TEST HOLE NO. 115.

In the N. E. ¼ of the N. W. ¼ of Section 11, T. 13 N., R. 4 E., elevation above tide is 584.′

Sandy clay	80′		80′	
Sand and gravel	28′		108′	
Gray shale	10′		118′	
Coal, Upper Rider		6″	118′	6″ at 466 A. T.
Gray shale	16′		134′	6″
Coal, Upper Verne		8″	135′	2″ at 449 A. T.
Sandy shale	23′		158′	2″
Coal, Lower Verne		6″	158′	8″ at 425 A. T.
Fire clay	2′	4″	161′	
Sandy shale	23′		184′	
Coal, Middle Rider		6″	184′	6″ 400 at A. T.
Fire clay	2′	4″	186′	10″
Sandy clay	54′		240′	10″

TEST HOLE NO. 116.

In the S. W. ¼ of the S. E. ¼ of Section 2, T. 13 N., R. 4 E., elevation above tide is 580.′

Sand and gravel	12′		12′	
Clay	42′		54′	
Hardpan	10′		64′	
Black slate	10′		74′	
Gray shale	32′		106′	
Sandy shale	18′		124′	
Coal, Upper Verne	2′		126′	at 454 A. T.
Fire clay	4′		130′	
Gray shale	22′		152′	
Coal, Lower Verne	1′	8″	153′	8″ at 426 A. T.
Fire clay	3′	4″	157′	
Dark gray shale	15′		172′	
Gray rock	5′		177′	
Coal, Saginaw Coal?	1′	8″	178′	8″ at 401 A. T.
Fire clay	2′	4″	181′	
Black slate	29′		210′	
Coal, Lower Rider		6″	210′	6″ at 370 A. T.
Slate and coal	2′	3″	212′	9″
Coal, Lower Coal	2′	3″	215′	at 365 A. T.
Fire clay	2′		217′	

TEST HOLE NO. 117.

In the S. W. ¼ of the S. E. ¼ of Section 2, T. 13 N., R. 4 E., elevation above tide is 580.′

Sandy clay	30′		30′	
Clay	48′		78′	
Sandy shale	16′		94′	
Black slate	1′		95′	
Coal, Upper Rider		6″	95′	6″ at 485 A. T.
Fire clay	6′	6″	102′	
Gray shale	19′		121′	
Black slate	6′		127′	
Coal, Upper Verne	2′	11″	129′	11″ at 450 A. T.
Fire clay	4′	1″	134′	
Sandrock	28′		162′	
Coal, Lower Verne	1′		163′	at 417 A. T.
Sandy shale	30′		193′	
Sandrock	6′		199′	

Coal Holes Near Michigan Standard Mine. From Mr. Etzold. In Monitor Township.

Test Holes Nos. 118-124.

TEST HOLE NO. 118.

In the S. W. ¼ of the N. W. ¼ of Section 25, T. 14 N., R. 4 E., elevation above tide is 597.′

Clay	76′		76′	
Hardpan	15′		91′	
Sandrock	2′		93′	
Slate	10′		103′	
Coal, Upper Verne	2′	1″	105′	1″ at 491 A. T.
Shale	1′		106′	1″
Fire clay	2′	6″	108′	7″
Slate	2′	9″	111′	4″
Coal, Lower Verne	2′		113′	4″ at 484 A. T.
Fire clay	21′		134′	4″
Shale	2′		136′	4″
Fire clay	10′	6″	146′	10″
Sandrock	23′	9″	177′	

TEST HOLE NO. 119.

In the W. ½ of the W. ½ of the E. ½ of the S. W. ¼ of Section 25, T. 14 N., R. 4 E., elevation above tide is 597.′

Clay	68′		68′	
Hardpan	12′		80′	
Gravel	8′		88′	
Hardpan	6′		94′	
Fine gravel	4′		98′	
Hardpan	7′		105′	
Fire clay	3′		115′	
Blue shale	1′		116′	
Gray sandrock and fire clay	19′	6″	135′	6″

TEST HOLE NO. 120.

In the W. ½ of the W. ½ of the E. ½ of the S. W. ¼ of Section 25, in Monitor township, T. 14 N., R. 4 E., elevation above tide is 597.′

Clay	73′		73′	
Hardpan	27′		100′	
Slate	7′		107′	
Coal, Upper Verne	1′	3″	108′	3″ at 489 A. T.
Slate	22′		130′	3″
Fire clay	12′		142′	3″

TEST HOLE NO. 121.

In the N. W. ¼ of the S. W. ¼ of Section 30, T. 14 N., R. 5 E., elevation above tide is 595.′

Clay	80′		80′	
Hardpan	2′		82′	
Sand and gravel	9′		91′	
Hardpan	2′		93′	
Slate	20′	2″	113′	2″
Fire clay	1′		114′	2″

Coal, Upper Verne		2″	114′	4″ at 481 A. T.
Fire clay	2′		116′	4″
Fire clay	13′	8″	130′	
Slate	7′	1″	137′	1″
Coal, Lower Verne	1′	8″	158′	9″ at 436 A. T.
Fire clay	2′		160′	9″

TEST HOLE NO. 122.

In the N. ½ of the S. E. ¼ of Section 25, T. 14 N., R. 4 E., elevation above tide is 596.′

Clay	72′		72′	
Hardpan	10′		82′	
Shale	9′		91′	
Extra hard (Carbonate of Iron)	3′		94′	
Shale and slate	12′	6″	106′	6″
Coal, Upper Verne	2′	6″	109′	at 487 A. T.
Shale and slate	9′	7″	118′	7″
Coal, Lower Verne	3′	9″	122′	4″ at 474 A. T.
Fire clay		3″	122′	7″

TEST HOLE NO. 123.

Near the S. W. corner of the N. W. ¼ of Section 30, T. 14 N., R. 5 E., elevation above tide is 596.′

To rock	97′		97′	
Rock	20′		117′	
Coal, Upper Verne	3′	3″	120′	3″ at 476 A. T.

TEST HOLE NO. 124.

In the E. ½ of the S. W. ¼ of Section 25, Monitor township, T. 14 N., R. 4 E., elevation above tide is 596.′

To rock	95′		95′	
Rock	20′		115′	
Coal, Upper Verne	3′		118′	at 478 A. T.
Slate	2′	9″	120′	9′
Coal, Lower Verne	1′	11″	122′	8″ at 473 A. T.

Records from Mr. Chas. Coryell.

Test Holes Nos. 125-148.

TEST HOLE NO. 125.

In the S. E. ¼ of the S. E. ¼ of Section 25, T. 14 N., R. 4 E., elevation above tide is 594.′

Clay	78′		78′	
Hardpan	20′		98′	
Shale	6′		104′	
Seam of coal in shale	....		....	
Sandrock	8′	6″	112′	6″
Black slate	5′		117′	6″
Coal, Upper Verne	2′	11″	120′	5″ at 477 A. T.
Shale		6″	120′	11″
Fire clay	....		....	

TEST HOLE NO. 126.

In the S. E. ¼ of the S. E. ¼ of Section 25, T. 14 N., R. 4 E., elevation above tide is 594.′

Clay	77′		77′	
Hardpan	22′		99′	
Shale and coal seam	7′		106′	
Sandrock	8′	6″	114′	6″
Black slate	4′		118′	6″
Coal, Upper Verne	2′	10″	121′	4″ at 473 A. T.
Fire clay		5″	121′	9″

TEST HOLE NO. 127.

In the S. E. ¼ of the S. E. ¼ of Section 25, T. 14 N., R. 4 E., elevation above tide is 594.′

Clay	78′		78′	
Hardpan	31′		109′	
Shale	3′	4″	112′	4″
Coal, Upper Verne	2′	8″	115′	at 479 A. T.
Sandrock	11′		126′	
Black slate	7′		133′	
Coal, Lower Verne	3′	9″	136′	9″ at 457 A. T.

TEST HOLE NO. 128.

In the S. E. ¼ of the S. E. ¼ of Section 25, T. 14 N., R. 4 E., elevation above tide is 594.′

Top of rock	108′		108′	
Shale	6′		114′	
Fire clay	2′		116′	
Sand rock	6′		122′	
Slate	6′		128′	
Coal, Lower Verne	2′	10″	130′	10″ at 463 A. T.

