

INTERVAL SHEET

Page 1 of 1

VDMR Well No: 1816

Date rec'd: 3/23/61

Sample Interval: from 7.39' to: 116.38'

PROP: Pound Dam Site D
Hole #2

Number of samples: 29

COMP: Watkins and Henry
(U. S. Corps of Engr.)

Total Depth: 116.38 feet

COUNTY: Dickenson

Oil or Gas: Water: Exploratory:X

From-To	From-To	From-To	From-To
-	-	-	-
7.4 - 12.4	-	-	-
12.4 - 17.4	-	-	-
17.4 - 21.4	-	-	-
21.4 - 26.4	-	-	-
26.4 - 30.4	-	-	-
30.4 - 35.4	-	-	-
35.4 - 37.1	-	-	-
37.1 - 37.9	-	-	-
37.9 - 40.8	-	-	-
40.8 - 43.7	-	-	-
43.7 - 43.9	-	-	-
43.9 - 48.9	-	-	-
48.9 - 53.9	-	-	-
53.9 - 58.9	-	-	-
58.9 - 63.9	-	-	-
63.9 - 68.9	-	-	-
68.9 - 73.9	-	-	-
73.9 - 77.7	-	-	-
77.7 - 82.7	-	-	-
82.7 - 87.7	-	-	-
87.7 - 90.7	-	-	-
90.7 - 93.8	-	-	-
93.8 - 97.8	-	-	-
97.8 - 98.3	-	-	-
98.3 - 99.5	-	-	-
99.5 - 104.5	-	-	-
104.5 - 109.5	-	-	-
109.5 - 114.5	-	-	-
114.5 - 116.4	-	-	-

County: Dickenson
VDMR Well No. 1816

Well: Proposed Pound (Bartlick) Dam, Site D, hole 2
(John W. Flannagan Dam)

Farm:

Driller: Watkins and Henry (U. S. Corps of Engr., contractor)

Location: Haysi quadrangle - approximate UTM, 380720 m. E and
4121410 m. N; about 3.4 miles northeast of Haysi and
adjacent to the Pound River 2.1 miles west of its confluence
with Russell Fork of the Big Sandy River

Elevation: 1300.00 feet

Total depth: 116.38 feet

Started drilling: 5/9/40

Completed drilling: 5/10/40

Sample description by: R. S. Good, Virginia Division of Mineral Resources,
2/20/67

References: U. S. Engineer Office, Huntington, W. Va., Report of Core
Boring, 5/10/40 and Design Memorandum No. 3 Geology and Site
(2 volumes) for Ohio River Basin Pound Reservoir Project, U. S. Corps
of Engineers, Huntington, W. Va., 1959.

GEOLOGIC SUMMARY

Depth (feet)	Thickness (feet)	Formation (and remarks)
0.0-7.1	7.1	Overburden
7.1-7.4	0.3	No core
7.4-116.4	109.0	Norton Formation: composed of sandstone, siltstone, and a 0.9' foot layer of coal from 37.9 to 40.8 feet; siderite occurs in thin laminae and as individual grains

County: Dickenson
VDMR Well No. 1816

GEOLOGIC LOG

Depth (feet)	Thickness (feet)	Description
0.0-7.1	7.1	Overburden
7.1-7.4	0.3	No core
7.4-15.1	7.7	Siltstone: dark gray, faintly varved; dark brown siderite bearing layers that are 5-30 mm thick
15.1-15.8	0.7	No core
15.8-21.4	5.6	Siltstone: similar to interval 7.4'-15.1'
21.4-30.4	9.0	Sandstone: gray, fine-grained, silty laminated and crossbedded with slump structures; sandy siltstone with angular to subangular quartz up to a maximum of 0.1 mm and a matrix of illite, chlorite, clay; massive from 26.4' to 30.4'
30.4-35.4	5.0	Sandstone and siltstone: alternate gray and black layers; the black silt laminae are 1-2 mm thick and the gray sandy laminae are 2-6 mm thick
35.4-37.9	2.5	Siltstone: black, massive, with dark brown siderite-bearing laminae
37.9-40.8	0.9	Coal: shaly, bituminous; white powdery jarosite
	2.0	No core
40.8-43.7	2.9	Sandstone: light gray, massive, micaceous, subgraywacke with detrital coal and black siltstone clasts (2 percent)
43.7-43.9	0.2	Sandstone: black, carbonaceous

