

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF CONSERVATION AND ECONOMIC DEVELOPMENT

MAILING ADDRESS:

DIVISION OF MINERAL RESOURCES

OFFICE ADDRESS:

Box 3667

JAMES L. CALVER, COMMISSIONER

McCormick Road

Charlottesville, VA 22903

WATER WELL COMPLETION REPORT

Charlottesville, Virginia

OWNER: Essex Development, Inc. Mailing Address: Tappahannock Shopping Co. Tappahannock, Va.

TENANT: Rappahannock Shopping Center Mailing Address: _____

DRILLER: Douglas & Dickinson, Inc. Mailing Address: Box 498, Warsaw, Va.

WELL LOCATION: County Essex Approx. 1/4 ^{feet} ~~yards~~ south (direction) of Tappahannock and 1/3 ^{text} ~~text~~ miles east (direction) of U. S. Hwy. 17

(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. 28, 1970 DATE COMPLETED: Oct. 8, 1970

TYPE OF DRILL RIG USED: Rotary TOTAL DEPTH 507 feet

WATER LEVEL: Stands 26 feet below surface OR has NATURAL flow of _____ gallons per minute.

YIELD TEST: Method drill rig
Drawdown 49 feet
Rate 125 gal. per min.
Duration _____ hrs., _____ min.

HOLE SIZE: 8 inches from 0 to 170 feet
5 7/8 inches from 170 to 507 feet
_____ inches from _____ to _____ feet
SCREEN SIZE: 3 inches from 492 to 502 feet

WATER ZONES: from 492 to 502 feet
from _____ to _____ feet
from _____ to _____ feet

_____ inches from _____ to _____ feet
_____ inches from _____ to _____ feet
CASE SIZE: 6 inches from 0 to 170 feet
3 inches from 170 to 492 feet
3 inches from 502 to 507 feet

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

GROUTING: Method _____
Material _____ Depth _____ feet

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

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

WATER ANALYSIS AVAILABLE: Yes _____ No _____
DRILL CUTTINGS SAVED: Yes 48 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 1	C-150
Date rec'd: 11/10/70 ; processed 3/11/71	Well Repository No: 3104
PROPERTY: Essex Development, Inc. (Tappahannock Shopping Center)	Sample Interval; from 0 to: 504'
COMPANY: Douglas & Dickinson, Inc.	Number of samples: 48
COUNTY: Essex (Tappahannock)	Total Depth: 507'
	Oil or Gas: Water: <input checked="" type="checkbox"/> Exploratory:

From-To	From-To	From-To	From-To
0 - 10	263 - 273	-	-
10 - 21	273 - 283	-	-
21 - 31	283 - 294	-	-
31 - 42	294 - 304	-	-
42 - 52	304 - 315	-	-
52 - 63	315 - 325	-	-
63 - 73 *	325 - 336	-	-
73 - 84 *	336 - 346	-	-
84 - 94 *	346 - 357	-	-
84 - 105 *	357 - 367	-	-
105 - 115 *	367 - 378	-	-
115 - 126 *	378 - 388	-	-
126 - 136 *	388 - 399	-	-
136 - 147 *	399 - 409	-	-
147 - 157	409 - 420	-	-
157 - 168	420 - 430	-	-
168 - 178	430 - 441	-	-
178 - 189	441 - 451	-	-
189 - 199	451 - 462	-	-
199 - 210	462 - 472	-	-
210 - 220	472 - 483	-	-
220 - 231	483 - 493	-	-
231 - 241 *	493 - 504	-	-
241 - 252 *	-	-	-
252 - 262	-	-	-

* Unwashed samples only; rest have washed and unwashed samples

(Tappahannock Shopping Center)
OWNER : Essex Development
DRILLER: Douglas and Dickinson
COUNTY : Essex (Tappahannock)

W# : 3104
C# : 150
TOTAL DEPTH: 507'
QUAD : Tappahannock

GEOLOGIC LOG

Depth
(feet)

- 0-10 Sand- grayish-orange; moderate clay; silty; fine to medium with some coarse to granular (10%) grains; subangular to subrounded; poorly sorted; quartz; feldspar; few opaques.
- 10-21 Sand- olive light gray, light brown; slightly clayey; silty; fine grained, some medium and coarse grains, some granules and fine pebbles (5%); subangular to subrounded; moderately well sorted; quartz; some feldspar; some glauconite.
- 21-31 Sand- olive light gray; slightly clayey; silty; very fine to fine grained, some medium grains; subangular to subrounded; well sorted; quartz; few grains of glauconite; few phosphatic fragments.
- 31-42 Clay and silt- light olive gray; abundant very fine sand; quartz; muscovite.
- 42-52 Clay- light olive gray; diatoms; some muscovite; a few assorted quartz sand grains; quartz pebble.
- 52-63 As above except pebble.
- 63-73 As above (sample unwashed).
- 73-84 As above plus a few grains of glauconite.
- 84-94 As above plus forams (inc. Nonion).
- 94-105 Clay- light olive gray, olive light gray; abundant silt; locally abundant very fine to fine sand; quartz; diatoms; few phosphatic fragments; few glauconite grains; forams (inc. Discorbis) (sample unwashed).
- 105-115 Sand and clay- olive light gray; abundant silt; fine to coarse grained; subangular to subrounded; poorly sorted; quartz; black phosphatic material; forams (inc. Nonion, Bulimina, Textularia, and Robulus); muscovite; few shell fragments; few grains of glauconite (sample unwashed).