TEST HOLE NO. 129.

In the S. W. ¼ of the S. E. ¼ of Section 30, T. 14 N., R. 5 E., elevation above tide is 590.′

Drift	86′		86′	
Coal, Lower Verne	3′		145′	4″ at 445 A. T.

TEST HOLE NO. 130.

In the N. ½ of the N. W. ¼ of Section 31, T. 14 N., R. 5 E., elevation above tide is 593.′

Drift			85′	
Depth of hole			142′	
Coal thickness, Lower Verne			2′	10″ at 453 A. T.

TEST HOLE NO. 131.

In the N. ½ of the N. W. ¼ of Section 31, T. 14 N., R. 5 E., elevation above tide is 593.′

Surface			80′	
Depth of hole			140′	
Coal, Lower Verne			2′	8″ at 453 A. T.

TEST HOLE NO. 132.

City limits of West Bay City and 23d St. In the S. E. corner of Section 30, Monitor township, T. 14 N., R. 5 E., elevation above tide is 590.′

Clay	74′		74′	
Hardpan	2′		76′	
Black shale	8′		84′	
Black sandy slate	2′	3″	86′	3″
Salzburg coal	5′		91′	3″ at 499 A. T.
Fire clay	8′		99′	3″
Coal, Upper Rider		6″	99′	9″ at 490 A. T.
Fire clay	37′	9″	137′	6″

TEST HOLE NO. 133.

In the S. E. part of Section 30, T. 14 N., R. 5 E., elevation above tide is 589.′

Clay	74′		74′	
Hardpan	2′		76′	
Blue shale	8′		84′	
Sandy slate	2′	3″	86′	3″
Salzburg coal	5′	3″	91′	6″ at 498 A. T.
Fire clay	8′		99′	6″
Coal, Upper Rider		6″	100′	at 489 A. T.
Fire clay	92′	3″	192′	3″

TEST HOLE NO. 134.

In the S. W. part of Section 29, T. 14 N., R. 5 E., elevation above tide is 589.′

Clay	76′		76′	
Hardpan	6′		82′	
Slate	8′		90′	
Salzburg coal	4′	9″	94′	9″ at 494 A. T.
Shale		6″	95′	3″
Fire clay	5′	6″	100′	9″

TEST HOLE NO. 135.

West Bay City, S. W. part of Section 29, T. 14 N., R. 5 E., elevation above tide is 589.′

Clay	72′		72′	
Hardpan	6′		78′	
Salzburg Coal Rider		6″	78′	6″ at 511 A. T.
Shale		6″	79′	
Fire clay	6′		85′	
Shale	3′	6″	88′	6″
Salzburg coal		6″	89′	at 500 A. T.
Fire clay	21′	3″	110′	3″

TEST HOLE NO. 136.

Inside of limits of West Bay City. S. W. corner of Section 29, T. 14 N., R. 5 E., elevation above tide is 590.′

Clay	79′	10″	79′	10″
Hardpan	6′	2″	86′	
Blue shale	4′		90′	
Hard sand slate	3′		93′	
Slate and bone coal	2′	4″	95′	4″
Salzburg coal	3′	2″	98′	6″ at 492 A. T.
Shale		6″	99′	
Fire clay	23′		122′	

TEST HOLE NO. 137.

Inside limits of West Bay City. S. W. corner of Section 29, T. 14 N., R. 5 E., elevation above tide is 590.′

Clay	80′		80′	
Hardpan	11′		91′	
Salzburg coal	1′	3″	92′	3″ at 498 A. T.
Shale		6″	92′	9″
Fire clay	19′	10″	112′	7″

TEST HOLE NO. 138.

In the S. W. corner of Section 29, T. 14 N., R. 5 E., elevation above tide is 590.′

Clay	76′		76′	
Hardpan and gravel mixed with coal.	23′		99′	
Fire clay	23′	7″	122′	7″

TEST HOLE NO. 139.

Near the N. E. corner of Section 31, T. 14 N., R. 5 E., elevation above tide is 590.′

Clay	81′		81′	
Hardpan, none.				
Slate	9′		90′	
Salzburg coal	3′		93′	at 497 A. T.
Soft shale		6″	93′	6″
Fire clay	1′	6″	95′	

TEST HOLE NO. 140.

Hole commenced Saturday, May 6th, and finished Monday, May 8th. Near the N. E. corner of Section 31, T. 14 N., R. 5 E., the elevation above tide is 590.′

Clay	81′		81′	
Hardpan, none.				
Slate	9′		90′	
Salzburg coal	3′		93′	at 497 A. T.
Soft shale		6″	93′	6″
Fire clay	1′	6″	95′	

TEST HOLE NO. 141.

Commenced Tuesday, May 9, and finished Wednesday, May 10th, 1899. In the N. E. $\frac{1}{4}$ of the N. E. $\frac{1}{4}$ of Section 31, T. 14 N., R. 5 E., elevation above tide is 585.′

Clay	81′	6″	81′	6″
Hardpan	....		....	
Slate	8′	6″	90′	
Salzburg coal	3′		93′	at 492 A. T.
Soft shale		4″	93′	4″

TEST HOLE NO. 142.

Commenced May 11, finished May 12, 1899. In the S. E. $\frac{1}{4}$ of the S. E. $\frac{1}{4}$ of Section 30, T. 14 N., R. 5 E., elevation above tide is 585.′

Clay	75′		75′	
Hardpan	7′		82′	
Light shale	4′		86′	
Dark shale	3′	4″	89′	4″

Salzburg coal		8″	90′	at 495 A. T.
Light shale	3′		93′	
Dark shale	6′	2″	99′	2″
Coal, Upper Rider	3′		102′	2″ at 483 A. T.
Fire clay	2′	6″	104′	8″

TEST HOLE NO. 143.

Commenced May 13, ended May 21, 1899, In the S. E. ¼ of the S. E. ¼ of Section 30, T. 14 N., R. 5 E., elevation above tide is 590.′

Clay	76′		76′	
Hardpan and gravel	21′		97′	
Fire clay	3′		100′	
Slate	6′	9″	106′	9″
Coal, Upper Verne	3′		109′	9″ at 480 A. T.
Shale		6″	110′	3″
Fire clay and sandrock	48′	9″	159′	

TEST HOLE NO. 144.

Commenced May 22, finished May 24, 1899. In the S. E. ¼ of the S. E. ¼ of Section 30, T. 14 N., R. 5 E., elevation above tide is 590.′

Clay	68′	4″	68′	4″
Hardpan	6′	2″	74′	6″
Slate	8′		82′	6″
Salzburg coal	4′	9″	87′	3″ at 503 A. T.
Shale		9″	87′	9″
Fire clay	1′		88′	9″

TEST HOLE NO. 145.

In the N. E. ¼ of the S. E. ¼ of Section 30, T. 14 N., R. 5 E., elevation above tide is 590.′

Clay	80′		80′	
Hardpan	11′		91′	
Slate, very black	10′	6″	101′	6″
Coal		3″	101′	9″ at 488 A. T.
Light slate	14′	10″	116′	7″
Coal, Upper Rider	1′	8″	118′	3″ at 472 A. T.
Light sandy slate	3′	10″	122′	1″
Coal, Upper Verne	2′	6″	124′	7″ at 465 A. T.
Shale	1′		125′	7″
Fire clay		6″	126′	1″

TEST HOLE NO. 146.

In the N. E. ¼ of the S. E. ¼ of Section 30, T. 14 N., R. 5 E., elevation above tide is 595.′

Clay	76′		76′	
Hardpan	20′		96′	
Slate, black	15′		111′	
Coal seam	....		....	at 484 A. T.
Light slate	11′		122′	
Black slate	2′	7″	124′	7″
Coal, Upper Rider		8″	125′	3″ at 470 A. T.
Light slate	6′	3″	131′	6″
Black slate	4′	2″	135′	8″
Coal, Lower Verne	4′	7″	140′	3′ at 455 A. T.

TEST HOLE NO. 147.

