

OWNER: Hercules Powder Company
DRILLER: Layne-Atlantic Company
COUNTY: Southampton (Delaware)

VDMR: 1960
WWCR: 393
TOTAL DEPTH: 786'

GEOLOGIC LOG

Depth in feet

0-15 No sample

YORKTOWN FORMATION (15-66')

15-34 Sand - brownish-gray clay binder, 15% pelecypod shell fragments; fine- to medium-grained, fairly well-sorted, angular to subrounded; minor glauconite, magnetite, and platy, black phosphorite

34-66 Clay - brown to bluish-gray, very sandy, very muscovitic, trace of shell material; sand is fine-grained, well-sorted, angular; slightly glauconitic; a very few nodules of phosphorite, and fragments of carbonaceous material

MATTAPONI FORMATION (66-150')

66-150 Sand - abundant matrix of brown clay, 10% coarse pelecypod shell fragments; fine- to coarse-grained, moderately sorted; 30% greenish-black autochthonous glauconite; 60% variably-rounded quartz; abundant nodular phosphorite; garnet common; fish teeth common; a few fragments of glauconitic limestone

PATUXENT FORMATION (150-786')

150-188 Sand - abundant matrix of brown clay; fine- to coarse-grained, poorly-sorted, angular to subrounded; slightly glauconitic; considerable fresh and weathered feldspar in coarse fraction; micaceous; minor pyrite and phosphorite

188-214 Clay - orange-brown, mottled-gray, a few shell fragments, variably sandy; sand is fine- to coarse-grained, poorly-sorted, poorly-rounded; micaceous, slightly glauconitic; feldspar moderately abundant in coarse fraction; earthy hematite common; some carbonaceous material in gray clay; minor garnet, pyrite and nodular phosphorite

214-235 Sand - abundant matrix of light, variegated clay; fine- to coarse-grained, rather poorly-sorted, angular to subangular; micaceous, slightly feldspathic, minor glauconite; traces of garnet and pyrite

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- 235-277 Sand and Gravel - abundant matrix of variegated clay; 50% granule gravel; 50% poorly-sorted, poorly-rounded sand; both fractions feldspathic; minor muscovite and garnet
- 277-341 Sand - binder of brown clay; fine- to very coarse-grained, with 15% granule gravel; rather poorly-sorted; very feldspathic
- 341-383 " "
- 383-404 Sand and Gravel - sparse binder of brown clay; 50% coarse- to very coarse-grained sand, 50% granule gravel; fairly well-sorted; very feldspathic; minor garnet
- 404-424 Sand - light-brown, silty, slightly clayey; medium- to very coarse-grained, rather poorly-sorted, angular to sub-rounded; feldspathic; slightly glauconitic; minor garnet
- 424-446 Gravel and Sand - brown clay binder; 80% fine-grained (2-8 mm), well-sorted, subrounded to rounded quartz gravel, with subordinate feldspar and rock fragments; 20% medium- to coarse-grained, poorly-rounded feldspathic sand; slightly glauconitic; minor garnet
- 446-509 Sand - binder of brown clay; coarse- to very coarse-grained, well-sorted, subangular to subrounded; very feldspathic; minor garnet and tourmaline
- 509-535 " with 5% granule gravel
- 535-543 Sand - slightly clayey (tan clay), 15% granule gravel; fine- to very coarse-grained, moderately-sorted (skewed coarse), angular to subangular; feldspathic; slightly glauconitic in fine fraction; minor garnet and tourmaline
- 543-605 Sand - brown, very slightly clayey; coarse-grained, very well-sorted, subangular to subrounded; very feldspathic (feldspar is partially decomposed); trace of garnet
- 605-657 Sand - tan, clean; very coarse-grained, grading into granule gravel; very well-sorted, subrounded; feldspathic
- 657-678 No sample
- 678-699 Sand - sparse binder of brown clay; coarse-grained, well-sorted, angular to subangular; moderately feldspathic

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699-741 Sand - binder of brown clay; very coarse-grained, well-sorted,
subangular to subrounded; feldspathic