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Depth
(feet)

- 115-126 Sand- olive light gray; abundant clay; abundant silt; medium to coarse grained, some fine grains; subangular to subrounded; poorly sorted; quartz; black phosphatic material; forams (inc. Nonion); 2% shell fragments; spines; some muscovite; some glauconite (sample unwashed).
- 126-136 Sand- olive light gray; abundant clay; silty; medium grained with fine and coarse grains; subangular to subrounded; moderately sorted; quartz; 25% shell fragments; black phosphatic material; some forams (inc. Globigerina); spines; some glauconite. (sample unwashed)
- 136-147 Sand- light olive gray; moderate clay; silty; medium to coarse grained with very coarse grains; subangular to subrounded; poorly sorted; quartz; 5% shell fragments; 2% glauconite; black phosphatic material; some rotten sandy limestone fragments; forams (inc. Rotalia, Buccella, and Globigerina); some spines; some garnet (sample unwashed).
- 147-157 Sand- light olive gray; moderate to abundant clay; silty; medium to coarse with some fine and very coarse grains; subangular to rounded; poorly sorted; quartz; 22% shell fragments; 15% glauconite; forams abundant (inc. Rotalia, Buccella, Bolivina, and Guttulina); some rotten sandy limestone fragments; pyrite.
- 157-168 Sand and clay- light olive gray; silty; medium to coarse grained, fine grained locally; subangular to rounded; moderately sorted; quartz; 12% glauconite; 7% shell fragments; forams common (inc. Rotalia, Buccella, Pyrulina, Nonion, and Dentalina); some sandy limestone fragments; some pyrite; ostracode; bryozoan.
- 168-178 Sand- light olive gray; moderate clay; fine to coarse grained; subangular to rounded; poorly sorted; quartz; 12% glauconite; 5% shell fragments; 5% sandy limestone fragments; forams common (inc. Rotalia, Buccella, and Bolivina); ostracodes; spines.
- 178-189 Sand- light olive gray; slightly clayey; fine to coarse grained; subangular to rounded; poorly sorted; quartz; 7% glauconite; 3% sandy limestone fragments; forams common (inc. Rotalia, Buccella, Discorbis, and Textularia); ostracodes; some shell fragments; few spines; pyrite.

(Tappahannock Shopping Center)

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Depth
(feet)

- 189-199 Sand- olive light gray; moderate to abundant clay; some silt; fine to medium with coarse grains; rounded; moderately sorted; 50% glauconite; quartz; 8% muscovite; some shell fragments; forams (inc. Buccella and Rotalia); ostracode.
- 199-210 Sand and clay- olive light gray; fine to coarse grained; rounded; poorly sorted; 75% glauconite; quartz; muscovite abundant; forams (inc. Discorbis and Guttulina); ostracodes; spines; few shell fragments.
- 210-220 Sand- olive light gray; moderate clay; fine to coarse with some very coarse grains; rounded; poorly sorted; 70% glauconite; quartz; muscovite; forams (inc. Buccella and Rotalia); ostracodes; few shell fragments.
- 220-231 Sand and clay- olive light gray; silty; fine to coarse grained; rounded; poorly sorted; 80% glauconite; quartz; muscovite; forams (inc. Buccella and Rotalia); pyrite.
- 231-241 Sand and clay- olive light gray; some silt; fine to coarse grained; rounded; poorly sorted; 60% glauconite; quartz; muscovite; forams (inc. Buccella) (sample unwashed).
- 241-252 As above except no forams observed.
- 252-263 Sand- olive light gray; slightly clayey with clasts of moderate orange-pink and light olive gray clay; medium to coarse grained, some fine grains; rounded; moderately sorted; quartz; 35% glauconite (black, green, and brown); muscovite; forams; ostracode; fishtooth.
- 263-273 As above plus medium gray clasts of sandy clay; no fish tooth.
- 273-283 Sand- olive light gray, light olive gray; slightly clayey with moderate orange-pink clasts; silty; medium grained, some fine and coarse grains; rounded; moderately well sorted; 50% glauconite (black, green, and brown); quartz; some muscovite; forams (inc. Nodosaria and Robulus).
- 283-294 Sand- olive light gray; some silt; medium to coarse grained; rounded; moderately well sorted; quartz; 45% glauconite (black, green, and brown); foram (inc. Robulus).
- 294-304 Sand- olive light gray; clay clasts- moderate orange-pink; medium to coarse grained; rounded; moderately well sorted; quartz; 45% glauconite (black, green, and brown); foram (inc. Nodosaria).

