W-4219
C- 168

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: Busch Properties #2 Mailing Address: Williamsburg, Va.

TENANT: _____ Mailing Address: _____

DRILLER: Layne-Atlantic Co. Mailing Address: Norfolk, VA.

WELL LOCATION: County James City Approx. _____ feet miles _____ (direction) of _____ 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: 1973 DATE COMPLETED: 1973

TYPE OF DRILL RIG USED: _____ TOTAL DEPTH 504 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.

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 Test hole

WATER ANALYSIS AVAILABLE: Yes _____ 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.)

HOLE SIZE: _____ inches from _____ to _____ feet

_____ inches from _____ to _____ feet

_____ inches from _____ to _____ feet

SCREEN SIZE: 2 inches from _____ to _____ feet

_____ inches from _____ to _____ feet

_____ inches from _____ to _____ feet

CASING Pulled SIZE: 2 inches from _____ to _____ feet

_____ inches from _____ to _____ feet

_____ inches from _____ to _____ feet

GROUTING: Method _____

Material _____ Depth _____ feet

PUMP: Type _____

Capacity _____ gal. per min

Depth of intake _____ feet

REMARKS: _____

(LOG OF WELL) OVER

LOG

FURNISHED BY: Layne-Atlantic Company by letter from J.E. Trimyer DATE: 4/3/74

DEPTH (feet) FROM	DEPTH (feet) TO	TYPE OF ROCK OR SOIL PENETRATED (gravel, clay, etc., hardness, color, etc.)	REMARKS (water, caving, shot, screen, sample, etc.)
0	20	Sandy clay	
20	40	Sand and shells	
40	110	Shells and sand	
110	290	Blue clay and shells	
290	340	Blue clay, sand, and shells	
340	370	Pepper sand and shells	
370	430	Pepper sand	
430	460	White sand with little pepper sand	
460	504	White sand with little pepper sand and some clay, very slow drilling	

(Use additional forms if necessary)

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

INTERVAL SHEET

Page 1 of 1

Well Repository No.: W-4219
C- 168

Date rec'd 4/5/75 Date Processed: 7/10/75

Sample Interval: from 10 to: 490

PROPERTY: A. Busch Corp. Test Well

Number of samples: 36

COMPANY: Layne-Atlantic

Total Depth: 504'

COUNTY: James City

Oil or Gas: Water & Exploratory:

From-To	From-To	From-To	From-To
-	-	-	-
10- 20	360 - 370	-	-
20- 30	370 - 380	-	-
30- 40	380 - 390	-	-
40- 50	390 - 400	-	-
50- 60	400 - 410	-	-
60- 70	410 - 420	-	-
70- 80	420 - 430	-	-
80- 90	430 - 440	-	-
90- 100	440 - 450	-	-
100- 110	450 - 460	-	-
110- 120	460 - 470	-	-
120- 130	470 - 480	-	-
130- 140	480 - 490	-	-
140- 150	-	-	-
150- 160	-	-	-
160- 170	-	-	-
170- 180	-	-	-
180- 190	-	-	-
190- 200	-	-	-
200- 210	-	-	-
210- 220	-	-	-
220- 230	-	-	-
230- 240	-	-	-
-	-	-	-

All intervals have both washed & unwashed samples.

OWNER: A. Busch Corp.
DRILLER: Layne-Atlantic
COUNTY: James City

W#: 4219
C#: 168
TOTAL DEPTH: 504'

GEOLOGIC LOG

Depth (feet)	
0-10	No sample.
10-20	Sand - grayish orange (10 YR 7/4); coarse; silty; subrounded to rounded; moderately well sorted; feldspathic; few grains of dark green to black glauconite; few, well worn shell fragments.
YORKTOWN FORMATION (20' - 170')	
20-30	Sand - grayish orange (10 YR 7/4); fine to medium; silty; subrounded; moderate sorting; slightly feldspathic; few grains of dark green to black glauconite; few, well worn shell fragments.
30-40	Sand - light olive gray (5 Y 5/2); fine to medium; silty; rounded; moderate sorting; 20% to 30% black glauconite; 10% shell fragments; echinoid spines.
40-50	Sand - light olive gray (5 Y 5/2); fine to medium; subrounded to rounded; moderate to poor sorting; 15% to 20% black glauconite; 10 to 15% shell fragments; echinoid spines; Quinqueloculina, Nonion, ostracodes.
50-60	Sand - light olive gray (5 Y 5/2); fine to medium; rounded; moderate sorting; minor black glauconite; 75% to 80% shell fragments; ostracodes; echinoid spines.
60-70	Sand - light olive gray (5 Y 5/2); fine to medium; subrounded to rounded; moderate sorting; minor black glauconite; 50% to 60% shell fragments; Dentalina, Cibicides; echinoid spines.
70-80	Sand - light olive gray (5 Y 5/2); fine to medium; subrounded to rounded; moderate sorting; very minor black glauconite; 60% to 70% shell fragments; Quinqueloculina; echinoid spines.
80-90	Sand - light olive gray (5 Y 5/2); fine to medium; subrounded to rounded; moderate sorting; minor black glauconite; 60% to 70% shell fragments; echinoid spines; Quinqueloculina.
90-100	As above with 70% to 80% shell fragments; Nonion.

