

OWNER: National Park Service Dickey Ridge # 5
DRILLER: Valley Drilling Co.
COUNTY: Warren (Front Royal)

VDMR WELL # 1346
WWCR WELL # 66
TOTAL DEPTH : 650

GEOLOGIC LOG

Overburden (0-23')

0-5 Clay and Residual Metamorphosed Basalt - medium-yellowish-gray-brown, fine-grained, abundant dusty magnetite, minor vein quartz.

5-10 As above

10-15 As above

15-20 As above

20-23 As above

Catoctin Formation (23-650')

23-25 Metamorphosed Basalt - medium-gray, medium-to fine-grained; epidote, chlorite, plagioclase, magnetite; cavity fillings of calcite and quartz, amygdules of epidote and jasper.

25-30 Metamorphosed Basalt - medium-dark-bluish-gray, fine-grained, relict porphyritic and ophitic textures; plagioclase, epidote, magnetite, pyroxene, chlorite, abundant dusty magnetite; veinlets and vesicle fillings of epidote, calcite, jasper and chlorite.

30-35 As above

35-40 As above - one large fragment of epidote crystal, 13 mm long, carved, fractured and recemented with calcite and asbestos.

40-45 Metamorphosed Basalt - medium-dark-gray, minor grayish-yellow-green; darker material fine-grained with relict sub-ophitic texture; plagioclase, magnetite, epidote, chlorite; trace pyroxene; minor veinlets and amygdules of epidote chlorite and jasper.

45-50 As above

50-55 As above - more chlorite.

55-60 Greenstone - medium-gray, very-fine-grained, massive; epidote, plagioclase, chlorite, calcite and magnetite.

60-65 As above - minor amygdules of black chlorite and veins of calcite.

65-70 As above

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70-75	Greenstone and Metamorphosed Basalt - greenstone: medium-dark-gray, massive, very-fine-grained, chlorite, epidote, magnetite; metamorphosed basalt medium-dark-gray to dark-gray, slightly reddish extremely fine-grained to porphyritic and vesicular, phenocrysts of plagioclase, amygdules of calcite, epidote and chlorite; groundmass, saussurite, magnetite and hematite.
75-80	As above
80-85	As above
85-90	Metamorphosed Basalt - medium-greenish-gray, very-fine-grained, magnetite-chlorite groundmass; phenocrysts of plagioclase, amygdules of epidote, chlorite; minor calcite.
90-95	As above
95-100	As above
100-105	As above
105-110	As above
110-115	As above
115-120	Greenstone - medium-dark-greenish-gray, fine-grained, very slightly foliated to massive; chlorite, epidote traces of jasper; vein fillings of yellow-green-epidosite and trace porphyritic metamorphosed basalt.
120-125	As above
125-130	As above - light-color.
130-135	Epidosite - pale-yellow-green, fine-grained, epidote and quartz; trace amphibole.
135-140	Greenstone - medium-light-greenish-gray, fine-grained; epidote, chlorite, plagioclase.
140-145	Greenstone - medium-dark-to medium-greenish-gray, fine-grained plagioclase, epidote, chlorite, magnetite and calcite.
145-150	As above - slightly darker.
150-155	As above
155-160	As above
160-165	As above
165-170	As above
170-175	As above - more chlorite.

