70% glauconite; quartz; some shell fragments; some muscovite.
- 140 - 150 Sand - olive light gray; moderate clay; fine to medium grained, some coarse grains, subangular to rounded; moderately well sorted; 50% glauconite; quartz; some limestone and shell fragments; some muscovite; forams scarce (inc. Buccella and Dentalina).
- 150 - 160 Sand - light olive gray; moderate clay; fine to medium grained; subangular to rounded; moderately well sorted; quartz; 20% glauconite; some muscovite; few shell fragments.
- 160 - 170 As above except 35% glauconite.
- 170 - 180 Sand - olive light gray; slightly clayey; fine to medium grained; subangular to rounded; moderately well sorted; quartz; 50% glauconite; few flakes of muscovite; few shell fragments.
- 180 - 190 Sand - olive light gray; moderate clay; fine to medium grained; subangular to rounded; moderately well sorted; quartz; 35% glauconite; some muscovite; few shell fragments; pyrite.
- 190 - 200 As above except no pyrite.
- 200 - 210 Clay - grayish orange pink; abundant sand; fine to medium grained, few granules; subangular to rounded; moderately well sorted; quartz; glauconite 30% of sand sized fraction; some muscovite; few shell fragments.
- 210- 220 Sand - olive light gray; moderate clay; medium grained, some granules; subangular to rounded; well sorted; quartz; 35% glauconite (black, brown, green); 20% sandy limestone fragments; some shell fragments; forams (inc. Nodosaria and Robulus).
- 220 - 230 As above except sand and sandy limestone fragments (40%); no Robulus.
- 230 - 240 Sand - olive light gray; moderate clay; medium grained; subangular to rounded; well sorted; quartz; 30% glauconite; 30% sandy limestone and shell fragments; few black phosphatic fragments inc. shark's tooth.

Depth
(feet)

- 240 - 250 Coquina - medium light gray; slightly clayey (clasts) - grayish orange pink; abundant sand; medium grained; sub-rounded to rounded; well sorted; 80% sandy limestone and shell fragments; 10% glauconite; quartz; forams rare (inc. Nodosaria).
- 250 - 260 Sand - salt and pepper; medium to coarse grained; rounded; well sorted; quartz; 35% glauconite; 10% sandy limestone fragments; few shell fragments.
- 260 - 270 As above except 15% sandy limestone fragments.
- 270 - 280 Coquina - light olive gray; near 100% sandy limestone and shell fragments; few grains of quartz; forams rare (inc. Nodosaria).
- 280 - 290 Sand and coquina - light olive gray; medium grained; sub-rounded to rounded; well sorted; 40% sandy limestone and shell fragments; 35% glauconite; quartz; forams common (inc. Buccella, Robulus, and Nodosaria).
- 290 - 300 Sand - light olive gray; moderate clay - light olive gray, moderate orange pink; medium grained, some fine grains; sub-angular to rounded; well sorted; quartz; 30% glauconite; 10% sandy limestone and shell fragments; forams (inc. Buccella and Globulina?); few echinoid spines.
- 300 - 310 Sand - light olive gray; some heavily stained grains; medium grained, some coarse grains; subrounded to rounded; well sorted; quartz; 25% glauconite; some sandy limestone and shell fragments; forams common (inc. Buccella, Nodosaria, Dentalina and Robulus); few echinoid spines; muscovite; ostracodes.
- 310 - 320 As above except forams (inc. Nodosaria, Buccella, and Robulus).
- 320 - 330 As above except slightly clayey.
- 330 - 340 Sand - light olive gray; moderate clay - light olive gray, dusky yellow; medium grained, some fine grains, few granules; subangular to rounded; moderately well sorted; quartz; 30% glauconite; 2% shell fragments; forams (inc. Nodosaria and Buccella).
- 340 - 350 As above except no granules.
- 350 - 360 Sand - light olive gray; abundant clay - light olive gray, dusky yellow; medium grained, some fine grains, some coarse grains; subangular to rounded; moderately well sorted; quartz; 20% glauconite; few shell fragments; forams (inc. Buccella and Robulus).