Depth (feet)	
100-110	Sand - grayish olive (10 Y 4/2); fine; subrounded to rounded; moderate to well sotted ;minor clay; very minor black glauconite; 10% to 20% shell fragments; abundant echinoid spines; Quinqueloculina; ostracodes.
110-120	Sand - grayish olive (10 Y 4/2); fine to very fine; subrounded; moderate sorting; minor silt and clay; minor black glauconite; 1% to 3% shell fragments; 1% echinoid spines; diatoms; Robulus, Nonion, abundant unidentified forams.
120-130	Sand - grayish olive (10 Y 4/2); fine to very fine; subrounded; poor to moderate sorting; abundant silt and clay; minor black glauconite; trace muscovite; 1% to 3% shell fragments; abundant echinoid spines; forams common (unidentified).
130-140	Sand - grayish olive (10 Y 4/2); fine to very fine; subrounded; moderate sorting; abundant silt and clay; trace black glauconite; 1±% shell fragments; 1-% echinoid spines; forams common (unidentified).
140-150	As above.
150-160	As above.
160-170	As above with more clay.

CALVERT FORMATION (170'-240')

170-180	Clay - light olive gray (5 Y 5/2); sandy; very fine; subangular; moderate sorting; minor shell fragments; echinoid spines; Nonion.
180-190	As above.
190-200	As above with sand about 50%.
200-210	Sand - light olive gray (5 Y 5/2); fine; subrounded to rounded; moderate sorting; clayey; minor black glauconite; 1±% shell fragments; rare echinoid spines.
210-220	As above with rare forams.
220-230	As above with Nonion.
230-240	As above with Rotalia, Nonion, Quinqueloculina.

Depth (feet)	
240-360	No samples.
MATTAPONI FORMATION (360'-440')	
360-370	Sand - light olive gray (5 Y 5/2) to grayish olive (10 Y 4/2); coarse; rounded; well sorted; glauconite 60%.
370-380	Sand - light olive gray (5 Y 5/2); medium; subrounded to rounded; moderate; clayey; glauconite 30% echinoid spines; Robulus, Rotalia, Nonion, and other undentified forams.
380-390	Sand - light olive gray (5 Y 5/2) to grayish olive (10 Y 4/2); subrounded to rounded; moderate to well sorted; clayey; glauconite 60%; echinoid spines; Dentalina, Rotalia.
390-400	As above with glauconite 70%; Nodosaria, Nonion.
400-410	As above; forams rare.
410-420	As above with glauconite 80%; Robulus, Bacella.
420-430	As above with glauconite 80-90%.
430-440	As above with glauconite 80%.
PATUXENT FORMATION (440'-490')	
440-450	Sand - yellowish gray (5 Y 7/2); coarse to very coarse; sub-angular; moderate sorting; clayey; glauconite 5% to 10% (may be contamination); feldspar 3% to 5% garnet, trace.
450-460	As above.
460-470	As above.
470-480	As above with glauconite 15% to 20%.
480-490	As above with glauconite 5% to 10%.
490-504	No sample.

GEOLOGIC SUMMARY

Thickness (feet)	Rock Unit	Time Rock Unit
10	No sample	
150	Yorktown Formation	Pliocene-Miocene
70	Calvert Formation	Miocene-Eocene
120	No sample	
80	Mattaponi Formation	Eocene-Cretaceous
50	Patuxent Formation	Lower Cretaceous

Virginia Division of Mineral Resources
Eugene K. Rader, Geologist
June 12, 1978