

INTERVAL SHEET

WWCR 439

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VDMR Well No: Well No. 1391

Date 10/13/65

Sample Interval: from 25 to 500

PROP: R. Burchfield
(North Lakes Estates #3)

Total Depth 500

COMP: Frank Martin Drilling Co.

Oil Gas Water Exploratory

COUNTY: Roanoke (Roanoke)

Cuttings Core Other

VDMR Well No: W-1391

Washed Samples

From-To	From-To	From-To	From-To	From-To
-	-	0 - 25 *	310 - 320	-
-	-	25 - 35	320 - 330	-
-	-	35 - 45	330 - 340	-
-	-	45 - 55	340 - 350	-
-	-	55 - 65	350 - 360	-
-	-	65 - 75	360 - 370	-
-	-	75 - 85	370 - 380	-
-	-	85 - 95	380 - 390 *	-
-	-	95 - 105	390 - 400	-
-	-	105 - 115	400 - 410	-
-	-	115 - 125	410 - 420	-
-	-	125 - 135	420 - 430	-
-	-	135 - 145	430 - 440	-
-	-	145 - 155	440 - 450	-
-	-	155 - 165	450 - 460	-
-	-	165 - 175	460 - 470	-
-	-	175 - 185	470 - 480	-
-	-	185 - 195	480 - 490	-
-	-	195 - 205	490 - 500	-
-	-	205 - 215	-	-
-	-	215 - 225	-	-
-	-	225 - 235	-	-
-	-	235 - 245	-	-
-	-	245 - 255	-	-
-	-	255 - 265	-	-
-	-	265 - 275	-	-
-	-	275 - 285	-	-
-	-	285 - 295	-	-
-	-	295 - 300	-	-
-	-	300 - 310	-	-

* No sample

OWNER: R. Burchfield (North Lake Estates Well #3)
DRILLER: Frank W. Martin Drilling Company
COUNTY: Roanoke (Roanoke)

VDMR #1391
WWCR #439
TOTAL DEPTH: 302'

GEOLOGIC LOG

0-25 No sample.

Martinsburg Formation (25-105')

- 25-35 Silty Limestone and Shale — medium-gray and tan; fine-grained, argillaceous limestone and calcareous shale; one fragment of a brachiopod, minor veins of calcite.
- 35-45 As above — less weathered, more calcite veins.
- 45-55 Sandy-Argillaceous Limestone — medium-blue-gray, very-fine-grained sand.
- 55-65 As above — less sand.
- 65-75 Sandy-Argillaceous Limestone — medium-blue-gray, fissile, dolomitic.
- 75-85 As above — less sandy.
- 85-95 Argillaceous Limestone — medium-dark-gray, fine-grained, uneven texture, slightly fissile; minor calcite veins; trace fossil bryozoa and brachiopods; minor pale orange-brown, weathered fragments.
- 95-105 As above — no bryozoa.

Bays Formation (105-135')

- 105-115 Sandstone and Shale — medium-greenish-gray, fine-grained, sericitic-calcareous sandstone; and medium-dark-purple-gray shale; minor calcite veins.
- 115-125 As above — more sandstone, slightly coarser.
- 125-135 As above — minor orange-brown claystone (may be contamination).

Martinsburg Formation (135-155')

- 135-145 Argillaceous Limestone — medium-dark-gray, fine-grained, uneven texture slightly fissile; minor calcite veins; trace fossil bryozoa; minor pale-orange-brown weathered portion.
- 145-155 As above — no fossils.

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Bays Formation (155-380')