County: Dickenson
VDMR Well No. 1816

Depth (feet)	Thickness (feet)	Description
43.9-63.3	19.4	Sandstone: light gray, massive subgraywacke, with minor amount of detrital coal
63.3-77.7	14.4	Sandstone: light gray, massive subgraywacke, detrital coal (1 to 10 percent, average 2 percent) and traces of brown detrital, siderite grains (1-2 mm in size)
77.7-90.7	13.0	Sandstone: light gray, massive subgraywacke with minor amount of detrital coal
90.7-93.8	3.1	Siltstone: dark gray, faintly varved; numerous brown siderite-bearing laminae 5-10 mm thick
93.8-97.8	4.0	Sandstone: gray, medium-grained, massive, subgraywacke; angular to subangular quartz grains from 0.25 to 0.5 mm, feldspar, black carbonaceous (includes coal) and brown detrital siderite grains from 0.25 to 0.5 mm, and a matrix of feldspar, illite, chlorite, and biotite; the coal and siderite give a speckled appearance to the rock; in places these grains form continuous laminae 0.25 to 0.5 mm thick
97.8-98.3	0.5	Siltstone: dark gray, faintly varved; dark brown siderite-bearing layers 5-10 mm thick
98.3-99.5	1.2	Sandstone: light gray, similar to interval 93.8'-97.8'
99.5-116.4	16.9	Siltstone: dark gray to black, slightly varved; siderite-bearing layers 5-10 mm thick

UNITED STATES ENGINEER OFFICE
HUNTINGTON, W. VA.
OPERATION DIVISION
SURVEYS SECTION

Date 5-10-40

REPORT OF CORE BORING

Sheet 1 of 5

Project Proposed Pound Dam, Site "D" MILE 1.8 VDMR Well No. 1816

Hole No. 2 Dia. 2-1/8" Location See Plans

Date started 5-9-40 Completed 5-10-40

Driller Henry and Watkins Inspector Davis and Johnson

Type of drilling equipment used U.S.E.D. Core Drill

From Elev. <u>1300.00</u>	To Elev. <u>1280.00</u>	on this page.	
Elev. of top of Hole <u>1300.00</u>	Plan depth of Hole <u>116.38'</u>		
Elev. of top of rock <u>1292.91</u>	Total overburden drilled <u>7.09'</u>		
Elev. bottom of Hole <u>1183.62</u>	Total rock drilled <u>109.29'</u>		
Elev. of ground water <u>None</u>	Total rock recovered <u>106.61'</u>		
Elev. of water lost <u>1259.18</u>	Total depth of Hole <u>116.38'</u>		
Elev. water regained <u>None</u>	Deviation from plan depth <u>None</u>		
Number of Core Boxes <u>6</u>			
Number of jar samples <u>None</u>			

DETAIL OF LOG

Depth	Elev.	Scale	Legend	Material Classification	Drilling Time Min./Ft.	Box No.	Remarks
0.00	1300.00						Top of Hole
				Clay, silt and broken shale fragments	0:30		
7.09	1292.91			Top of Rock			Change
7.39	1292.61					1	Loss 0.30
				Med. soft gray silt shale with thin sandstone laminations	1:10	1	
11.55	1288.45						Change
				Med. hard gray silt shale	2:15	1	
15.07	1284.93						
15.77	1284.23					1	Loss 0.70
						1	
20.00	1280.00						

UNITED STATES ENGINEER OFFICE
HUNTINGTON, W.VA.
OPERATION DIVISION
SURVEYS SECTION

Date 5-10-40

REPORT OF CORE BORING

Sheet 2 of 5

Hole No. 2 From El. 1280.00 To El. 1252.00 on this page.