In the N. E. ¼ of the S. E. ¼ of Section 30, T. 14 N., R. 5 E., elevation above tide is 595.′

Clay	78′		78′	
Hardpan	21′		99′	
Slate	14′		113′	
Light shale	10′	6″	123′	6″
Slate	1′		124′	6″
Coal, Upper Verne	1′	3″	125′	9″ at 469 A. T.
Slate	10′		135′	9″
Coal, Lower Verne	3′	4″	139′	1″ at 456 A. T.
Fire clay	3′	2″	142′	3″
Slate	17′	3″	159′	6″
Coal, Middle Rider	2′	10″	162′	4″ at 433 A. T.
Fire clay	2′		164′	4″

TEST HOLE NO. 148.

In the N. E. ¼ of the N. W. ¼ of Section 11, T. 14 N., R. 5 E., elevation above tide is 610.′

Drift	110′		110′	
Light slate	77′		187′	
Sandrock	38′	10″	225′	10″

Records in Monitor Township. Leonard Zill and John S. Wuepper, drillers.

Test Holes No's 149-172.

TEST HOLE NO. 149.

In the S. W. ¼ of the N. W. ¼ of Section 20, T. 14 N., R. 4 E., elevation above tide is 604.′

Clay	50′		50′	
Sand and gravel	50′		100′	
Hardpan	15′		115′	
Slate	22′		137′	
Black slate	3′		140′	
Coal, Upper Verne		2″	140′	2″ at 464 A. T.
Light slate	33′		173′	2″
Black slate	1′		174′	2″
Light slate	4′		178′	2″
Fire clay and sandrock	5′		183′	2″

TEST HOLE NO. 150.

In the center of the S. W. ¼ of the S. W. ¼ of Section 5, T. 14 N., R. 4 E., elevation above tide is 612.′

Clay	82′		82′	
Sand and gravel	24′		106′	
Clay	4′		110′	
Fire clay	10′		120′	
Light slate	12′		132′	
Black slate	4′	2″	136′	2″
Fire clay	2′		138′	2″
Black slate	1′	8″	139′	10″
Coal, Upper Verne		4″	140′	2″ at 472 A. T.
Light slate	6′		146′	2″
Sandrock	4′		150′	2″

Light slate	5′		155′	2″
Sandrock	23′		178′	2″
Light slate	3′		181′	2″
Sandrock	7′		188′	2″

TEST HOLE NO. 151.

In the E. ½ of the S. E. ¼ of Section 17, T. 14 N., R. 4 E., elevation above tide is 600.′

Clay	58′		58′	
Sandstone	66?′		124′	
Slate	67′	6″	191′	6″
Fire clay	2′	6″	194′	
Slate	12′	9″	206′	9″
Coal, Saginaw coal		8″	207′	5″ at 393 A. T.
Fire clay	2′	6″	209′	11″
Slate	3′		212′	11″
Slate and fire clay	11′	7″	224′	6″
Black slate	17′		241′	6″
Coal, Lower coal	2′	10″	244′	4″ at 356 A. T.
Slate and sandrock	42′		286′	4″
Black slate		6″	286′	10″
Sandrock	6′		292′	10″

TEST HOLE NO. 152.

In the N. part of the S. E. ¼ of the S. E. ¼ of Section 17, T. 14 N., R. 4 E., elevation above tide is 595.′

Clay	64′		64′	
Sand	2′		66′	
Soapstone	2′		68′	
Gravel	20′	3″	88′	3″
Slate	13′	5″	101′	8″
Fire clay	3′		104′	8″
Slate	2′		106′	8″
Coal, Upper Rider		2″	106′	10″ at 488 A. T.
White slate	8′		114′	10″
Black slate	12′		126′	10″
Coal, Upper Verne	3′	3″	130′	1″ at 465 A. T.
Fire clay	....		....	

TEST HOLE NO. 153.

Near Wolverine shaft No. 2, T. 14 N., R. 4 E., elevation above tide 618 feet.

Clay	58′		58′	
Hardpan	20′	6″	78′	6″
Salzburg coal Rider		6″	79′	at 539 A. T.
Fire clay	1′		80′	
Sandrock		8″	80′	8″
Slate	8′		88′	8″
Salzburg coal	1′	6″	90′	2″ at 528 A. T.
Fire clay	7′		97′	2″
Coal		8″	97′	10″
Slate	6′		103′	10″
Fire clay	2′	2″	106′	
Slate		6″	106′	6″
Coal, Upper Rider		8″	107′	2″ at 511 A. T.
Light slate	14′		121′	2″
Black slate	7′	1″	128′	3″
Coal, Upper Verne	2′	7.5″	130′	10½″ at 487 A. T.
Fire clay	4′		134′	10½″

TEST HOLE NO. 154.

At the N. end of N. and S. ⅛ line of S. E. ¼ of Section 17, T. 14 N., R. 4 E., elevation above tide is 595.′

Clay	60′		60′	
Gravel	10′		70′	
Hardpan	9′		79′	
Salzburg coal	2′	3″	81′	3″ at 514 A. T.
Fire clay	10′	6″	91′	9″
Slate	8′	4″	100′	1″
Fire clay	1′		101′	1″
Slate	1′		102′	1″
Fire clay	4′		106′	1″
Light slate	10′		116′	1″
Black slate	14′	6″	130′	7″
Coal, Upper Verne	2′	9″	133′	4″ at 462 A. T.
Fire clay	....		....	

TEST HOLE NO. 155.

In the N. W. ¼ of the S. E. ¼ of Section 17, T. 14 N., R. 4 E. This is 50 feet northwest of Wolverine shaft number 2. Elevation above tide is 619.′

Clay	75′		75′	
Hardpan	14′		89′	
Slate	16′	10″	105′	10″
Salzburg coal		2″	106′	at 513 A. T.
Fire clay	1′		107′	
Slate	2′		109′	
Coal, Upper Rider		4″	109′	4″ at 510 A. T.
Slate	43′	8″	153′	
Coal, Upper Verne	4′	8.5″	157′	8½″ at 461 A. T.
Slate	1′		158′	8½″

Alternating with fire clay, March, 1900.

TEST HOLE NO. 156.

N. W. corner of S. E. ¼ of the N. E. ¼ of Section 17, elevation above tide is 600.′ T. 14 N., R. 4 E.

Clay	64′		64′	
Hardpan	10′		74′	
Coal	4′		78′	at 522 A. T.
Fire clay	2′		80′	
Slate	16′		96′	
Salzburg coal	1′	8″	97′	8″ at 502 A. T.
Fire clay	2′	4″	100′	
Slate	23′		123′	
Coal, Upper Verne	2′	8″	125′	8″ at 474 A. T.
Fire clay	....		....	

TEST HOLE NO. 157.

Center of S. E. ¼ of the S. W. ¼ of Section 17, T. 14 N., R. 4 E., elevation above tide is 603.′

Clay	35′		35′	
Sand	3′	6″	38′	6″
Clay	20′		58′	6″
Sand	20′		78′	6″
Hardpan	56′		134′	6″
Fire clay	15′		149′	6″
Gray rock	39′		188′	6″

TEST HOLE NO. 158.

In the N. W. ¼ of the S. E. ¼ of Section 17, T. 14 N., R. 4 E., elevation above tide is 615.′

Clay	70′		70′	
Hardpan	17′		87′	
Clay	5′		92′	
Hardpan	4′		96′	
Coal	....		....	at 519 A. T.
Fire clay	2′		98′	
Slate	28′	5″	126′	5″
Coal, Upper Rider	3′	6½″	129′	11½″ at 485 A. T.
Fire clay	3′		132′	11½″

TEST HOLE NO. 159.

In the N. W. ¼ of the S. E. ¼ of Section 17, T. 14 N., R. 4 E., hole 800 feet southwest of shaft No. 2 of Wolverine Coal Company. Elevation above tide is 610.′

Clay	60′	60′	
Hardpan	30′	90′	
Sand	12′	102′	
Slate	14′	116′	
Fire clay	6′	122′	
Slate	16′	138′	
Coal, Upper Verne	2′	140′	at 470 A. T.
Fire clay	12′	152′	

TEST HOLE NO. 160.

On the center of the E. and W. ⅛ line of the S. E. ¼ of Section 17, T. 14 N., R. 4 E., elevation above tide is 610.′

Clay	66′	66′	
Hardpan	6′	72′	
Sandrock	2′	74′	
Slate	3′	77′	
Sandrock	4′	81′	
Slate	5′	86′	
Fire clay	2′	88′	
Slate	3′	91′	
Fire clay	1′	92′	
Slate	3′	95′	
Sandrock	4′	99′	
Slate	10′	109′	
Coal, Upper Rider	2′	111′	at 499 A. T.
Fire clay	2′	113′	

TEST HOLE NO. 161.