- 155-165 Shale and Sandstone — medium-dark-dusky-red, silty micaceous shale; and medium-green-gray, fine- to medium-grained, calcareous, sericitic sandstone; minor calcite veins.
- 165-175 As above — less sandstone, some of the shale is medium-green-gray.
- 175-185 Sandstone and Silty Shale — medium-red-gray, very-fine- to medium-grained, angular, arkosic and lithic sandstone, most of the shale is the same color but there are minor amounts of chloritic, gray shale; minor veins of calcite; about 10% of the sample is pale-green metamorphosed bentonite composed of sericite-illite and chlorite; (abundant contamination from drill bit).
- 185-195 As above — trace pyrite.
- 195-205 As above.
- 205-215 As above — less metamorphosed bentonite and more red shale.
- 215-225 Sandstone — medium-green-gray, very-fine- to medium-grained, angular; feldspathic interbedded with green-gray and red-gray silty micaceous shale; minor vein calcite.
- 225-235 As above — more shale, trace metamorphosed bentonite (probably contamination).
- 235-245 Sandstone — dark-red-gray, fine- to medium-grained, arkosic, trace vein calcite.
- 245-255 Sandstone and Shale — medium-dark-red-gray and medium-green-gray, very-fine- to medium-grained sandstones and micaceous shales; the coarser sandstones are green; the fine sandstones and shales are both colors.
- 255-265 As above — minor calcite veins.
- 265-275 As above.
- 275-285 As above — with minor red-gray, yellow, and yellow-green, metamorphosed bentonite; less red shale and sandstone.
- 285-295 As above — no red shale and sandstone.
- 295-300 As above — more green sandstone, coarse-grained.

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- 300-310 Sandstone and Shale — medium-green-gray; sandstone: medium to very-fine sand grains, slightly feldspathic, quartzitic; shale: massive, dull; minor vein calcite; minor purple-gray and yellow-green waxy metamorphosed bentonite (may be contamination from above).
- 310-320 Sandstone — light-gray-green; medium to coarse, angular sand grains, porous; quartz; minor calcite feldspar, mica, chlorite, trace pyrite; minor waxy metamorphosed bentonite (contamination ?).
- 320-330 As above — with light-gray-green, metamorphosed silty bentonite, very soft, sericitic, conchoidal fracture, no bedding, trace of tuff shands in thin section; this layer at least a half-inch thick; more waxy metamorphosed bentonite (both of these types of metamorphosed bentonite may be contamination from higher in the well).
- 330-340 As above.
- 340-350 Sandstone — very-light-gray, coarse, angular sand, quartzitic, calcareous; minor medium dark-gray shale and medium-gray fine-grained sandstone; contaminated with drill tool and meta-bentonite fragments.
- 350-360 As above — less drill tool contamination, more metamorphosed bentonite
- 360-370 As above — medium-gray sandstone is slightly coarser.
- 370-380 As above.
- 380-390 No sample.
- Athens Shale (390-500')
- 390-400 Calcareous Shale — medium-dark-blue-gray, minor vein calcite with occasional euhedral crystals; minor yellow-green metamorphosed, sandy, silty bentonite; very soft, conchoidal fracture (may be contamination from above).
- 400-410 As above.
- 410-420 As above — more metamorphosed bentonite.
- 420-430 Calcareous Shale — dark-blue-gray, very fissile, abundant vein calcite with pyrite; many slickensides; minor contamination with sandy and waxy metamorphosed bentonite and coarse grained sandstone from above.

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- 430-440 Calcareous Shale — medium dark-blue-gray, very fissile, abundant vein calcite with pyrite; slickensides; minor contamination with sandy and waxy metamorphosed bentonite and coarse grained sandstone from above.
- 440-450 As above.
- 450-460 As above — no contamination.
- 460-470 As above — minor contamination red-brown to pale green, waxy, metamorphosed bentonite.
- 470-480 As above — less vein calcite, no bentonite.
- 480-490 As above.
- 490-500 As above.

GEOLOGIC SUMMARY

	<u>ROCK UNIT</u>	<u>TIME ROCK UNIT</u>
0-25	No sample	
25-105	Martinsburg Formation	Middle Ordovician
105-135	Bays Formation	Middle Ordovician
135-155	* Martinsburg Formation	Middle Ordovician
155-380	Bays Formation with metamorphosed bentonite at approximately 185', 280', and 325'	Middle Ordovician
380-390	No sample	
390-500	Athens Shale	Middle Ordovician

* Samples from this interval are of typical Martinsburg-type lithology and their inclusion at this depth may be due either to faulting or lateral intertonguing if the samples were collected properly.

Virginia Division of Mineral Resources
Hollis N. Walker, Geologist
January 5, 1966