DETAIL OF LOG

Depth	Elev.	Scale	Legend	Material Classification	Drilling Time Min./Ft.	Box No.	Remarks
20.00	1280.00						
21.10	1278.90			Med. hard gray silt shale	2:15	1	Change
						1	
26.55	1275.47			Med. hard fine grained sandstone with thin shale laminations	1:50		Bottom Box 1
						2	
30.15	1269.87						Change
36.77	1265.23			Med. hard gray sandstone and shale inter-laminated	0:50	2	Change
37.90	1262.10			Hard gray silt shale	0:50	2	Change
38.84	1261.16					2	
40.82	1259.18			Coal	0:40	2	Loss 1.58 Due to core grinding up in drilling. Change
							Lost water
43.60	1256.40			Hard fine grained gray sandstone with shale seams	0:30	2	Change
47.20	1252.80			Hard fine grained gray sandstone	2:50	2	Bottom Box 2
48.00	1252.00					3	

UNITED STATES ENGINEER OFFICE
HUNTINGTON, W. VA.
OPERATION DIVISION
SURVEYS SECTION

REPORT OF CORE BORING

Date 5-10-40

Sheet 3 of 5

Hole No. 2 From El. 1252.00 To El. 1224.00 on this page.

DETAIL OF LOG

Depth	Elev.	Scale	Legend	Material Classification	Drilling Time Min./Ft.	Box No.	Remarks
<u>48.00</u>	<u>1252.00</u>						
				Hard fine grained gray sandstone	2:50	3	
<u>63.00</u>	<u>1237.00</u>						Change
						3	
<u>66.15</u>	<u>1233.85</u>						Bottom Box 3
				Hard gray coarse grain sandstone with thin coal spars	2:55	4	
<u>76.00</u>	<u>1224.00</u>						

UNITED STATES ENGINEER OFFICE
HUNTINGTON, W.VA.
OPERATION DIVISION
SURVEYS SECTION

Date 5-10-40

REPORT OF CORE BORING

Sheet 4 of 5

Hole No. 2 From El. 1224.00 To El. 1198.00 on this page.

DETAIL OF LOG

Depth	Elev.	Scale	Legend	Material Classification	Drilling Time Min./Ft.	Box No.	Remarks
<u>76.00</u>	<u>1224.00</u>						
<u>76.00</u>	<u>1223.20</u>						Change
				Hard gray coarse grain sandstone	3:40	4	
<u>85.30</u>	<u>1214.70</u>						Bottom Box 4
						5	
<u>94.37</u>	<u>1205.85</u>						Change
				Hard gray silt shale with thin sandstone laminations	4:15	5	
<u>104.00</u>	<u>1198.00</u>						

UNITED STATES ENGINEER OFFICE
 HUNTINGTON, W. VA.
 OPERATION DIVISION
 SURVEYS SECTION

Date 5-10-40

REPORT OF CORE BORING

Sheet 5 of 5

Hole No. 2 From El. 1196.00 To El. 1183.62 on this page.

DETAIL OF LOG

Depth	Elev.	Scale	Legend	Material Classification	Drilling Time Min./Ft.	Box No.	Remarks
104.00	1196.00						Bottom Box 5
104.18	1195.82						
				Hard gray shale with thin sandstone laminations	4:15	6	
116.58	1183.62						Bottom of Hole

County: Dickenson

UDMR Well No. 1816

Well: Proposed Pound (Bartlick) Dam, Site D, hole 2
(John W Flannagan Dam)

Farm:

Driller: Watkins and Henry (U.S. Corps of Engr., contractor)

Location: Haysi quadrangle - approximate UTM, 380720 m. E
and 4121410 m. N; about 3.4 miles southeast of Haysi and
adjacent to the Pound River 2.1 miles west of its confluence
with Russell Fork of the Big Sandy River.

Elevation: 1300.00 feet

Total depth: 116.38 feet

Started drilling: 5/9/40 Completed drilling: 5/10/40

Sample description by: R.S. Good, Virginia Division of
Mineral Resources, 2/20/67.

References: U.S. Engineer Office, Huntington, W. Va., Report of
Core Boring, 5/10/40 and Design Memorandum No. 3
Geology and Site (2 volumes) for Ohio River Basin Pound
Reservoir Project, U.S. Corps of Engineers, Huntington,
W. Va., 1959.