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- 175-180 Metamorphosed Basalt - reddish-dark-gray, very-fine-grained; ferruginous saussurite with minute plagioclase crystals; vesicle and vein fillings of calcite, epidote and chlorite; minor coarse-grained, ferruginous, arkosic quartzite.
- 180-185 Epidotized Basalt - bright-yellow-green and medium-gray; epidote, albite, quartz, calcite; minor vein quartz.
- 185-190 As above - more gray, less epidote.
- 190-195 As above
- 195-200 As above
- 200-205 Greenstone - medium dark green-gray, fine-grained; epidote, plagioclase, chlorite, calcite, magnetite, vesicle and fracture filling of epidote, chlorite, calcite jasper.
- 205-210 Greenstone - medium-dark-greenish-gray, fine grained; chlorite, epidote, calcite, plagioclase, magnetite; vesicle fillings of epidote, chlorite and jasper.
- 210-215 As above - more magnetite.
- 215-220 As above - slightly reddish in part; epidote replacing chlorite especially along fractures.
- 220-225 Metamorphosed Basalt - medium-dark-greenish-gray, fine-grained; plagioclase, chlorite, magnetite, epidote, calcite, and magnetite; possible minor amphibole.
- 225-230 As above
- 230-235 As above
- 235-240 As above
- 240-245 As above
- 245-250 As above
- 250-255 Metamorphosed Basalt - medium-light-gray and greenish-gray; fine-grained; chlorite, epidote plagioclase; numerous chlorite amygdules and replacement of matrix by epidote.
- 255-260 Epidotized Basalt - medium-light-gray-green, fine-to medium-grained; epidote plagioclase, quartz, calcite, magnetite.
- 260-265 As above
- 265-270 As above

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- 270-275 Metamorphosed Basalt - medium-dark-gray, slightly reddish; porphyritic to very-fine-grained; plagioclase, epidote, chlorite and magnetite; abundant amygdules and irregular fillings of calcite, chlorite and epidote; minor replacement by epidote.
- 275-280 Epidotized Basalt - yellow-green, fine-to medium-grained; epidote, calcite, plagioclase, quartz, trace pyrite; relict amygdaloidal structure; minor dark metamorphosed basalt as above.
- 280-285 As above - no relict amygdules; no dark metamorphosed basalt.
- 285-290 As above - minor dark metamorphosed basalt.
- 290-295 Metamorphosed Basalt - medium-dark-blue-gray, fine-grained; plagioclase, chlorite, epidote, calcite; relict amygdules.
- 2995-300 As above
- 300-305 As above
- 305-310 As above
- 310-315 Epidotized Basalt - yellow-green-gray; fine-grained; epidote, plagioclase, calcite magnetite, relict amygdules.
- 315-320 Metamorphosed Basalt - medium-dark-gray, fine-grained, plagioclase, magnetite, epidote, chlorite, and calcite.
- 320-325 As above
- 325-330 Epidotized Basalt - yellow-green-gray; medium-to fine-grained; epidote, plagioclase, chlorite, calcite, quartz and magnetite.
- 330-335 As above - more magnetite and quartz.
- 335-340 Greenstone - medium-dark to dark-blue-gray; fine-grained, slightly foliated; chlorite, epidote, calcite, magnetite, minor coarse-to fine-sand.
- 340-345 As above - less foliated, sand is finer.
- 345-350 As above - no sand.
- 350-355 As above - no foliation, with calcite and epidote amygdules.
- 355-360 As above

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- 360-365 Metamorphosed Basalt - dark-gray, fine-grained; plagioclase, epidote, chlorite, calcite; relict amygdules.
- 365-370 Greenstone - medium-dark-greenish-gray, fine-grained, massive; chlorite, plagioclase, epidote, magnetite.
- 370-375 As above
- 375-380 As above - minor veins of calcite.
- 380-385 As above - no veins.
- 385-390 As above - slightly lighter; minor replacement by epidote.
- 390-395 As above
- 395-400 Metamorphosed Basalt - medium-greenish-gray, fine-grained; plagioclase, epidote, chlorite, magnetite, calcite, pyroxene minor amygdules, some with serpentine.
- 400-405 As above
- 405-410 As above
- 410-415 As above
- 415-420 As above
- 420-425 Greenstone - medium-greenish-gray, fine-grained; epidote, chlorite, plagioclase, magnetite and calcite.
- 425-430 Metamorphosed Basalt - medium-dark-gray-green, fine-grained; plagioclase, chlorite, epidote, magnetite, calcite; amygdules of epidote and chlorite.
- 430-435 Greenstone - medium-dark-gray, fine-grained; epidote, chlorite, plagioclase, magnetite and calcite.
- 435-440 Metamorphosed Basalt - medium-dark-gray, fine grained; plagioclase, epidote chlorite, magnetite; amygdules of chlorite epidote and calcite
- 440-445 As above
- 445-450 As above
- 450-455 Greenstone - medium-greenish-gray, fine-grained; epidote, chlorite, plagioclase, magnetite; vein quartz.
- 455-460 As above - no vein quartz.
- 460-465 As above
- 465-470 As above