741-786 " with 30% granule gravel

GEOLOGIC SUMMARY

	<u>Rock Unit</u>	<u>Age</u>
0-15	No sample	
15-66	Yorktown Formation	Late Miocene
66-150	Mattaponi Formation	Paleocene
150-786	Patuxent Formation	Early Cretaceous

Virginia Division of Mineral Resources
Robert H. Teifke, Geologist
November 16, 1967

COMMONWEALTH OF VIRGINIA

DEPARTMENT OF CONSERVATION AND ECONOMIC DEVELOPMENT

MAILING ADDRESS:

DIVISION OF MINERAL RESOURCES

OFFICE ADDRESS:

B 3667

JAMES L. CALVER, COMMISSIONER

McCormick Road

Charlottesville, VA 22903

WATER WELL COMPLETION REPORT

Charlottesville, Virginia

OWNER: Hercules Powder Company Mailing Address: Franklin, Virginia

TENANT: Well #3 Mailing Address: 23509

DRILLER: Layne-Atlantic Company Mailing Address: P. O. Box 7095, Norfolk, Va.

WELL LOCATION: County Southampton Approx. 3 miles west (direction) of

Franklin 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: November 23, 1966 DATE COMPLETED: April 7, 1967

TYPE OF DRILL RIG USED: Rotary TOTAL DEPTH 712'4" * feet

WATER LEVEL: Stands 96 feet below surface OR

has NATURAL flow of gallons per minute

YIELD TEST: Method Turbine Pump HOLE SIZE: 24 inches from 0 to 340 feet

Drawdown 65'5" feet see remarks

Rate 2000 gal. per min. inches from to feet

Duration 24 hrs., 0 min. SCREEN SIZE: 12 inches from to feet

WATER ZONES: from to feet same as screen settings

from to feet inches from to feet

from to feet CASE SIZE: 12 inches from to feet

WATER: Color clear Taste good inches from to feet

Odor none Temp. ND °F inches from to feet

WELL TO SUPPLY: (check one) Home GROUTING: Method Pressure Pumped

Farm Town School Material cement Depth 340 feet

Industry X Other PUMP: Type Turbine

WATER ANALYSIS AVAILABLE: Yes No X Capacity 2000 gal. per min

DRILL CUTTINGS SAVED: Yes X No Depth of intake 265 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: 12" Screens set: 340'-380', 400'-420', 512'-532', 560'-580', 592'-597', 604'-614',

667'-672', 680'-700'. 12" casing settings at 300'-340', 380'-400', 420'-512', 532'-560',

580'-592', 597'-604', 614'-667', 672'-680', 700'-712'4". Area of screen settings

underreamed to 36". *Pilot Hole to 786'

LOG

FURNISHED BY: Layne-Atlantic Company

DATE: August 16, 1967

DEPTH (feet)		TYPE OF ROCK OR SOIL PENETRATED (gravel, clay, etc., hardness, color, etc.)	REMARKS (water, caving, shot, screen, sample, etc.)
FROM	TO		
0	3	Top soil	
3	15	Sand, fine	
15	34	Clay, blue and yellow, shell	
34	66	Salt and pepper sand, clay and shell	
66	150	Brown clay, water bearing sand	
150	188	Blue clay, slow drilling	
188	214	Red and blue clay, slow drilling	
214	235	Sandy clay	
235	277	Gravel mixed with clay	
277	341	Coarse sand, streaks of gravel and clay	
341	383	Coarse sand with streaks of clay	
383	404	Coarse sand with streaks of clay and some gravel	
404	424	Coarse sand, streaks of clay, gravel	
424	446	Multi-colored clay, some gravel	
446	488	Coarse sand with streaks of clay	
488	509	Same formation	
509	535	Coarse sand, tight clay	
535	543	Hard clay	
543	605	Medium white sand, streaks of clay	
605	678	Coarse sand and sandstone, hard	
678	699	Fine sandy clay	
699	741	Sandstone with streaks of tight clay	
741	786	Hard clay	

