

COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF CONSERVATION AND ECONOMIC DEVELOPMENT

MAILING ADDRESS:  
Box 3667  
Charlottesville, VA 22903

DIVISION OF MINERAL RESOURCES  
JAMES L. CALVER, COMMISSIONER  
WATER WELL COMPLETION REPORT

OFFICE ADDRESS:  
McCormick Road  
Charlottesville, Virginia

OWNER: County of Henrico Mailing Address: Main Street, Richmond, Virginia

TENANT: Bond Street Well Mailing Address: \_\_\_\_\_

DRILLER: Sydnor Hydrodynamics, Inc. Mailing Address: 1305 Brook Road, Richmond, Va.

WELL LOCATION: County Henrico Approx. 60 <sup>feet</sup>/~~miles~~ Northwest (direction) of  
Bond Street and 200 <sup>feet</sup>/~~miles~~ Northeast (direction) of Defense Drive

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

DATE STARTED: 4/24/69 DATE COMPLETED: \_\_\_\_\_

TYPE OF DRILL RIG USED: Rotary TOTAL DEPTH 540 feet

WATER LEVEL: Stands 155 feet below surface OR  
has NATURAL flow of \_\_\_\_\_ gallons per minute.

YIELD TEST: Method Turbine  
Drawdown 112 feet  
Rate 340 gal. per min.  
Duration 72 hrs., \_\_\_\_\_ min.

HOLE SIZE: 24 inches from 0 to 50 feet  
19 1/4 inches from 50 to 470 feet  
7 7/8 inches from 470 to 540 feet  
SCREEN SIZE: 8 inches from 304 to 312 feet  
8 inches from 318 to 360 feet  
8 inches from 404 to 456 feet  
CASE SIZE: 10 inches from +2 to 304 feet  
8 inches from 312 to 318 feet  
8 inches from 360 to 404 feet  
8 inches from 456 to 461 feet

WATER ZONES: from 304 to 312 feet  
from 318 to 360 feet  
from 404 to 456 feet

WATER: Color \_\_\_\_\_ Taste \_\_\_\_\_  
Odor \_\_\_\_\_ Temp. \_\_\_\_\_ °F

WELL TO SUPPLY: (check one) Home \_\_\_\_\_  
Farm \_\_\_\_\_ Town \_\_\_\_\_ School \_\_\_\_\_  
Industry \_\_\_\_\_ Other County

GROUTING: Method Pressure  
Material Cement & Water Depth 50 feet

WATER ANALYSIS AVAILABLE: Yes X No \_\_\_\_\_

PUMP: Type \_\_\_\_\_  
Capacity \_\_\_\_\_ gal per min  
Depth of intake \_\_\_\_\_ feet

DRILL CUTTINGS SAVED: Yes 53 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: Electric log run

LOG

FURNISHED BY: Sydnor Hydrodynamics, Inc.

DATE: 7/25/69

DEPTH (feet)		TYPE OF ROCK OR SOIL PENETRATED (gravel, clay, etc., hardness, color, etc.)	REMARKS (water, caving, shot, screen, sample, etc.)
FROM	TO		
0	7	Redish brown clay	
7	12	Brown and yellow clay	
12	23	Brown coarse sand	
23	47	Large coarse gravel and sand	
47	70	Blue shale and clay	
70	110	Blue shale and clay with hard streaks	
110	117	Blue shale	
117	134	Brown clay	
134	149	Dark gray silty clay	
149	158	Shells and dark gray silty clay and mica	
158	173	Hard sand and gravel	
173	179	Green marl and shale	
179	190	Gray sand clay	
190	268	Hard sand and gravel	
268	285	Sand clay	
285	314	White shale - clay	
314	318	Sand and gravel	
318	330	Shale and gravel streaks	
330	342	Sand and gravel	
342	357	Hard gray shale	
357	359	Sand	
359	390	Hard gray and brown shale	
390	406	Hard brown and blue shale	
406	420	White silty clay	
420	440	Hard sand clay	
440	451	Sand clay	
451	456	White gray and brown sand	
456	475	Hard redish brown shale	
475	492	Hard gray shale	
492	540	Hard brown shale	

