OWNER: Mount Rose Canning Company
DRILLER: Sydnor Pump & Well Co., Inc.
COUNTY: King George (Montague)

VDMR #1367
WWCR #64
TOTAL DEPTH: 915'

GEOLOGIC LOG

Upland Sand and Gravel (0-50')

0-10	Clay — orange-brown, very sandy; sand very-fine- to medium-grained, well-sorted, angular to subangular; slightly arkosic; small percentage of magnetite; scattered plant material.
10-20	Sand — orange-brown, coarse-grained, well-sorted, subangular to subrounded; slightly arkosic; small percentage of magnetite; abundant hyacinth quartz.
20-30	Sand — orange-brown; coarse- to very-coarse-grained, well-sorted, subrounded; some hyacinth quartz; slightly arkosic.
30-40	Sand — reddish-brown; 5-10% fine gravel; very-coarse-grained, moderately sorted, subrounded; some hyacinth quartz; slightly arkosic; small percentage of magnetite.
40-50	Sand — orange-brown; coarse- to very-coarse-grained, well-sorted, subrounded to rounded; some hyacinth quartz; slightly arkosic.

Calvert Formation (50-160')

50-60	Clay — gray, very sandy; sand very-fine-grained, well-sorted, angular; traces of feldspar (microcline observed), glauconite, zircon; trace of diatoms.
60-70	As above.
70-80	Clay — gray, with greenish cast, slightly to moderately sandy; sand very-fine-grained, well-sorted, angular; traces of glauconite, muscovite; slightly diatomaceous, and a few echinoid spines.
80-90	Clay — gray, trace of very-fine sand; slightly diatomaceous.
90-100	As above.
100-110	Clay — brownish-gray, very sandy; small amount gray phosphorite; traces of feldspar and glauconite; trace of diatomaceous material, and a few echinoid spines.
110-120	Sand — brownish-gray, slightly to moderately argillaceous; very-fine- to coarse-grained, moderately sorted (skewed fine with most of sand 1/16 - 1/4 mm), angular to subangular; 2-5% platy and nodular gray phosphorite, very minor garnet; traces of glauconite; a few diatom fragments.

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120-130 Sand — dark-gray, trace of clay, a few very-small pebbles (2-4 mm) of quartz and phosphorite; very-fine- to very-coarse-grained with a large amount of very-coarse sand, poorly sorted, angular to rounded with roundness increasing as grain size and with many broken round grains; quartz, abundant phosphorite (about 10%), and traces of glauconite and pyrite; some shark teeth.

130-140 Sand and Gravel — dark-gray, traces of silt and clay; sand (95%) very-fine- to very-coarse-grained, poorly sorted, angular to rounded; gravel (5%) fine, rounded; quartz, abundant phosphorite (10% +), and traces of glauconite, muscovite, garnet, and zircon; abundant vertebrate fossils (shark teeth and vertebrae); very slightly diatomaceous.

140-150 Sand — dark-gray, moderately argillaceous and silty, slightly pebbly; very-fine- to fine-grained, moderately sorted, angular to rounded; quartz, phosphorite, and glauconite; small amounts muscovite; traces zircon, tourmaline, and pyrite; small amount chalky shell material, some shark teeth, echinoid spines, plant fragments, and diatoms; a few foraminifera.

150-160 As above.

Nanjemoy Formation (160-290')

160-170 Sand and Gravel — dark-gray; sand (60-70%) very-fine- to very-coarse-grained, poorly sorted, variably rounded; gravel (30-40%) (2-6 mm), rounded; quartz, glauconite, and some phosphorite; small amount muscovite; traces zircon, tourmaline; scattered chalky shell fragments, shark teeth; a few foraminifera.

170-180 Sand, Gravel, and Shells — gray; sand (60-70%) very-fine- to very-coarse-grained, poorly sorted; gravel (30-40%) (2-6 mm), rounded; quartz and glauconite, with minor phosphorite; abundant coarse, chalky pelecypod fragments.

180-190 As above.

190-200 As above.

200-210 As above — with only a trace of phosphorite.