Just E. of the ⅛ line of the N. E. ¼ of the E. ½ of the S. E. ¼ in distance about ⅓ S. from the end of the N. line of the S. E. ¼ of Section 17, T. 14 N., R. 4. E., elevation above tide is 612.′

Clay	66′		66′	
Hardpan	18′		84′	
Coal		5″	84′	5″ at 528 A. T.
Fire clay	2′		86′	5″
Slate	1′	7″	88′	
Salzburg coal Rider		3″	88′	3″ at 524 A. T.
Fire clay	3′		91′	3″
Slate	7′	9″	99′	
Fire clay	1′	6″	100′	6″
Slate	9′	6″	110′	

Coal, Upper Rider		2″	110′	2″ at 502 A. T.
Fire clay	1′	10″	112′	
Slate	18′	3″	130′	3″
Coal, Upper Verne	2′	9″	133′	at 479 A. T.

TEST HOLE NO. 162.

In the N. W. ¼ of the S. E. ¼ of Section 17, T. 14 N., R. 4 E. Hole 600 feet due north of shaft. Elevation above tide is 615.′

Clay	70′		70′	
Hardpan	3′		73′	
Gravel	3′		76′	
Hardpan	2′		78′	
Gravel	1′		79′	
Clay	3′		82′	
Slate	18′		100′	
Coal	....		....	at 515 A. T.
Fire clay	4′		104′	
Black slate	32′		136′	
Coal, Upper Verne	3′	4″	139′	4″ at 476 A. T.
Fire clay and sandrock	28′		167′	4″

TEST HOLE NO. 163.

In the N. E. ¼ of the S. E. ¼ of Section 17, T. 14 N., R. 4 E., elevation above tide is 600.′

Clay	64′		64′	
Hardpan	7′	6″	71′	6″
Slate	10′	6″	82′	
(Coal)	....		....	at 518 A. T.
Fire clay	1′		83′	
Slate	1′	6″	84′	6″
Fire clay	1′		85′	6″
Slate		6″	86′	
Salzburg coal		10″	86′	10″ at 513 A. T.
Fire clay	3′	2″	90′	
Sandrock	2′		92′	
Slate	20′		112′	
Coal, Upper Rider		2″	112′	2″ at 488 A. T.
Fire clay	3′		115′	2″
Slate	19′	3″	134′	5″
Coal, Upper Verne	3′	4″	137′	9″ at 463 A. T.

TEST HOLE NO. 164.

In the N. E. ¼ of the S. E. ¼ of Section 17, T. 14 N., R. 4 E., elevation above tide is 600.′

Clay	66′		66′	
Hardpan	10′		76′	
Gravel	5′		81′	
Slate	13′		94′	
Fire clay	3′		97′	
Slate	8′		105′	
Fire clay	3′		108′	
Coal, Upper Rider		2″	108′	2″ at 492 A. T.
Slate	38′	10″	147′	
Coal, Upper Verne?	4′	3″	151′	3″ at 449 A. T.

TEST HOLE NO. 165.

In the S. W. ¼ of the S. E. ¼ of Section 17, T. 14 N., R. 4 E., 100 feet east and 800 or 900 feet south of the Wolverine shaft No. 2. Elevation above tide is 605.′

Clay	60′	60′	
Sandrock?	15′	75′	
Clay	5′	80′	
Sand	10′	90′	
Slate	10′	100′	
Fire clay	4′	104′	
Slate	6′	110′	
Fire clay	3′	113′	
Slate	4′	117′	
Fire clay	3′	120′	
Slate	14′	134′	
Coal, Upper Verne	2′ 6″	136′ 6″	at 469 A. T.
Fire clay	2′	138′ 6″	

TEST HOLE NO. 166.

In the S. W. ¼ of the N. W. ¼ of Section 17, T. 14 N., R. 4 E., elevation above tide is 600.′

Clay	100′	100′	
Sand	50′	150′	

TEST HOLE NO. 167.

In the N. W. corner of the E. ½ of the N. E. ¼ of Section 33, T. 14 N., R. 4 E. This is 60 rods east of old Monitor shaft, elevation above tide is 602.′

Clay	81′ 5″	81′ 5″	
Rock	4′ 8″	86′ 1″	
Salzburg coal Rider	6″	86′ 7″	at 515 A. T.
Fire clay	5′ 6″	92′ 1″	
Slate	7′ 4″	99′ 5″	
Salzburg coal	4″	99′ 9″	at 502 A. T.
Fire clay	3′	102′ 9″	
Rock	8″	103′ 5″	
Coal	2″	103′ 7″	at 499 A. T.
Fire clay	11″	104′ 6″	
Slate	11′ 6″	116′	
Coal	4″	116′ 4″	at 486 A. T.
Slate	3′ 6″	119′ 10″	
Coal, Upper Rider	1′ 6″	121′ 4″	at 481 A. T.
Fire clay	3′	124′ 4″	
Slate	2′ 8″	127′	
Coal, Upper Verne	3′ 2″	130′ 2″	at 472 A. T.

TEST HOLE NO. 168.

In the N. E. corner of Section 33, T. 14 N., R. 4 E., elevation above tide is 602.′

Clay	38′ 2″	38′ 2″	
Hardpan and gravel	29′	67′ 2″	
Cobbles	2′	69′ 2″	
Sand and gravel	30′ 4″	99′ 6″	
Slate	6′	105′ 6″	
Salzburg coal	6″	106′	at 496 A. T.
Fire clay	3′ 8″	109′ 8″	
Slate	2′ 7″	112′ 3″	
Coal Rider	6″	112′ 9″	at 489 A. T.

Fire clay	3′ 6″	116′ 3″	
Slate	2′ 5″	118′ 8″	
Coal, Upper Rider	2′ 5″	121′ 1″	at 481 A. T.
Fire clay and slate	19′ 2″	140′ 3″	

TEST HOLE NO. 169.

In the S. W. corner of the N. W. ¼ of the S. W. ¼ of Section 27, T. 14 N., R. 4. E., elevation above tide is 602.′

Black loam—muck	2′	2′	
Sand	3′	5′	
Clay and stone (gravel)	25′	30′	
Blue clay	6′	36′	
Sand	5′	41′	
Hardpan	4′	45′	
Sand	2′ 6″	47′ 6″	
Hardpan	24′	71′ 6″	
Red soapstone	2′	73′ 6″	
Gray soapstone	1′	74′ 6″	
Slate	20′ 3″	94′ 9″	
Salzburg coal	5″	95′ 2″	at 507 A. T.
Fire clay	2′ 4″	97′ 6″	
Slate	7′ 6″	105′	
Coal Rider	3″	105′ 3″	at 497 A. T.
Fire clay	3′ 6″	108′ 9″	
Slate	3′	111′ 9″	
Black slate	9′ 3″	121′	
Coal, Upper Rider	2′ 4″	123′ 4″	at 479 A. T.
Fire clay	5′ 4″	128′ 8″	

TEST HOLE NO. 170.

On the E. line at end of N. E. and W. ⅛ line of Section 33, T. 14 N., R. 4 W., elevation above tide is 601.′

Clay	28′ 8″	28′ 8″	
Hardpan and stone (Gr.)	62′	90′ 8″	
Slate	2′	92′ 8″	
Salzburg coal	10″	93′ 6″	at 508 A. T.
Fire clay	3′ 8″	97′ 2″	
Sandrock	4′ 2″	101′ 4″	
Slate	4′ 10″	106′ 2″	
Coal	1′ 5″	107′ 7″	at 493 A. T.
Fire clay	3′	110′ 7″	
Slate	2′ 5″	113′	
Coal, Upper Rider	2′ 8″	115′ 8″	at 486 A. T.
Fire clay	4+″	116′	

TEST HOLE NO. 171.