(Use additional forms if necessary)

COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF CONSERVATION AND ECONOMIC DEVELOPMENT

C-199  
W-2683  
OFFICE ADDRESS:  
McCormick Road  
Charlottesville, Virginia

MAILING ADDRESS:  
Box 3667  
Charlottesville, VA 22903

DIVISION OF MINERAL RESOURCES  
JAMES L. CALVER, COMMISSIONER  
WATER WELL COMPLETION REPORT

OWNER: County of Henrico Mailing Address: Main Street, Richmond, Virginia

TENANT: Bond Street Well (Sandston) Mailing Address: \_\_\_\_\_

DRILLER: Sydnor Hydrodynamics, Inc. Mailing Address: 1305 Brook Road, Richmond, Virginia

WELL LOCATION: County Henrico Approx. 60 <sup>feet</sup>/<sub>miles</sub> Northwest (direction) of  
Bond Street and 200 <sup>feet</sup>/<sub>miles</sub> Northeast (direction) of Defense Drive

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

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Rate 340 gal. per min.  
Duration 72 hrs., \_\_\_\_\_ min.

HOLE SIZE: 24 inches from 0 to 50 feet  
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from 318 to 360 feet  
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SCREEN SIZE: 8 inches from 304 to 312 feet  
8 inches from 318 to 360 feet  
8 inches from 404 to 456 feet

WATER: Color \_\_\_\_\_ Taste \_\_\_\_\_  
Odor \_\_\_\_\_ Temp. \_\_\_\_\_ °F

CASE SIZE: 10 inches from +2 to 304 feet  
8 inches from 312 to 318 feet  
8 inches from 360 to 404 feet  
8 inches from 456 to 461 feet

WELL TO SUPPLY: (check one) Home \_\_\_\_\_  
Farm \_\_\_\_\_ Town \_\_\_\_\_ School \_\_\_\_\_  
Industry \_\_\_\_\_ Other \_\_\_\_\_ County \_\_\_\_\_

GROUTING: Method Pressure  
Material Cement & Water Depth 50 feet

WATER ANALYSIS AVAILABLE: Yes X No \_\_\_\_\_

PUMP: Type \_\_\_\_\_  
Capacity \_\_\_\_\_ gal. per min.

DRILL CUTTINGS SAVED: Yes X No \_\_\_\_\_

Depth of intake \_\_\_\_\_ feet

(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: Electric log run

ELEV. : 150'

Triassic Present

SEVEN PINES QUADRANGLE



C-199

# GEOPHYSICAL WELL SURVEY

SYDNOR PUMP & WELL COMPANY, INC.  
1305 BROOK ROAD - RICHMOND, VA

W-2683

**CUSTOMER:** County of Henrico  
**LOCATION:** Bond Street  
**COUNTY:** Henrico **STATE:** Virginia  
**WELL NO.:** Bond St. **LOCATION:** 60' Northwest of Bond Street  
 200' Northeast of Defense Drive  
**DEPTH:** 540' **DATA FROM:** Ground level **ELEVATION:**  
**HOLE DIAMETER:** 7 7/8" **DESCRIPTION:** Sand, clay, gravel and rock  
**MUD: KIND:** Aquagel **WEIGHT:**  
**VISCOSITY:** **RESISTIVITY:** °F  
**CASING:** 75' 8" jacket pipe

**ENGINEER:** Ranney Water Systems, Inc.  
**ADDRESS:** 1134 Corrugated Way  
 Columbus, Ohio 43201

**DRILLER:** Charles Mitchell

TYPE OF SURVEY:	
16" Normal	20 ohms/"
63" Normal	20 ohms/"
Single Point	10 ohms/"
Self Potential	5 MV/"

**REMARKS:**  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
**LOGGED BY:** C. C. Norris  
**DATE:** 5-19-69

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

INTERVAL SHEET

Page 1 of 1

C - 199  
 Well Repository No: W - 2683

Date rec'd: 10-16-69 Date Processed:

Sample Interval: from 0 to: 540

PROPERTY: Henrico Co. Bond St.