Depth
(feet)

- 360 - 370 Sand - yellowish gray; slightly clayey; medium to coarse grained; subangular to subrounded; moderately well sorted; quartz; feldspar, 5% glauconite; some muscovite; few shell fragments; forams scarce (inc. Buccella).
- 370 - 380 Sand - yellowish gray; moderate clay; fine to medium grained, some coarse grains; subangular to subrounded, moderately sorted; quartz; feldspar; 3% glauconite; some muscovite.
- 380 - 390 Sand - yellowish gray; slightly clayey; medium grained to granular; subangular to subrounded; poorly sorted; quartz; feldspar; 5% glauconite; some muscovite; few grains of garnet.
- 390 - 400 As above except moderate clay.
- 400 - 410 As above plus few pebbles.
- 410 - 420 Sand - yellowish gray; slightly clayey; medium to very coarse grained, some granules; subangular to subrounded; moderately sorted; quartz; feldspar; 2% glauconite; some muscovite.
- 420 - 430 Sand - yellowish gray; medium to coarse grained, some very coarse grains, few granules; subangular to subrounded; moderately well sorted; quartz; feldspar; 3% glauconite, some muscovite; few grains of garnet.
- 430 - 440 As above except medium to very coarse grained; moderately sorted; 5% glauconite.
- 440 - 450 Sand - yellowish gray; slightly clayey; medium grained; subangular to rounded; well sorted; quartz; 15% glauconite; feldspar; few flakes of muscovite; garnet.
- 450 - 460 As above
- 460 - 470 Sand - light olive gray; moderate clay; medium to coarse grained; some granules; subangular to rounded; moderately sorted; quartz; 20% glauconite; feldspar; few flakes of muscovite; garnet.
- 470 - 480 As above except 15% glauconite.
- 480 - 490 Clay - light olive gray; light brown, dark yellowish orange; slightly sandy; fine to medium grained; subangular to subrounded; moderately well sorted; quartz; few grains of feldspar; muscovite.
- 490 - 500 As above except moderate sand.

Depth
(feet)

- 500 - 510 As above except medium to coarse grained, some fine grains, few granules.
- 510 - 520 As above except some granules.
- 520 - 530 As above except fine to medium grained, few granules.
- 530 - 540 As above.
- 540 - 550 As above.
- 550 - 560 As above.
- 560 - 570 As above.
- 570 - 580 As above except abundant sand; some glauconite.
- 580 - 590 As above except moderate sand.
- 590 - 600 Clay - light olive gray; moderate sand; medium grained to granular; subangular to subrounded; poorly sorted; quartz; some feldspar; few grains of glauconite; muscovite.
- 600 - 610 As above except abundant sand; some glauconite.
- 610 - 620 As above.
- 620 - 630 Sand - light olive gray; moderate clay; medium to very coarse grained, some granules; subangular to subrounded; moderately sorted; quartz; feldspar; few flakes of muscovite; glauconite.
- 630 - 640 As above except medium to coarse grained, some very coarse grains, some granules; moderately well sorted.
- 640 - 650 As above except 5% granules; moderately sorted.
- 650 - 660 As above except medium grained to granular.
- 660 - 670 Clay and sand - light olive gray; abundant clay; moderate sand; medium to coarse grained, 10% granules; subangular to subrounded; moderately sorted; quartz; feldspar; few grains of glauconite; muscovite.
- 670 - 680 As above.
- 680 - 690 Sand - olive light gray; moderate clay; medium grained to granular; subangular to subrounded; poorly sorted; quartz; feldspar; some glauconite; few flakes of muscovite.