In the N. E. ¼ of the N. E. ¼ of Section 33, T. 14 N., R. 4 E. This is Bay shaft number one, now abandoned. Elevation above tide is 602.′

Clay	84′ 3″	84′ 3″	
Rock	36′ 3″	120′ 6″	
Coal, Upper Rider	1′ 6″	122′	at 480 A. T.
Fire clay	3′	125′	
Slate	7′ 2″	132′ 2″	
Coal, Upper Verne	3′ 4″	135′ 6″	at 467 A. T.
Fire clay	....	....	

TEST HOLE NO. 172.

In the center of the W. ½ of the S. E. ¼ af Section 29, T. 14 N., R. 4 E. elevation above tide is 611.′

Clay	50′	50′	
Hardpan	50′	100′	
Clay	5′	105′	
Sand	5′	110′	
Gravel	8′	118′	
Soapstone (white clay)	3′	121′	
Light slate	3′	124′	
(Coal), Upper Rider	....	....	at 487 A. T.
Fire clay	2′	126′	
Black slate	8′	134′	
"Draw" slate (½ slate and coal), Upper Verne	2′	136′	at 475 A. T.
Fire clay	1′	137′	
Light slate	14′	151′	
Fire clay	2′	153′	
Gray rock	7′	160′	
Light slate	2′	162′	
Sandrock	2′	164′	

Leonard Zill, West Bay City, Driller.

Test Holes No's 173-221.

TEST HOLE NO. 173.

In the N. W. ¼ Section 13, and W. 80 rod line, T. 13 N., R. 4 E., elevation above tide is 590.′

Sand	20′	20′	
Clay	74′ 4″	94′ 4″	
Sand	15′	109′ 4″	
Black slate	14′	123′ 4″	
Coal, Upper Verne	1′ 1″	124′ 5″	at 466 A. T.
Light slate	2′	126′ 5″	
Fire clay	2′	128′ 5″	
Light slate	3′	131′ 5″	
Fire clay	7′ 9″	139′ 2″	
Light slate	2′	141′ 2″	
Fire clay	3′	144′ 2″	
Light slate	16′	160′ 2″	
Black slate	3′	163′ 2″	
Light slate	4′	167′ 2″	
Sandrock	5′	172′ 2″	

TEST HOLE NO. 174.

In the N. W. ¼ of the S. E. ¼ of Section 12, T. 13 N., R. 4 E., the elevation above tide is 584.′

Clay	68′ 9″	68′ 9″	
Sand	10′	78′ 9″	
Gravel	2′	80′ 9″	
Light slate	10′	90′ 9″	
Black slate	3′	93′ 9″	
Light slate	6′	99′ 9″	
Gray rock	11′	110′ 9″	
Sandrock	8′	118′ 9″	
Fire clay	9′	127′ 9″	
Sandrock	12′ 7″	140′ 4″	

TEST HOLE NO. 175.

In the N. E. ¼ of the N. W. ¼ of Section 5, T. 13 N., R. 4 E., the elevation above tide is 615.′

Clay	59′	59′
Hardpan	19′	78′
Sand	32′	110′
Hardpan	5′	115′
Sandrock	17′	132′
Light slate	2′	134′
Fire clay	2′	136′
Sandrock	25′	161′
Sandrock	4′ 2″	165′ 2″

TEST HOLE NO. 176.

On the N. and S. 80 rod line, N. E. ¼ of Section 5, T. 13 N., R. 4 E., elevation above tide is 615.′

Clay	55′	55′
Sand	12′	67′
Hardpan	20′ 4″	87′ 4″
Clay	10′	97′ 4″
Sand	26′ 8″	124′
Light slate	50′ 4″	174′ 4″
Black slate	2′	176′ 4″

TEST HOLE NO. 177.

In the N. E. ¼ of Section 1, T. 13 N., R. 4 E. Near shaft of Valley Mine. elevation above tide is 584.′

Clay	78′ 7″	78′ 7″	
Hardpan	2′ 2″	80′ 9″	
Fire clay	2′	82′ 9″	
Black slate	5′	87′ 9″	
Salzburg coal	10″	88′ 7″	at 495 A. T.
Light slate	1′ 6″	90′ 1″	
Fire clay	3′	93′ 1″	
Black slate	19′	112′ 1″	
Coal, Upper Verne	2′ 9″	114′ 10″	at 469 A. T.

TEST HOLE NO. 178.

In the W. ½ of the E. ½ of the S. W. ¼ of Section 33, T. 14 N., R. 4 E., the elevation above tide is 608.′

Clay	78′	78′	
Sand	26′	104′	
Sandrock	2′	106′	
Coal, Upper Rider	8″	106′ 8″	at 501 A. T.
Fire clay	10′	116′ 8″	
Gray rock	9′	125′ 8″	
Slate	5′	130′ 8″	
Coal, Upper Verne	8″	131′ 4″	at 477 A. T.
Slate	20′	151′ 4″	
Fire clay	4′	155′ 4″	
Slate	21′	176′ 4″	
Coal, Lower Verne	3″	176′ 7″	at 431 A. T.
Black slate	5′ 1″	181′ 8″	
Coal, Middle Rider	6″	182′ 2″	at 426 A. T.
Slate	7′	189′ 2″	
Coal, Saginaw coal	1′ 7″	190′ 9″	at 417 A. T.
Fire clay	2′ 4″	193′ 1″	

TEST HOLE NO. 179.

In the N. E. ¼ of Section 1, T. 13 N., R. 4 E., elevation above tide is 584.′

Sand	18′	18′	
Clay	72′	90′	
Sand	35′	125′	
Clay	10′	135′	
Gravel	2′	137′	
Sand	10′	147′	
Clay	8′	155′	
Sand	4′	159′	
Gravel	2′	161′	

TEST HOLE NO. 180.

In the S. E. ¼ of the S. E. ¼ of Section 29, T. 14 N., R. 4 E., elevation above tide is 608.′

Clay	50′		50′	
Sand and gravel	50′		100′	
Hardpan	15′		115′	
Light slate	22′		137′	
Black slate	3′		140′	
Coal, Upper Verne	2′	2″	142′	2″ at 466 A. T.
Light slate	33′		175′	2″
Black slate	1′		176′	2″
Light slate	4′		180′	2″
Sandrock	5′		185′	2″

TEST HOLE NO. 181.

In the S. ½ of the S. E. ¼ of the N. E. ¼ of Section 16, T. 13 N., R. 4 E., the elevation above tide is 605.′

Clay	90′	90′
Hardpan	30′	120′
Sand	15′	135′
Gravel	5′	140′
Sand	8′	148′
Black slate	6′	154′
Gray rock	6′	160′
Black slate, horizon of Lower Verne	10′	170′
Fire clay	3′	173′
Gray rock	7′	180′
Light slate	15′	195′
Black slate	5′	200′
Sandrock	11′	211′
Black slate	3′	214′
Sandrock	2′	216′

TEST HOLE NO. 182.

In the S. E. ¼ of the S. W. ¼ of Section 16, T. 14 N., R. 4 E., elevation above tide is 600.′

Clay	44′	44′
Sand	3′	47′
Clay	8′	55′
Sand	22′	77′
Sandrock	3′	80′
Slate	2′	82′
Fire clay	6′	88′
Gray rock	3′	91′
Black slate	3′	94′
Fire clay	4′	98′
Sandrock	1′	99′

Black slate	1′	6″	100′	6″
Fire clay	2′		102′	6″
Gray rock	1′		103′	6″
Black slate	10′		113′	6″
Salzburg coal	2′		115′	6″ at 485 A. T.
Fire clay	1′	6″	117′	
Sandrock	16′		133′	
Coal, Upper Rider	2′	5″	135′	5″ at 465 A. T.
Fire clay	1′	4″	136′	9″
Blue slate	5′		141′	9″
Coal, Upper Verne	1′	7″	143′	4″ at 457 A. T.
Fire clay	1′		144′	4″
Sandrock	10′		154′	4″
Black slate	12′		166′	4″
Coal, Lower Verne	1′	1″	167′	5″ at 433 A. T.
Fire clay	3′		170′	5″
Blue slate	37′		207′	5″
Sandrock	1′		208′	5″
Fire clay	1′		209′	5″

TEST HOLE NO. 183.

