

w-27330

County Wapello

NE, NE, NW

Sec. 17

T. 72N

R. 15W

Location - West side of gravel road, 0.55 mile north of pavement which is 1/2 mile east of Munterville, south of access drive.

Altitude - 865' Chillicothe 1968 topo sheet

Measured by - PVD, MRH

Date - 11/13-14/75

Remarks - 1"=10'

Bed	Description	Thickn
PLEISTOCENE		
0'-1'	Clay-dark brown.	
1'-5'	Clay-medium brown grading to light brown with some sand and silt.	
5'-16'	Clay-light brown with sand and small pebbles, hard zone at 13'.	
16'-21'	Sand-medium brown, clayey.	
PENNSYLVANIAN		
approx. 21'-27'	Shale-greenish gray and red. Reamed to set casing.	
approx. 27'-30'11"	Shale and coal. Shale-dark gray and coal. Reamed to set casing.	
30'11"-31'2"	core loss	
1 31'2"-37'6"	Mudstone-medium gray becoming lighter downward, slightly silty, faint laminations probably disrupted by rooting, slickensides. Carbonized and pyritic plant debris and root replacements are common. Lower contact is sharp and irregular.	
2 37'6"-40'10"	Shale. Upper approx. 1' is shale-medium gray, slightly silty, faintly laminated due to rooting and slickensides and contains irregular light brown limestone masses followed by a rapidly gradational contact with shale-green gray mottled with maroon, slightly silty to clay shale-medium gray. Rooted, diminishing downward and common feeding trails. Lower contact is sharp and regular.	
3 40'10"-46'11"	Shale and limestone. Shale-medium dark gray, laminated, very calcareous, with abundant fossil fragments grades abruptly to limestone-gray green, argillaceous with common fossil fragments including brachiopods, horn coral. Six inches recovered. Lower contact included in 5'7" core loss.	
4 46'11"-48'0"	Shale-light medium gray, slightly silty, laminated to faintly laminated with common carbonized plant debris and possible rooting. Lower contact is sharp and irregular.	
5 48'0"-58'7"	Gradational interval. Upper approx. 3" is sandstone-light brownish gray to white, very fine, with sparse carbonized plant debris, followed by a 1/2" possible smut at 48'3". The next approx. 6" is shale medium gray slightly silty, rooted. The next approx. 5 1/2' grades from siltstone-light to medium brownish gray, argillaceous,	

Bed Fos. Fm.

PLEISTOCENE

PENNSYLVANIAN

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40

50

60

70

80

90

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Altitude - 865' Chillicothe 1968 topo sheet

Measured by - PVD, MRH

Date - 11/13-14/75

Remarks - 1"=10'

90	Bed	Fos.	Fm.	Bed	Description	Thickne	
	11		PENNSYLVANIAN				
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	13						
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	22			6	58'7"-65'8" Gradational interval. The upper approx. 3" is siltstone-medium gray, argillaceous, micaceous, faintly laminated with laminations disturbed by rooting. The next approx. 6" is sandstone-light greenish gray, very fine, argillaceous, with laminations disturbed by rooting. The next approx. 2' is siltstone-light gray to green gray, with faint laminations which become irregular downward, micaceous. Lower $\frac{1}{2}$ contains abundant disseminated granular ironstones and common massive ironstones. Silt content diminishes over lower 4" to basal approx. 4' of shale-medium gray, silty, grading downward to dark gray, slightly silty, laminated throughout, with local concentrations of granular pyrite, may be rooted. Lower contact lost in 0.1' core loss		
				7	65'8"-66'7" Coal. Coal with abundant nodular pyrite.		
				8	66'7"-78'8" Gradational sequence. Upper approx. 1' is sandstone-light to medium gray, very fine grained, silty and slightly argillaceous with abundant carbonized plant debris. Silt and clay increase downward as unit grades to shale. Shale-medium gray, silty, with abundant pyrite nodules and granular ironstone grading downward to shale-dark gray, silty with silt content diminishing downward, minor pyrite nodules and with rare pelecypods. Shale contains sparse massive pyrite root replacements and common carbonized plant debris which diminish downward. Lower contact lost in drilling.		
				9	78'8"-79'6" Coal. Coal with moderate pyrite nodules.		
				10	79'6"-89'6" Siltstone and sandstone. The upper approx. 6" consists of siltstone-medium brown gray, slightly argillaceous with common light brown gray siltstone clasts, faintly laminated disturbed by rooting grades downward to approx. 1 $\frac{1}{2}$ sandstone-light brown gray, very fine, silty and argillaceous, rooted, with common carbonized plant debris and granular pyritic root replacements. The next approx.		
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R. 15W.