Number of samples: 53

COMPANY: Sydnor Hydrodynamics, Inc

Total Depth: 540'

COUNTY: Henrico (Sandston)

Oil or Gas: Water: \* Exploratory:

From-To	From-To	From-To	From-To
0 - 10	260 - 270	510 - 520	-
10 - 20	270 - 280	520 - 530	-
20 - 30	280 - 290	530 - 540	-
30 - 40	290 - 300	-	-
40 - 50	300 - 310	-	-
50 - 70	310 - 320	-	-
70 - 80	320 - 330	-	-
80 - 90	330 - 340	-	-
90 - 100	340 - 350	-	-
100 - 110	350 - 360	-	-
110 - 120	360 - 370	-	-
120 - 130	370 - 380	-	-
130 - 140	380 - 390	-	-
140 - 150	390 - 400	-	-
150 - 160	400 - 410	-	-
160 - 170	410 - 420	-	-
170 - 180	420 - 430	-	-
180 - 190	430 - 440	-	-
190 - 200	440 - 450	-	-
200 - 210	450 - 460	-	-
210 - 220	460 - 470	-	-
220 - 230	470 - 480	-	-
230 - 240	480 - 490	-	-
240 - 250	490 - 500	-	-
250 - 260	500 - 510	-	-

All intervals have both washed and unwashed samples

OWNER: County of Henrico  
DRILLER: Sydnor Hydrodynamics, Inc.  
COUNTY: Henrico (Sandston)

W: 2683  
C: 199  
TOTAL DEPTH: 540'

GEOLOGIC LOG

Depth in feet

COLUMBIA GROUP (0-47')

- 0-10 Clay - light-gray, mottled orange-brown and subordinately red; small amount angular quartz silt
- 10-20 Sand - pale orange-brown, slightly clayey; fine- to very coarse-grained, rather poorly sorted, angular to subangular; mainly clear, blue, and iron-stained quartz (orange, red, yellow, brown); muscovite and magnetite present
- 20-30 As above, except: mainly coarse- to very coarse-grained
- 30-40 Sand - orange-brown (deeply stained), slightly clayey; coarse- to very coarse-grained, fairly well-sorted, subangular to subrounded; grades into granule gravel; iron-stained quartz of several types, with some detrital chert, other rock fragments, and weathered feldspar
- 40-50 As above, except: a well-sorted, subrounded granule gravel; more intensely stained (orange) than overlying sand; small amount of gray sandy clay in interval

CALVERT FORMATION (47-80') Top of formation defined on basis of other information.

- 50-70 Clay - gray, uniformly silty (medium-grained, angular quartz silt); about 15 percent iron-stained granule gravel fairly evenly distributed through the clay; traces of glauconite, muscovite, magnetite, diatoms, and plant remains
- 70-80 Sand - binder of medium-gray silty clay; very fine- to medium-grained, fairly well-sorted, angular to subangular; clear to very pale-green quartz with 5 to 10 percent fragmental phosphorite; trace amounts ( 2 percent) of glauconite, magnetite, kyanite, garnet, epidote (?), sphene (?), and shell fragments (all are fine- to very fine-grained)