In the S. W. ¼ of the S. E. ¼ of Section 16, T. 14 N., R. 4 E., elevation above tide is 600.′

Clay	48′		48′	
Hardpan	20′		68′	
Sand	3′		71′	
Clay	6′		77′	
Sand	23′		100′	
Clay	3′		103′	
Sand	11′		114′	
Clay	7′		121′	
Fire clay	11′		132′	
Blue slate	18′	7″	150′	7″
Coal, Lower Verne	4′	6″	155′	1″ at 445 A. T.
Gray rock	3′		158′	1″

TEST HOLE NO. 184.

In the S. W. ¼ of the S. W. ¼ of Section 3, T. 13 N., R. 4 E., elevation above tide is 595.′

Clay	80′	80′
Sand	20′	100′
Hardpan	10′	110′
Sand	80′	190′

TEST HOLE NO. 185.

In the E. ½ of the S. E. ¼ of Section 33, T. 14 N., R. 4 E., elevation above tide is 600.′

Clay	70′		70′	
Gravel	2′		72′	
Clay	13′		85′	
Gravel	10′		95′	
Sand	2′		97′	
Sandrock	6′		103′	
Blue slate	1′		104′	
Coal, Upper Rider		9″	104′	9″ at 495 A. T.
Fire clay	3′		107′	9″
Light slate	23′		130′	9″
Blue slate	9′		139′	9″
Coal, Rider of Lower Verne	2′	6″	142′	3″ at 458 A. T.
Gray rock	11′		153′	

Coal, Lower Verne		3.5″	153′	3.5″ at 447 A. T.
Sandrock	1′		154′	3.5″
Blue slate	6′		160′	3.5″
Sandrock	1′		161′	3.5″

TEST HOLE NO. 186.

In the W. ½ of the N. W. ¼ of Section 3, T. 13 N., R. 4 E., elevation above tide is 600.′

Clay	76′		76′	
Sand	3′		79′	
Gravel	2′	6″	81′	6″
Hardpan	8′		89′	6″
Sand	20′	6″	110′	
Gravel	2′	3″	112′	3″
Sand	19′	8″	131′	11″
Light slate	10′	5″	142′	4″
Blue slate	2′	10″	145′	2″
Coal, Lower Verne?	1′		146′	2″ at 454 A. T.
Fire clay	4′		150′	2″
Light slate	2′		152′	2″
Blue slate	7′		159′	2″
Coal, Middle Rider		10″	160′	at 440 A. T.
Fire clay	3′	2″	163′	2″
Gray rock	12′	8″	175′	10″
Light slate	7′	4″	183′	2″
Coal, Saginaw coal		8″	183′	10″ at 416 A. T.
Fire clay	5′		188′	10″
Blue slate	6′	8″	195′	6″
Sandrock	5′		200′	6″

TEST HOLE NO. 187.

In the S. W. ¼ of the N. E. ¼ of Section 15, T. 13 N., R. 4 E., the elevation above tide is 600.′

Clay	74′		74′	
Hardpan	10′		84′	
Sand	3′		87′	
Clay	49′	5″	136′	5″
Sand	2′		138′	5″
Slate	3′	1″	141′	6″
Coal, Upper Verne		9″	142′	3″ at 458 A. T.
Fire clay	1′	5″	143′	8″
Blue slate	30′		173′	8″
Gray rock	19′		192′	8″
Slate and coal, Lower Verne	2′	6″	195′	2″ at 405 A. T.
Gray rock	3′	2″	198′	4″
Sandrock		8″	199′	0″

TEST HOLE NO. 188.

In the E. ½ of the S. E. ¼ of Section 33, T. 14 N., R. 4 E., elevation above tide is 600.′

Clay	85′		85′	
Sand	5′		90′	
Gravel	4′		94′	
Slate	2′		96′	
Sandrock	6′		102′	
Blue slate	1′		103′	
Coal, Upper Rider		7″	103′	7″ at 496 A. T.
Fire clay	4′		107′	7″
Light slate	16′		123′	7″

Coal, Upper Verne		1.5″	123′	8.5″ at 476 A. T.
Light slate	15′		138′	
Coal, Rider of Lower Verne		4″	139′	at 461 A. T.
Light slate	2′		141′	
Blue slate	9′		150′	
Coal, Lower Verne		6.5″	150′	6.5″ at 450 A. T.
Fire clay	3′		153′	6.5″
Blue slate	6′	2″	159′	8.5″
Sandrock	1′	5″	161′	2″

TEST HOLE NO. 189.

In the S. ½ of the N. ½ and the S. E. ¼ of the S. W. ¼ of Section 16, T. 14 N., R. 4 E., elevation above tide is 595-605.′

Clay	55′		55′	
Hardpan	37′		92′	
Light slate	3′		95′	
Salzburg coal	6′		101′	at 499 A. T.
Sandrock	1′	6″	102′	6″
Coal		3″	102′	9″ at 497 A. T.
Fire clay	5′	3″	108′	
Blue slate	7′	6″	115′	6″
Sandrock	1′		116′	6″
Blue slate	2.	6″	119′	
Fire clay	2′		121′	
Sandrock	1′		122′	
Fire clay	1′	6″	123′	6″
Black slate	2′	8″	126′	2″
Fire clay	2′	4″	128′	6″
Blue slate	29′	6″	158′	
Coal	4′		162′	at 438 A. T.
Slate	....		....	

TEST HOLE NO. 190.

Same location as No. 189. Elevation above tide is 595-605.′

Clay	53′		53′	
Hardpan	50′		103′	
Sand	3′		106′	
Hardpan	13′		119′	
Blue slate	5′	9″	124′	9″
Coal, Upper Rider	2′	3″	127′	at 473 A. T.
Blue slate	1′	3″	128′	3″
Coal		6″	128′	9″ at 471 A. T.
Sandrock	18′	9″	147′	6″
Coal, Upper Verne		2″	147′	8″ at 453 A. T.
Light slate	4′	4″	152′	
Sandrock	7′	3″	159′	3″

TEST HOLE NO. 191.

Same location as 189. Elevation above tide 595-605.′

Clay	51′		51′	
Hardpan	10′		61′	
Gravel	35′		96′	
Sand	21′		117′	
Light slate	2′		119′	
Blue slate	10′		129′	
Coal, Upper Verne	2′	6″	131′	6″ at 469 A. T.
Fire clay	5′		136′	6″
Sand	16′	6″	153′	
Fire clay	2′		155′	
Sand	15′	9″	170′	9″

TEST HOLE NO. 192.

Same location as 189. Elevation above tide 595-605.′

Clay	63′		63′	
Sand	6′		69′	
Hardpan	14′		83′	
Sand	1′		84′	
Gravel	4′		88′	
Sandrock	7′	2″	95′	2″
Gray rock	6′		101′	2″
Fire clay	3′		104′	2″
Blue slate	14′		118′	2″
Fire clay	1′		119′	2″
Blue slate	1′	4″	120′	6″
Coal, Upper Verne	2′		122′	6″ at 478 A. T.
Fire clay	2′		124′	6″
Blue slate	23′		167′	6″
Coal, Lower Verne	3′	7″	171′	1″ at 429 A. T.
Fire clay	3′		174′	1″
Sandrock	17′	3″	191′	4″

TEST HOLE NO. 193.

In the S. ½ of the N. ½ and the S. E. ¼ of the S. W. ¼ of Section 16, T. 14 N., R. 4 E., elevation above tide is 595-605.′

Clay	50′		50′	
Hardpan	26′		76′	
Gravel	4′		80′	
Clay	20′		100′	
Gravel	4′		104′	
Fire clay	8′		112′	
Slate	7′		119′	
Fire clay	2′		121′	
Slate	2′		123′	
Fire clay	3′		126′	
Slate	3′		129′	
Fire clay	2′		131′	
Light slate	10′		141′	
Blue slate	18′	9″	159′	9″
Coal, Lower Verne	4′	2″	163′	11′ at 437 A. T.
Slate	1′		164′	11″

TEST HOLE NO. 194.

In the S. ½ of the N. ½ and the S. E. ¼ of the S. W. ¼ of Section 16, T. 14 N., R. 4 E., elevation above tide is 595-605.′

Clay	52′		52′	
Hardpan	12′		64′	
Clay	10′		74′	
Hardpan	8′		82′	
Clay	10′		92′	
Gravel	2′		94′	
Hardpan	13′		107′	
Gravel	8′		115′	
Fire clay	1′		116′	
Slate	1′		117′	
Gravel	1′		118′	
Fire clay	2′		120′	
Slate	7′		127′	
Blue slate	16′		143′	
Coal, Upper Verne	3′	5″	146′	5″ at 454 A. T.
Fire clay	1′	6″	147′	11″

TEST HOLE NO. 195.