Bed	Description	Thickness
10	cont'd 2½' is siltstone-medium brown gray, with minor very fine sand diminishing downward, rooted, with granular and massive pyritic root replacements and common carbonized plant debris, micaceous, grades abruptly to approx. 5½' sandstone-light brown gray, very fine, silty and slightly argillaceous, rooted and containing abundant carbonized plant debris and roots and abundant disseminated granular ironstones. The lower 3' of this portion grades in part by interlamination to siltstone-medium green gray, argillaceous, laminated, micaceous, with common ironstones occurring in sandy laminae, abundant carbonized plant debris throughout and rooting diminishing downward. Lower contact lost in drilling.	
11	89'6"-92'5" Mudstone-light to medium gray, silty diminishing downward. The upper 1/3 is mottled with light yellow brown and maroon, slickensided and contains abundant carbonized plant debris. The lower 2/3 is extensively slickensided and contains common to abundant carbonized plant debris and sparse feeding trails. Ironstones occur in the basal approx. 6". The lower contact is sharp and irregular. A cumulative core loss of 0.7' is assumed.	
12	92'5"-98'3" Gradational interval. Upper ½ is siltstone-light green gray, slightly argillaceous becoming light gray, sandy downward; faintly laminated. The lower ½ is sandstone-light gray, very fine, silty becoming light gray to white very fine to fine, with silt disappearing and abundant granular ironstones. Massive pyritic root replacements, some with gypsum cores and sparse carbonized plant debris are present throughout. Lower contact partially destroyed in drilling, but probably sharp. Cumulative core loss of 0.9' assumed.	
13	98'3"-102'10" Interbedded shale and sandstone. Mudstone. Shale-medium gray, clay shale becoming silty downward and slightly sandy at base of interbedded interval, faintly laminated; sandstone-light gray, very fine, with thin clay laminae, common carbonized plant debris and abundant granular pyrite present throughout. Possible smut streak at 99'4". Lower 2/3 is mudstone-light medium gray with local light yellow brown and maroon mottling, silty, slightly sandy grading downward to slightly silty, faintly laminated, rooted in upper approx. 3'. Lower contact rapidly gradational by interlamination.	
14	102'10"-106'11" Sandstone-light gray becoming light brown gray downward, very fine to fine grained, patchy cement, sparse carbonized plant debris, minor coal fragments occur above a ½" dark brown shale. The lower approx. 7" grades to interlaminated sandstone and shale-light green gray laminated, common bioturbation. A ½" possible smut occurs at the lower contact which is sharp and regular.	

Location - West side of gravel road, 0.55 mile north of pavement which is ½ mile east of Munterville, south of access drive.

Altitude - 865' Chillicothe 1968 topo sheet

Measured by - PVD, MRH

Date - 11/13-14/75

Remarks - 1"=10'

Bed Fos. Fm.

29

MISSISSIPPIAN

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31

total depth =
199'3"

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Bed Fos. Fm.

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Altitude - 865' Chillicothe topo. sheet

Measured by - PVD, MRH

Date - 11/13-14/75

Remarks - 1"-10'