## NANJEMOY FORMATION (80-134')

- 80-90 Clay - brownish-gray, silty and slightly sandy, with laminae of very light-gray to white silt and sand free clay; sand component is medium- to very fine-grained, moderately sorted, moderately glauconitic; muscovite common
- 90-100 Sand and Silt - gray, moderately clayey; coarse-grained silt to medium-grained sand, fairly well-sorted; 65 to 75 percent medium- to light-green glauconite, and 25 to 35 percent clear angular quartz; traces of muscovite and pyrite
- 100-110 Sand and Silt - gray, moderately clayey; coarse-grained silt to medium-grained sand; about 40 percent medium- to light-green glauconite, and 60 percent angular quartz; quartz is finer-grained (coarse-grained silt to fine-grained sand) and better sorted than the glauconite; micaceous; scattered nodules and other fragments of phosphorite
- 110-120 Silt, Sand, and Clay - interlaminations of dark brownish-gray clayey glauconitic silt to fine-grained sand; very light-gray essentially sand-free clay; and pinkish-orange sand-free clay. Laminations of glauconitic silt-sand are similar to 90-110' interval but contain 10 to 20 percent chalky shells and shell fragments
- 120-130 As above, except: pink clay is much more abundant
- 130-140 Silt, Sand, and Clay - interlaminations of dark brownish-gray clayey glauconitic silt to fine-grained sand; medium- to very coarse-grained, poorly sorted, quartzo-feldspathic sand with matrix of pale-yellow clay, and subordinate laminae of pinkish-orange and very light-gray clays; a few chalky shell fragments (in dark-gray silt-sand) and a few small pebbles (in the coarse-grained sand)

## MATTAPONI FORMATION (134-173') Top of formation defined on basis of other information.

- 140-150 Sand - dark brownish-gray, moderately silty, slightly clayey; with about 25 percent chalky molluscan shell debris; including Turritella sp.; very fine- to medium-grained, well-sorted; about 50 percent pale-green and clear quartz; about 50 percent medium- to dark-green glauconite, mainly comparable in size to the quartz, but ranging to 1.0 mm; free crystals of gypsum are common; traces of bone fragments, plant fragments, nodular phosphorite, pyrite and muscovite; a few small lenticulinid foraminifers

- 150-160 As 140-150' interval, except: with trace of glauconite-pigmented granule gravel
- 160-170 Gravel - matrix of gray sand described above (140-150' interval); fine-grained (1 to 10 mm) polymict gravel; subrounded to rounded grains and reangulated fragments (broken rounds) of quartz, potassic feldspar, quartzite, phosphorite, other rock fragments, and worn shells; many grains of all types are permeated with submicroscopic glauconite; relatively large clasts of garnet and sphene (?) common

PATUXENT FORMATION (173-510') Top of formation defined on basis of other information.

- 170-180 Sand - sparse matrix of pale-yellowish clay; trace of glauconite-stained gravel described above (160-170' interval); fine- to coarse-grained, moderately sorted, subangular to subrounded; clear quartz and fresh to slightly decomposed potassic feldspar; about 5 percent glauconite; accessory garnet and sphene (?)
- 180-190 As above, except: medium- to very coarse-grained; grades into about 5 percent granule gravel

- 190-370 The interval from 190-370' (represented by 18 samples) consists predominantly of medium- to very coarse-grained sands and fine-grained gravels; particle size ranges to about 10 mm, and either the sand or the gravel fraction may be volumetrically dominant in a given sample.

The sediments are mainly pale-yellow, tan or light-gray, as determined by the color of the sparse clay matrix. They are feldspathic, moderately lithic, particularly in the gravel fraction, and very slightly glauconitic to non-glauconitic. Plant fragments are present, and garnet is an accessory.

- 370-410 The 370-410' interval (represented by four samples) is a chaotic structureless mass of detritus ranging in grain size from clay through fine-grained gravel. Colors in hand-specimen are reddish-brown or reddish-gray. Grain size and color are non-persistent that it is difficult to define a framework-matrix relationship. The finer material - silty clays and silts - are intimately blended as to texture and color. This material is abundantly charged with a great diversity of coarser fragments of poorly rounded quartz, rock fragments, and feldspars; and smaller amounts of phosphate nodules, glauconite, pyrite nodules, hematite pellets, muscovite, and other unrecognizable fragments. The feldspars and glauconite are fresh to intensely decomposed. Plant fragments, including in-place roots, were observed.