In the S. ½ of the N. ½ and the S. E. ¼ of the S. W. ¼ of Section 16, T. 14 N., R. 4 E., elevation above tide is 595-605.′

Clay	44′		44′	
Hardpan	18′		62′	
Gravel	7′		69′	
Hardpan	11′		80′	
Sandrock	20′		100′	
Slate	5′		105′	
Fire clay	2′		107′	
Slate	1′		108′	
Fire clay	2′		110′	
Slate	2′		112′	
Slate	4′		116′	
Fire clay	7′		123′	
Slate	18′		141′	
Coal, Upper Verne	3′	11.5″	144′	11.5″ at 455 A. T.
Slate	1′		145′	11.5″
Fire clay	12′		157′	11.5″
Slate	4′		161′	11.5″
Coal, Lower Verne		8″	162′	7.5″ at 437 A. T.
Fire clay	2′		164′	7.5″
Slate	16′		180′	7.5″
Blue slate	45′		225′	7.5″
Sandrock	10	+?	235′	7.5″

TEST HOLE NO. 196.

In the S. ½ of the N. ½ of the S. E. ¼ of the S. W. ¼ of Section 16, T. 14 N., R. 4 E., the elevation above tide is 595-605.′

Clay	45′		45′	
Sand	25′		70′	
Gravel	15′		85′	
Hardpan	9′	6″	94′	6″
Sand	7′	6″	102′	
Blue slate	2′		104′	
Sandrock	15′		119′	
Blue slate	1′		120′	
Fire clay	2′		122′	
Blue slate	20′		142′	
Coal, Upper Verne	3′	8″	145′	8″ at 454 A. T.
Fire clay		6″	146′	2″

TEST HOLE NO. 197.

In the S. W. ¼ of the N. E. ¼ of Section 15, T. 13 N., R. 4 E., elevation above tide is 600.′

Clay	80′		80′	
Sand	6′		86′	
Gravel	2′		88′	
Light slate	18′	4″	106′	4″
Coal, Upper Rider	4′	5″	110′	9″ at 489 A. T.
Light slate	2′		112′	9″
Fire clay	4′	2″	116′	11″
Light slate	32′	1″	149′	
Fire clay	3′		152′	
Light slate	8′		160′	
Coal, Lower Verne Rider	1′	5″	161′	5″ at 439 A. T.
Fire clay		6″	161′	11″
Gray rock	16′		177′	11″
Blue slate	4′		181′	11″
Light slate	4′		185′	11″
Gray rock	6′	1″	192′	

TEST HOLE NO. 198.

In the S. E. ¼ of the N. W. ¼ of Section 3, T. 13 N., R. 6 E., the elevation above tide is 589.′

Clay	82′		82′	
Hardpan	4′		86′	
Gravel	2′		88′	
Light slate	16′		104′	
Blue slate	1′	5″	105′	5″
Coal, Upper Rider		6″	105′	11″ at 483 A. T.
Sandrock	4′		109′	11″
Light slate	3′		112′	11″
Blue slate	10′		122′	11″
Coal, Upper Verne	4′		126′	11″ at 462 A. T.
Light slate	3′		129′	11″
Blue slate	10′		139′	11″
Coal, Lower Verne		4″	140′	3″ at 449 A. T.
Light slate	1′		141′	3″
Sandrock	15′		156′	3″
Light slate	2′		158′	3″
Coal, Middle Rider		7″	158′	10″ at 430 A. T.
Fire clay	1′		159′	10″
Sandrock	24′		183′	10″

TEST HOLE NO. 199.

In the N. E. ¼ of the S. W. ¼ of Section 6, T. 13 N., R. 5 E., the elevation above tide is 584.′

Clay	68′		68′	
Hardpan	12′		80′	
Light slate	9′		89′	
Sandrock	14′	6″	103′	6″

TEST HOLE NO. 200.

In the S. E. ¼ of Section 21, T. 14 N., R. 4 E., elevation above tide, 599.′

Clay	41′		41′	
Hardpan	11′		52′	
Clay	12′		64′	
Hardpan	10′		74′	
Sand	30′		104′	
Sand and gravel	44′		148′	
Blue slate	6′		154′	
Coal, Lower Verne	1′	8.5″	155′	8.5″ at 443 A. T.
Fire clay	4′		159′	8.5″
Gray rock	3′	4″	163′	
Fire clay	3′		166′	
Gray rock	18′		184′	
Blue slate	4′		188′	
Gray rock	4′	3″	192′	3″
Blue slate	8′	5″	200′	8″
Coal, Saginaw coal		.5″	200′	8.5″ at 398 A. T.
Gray rock	4′		204′	8.5″

TEST HOLE NO. 201.

At the E. ¼ post of Section 23, T. 14 N., R. 3 E., elevation above tide is 617.′

Clay	65′		65′	
Sand	21′		86′	
Hardpan	5′		91′	
Sand	11′		102′	
Gravel	12′		114′	

Sand	8′		122′	
Clay	2′		124′	
Sand	16′		140′	
Gravel	2′		142′	
Clay	2′		144′	
Gravel	17′	9″	161′	9″

TEST HOLE NO. 202.

In the S. W. ¼ of the S. W. ¼ of Section 16, T. 14 N., R. 4 E., elevation above tide is 610.′

Clay	56′		56′	
Hardpan	14′		70′	
Sand and gravel	21′		91′	
Light slate	11′		102′	
Sandrock	4′	6″	106′	6″
Blue slate	2′	6″	109′	
Fire clay	4′		113′	
Blue slate	7′		120′	
Blue slate	4′		124′	
Sandrock	3′		127′	
Blue slate	1′		128′	
Fire clay	2′		130′	
Blue slate	28′	2″	158′	2″
Coal, Lower Verne	4′	10″	163′	at 447 A. T.

TEST HOLE NO. 203.

In the W. ½ of the E. ½ of the S. W. ¼ of Section 33, T. 14 N., R. 4 E., the elevation above tide is 605.′

Clay	80′		80′	
Sand	20′		100′	
Hardpan	10′		110′	
Sand	6′		116′	
Light slate	5′		121′	
Fire clay	3′		124′	
Slate	8′		132′	
Fire clay	2′		134′	
Slate	21′		155′	
Coal, Lower Verne		6″	155′	6″ at 450 A. T.
Gray rock	5′		160′	6″
Light slate	3′		163′	6″
Fire clay	2′		165′	6″
Light slate	5′		170′	6″
Black slate	10′		180′	6″
Sandrock	6′		186′	6″
Light slate	3′		189′	6″
Coal, Saginaw coal	1′	7″	191′	1″ at 414 A. T.

TEST HOLE NO. 204.

In the W. ½ of the E. ½ of the S. W. ¼ of Section 33, T. 14 N., R. 4 E., the elevation above tide is 605.′

Clay	50′		50′	
Sand	15′		65′	
Clay	15′		80′	
Shale—soft	17′		97′	
Sand	15′		112′	
Soapstone (no grit)	10′		122′	
Slate	1′		123′	
Fire clay	2′		125′	
Slate	1′		126′	
Coal, Upper Rider		9″	126′	9″ at 478 A. T.

Slate	3′		129′ 9″
Sandrock	16′		145′ 9″
Coal, Upper Verne		1″	145′ 10″ at 459 A. T.
Black slate	10′		155′ 10″
Coal, Lower Verne	4′		159′ 10″ at 445 A. T.
Light slate	7′		166′ 10″
Fire clay	6′		172′ 10″
Sandrock	7′	2″	180′
Light slate	4′		184′
Coal, Saginaw coal		9″	184′ 9″ at 420 A. T.
Black slate	18′		202′ 9″
Sandrock	4′		206′ 9″
Light slate	3′		209′ 9″
Blue slate	19′		228′ 9″

TEST HOLE NO. 205.