210-220 Sand, Clay, and Shells — gray, small amount fine gravel; quartz-glauconite sand with small amount phosphorite gray clay, and abundant chalky pelecypod shell fragments.

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220-230 Sand, Clay, and Shells — gray, small amount fine gravel; quartz-glauconite sand with small amount phosphorite gray clay, and abundant chalky pelecypod shell fragments.

230-240 Sand, Clay, Shells, and Gravel — gray, poorly sorted quartz-glauconite sand, brownish-gray clay, chalky pelecypod shell fragments, and fine, rounded, quartz gravel.

240-250 As above — but with much more shell material, and with less gravel; a few foraminifera.

250-260 Sand, Clay, and Shells — gray, small amount fine gravel; fine, poorly sorted quartz-glauconite sand with small amounts muscovite and phosphorite; greenish-gray clay; chalky pelecypod shell fragments and a few corals.

(Marlboro Clay Member, 260-290')

260-270 Clay — pink; contains quartz-glauconite sand, and a few small pebbles, a moderate amount of chalky shell debris.

270-280 As above.

280-290 Clay — gray, with pink cast; contains abundant quartz-glauconite sand, abundant chalky shell debris, and a few pebbles.

Aquia Formation (290-370')

290-300 Sand and Shells — gray, argillaceous; very-fine- to fine-grained, moderately sorted, angular; quartz, glauconite and comminuted shell material; larger shell fragments abundant (pelecypods and gastropods, mostly Turritella).

300-310 As above.

310-320 As above — but more argillaceous.

320-330 Sand — dark-gray, argillaceous, a few small pebbles; very-fine- to fine-grained, moderately sorted; quartz (about 50%) and glauconite (about 50%) with some muscovite; small amount pelecypod shell debris and a few Turritella; foraminifera common.

330-340 As above.

340-350 As above — but less argillaceous, contains fewer foraminifera.

350-360 Sand — dark-gray, moderately argillaceous, a few small pebbles; fine-grained, well-sorted, angular to subangular; quartz and glauconite (50% each), and small amount muscovite; a few foraminifera and pelecypod shell fragments.

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360-370 Sand — brownish-gray, moderately argillaceous, a few small pebbles; medium-grained, moderately sorted, subangular to subrounded; quartz (70%) and glauconite (30%), small amounts muscovite and feldspar; small amount pelecypod shell debris.

Potomac Group (370-915')

370-380 Sand — brown, argillaceous (silt and brown clay); fine- to medium-grained, well-sorted, subangular to subrounded; slightly arkosic and glauconitic; traces of muscovite, pyrite, epidote, and phosphorite.

380-390 As above.

390-400 As above.

400-410 As above — but grayish-brown and more argillaceous.

410-420 Sand and Gravel — brownish-gray, slightly argillaceous; sand fine- to very-coarse-grained, moderately sorted (skewed coarse), subrounded; abundant hyacinth quartz, subordinate amount dull white feldspar, and traces of glauconite and garnet; gravel (2-10 mm), consist of quartz and clay balls; a few chalky shell fragments.

420-430 As above.

430-440 As above.

440-450 As above.

450-460 As above.

460-470 As above.

470-480 As above — but more arkosic.

480-490 Sand, Clay, and Gravel — brownish-gray with brown dominant; coherent, sand-free to slightly sandy clay (subtly variegated); coarse, moderately sorted, moderately arkosic, slightly glauconitic sand with abundant blue quartz; subordinate amount of quartz gravel (2-10 mm), and a few pelecypod fragments.
Note: Appears to be an interlaminated sequence of sands and clays.

490-500 As above.

500-510 As above.

510-520 As above.

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520-530 Sand, Clay, and Gravel — brownish-gray with brown dominant; coherent, sand-free to slightly sandy clay (subtly variegated); coarse, moderately sorted, moderately arkosic, slightly glauconitic sand with abundant blue quartz; subordinate amount of quartz gravel (2-10 mm), and a few pelecypod fragments.
Note: Appears to be an interlaminated sequence of sands and clays.