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- 470-475 Greenstone - medium-greenish-gray, fine-grained; epidote, chlorite, plagioclase, magnetite.
- 475-480 As above - minor yellow-green epidote replacing the darker matrix.
- 480-485 As above - minor epidote amygdules.
- 485-490 As above
- 490-495 As above
- 495-500 As above - calcite cavity-fillings; trace pyrite.
- 500-505 Metamorphosed Basalt - medium-dark-gray, medium-fine-grained, sub-ophitic texture; plagioclase, epidote, chlorite magnetite; minor irregular cavity fillings and amygdules of epidote and calcite.
- 505-510 As above
- 510-515 As above
- 515-520 As above - slightly lighter color.
- 520-525 As above
- 525-530 Metamorphosed Basalt - medium-gray-green to yellow-green, fine-grained, sub-ophitic; plagioclase, epidote, chlorite magnetite and calcite, yellow-green epidote portions appears to be replacing the darker matrix.
- 530-535 As above - less epidote rich rock.
- 535-540 As above
- 540-545 As above
- 545-550 Metamorphosed Basalt - medium-to medium-dark-blue-gray, fine-grained; chlorite, epidote, plagioclase, magnetite and calcite.
- 550-555 As above - minor amygdules.
- 555-560 As above - slightly lighter colored.
- 560-565 As above
- 565-570 Metamorphosed Basalt - medium-green-gray to reddish-gray, fine-grained, micro-sub-ophitic texture; platioclase, chlorite, epidote magnetite, minor amygdules and minor veins serpentine asbestos.
- 570-575 As above - no asbestos veins.

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- 575-580 Metamorphosed Basalt - medium-green-gray, fine-grained, micro-sub-ophitic texture, plagioclase, chlorite, epidote, magnetite,
- 580-585 As above
- 585-590 As above - slightly reddish in part, chert and epidote cavity fillings.
- 590-595 As above
- 595-600 Epidotized Basalt and Metamorphosed Basalt - medium-yellow-green-gray, medium-fine-grained; epidote, quartz calcite, plagioclase, siderite and magnetite; relict amygdoloidal structure; appreciable iron bearing vein calcite; metamorphosed basalt as described above.
- 600-605 As above - less epidote, less calcite
- 605-610 Metamorphosed Basalt - medium-dark-blue-gray to medium-light-yellow-green-gray; fine-grained, plagioclase, epidote, chlorite, magnetite.
- 610-615 As above - lighter color.
- 615-620 As above
- 620-625 Epidotized Basalt and Metamorphosed Basalt - epidotized basalt: yellow-gray-green, medium-fine-grained; epidote, calcite, magnetite, plagioclase, minor quartz and serpentine; abundant veinlets of hematite bearing calcite; metamorphosed basalt: medium-dark-blue-gray, fine-grained; plagioclase, chlorite, epidote; minor amygdules.
- 625-630 As above - less calcite.
- 630-635 As above
- 635-640 Metamorphosed Basalt - medium-dark-green-gray, fine-grained; plagioclase, epidote, chlorite, trace epidotized basalt.
- 640-645 As above - trace vein calcite.
- 645-650 As above - minor amygdules.

GEOLOGIC SUMMARY

	<u>ROCK UNIT</u>	<u>TIME ROCK UNIT</u>
0-23	Overburden	Recent
23-650	Catoctin Formation	Precambrian ?

Virginia Division of Mineral Resources
 Hollis N. Walker
 September 15, 1965