GEOLOGIC SUMMARY

Depth (feet)	Thickness (feet)	Formation (and remarks)
0.0 - 7.1	7.1	Overburden.
7.1 - 7.4	0.3	No core.
7.4 - 116.4	109.0	Norton Formation: composed of

Proposed Pound (Bartlick) Dam, Site D, Hole 2

Well No. : Bartlick (Pound) Dam, Site D County : Dickenson
 Farm : John T. Flannigan Dam VDMR Well : W-1816
 Driller : Henry and Watkins (U.S. Corps of Engineers.)
 Inclination : Vertical
 Elevation : 1300.0
 Total Depth : 116.4
 Date Started : 5/9/40
 Date Completed : 5/10/40
 Sample Description by : R.S. Good February 20, 1967

Geologic Log

Depth (ft.)	Thickness (ft.)	Description
0.0 - 7.1	7.1	Overburden
7.1 - 7.4	0.3	No lost core
7.4 - 15.1	7.7	Siltstone : dark gray ^{faintly} varved; with dark brown siderite ^{bearing layers that are} 5-30 mm thick.
15.1 - 15.8	0.7	No core.
15.8 - 21.4	5.6	Siltstone : similar to interval 7.4' - 15.1'
21.4 - 30.4	9.0	Sandstone : gray, fine-grained, silty laminated and crossbedded with slump structures; includes sandy siltstone with angular to subangular quartz grains up to a maximum of 0.15 mm, and a matrix of illite, chlorite, clay; massive from 26.4' to 30.4'.
30.4 - 35.4	5.0	Sandstone and siltstone : ^{alternate} gray and black ^{layers;} varved, interlaminated & the black silt laminae are 1-2 mm thick and the gray sandy ^{laminations} beds are 2-6 mm thick.
35.4 - 37.9	2.5	Siltstone : black, massive, with dark brown siderite bands bearing laminae.
37.9 - 40.8	0.9	Coal : shaly, bituminous; with white powdery jarosite. 2.0' of core
	2.0	No core.

2. Bartick Site D

40.8-43.7	2.9	Sandstone: (massive, light gray) micaceous, subgraywacke with ^{detrital coal} carbonaceous 'trash' and black siltstone clasts (2 ^{percent}).
43.7-43.9	0.2	Siltstone; black, carbonaceous.
43.9-63.3	19.1	Sandstone: (massive, light gray) subgraywacke, with little or no carbon ^{with minor amount of} detrital coal.
63.3-77.7	14.4	Sandstone: (massive, light gray) subgraywacke; with 1-10 percent ^{detrital coal} carbonaceous (1 to 10 percent, average 2 percent) and traces of detrital (brown) siderite grains ^{in size} (1-2 mm).
77.7-90.7	13.0	Sandstone: (massive, light gray) subgraywacke with little or no carbon ^{minor amount of} detrital coal.
90.7-93.8	3.1	Siltstone: dark gray, faintly varved; ^{numerous} with brown siderite ^{bearing laminae} bands 5-10 mm thick, making up to 40% of the rock.
93.8-97.8	4.0	Sandstone: (massive, gray, ^{medium-grained}) subgraywacke; with angular to subangular quartz (70%) ^{grains from 0.25 to 0.5 mm} and feldspar, with black carbonaceous ^(includes coal) and brown detrital siderite grains (2-5%) and a matrix of feldspar, illite, chlorite and biotite; The coal and siderite grains ^(0.25 - 1 mm) give a finely speckled "pepper and salt" appearance ^{to the rock;} in places these grains are ^{form} continuous laminar laminae 0.25 to 0.5 mm thick.

97.8-98.3	0.5	Siltstone: dark gray, faintly varved. with dark brown siderite ^{- bedding layers} bands 5-10mm thick.
98.3-99.5	1.2	Sandstone: light gray, ^{similar to interval} as in 93.8'-97.8'
99.5-116.4	16.9	Siltstone: dark gray to black, slightly varved; with occasional siderite ^{- bedding layers} bands 5-10mm thick.

END OF Hole

Geologic Summary

<u>Depth (ft.)</u>	<u>Thickness (ft.)</u>	<u>Rock Unit</u>	<u>Age</u>
0-7.1	7.1	Overburden	
7.1-7.4	0.3	lost ^{No} core	
7.4-21.4	14.0	Norton formation: dark gray siltstone with siderite bands	Pennsylvanian
21.4-30.4	9.0	Norton formation: gray ^{light} subgraywacke	"
30.4-35.4	5.4	Norton formation: subgraywacke and siltstone interbanded	"
35.4-37.9	2.5	Norton formation: dark gray siltstone with siderite bands	"
37.9-40.8	0.9	Norton formation: <u>Splash Dam</u> coal	"
40.8-43.7	2.9	Norton formation: subgraywacke	"
43.7-43.9	0.2	Norton formation: carbonaceous siltstone	"
43.9-63.3	19.4	Norton formation: subgraywacke	"