530-540 Clay and Sand — grayish-brown; variegated, sand-free to slightly sandy clay; sand, coarse-grained, moderately sorted, moderately arkosic, slightly glauconitic with abundant blue quartz and trace of muscovite; a few small pebbles and shell fragments.
Note: Appears to be an interlaminated sequence of sands and clays.

540-550 Sand — gray, slightly argillaceous, a few small pebbles and clay balls; medium- to very-coarse-grained, moderately sorted, subangular to subrounded; arkosic; small amounts of glauconite, muscovite; trace of red garnet.

550-560 Sand — gray; 5% small gravel and clay balls (2-8 mm); coarse- to very-coarse-grained, well-sorted, subrounded; arkosic; small amounts glauconite and garnet; a few shell fragments.

560-570 Clay and Sand — brown, scattered small pebbles; sand-free to slightly sandy drab clay (browns and grays); coarse, poorly sorted arkosic, and slightly glauconitic sand; traces of garnet and muscovite; a few shell fragments.
Note: Appears to be an interlaminated sequence of sands and clays.

570-580 As above.

580-590 As above.

590-600 As above.

600-610 Sand and Clay — gray, sand-free to slightly sandy, subtly variegated clay; fine- to medium-grained, moderately sorted, subangular to subrounded, arkosic and slightly glauconitic sand; traces of garnet and muscovite.

610-620 As above — but sand is slightly coarser, more poorly sorted.

620-630 Sand and Clay — gray, small amount fine gravel; discrete chunks of variegated, sand-free clay (subordinate, in amount, to sand); medium- to very-coarse-grained, moderately sorted, subrounded; arkosic; traces of glauconite, garnet, and carbonaceous matter; a few chalky pelecypod shell fragments.

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630-640 Sand and Clay — gray, small amount fine gravel; discrete chunks of variegated, sand-free clay (subordinate, in amount, to sand); medium- to very-coarse-grained, moderately sorted, subrounded; arkosic; traces of glauconite, garnet, and carbonaceous matter; a few chalky pelecypod shell fragments.

640-650 As above.

650-660 As above.

660-670 As above.

670-680 As above.

680-690 Clay — gray aspect, variegated, sand-free to slightly sandy; subordinate amount coarse, arkosic sand with abundant blue quartz, trace of glauconite.
Note: Clay occurs here as rounded lumps; this may represent a clay ball accumulation or clay laminae in sand interval.

690-700 As above.

700-710 As above.

710-720 Clay and Sand — reddish-brown, variegated clay; medium- to very-coarse-grained, poorly sorted, poorly rounded, arkosic sand; traces of glauconite, chlorite, epidote; small amount of shell material.

720-730 As above.

730-740 Sand — brown; coarse- to very-coarse-grained, moderately sorted, subangular to subrounded; arkosic (about 10% dull white feldspar), abundant blue quartz, small amount fine-grained glauconite, and traces of muscovite, garnet, and phosphorite.

740-750 As above.

750-760 As above — but slightly coarser, with some gravel (2-4 mm).

760-770 Sand and Clay — brown; abundant discrete chunks of silty and slightly sandy, variegated clay; fine- to very-coarse-grained, poorly sorted, arkosic sand with small amount fine-grained glauconite; small amount of shell.

770-780 As above.

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780-790	Clay and Sand — reddish aspect; clay (50-75%) variegated, chloritic in part, and silty to slightly sandy; sand coarse-grained, poorly sorted, arkosic, with small amount of glauconite; traces of muscovite, coarse chlorite, garnet, and epidote.
790-800	As above.
800-810	As above.
810-820	As above.
820-830	As above.
830-840	As above.
840-850	As above.
850-860	Sand and Clay — reddish-brown; fine- to very-coarse-grained, poorly sorted, subangular to subrounded, arkosic and slightly glauconitic sand; variegated, silty clay, chloritic in part; scattered shell fragments. Note: Sand-free or sand-poor nature of clay suggest inter-laminated sands and clays.
860-870	As above.
870-880	As above.
880-890	As above.
890-900	As above.
900-910	As above.
910-915	As above.