Bed

Description

Thickn

- | Bed | Description | Thickn |
|-----|--|--------|
| 15 | 106'11"-108'8" Shale. Interlaminated shale and sandstone. The upper approx. 5" is shale-light gray, silty, faintly laminated with sparse carbonized plant debris which grades rapidly to interlaminated shale-dark gray, silty, micaceous, with common carbonized plant debris and sandstone-medium gray, fine becoming very fine downward approx. 50% decreasing downward to a trace. The upper 2/3 of the interlaminated interval is bioturbated. A $\frac{1}{2}$ " possible smut occurs at the lower contact which is sharp and regular. | |
| 16 | 108'8"-111'11" Gradational interval. The upper approx. 2'3" is siltstone-light brown gray becoming medium gray downward, with thin irregular shale laminae in the upper 3" which diminish rapidly downward, grading to shale-medium gray, silty, becoming dark gray, slightly silty. The unit is rooted throughout and contains common carbonized plant debris and massive pyritic root replacement, some with gypsum cores, and common to abundant granular ironstones. The lower contact is sharp and regular. | |
| 17 | 111'11"-112'6" Coal with moderate nodular pyrite. | |
| 18 | 112'6"-116'11" Rooted interval. Upper approx. 8" is shale-dark gray becoming light brown gray downward, silty, with shale pebbles in upper 1" grading downward to approx. 3' siltstone-light brown gray, argillaceous, which grades very rapidly by interlamination to shale-light brown gray, silty, faintly laminated becoming medium brown gray, slightly silty, and laminated. Rooted throughout and contains abundant carbonized and pyritized plant debris. Lower contact gradational, picked on color change and disappearance of silt size sediment. | |
| 19 | 116'11"-123'9" Shale-dark gray to black laminated, micaceous, abundant granular pyrite in lower $\frac{1}{2}$; sparse nodular pyrite and pyrite filled burrows or root traces throughout. Lower 6" contains vitrain bands increasing downward. Lower contact sharp and regular. | |
| 20 | 123'9"-124'11" Coal-moderate to abundant pyrite nodules. | |
| 21 | 124'11"-128'1" Shale-medium gray, slightly silty faint laminations with light brown gray clasts in upper 3" grades to mudstone-light green gray, mottled with yellow brown, silty, with abundant carbonized plant debris and common massive root replacements. The lower $\frac{1}{2}$ is shale-medium brown gray, silty, becoming slightly sandy downward. Sharp, regular lower contact. | |
| 22 | 128'1"-129'10" Gradational and interlaminated interval. Unit starts as siltstone-light medium gray, slightly mottled with medium gray becoming interlaminated with sandstone-light gray, very fine, increasing from a trace to about 60%, then decreasing rapidly to a trace. Next is a rapid gradation to shale-medium dark gray, silty. Sharp, irregular lower contact. | |

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Bed

Description

Thickne

- | Bed | Description | Thickne |
|---------------|--|---------|
| 23 | 129'10"-149'8" Gradational interbedded unit. Unit begins as siltstone-light brown gray, slightly sandy becoming interlaminated with sandstone-light brown gray, very fine, grades from a trace to about 25% over 2½' then grades rapidly to about 100% sandstone followed by interbedded sandstone and shale. Sandstone-light gray to white, very fine, micaceous, common carbonized plant debris becoming fine to medium grained downward with a few zones of coarse grains; shale-medium gray, silty, laminated, micaceous. Sandstone increases downward and becomes calcareous in the lower approx. 1'. The lower 1' of the unit grades by interlamination with limestone-medium gray, argillaceous sandy with clasts of shale. Lower contact is gradational. | |
| 24 | 149'8"-162'8" Limestone. Gradational interval. The upper approx. 11" is limestone-medium gray, argillaceous, fine, with poorly developed cone-in-cone at top and base. The remainder of the unit is sandstone-dark gray, very fine, silty, with very thin laminae and lenses of light gray, very fine sandstone, about 5%, grading downward to sandy siltstone. Several zones of green gray and brown mudstone clasts occur in the lower approx. 1½'. Sharp, irregular lower contact. | |
| 25 | 162'8"-168'1" Mudstone. Shale. Upper approx. 2½' is mudstone-medium brown gray to green gray, silty, rooted, with a few medium gray shale clasts in the upper 2-3", has sharp, irregular contact with shale-medium brown gray, slightly silty which grades rapidly to mudstone and then back to shale which grades by interlamination to shale-dark gray to black, slightly silty, becoming coaly shale 167'7" to 168". The lower 1" is interlaminated siltstone and mud pebble conglomerate in silty clay matrix. Lower contact is gradational by interlamination. | |
| 26 | 168'1"-172'4" Interlaminated siltstone and conglomerate. Siltstone-light gray, irregular laminations, abundant carbonaceous plant debris; conglomerate-green gray, silty mudstone clasts in medium gray silty clay matrix with common carbonized plant debris. Rooted throughout. Lower contact sharp and irregular. | |
| MISSISSIPPIAN | | |
| 27 | 172'4"-173'9" Mudstone-medium gray green, silty, fractures extensive in upper 3" diminishing slightly downward. A few light brown limestone clasts occur in the lower ½'. The lower contact is gradational, becoming calcareous and maroon in color. | |
| 28 | 173'9"-179'6" Mudstone. Weathering profile. Mudstone-maroon with green gray mottling, silty, with sparse limestone clasts. The upper 2" is thinly laminated followed by a 1' thick zone of extensive fractures with calcite fill which diminish rapidly downward. The remainder of the unit is mudstone-green gray mottled with maroon, silty, locally slightly calcareous, slickensided with sparse limestone clasts at base. Lower contact is gradational. | |