- 370-410 (cont.) At least half of the coarser clastic particles are blocky, irregular, or platy fragments of various clay types. Mainly they are unrounded, contain very little sand; they include the following types: grayish-yellow and greenish-yellow (very abundant); dark-gray micaceous, slightly glauconitic; pinkish-orange; pale-green; brick-red; ash-gray; lavender; tan; and reddish-brown.
- 410-420 Sand - slightly clayey; tan, with brown mottles; scattered clay clasts; fine- to coarse-grained, rather poorly sorted, angular to subrounded; moderately feldspathic; traces of glauconite, muscovite, garnet
- 420-430 As above, except: slightly to moderately clayey, with 5 to 10 percent granule gravel
- 430-440 Sand and Gravel - sparse matrix of light-gray clay; about 80 percent medium- to very coarse-grained sand; and 20 percent granule gravel; subangular to subrounded; feldspathic; slightly lithic; garnet common
- 440-450 Sand and Gravel - moderately abundant matrix of tan, subtly variegated silty clay; about 80 percent fine- to very coarse-grained, poorly sorted sand, and 20 percent granule gravel; angular to subangular; feldspathic; moderately lithic; traces of muscovite, garnet, glauconite, nodular phosphorite
- 450-460 As above, except: with about 30 percent granule gravel
- 460-470 Sand and Gravel - moderately abundant matrix of pale brownish-gray silty clay, mottled yellow, brown, gray, green, orange; about 75 percent medium- to very coarse-grained, moderately sorted sand, and 25 percent poorly rounded granule gravel; feldspathic; slightly lithic; plant fragments common; minor amounts of garnet, glauconite, muscovite
- 470-480 As above, except: silty clay matrix is reddish-brown, more abundant; clay clasts are common
- 480-490 Sand and Gravel - abundant matrix of variegated silty clay; sand is very fine- to very coarse-grained, poorly sorted, and grades into granule gravel; percentage of gravel indeterminable because "washed" sample contains too much matrix; feldspathic; clay clasts of various types are present, and probably abundant; fine-grained, light- to medium-green glauconite is common; nodular and bone phosphorite, muscovite, garnet, rock fragments, hematite pellets, and pyrite concretions are present

490-500 As 480-490

500-510 As 480-490

## NEWARK GROUP (510-540')

510-520 Sand and Clay - sand fraction is very tightly bound by abundant matrix of multi-colored silty clay (pale-reddish aspect in hand specimen); "sand" is fine- to very coarse-grained, poorly sorted (unsorted), variously rounded, and grades into small percentages of granule-size material; sand is moderately feldspathic (slightly to intensely decomposed), and slightly decomposed fine- to medium-grained glauconite is common; rock fragments are fairly abundant, and include clay clasts of various types, fragments of decomposed granitic rock, black aphanitic rock fragments, and fragments of red clay shale and pale-green to bluish-green shale; clay matrix contains many small pockets of glauconitic silt; pelletal hematite, nodular pyrite, phosphorite fragments, garnet, muscovite, and coal fragments also occur

520-530 As above, except: red shale fragments are more abundant

530-540 As above, except: red shale fragments are still more abundant.

GEOLOGIC SUMMARY

<u>Depth</u> (feet)	<u>Rock Unit</u>	<u>Age</u>
0-47	Columbia Group	post-Miocene
47-80	Calvert Formation	Miocene
80-134	Nanjemoy Formation	Eocene
134-173	Mattaponi Formation	Paleocene - Late Cretaceous
173-510	Patuxent Formation	Early Cretaceous
510-540	Newark Group	Triassic

Virginia Division of Mineral Resources  
Robert H. Teifke - Geologist  
February 16, 1973