GEOLOGIC SUMMARY

	ROCK UNIT	TIME ROCK UNIT
0-50	Upland Sands and Gravels	Pliocene - Pleistocene
50-160	Calvert Formation	Miocene
160-290	Nanjemoy Formation (260-290' Marlboro clay member)	Eocene
290-370	Aquia Formation	Eocene
370-915	Potomac Group	Lower Cretaceous

Virginia Division of Mineral Resources
Robert H. Teifke, Geologist
October 12, 1965

Mt. Rose Canning
VA. KG-P-21
1367

0-10 SILT, sandy, light yellowish brown (10YR 6/4). Sand fraction: Fine, poorly sorted, subangular to sub-rounded. Composition: quartz, feldspar, opaques.

10-20 Sand, very pale brown (10YR 7/4), med, poorly sorted. Comp: mostly quartz + feldspar.

20-30 Same as above but med to very coarse, with granules.

30-40 Granular feldspathic sand like above.

40-50 Like 3 Above.

50-60 SILT, sandy, pale brown (10YR 6/2) Sand fraction: very fine, well sorted, consisting of quartz, + glauconite (10%), 10% other minerals.

60-70 Same as above but sand fraction poorly sorted.

70-80 Same as above but sand fraction coarse, angular, poorly sorted with shell bash including irregular urchin spines, + limonite

80-90 SILT, gray (10YR 7/1). Trace of angular quartz sand.

90-100 Same as above with Trace of limonite, irregular urchin spines and glauconite.

100-110 SILT, sandy, light brownish gray (2.5Y6/2).
Sand fraction: poorly sorted; comp: quartz + 30% other.
Other includes: limonite grains, & numerous black grains which are a combination of opaques, phosphatized broken shell? & chert?

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110-120 Sand, slightly silty, dark grayish brown (2.5Y 4/2)
med., moderately sorted, subangular to well rounded.
Comp: quartz, & numerous dark brown grains (35%) which include limy dolomite, phosphatized or dolomitized shell, bone & shark teeth, and possible broken phosphate or dolomite nodules.

120-130 Same as above but coarse & with granules.

130-140 Same as above.

140-150 Sand, SILTY, fine, dark grayish brown (2.5Y4/2).
Poorly sorted ~~probably because contaminated from overlying unit~~.
Composition: quartz, glauconite (30%), white, soft shell hash (50%) & brown grains (10% Like above)

150-160 Same AS Above
160-170 Same as above.
170-180 Sand, SILTY, olive gray (5Y4/2); Fine to very coarse, poorly sorted
Numerous granules. Quartz, shell hash (20%), glauconite (10%)
limy dolomite fragment (1%), muscovite common.
180-190 Same as above.
190-200 Same as above. Granules 0.5 cm drain very common.

200-210. Same as above, 50% of Sand fraction is granule-size quartz grains.

210-220 Same as above. Quartz granules diminish to 5%.

220-230 Same as 2 Above. Glauconite diminishing.

230-240 Same as above

240-250 SILT, sandy with quartz granules (ie bimodally sorted) Sand fraction: very poorly sorted; composition: shell hash (60%), quartz, glauconite (5%), brown grains of limy dolomite (1%). Quartz + glauconite is mostly fine. shell hash + quartz + dolomite are granule size. Mollusk on shell hash.

250-260 Same as above

260-270 Same as above but seems clayey & pinkish gray (7.5YR 6/2)

270-280 Same as above but Not clayey;

280-290 SAND, very SILTY, light brownish gray (10YR 6/2) Fine, well sorted except for shell hash. Comp: 50% shell hash; glauconite (20%), quartz. with broken shark's teeth.

290-300 Same as above but sand fraction 75% shell hash & 5% glauconite.

300-310 Same as above. Micaceous.

310-320 Same as above with grains of glauconitic limestone and quartz granules.

320-330 Sand, SILTY, dark gray (10YR 4/1)
Fine, poorly sorted. Composition: shell hash (30%) glauconite (30%), quartz, with fragments of limy dolomite & glauconitic limestone (10%). (with shark's teeth, restricted to this sample).

