

OWNER: N. K. Tholand (Piedmont Farm, Well #1)
DRILLER: C. R. Moore
COUNTY: Rappahannock (Sperryville)

VDMR #1349
WWCR #30
TOTAL DEPTH: 400'

GEOLOGIC LOG

0-78 No sample.

Pedlar Formation (78-110')

78-80 Biotite-Feldspar Schist — medium-gray to medium-orange-brown, foliated, fine-grained with 3 to 5 mm augen of blue quartz and saussuritized feldspar; ground mass biotite, chlorite, sericite, zoisite-epidote, minor calcite; appears to be a gneiss that has been intensively sheared; examination of thin sections showed finely crushed quartz and feldspar, secondary growth of feldspar after saussuritization, euhedral apatite and ilmenite with leucoxene.

80-90 As above — less orange weathered stain.

90-100 As above - more chlorite.

100-110 As above — more iron-oxide stain.

Intrusive Dike or Sill (110-128')

110-120 Metamorphosed Basalt — medium-gray slightly green, fine-grained, slight lineation of minerals; epidote amphibole, chlorite, biotite, saussuritized plagioclase, minor apatite, and pyrite; poorly developed slickensides; minor flinty-crush-rock.

120-130 As above — with minor iron stain and few fragments of gneiss described below (Dike-gneiss contact estimated at 128').

Pedlar Formation (128-330')

130-140 Sheared and Epidotized Gneiss — very-light-gray to medium-dark-gray, cataclastic texture anhedral fragmental crystals, banded; epidote-zoisite, perthitic microcline, blue to colorless quartz, sericite, biotite apatite, ilmenite, leucoxene, minor pyrite and calcite, trace zircon.

140-150 As above.

150-160 As above — slightly darker; more pyrite.

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- 160-170 Sheared and Epidotized Gneiss — very-light-gray to medium-dark-gray in irregular patches; coarse- to fine-grained, anhedral grains except apatite, faintly banded; epidote-zoisite, quartz, alkali-feldspar, biotite, chlorite, sericite, apatite; minor fractures with calcite, epidote, and chlorite filling.
- 170-180 As above — with trace sphene.
- 180-190 Epidotized Cataclastic Gneiss — medium-dark-gray, minor light-greenish-gray to white; epidote, sericite, quartz, biotite, alkali-feldspar saussuritized plagioclase, apatite, chlorite, calcite, minor ilmenite, and pyrite.
- 190-200 As above — slightly lighter.
- 200-210 As above — with minor hornblende.
- 210-220 Epidotized Cataclastic Gneiss — medium-dark-gray with light-greenish-gray, faint banding; epidote, sericite, biotite, alkali-feldspar, quartz, oligoclase, apatite, hornblende, ilmenite, pyrite, sphene, chlorite, and leucoxene.
- 220-230 As above — more feldspar; minor pyrrhotite.
- 230-240 As above — minor fractures with calcite filling; minor greenstone (may be contamination)
- 240-250 As above — no greenstone.
- 250-260 Sheared Gneiss — very-light-gray, pale-blue and green, medium-dark-greenish-gray, coarse- to very-fine-grained; perthitic, microcline, epidote, blue and gray quartz, chlorite, biotite, actinolite, apatite, minor zircon, calcite, ilmenite, pyrite, trace garnet; darker zones show intensive shearing and two stages of fracturing with epidote and calcite coatings; a portion of the material is flinty-crush-rock; minor veins and fillings of calcite.
- 260-270 As above — lighter color and not as blue.
- 270-280 As above — more biotite.
- 280-290 As above — less sheared; this level shows evidence of feldspar replacing biotite-sericite-chlorite masses.
- 290-300 Sheared Gneiss — medium-gray-green, medium-dark-gray and very-light-gray; fine- to coarse-grained; alkali-feldspar, quartz, epidote, chlorite, biotite, pyrrhotite, ilmenite, pyrite, trace zircon.
- 300-310 As above — minor pale-pink feldspar.

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310-320 Cataclastic Gneiss — very-light-pinkish-gray to medium-blue-green-gray; coarse- to fine-grained; perthitic microcline, blue and gray quartz, biotite, chlorite, epidote, minor ilmenite, and leucoxene; minor fractures with yellow-green epidote filling.

320-330 As above — slightly darker; biotite rich shear-zone with apatite and zircon.

Pedlar with Intrusive Dike or Sill (330-350')

330-340 Saussuritized and Sheared Gneiss with Greenschist — very-light-greenish-gray to dark-greenish-gray, coarse- to fine-grained gneiss; blue- to gray-quartz, saussuritized feldspar, sericite, green biotite, minor chlorite. The feldspar show secondary growth after saussuritization with a clear rim in optical continuity with altered feldspar; the plagioclase rims show albite twinning and the microcline shows two rims each in continuity with a member of its twin system. The greenschist is very-fine-grained and foliated (perhaps by shear); epidote, feldspar, biotite, chlorite, amphibole, ilmenite-leucoxene.

340-350 As above — darker, more greenstone.

Pedlar Formation (350-370')

350-360 Gneiss — very-pale-blue-gray and green-gray to medium-light-blue and green-gray; coarse-grained to fine-grained, quartz, feldspar, minor chlorite, epidote, and sericite.

360-370 As above — with dark-gray, flinty crush-rock with apatite, and biotite.

Pedlar with Intrusive Dike or Sill (370-380')

370-380 Gneiss and Greenstone — very-pale-blue-gray and green-gray to medium-light-blue- and green-gray; coarse-grained to fine-grained gneiss; quartz (gray and deep blue) saussuritized feldspar, alkali-feldspar, flinty-crush-rock patches, chlorite, epidote, biotite, veins and filling of calcite; the greenstone is greenish-medium-gray, fine-grained, epidote, chlorite, quartz, feldspar, biotite, sericite, calcite, ilmenite-magnetite, and pyrite.

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Pedlar Formation (380-400')

- 380-390 Gneiss — very-light- to medium-bluish-greenish-gray; very-coarse- to very-fine-grained; perthitic microcline, quartz, epidote, sericite, chlorite, biotite, hornblende; numerous fractures with poorly developed slickensides coated with sericite and chlorite; the perthite is very-coarse and the albitic portion contains tiny crystals of epidote.
- 390-400 As above — no obvious fractures, abundant deep blue quartz.

GEOLOGIC SUMMARY

	<u>ROCK UNIT</u>	<u>TIME ROCK UNIT</u>
0-78	No sample	
78-400	Pedlar Formation with Precambrian intrusive dikes or sills at 110-128, 330-350, and 370-380.	Precambrian ?

Virginia Division of Mineral Resources
Hollis N. Walker, Geologist
August 26, 1965