(Tappahannock Shopping Center)

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Depth
(feet)

- 304-315 Clay- moderate orange-pink, olive light gray, grayish-olive; up to abundant sand, medium to coarse, rounded, moderately sorted sand; quartz; glauconite 45% of sand (black, green, and brown); 5% sandy limestone fragments; forams (inc. Discorbis).
- 315-325 Sand- olive light gray, moderate orange-pink (clasts); slightly clayey with clasts; medium with some coarse grains; rounded; moderately well sorted; quartz; 40% glauconite (black, green, and brown); some muscovite; forams (inc. Discorbis).
- 325-336 Sand- olive gray, moderate orange-pink; moderate clay to pure clasts; medium with some coarse grains; rounded; well sorted; quartz; 40% glauconite (black and green); muscovite; forams (inc. Nodosaria, Rotalia, and Dentalina); spines.
- 336-346 Sand- olive light gray; slightly clayey with a few moderate orange-pink clasts; silty; medium to coarse grained; quartz; 30% glauconite (black, green, and brown); forams (inc. Rotalia, Globigerina, and Globulina); minor muscovite; ostracodes.
- 346-357 Sand- olive light gray; moderate clay with moderate orange-pink clasts; fine to coarse grained; 40% glauconite (black, green, and brown); quartz; 25% forams (inc. Rotalia, Buccella, Nodosaria, and Robulus); muscovite; spines.
- 357-367 Sand- olive light gray; moderate to abundant clay with moderate orange-pink clasts; fine to medium with some coarse grains; 40% glauconite; quartz; 25% forams (inc. Rotalia, Globigerina, Nodosaria, Discorbis, Nonion, and Robulus); muscovite; spines.
- 367-378 Sand- light olive gray; medium to very coarse grained, 9% granules; subangular to subrounded; poorly sorted; quartz; feldspar; 2% glauconite; some garnet; few phosphate fragments.
- 378-388 Sand- light olive gray; moderate clay with some moderate orange-pink clasts; fine to coarse with some very coarse grains; subangular to rounded; poorly sorted; quartz; feldspar; 17% glauconite; forams abundant (inc. Guttulina, Discorbis, and Nodosaria); muscovite; few grains of garnet.
- 388-399 Sand- light olive gray; slightly clayey with some moderate orange-pink clasts; medium to coarse with some fine and very coarse grains; subangular to subrounded; poorly sorted; quartz; feldspar; 2% glauconite; some muscovite; forams (inc. Nodosaria); few grains of garnet.

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Depth
(feet)

- 399-409 Sand- light olive gray; medium to coarse with some fine grains; subangular to subrounded; moderately well sorted; quartz; feldspar; 2% glauconite; some muscovite; few grains of garnet.
- 409-420 As above plus a few moderate orange-pink clay clasts; 5% glauconite; some garnet; forams.
- 420-430 Clay- light olive gray, light brown; slightly sandy, medium to coarse grained; rounded; quartz; feldspar; glauconite; 20% sand; some muscovite; forams.
- 430-441 Sand and clay- light olive gray, light brown; silty; medium to coarse with some fine grains; subangular to subrounded; moderately sorted; quartz; feldspar; 5% glauconite; muscovite.
- 441-451 Sand- light olive gray; moderate to abundant clay with some moderate orange-pink clasts; medium to coarse grained; subangular to rounded; moderately sorted; quartz; feldspar; 8% glauconite; muscovite; forams (inc. Nodosaria).
- 451-462 Sand- light olive gray; moderate to abundant clay with some moderate orange-pink clasts; fine to medium with some coarse grains; subangular to rounded; poorly sorted; quartz; 25% glauconite; feldspar; forams; muscovite.
- 462-472 Sand- light olive gray; slightly clayey; medium to coarse with some fine grains; subangular to rounded; moderately well sorted; quartz; feldspar; 15% glauconite; muscovite.
- 472-483 Sand- light olive gray; medium to coarse grains; subangular to subrounded; moderately sorted; quartz; feldspar; 5% glauconite; muscovite.
- 483-493 As above.
- 493-504 Sand- salt and pepper; medium to coarse grained; subangular to subrounded; moderately sorted; quartz; feldspar; 2% glauconite.
- 504-507 No sample.

Logged by: David A. Hubbard
August 21, 1979

OWNER: Essex Development, Inc.
DRILLER: Douglas & Dickinson, Inc.
COUNTY: Essex (Tappahannock)

VDMR # 3104
WWCR # 150
TOTAL DEPTH : 507'

GEOLOGIC SUMMARY

<u>Depth (feet)</u>	<u>Rock Unit</u>	<u>Age</u>
0-42	Columbia Group	Pleistocene
42-136	Calvert Formation	Middle Miocene
136-304	Nanjemoy and Mattaponi formations	Middle Eocene - Paleocene
304-400	Mattaponi Formation	Paleocene
400-504	Patuxent Formation	Early Cretaceous
504-507	No sample	-

Virginia Division of Mineral Resources
Robert H. Teifke - Geologist
April 12, 1971