330-340 Same as above

340-350 " "

350-360 " " with pea pebbles.

360-370 " " with shark teeth.

370-380 sand, SILTY, pale brown (10YR 6/3)
Fine, poorly sorted. Comp: quartz, glauconite (5%), shell hash (10%), dark brown limy dolomite (1%).

380-390 Same as above.

390-400 Same as above but 10% limonite.

400-410 Same as above

410-420 Sand light brownish gray (2.5Y 6/2)
Fine to very coarse with granules, poorly sorted. Comp: quartz, feldspar rock fragments (<5%) shell hash (<5%), glauconite (1%) limonite

420-430 Same as above
Trace of glauconite

430-440 Same as above without shell hash.
very feldspathic (20%)

440-450 Same as above with trace of shell hash & clay-silt lumps

450-460 Same as above.

460-470 Same as above.

470-480 Same as above.

480-490 Same as above. Extreme poor sorting with numerous lumps of clay-silt. Not highly feldspathic

490-500 Same as above. shell hash ≈ 5%.

500-510 clay & silty sand, grayish brown (10YR5/2)
Sand fraction: poorly sorted very fine to very coarse.
comp: quartz, limonite, shell hash (5%)
glauconite (1%). feldspar.

510-520 clay, silty, sandy, light brownish gray (10YR 6/2)
Sand - composition quartz, limonite, glauconite, shell hash.

520-530 Same as above

530-540 Same as above

540-550 clay (like above) mixed with coarse feldspathic sand (like below)

550-560 Sand, gray (10YR 6/1). Med-coarse, mod. sorted, angular to sub-rounded. Comp: quartz, feldspar
Trace of shell hash, bone, limonite, glauconite.

560-570 Like 2 above

570-580 Same as above

580-590 Sand, light brownish gray (10YR 6/2) mixed with clay-silt lumps. Fine-v. coarse, poorly sorted. Composition: quartz, feldspar with minor glauconite, shell hash, limonite.

590-600 Same as above

600-610 Sand, silty & clay-silt lumps, light gray (10 YR 7/1) Fine - very coarse, poorly sorted. comp: quartz, feldspar with limonite + shell hash + a trace of glauconite. with Trace of pea-pebbles.

610-620 Same as above

620-630 Sand coarse + clay-silt lumps, Same as above.

630-640 Same as above

640-650 Same as above.

650-660 Same as above with pea-sized pebbles. Coarse - very coarse.

660-670 Same as above, med, rel. well sorted, highly feldspathic

670-680 Same as above, poorly sorted.

680-690 clay, SILTY with Minor sand, Like above.

690-700 Same as 2 above.

700-710 clay, SILTY, light brownish gray (10 YR 6/2), with erratic coarse quartz grains.

710-720 SILTY clay + sand, pale brown (10YR 6/3).
Wash Fraction: Fine - very coarse, poorly sorted,
Comp: quartz, feldspar, limonite, Trace of glauconite
+ shell hash.

720-730 Same as above.

730-740 Sand, pale brown (10YR 6/3). med-coarse,
mod. sorted, mostly subangular to subrounded.
Comp: quartz, feldspar (20%) RK Fragments (<5%)

740-750 Same as above.
750-760 Same as above.
760-770 Mixed clayey SILT + sand like above.
with Trace of shell hash and with limonite
770-780 Same as above.
780-790 Same as above.

790-800 clay, SILTY, pale brown (10YR 6/3),

800-810 same as above with quartz, limonite & glauconite
810-820 same as above. Also with shell hash.
820-830 same as above
830-840 same as above
840-850 Same as above pinkish gray (7.5YR 6/2)
850-860 Same as above

860-870 Mixed sand & Lumps of silty clay, pinkish-gray (7.5YR 6/2). Sand fraction: med, poorly sorted, Comps: quartz, feldspar, Limonite, trace of shell hash, glauconite

870-880 Same as above.
880-890 Mostly silty clay with minor sand (Like above).
890-900 Like 2 above
900-910 Same as above.
910-915 same as above.