Depth
(feet)

- 690 - 700 As above except medium to coarse grained, some granules; moderately well sorted.
- 700 - 710 As above plus some lignite.
- 710 - 720 As above except abundant clay.
- 720 - 730 Clay and sand - light olive gray; abundant clay; moderate sand; medium to coarse grained, some granules; subangular to subrounded; moderately sorted; quartz; feldspar; some glauconite; few flakes of muscovite; lignite.
- 730 - 740 Sand - light olive gray; moderate clay; medium to very coarse grained, some granules; subangular to subrounded; moderately sorted, quartz; feldspar; some glauconite; few flakes of muscovite.
- 740 - 750 As above plus some lignite.
- 750 - 760 As above.
- 760 - 770 As above except sand and clay; moderate clay; abundant sand.
- 770 - 780 Clay - light olive gray; moderate sand; medium to coarse grained, 50% granules; subangular to subrounded; poorly sorted; quartz; feldspar; few grains of glauconite; muscovite.
- 780 - 790 As above except 10% granules; moderately sorted.
- 790 - 800 Sand - light olive gray; moderate clay; medium to coarse grained, some granules; subangular to subrounded; moderately well sorted; quartz; feldspar; few grains of glauconite; muscovite.
- 800 - 810 Clay and sand - light olive gray; abundant clay; moderate sand, coarse grained to granular; subangular to subrounded; moderately sorted; quartz; feldspar; few flakes of muscovite; glauconite; lignite.
- 810 - 820 Clay - light olive gray; slightly sandy; coarse grained to granular; subangular to subrounded; moderately sorted; quartz; feldspar; few flakes of muscovite.
- 820 - 830 Clay - light olive gray; abundant sand; medium to coarse grained, 10% granules; subangular to subrounded; moderately sorted; quartz; feldspar; some muscovite; few pieces of lignite.

Depth
(feet)

- 830 - 840 Clay - light olive gray; moderate sand; coarse grained to granular; subangular to subrounded; moderately sorted; quartz; feldspar; few flakes of muscovite.
- 840 - 850 Sand - light olive gray; abundant clay; coarse grained to granular, some medium grains; subangular to subrounded; moderately sorted; quartz; feldspar; few grains of glauconite; muscovite; lignite.
- 850 - 860 As above except no medium grains.
- 860 - 870 As above.
- 870 - 880 Sand and clay - light olive gray; moderate clay; abundant sand; medium to coarse grained, some granules; subangular to subrounded; moderately well sorted; quartz; feldspar; few grains of glauconite; muscovite.
- 880 - 890 Sand - light olive gray; slightly clayey; medium to coarse grained, few granules; subangular to subrounded; well sorted; quartz; feldspar; some glauconite; few flakes of muscovite.
- 890 - 900 As above.
- 900 - 910 As above except fine to coarse grained; moderately sorted.
- 910 - 920 As above except moderate clay.
- 920 - 930 Sand - light olive gray; abundant clay; medium to coarse grained; subangular to subrounded; moderately well sorted; quartz; feldspar; few grains of glauconite; muscovite.
- 930 - 940 As above except moderate clay; medium to coarse grained, some fine grains.
- 940 - 950 Sand and clay - light olive gray; moderate clay; abundant sand; coarse grained to granular; subangular to subrounded; moderately sorted; quartz; feldspar; few grains of glauconite; muscovite.
- 950 - 960 Granules - light olive gray; slightly clayey; abundant sand; coarse to very coarse grained; subrounded; well sorted; quartz; feldspar; few grains of glauconite; muscovite.
- 960 - 970 As above.
- 970 - 975 No sample.

Logged by: Michael T. Currie
March 27, 1979

OWNER: Suburban Water Supply
(Ebbtide Beach #2)

- 8 -

W#: 5423

GEOLOGIC SUMMARY

<u>Depth</u> <u>(feet)</u>	<u>Thickness</u> <u>(feet)</u>	<u>Rock Unit</u>	<u>Time Rock Unit</u>
0- 30	30	Choptank Formation	Miocene
30- 60	30	Calvert Formation	Miocene
60-200	140	Nanjemoy Formation	Eocene
200-210	10	Marlboro Clay	Eocene
210-360	150	Aquia Formation	Eocene-Cretaceous
360-970	610	Potomac Group	Cretaceous
970-975	5	No sample	

VIRGINIA DIVISION OF MINERAL RESOURCES
David A. Hubbard, Jr., Geologist
March 30, 1979