In the N. W. ¼ of the N. W. ¼ of section 16, T. 14 N., R. 4 E., elevation above tide is 610.′

Clay	44′		44′
Sand	3′		47′
Clay	8′		55′
Sand	22′		77′
Sandrock	3′		80′
Slate	2′	8″	82′ 8″
Fire clay	6′		88′ 8″
Sandrock	3′		91′ 8″
Blue slate	3′		94′ 8″
Fire clay	4′		98′ 8″
Sandrock	1′		99′ 8″
Black slate	1′	6″	102′ 2″
Fire clay	2′		104′ 2″
Sandrock	1′		105′ 2″
Black slate	10′		115′ 2″
Salzburg coal	2′	1″	117′ 3″ at 493 A. T.
Fire clay	1′	6″	118′ 9″
Sandrock	16′		134′ 9″
Coal, Upper Rider	2′	6″	137′ 3″ at 473 A. T.
Fire clay	1′	4″	138′ 7″
Black slate	5′		143′ 7″
Coal, Upper Verne	1′	7″	145′ 2″ at 465 A. T.
Fire clay	1′		146′ 2″
Sandrock	10′		156′ 2″
Blue slate	12′		168′ 2″
Coal, Lower Verne	1′	1″	169′ 3″ at 441 A. T.
Fire clay	3′		172′ 3″
Blue slate	37′		209′ 3″
Sandrock	1′		210′ 3″
Fire clay	1′		211′ 3″

TEST HOLE NO. 206.

In the S. E. ¼ of the N. W. ¼ of Section 16, T. 14 N., R. 4 E., elevation above tide is 600.′

Clay	51′		51′
Hardpan	41′		92′
Sandrock	5′		97′
Slate	8′		105′
Salzburg coal	4′	3″	109′ 3″ at 491 A. T.
Gray rock	40′		149′ 3″
Blue slate	4′		153′ 3″
Coal, Lower Verne	3′	3″	156′ 6″ at 444 A. T.
Fire clay		6+″	157′

TEST HOLE NO. 207.

In the S. E. ¼ of the N. W. ¼ of Section 16, T. 14 N., R. 4 E., elevation above tide is 610.′

Clay	48′		48′
Hardpan	20′		68′
Sand	3′		71′
Clay	6′		77′
Sand	23′		100′
Clay	3′		103′
Sand	11′		114′
Clay	7′		121′
Light slate	11′		132′
Black slate	18′	7″	150′ 7″
Coal, Upper Verne	4′	6″	155′ 1″ at 455 A. T.
Fire clay	3′		158′ 1″

TEST HOLE NO. 208.

In the S. ½ of the N. ½ and the S. E. ¼ of the S. W. ¼ of Section 16, T. 14 N., R. 4 E., elevation above tide is 595-605.′

Clay	63′		63′
Sand	6′		69′
Hardpan	14′		83′
Sand	1′		84′
Gravel	4′		88′
Sandrock	7′	2″	93′ 2″
Gray rock	6′		101′ 2″
Fire clay	3′		104′ 2″
Black slate	14′		118′ 2″
Fire clay	1′		119′ 2″
Black slate	1′	4″	120′ 6″
Coal, Upper Rider		2″	120′ 8″ at 479 A. T.
Fire clay	2′		122′ 8″
Black slate	23′		145′ 8″
Coal, Upper Verne	3′	7″	149′ 3″ at 451 A. T.
Fire clay	3′		152′ 3″
Gray rock	17′	3″	169′ 6″

TEST HOLE NO. 209.

In the S. E. ¼ of the N. W. ¼ of Section 16, T. 14 N., R. 4 E., elevation above tide is 595-605.′

Clay	49′		49′
Sand	15′		64′
Clay	6′		70′
Gravel	12′		82′
Sandrock	9′		91′
Black slate	4′		95′
Sandrock	2′		97′
Gray rock	12′		109′
Black slate	5′	4″	114′ 4″
Fire clay	4′		118′ 4″
Gray rock	23′	3″	141′ 7″
Coal, Upper Verne	4′	10″	146′ 5″ at 454 A. T.
Fire clay	3′		149′ 5″
Black slate	11′		160′ 5″
Fire clay	5′		165′ 5″
Gray slate	3′		168′ 5″
Black slate	16′		184′ 5″
Sandrock	2′		186′ 5″
Black slate	7′	7″	194′
Sandrock	1′		195′

TEST HOLE NO. 210.

In the N. ½ of the N. W. ¼ and the N. W. ¼ of the N. E. ¼ of Section 21 T. 14 N., R. 4 E., elevation above tide is 595-605.′

Clay	50′		50′	
Hardpan	28′		78′	
Sand	6′		84′	
Clay	8′		92′	
Sand	2′		94′	
Gravel	3′	4″	97′	4″
Coal, Salzburg coal	2′		99′	4″ at 501 A. T.
Gray slate	3′	2″	102′	6″
Sandrock	2′	6″	105′	
Light slate	1′	4″	106′	4″
Sandrock	2′	6″	108′	10″
Light slate	20′		128′	10″
Black slate	22′		150′	10″
Coal, Lower Verne	1′	3″	152′	1″ at 448 A. T.
Sandrock		11″	153′	

TEST HOLE NO. 211.

In the N. ½ of the N. W. ¼ and the N. W. ¼ of the N. E. ¼ of Section 21 T. 14 N., R. 4 E., elevation above tide is 595-605.′

Clay	48′		48′	
Hardpan	2′		50′	
Sand	2′		52′	
Clay	10′		62′	
Gravel	20′	5″	82′	5″
Clay	3′	2″	85′	7″
Sandrock	11′		96′	7″
Salzburg Rider		2″	96′	9″ at 504 A. T.
Sandrock	3′	5″	100′	2″
Salzburg coal	3′	4″	103′	6″ at 497 A. T.
Light slate	15′	4″	118′	10″
Black slate	23′		141	′10″
Sandrock	4′		145′	10″
Black slate		3″	146′	1″
Sandrock	1′		147′	1″
Gray rock	3′		150′	1″
Light slate	20′		170′	1″
Sandrock	3′		173′	1″
Coal, Middle Rider?		4″	173′	5″ at 427 A. T.

TEST HOLE NO. 212.

In the N. ½ of the N. W. ¼ and the N. W. ¼ of the N. E. ¼ of Section 21, T. 14 N., R. 4 E., elevation above tide is 595-605.′

Clay	63′		63′	
Sand	6′		69′	
Gravel	15′		84′	
Hardpan	7′		91′	
Clay	16′	6″	107′	6″
Gray rock	4′		111′	6″
Slate	6′		117′	6″
Sandrock	1′	3″	118′	9″
Light slate	29′	10″	148′	7″
Black slate	20′		168′	7″
Gray rock	2′	3″	170′	10″
Black slate	17′	11″	188′	9″
Fire clay	2′		190′	9″

TEST HOLE NO. 213.

In the N. E. ¼ of the S. E. ¼ of Section 1, T. 13 N., R. 4 E., This is 40 rods south of the shaft of the Valley Coal Company, elevation above tide is 584.′

Clay	81′	6″	81′	6″
Black slate	7′	5″	88′	11″
Coal	3′	3″	92′	2″ at 492 A. T.

TEST HOLE NO. 214.

In the W. ½ of the S. W. ¼ of the S. E. ¼ of Section 12, T. 13 N., R. 4 E., elevation above tide is 585.′

Sand	18′		18′
Clay	72′		90′
Sand	35′		125′
Clay	10′		135′
Gravel	2′		137′
Sand	11′		148′
Clay	8′		156′
Sand	4′		160′
Gravel	2′		162′

TEST HOLE NO. 215.

In the N. E. ¼ of Section 3, T. 13 N., R. 6 E., elevation above tide is 586.′

Clay	82′		82′	
Hardpan	4′		86′	
Gravel	2′		88′	
Light slate	16′		104′	
Black slate	1′	5″	105′	5″
Coal, Upper Rider		6″	105′	11″ at 480 A. T.
Sandrock	4′		109′	11″
Light slate	3′		112′	11″
Black slate	10′		122′	11″
Coal, Upper Verne		9″	123′	8″ at 462 A. T.
Light slate	1′		124′	8″
Sandrock	15′		139′	8″
Light slate	2′		141′	8″
Coal, Lower Verne		7″	142′	3″ at 444 A. T.
Fire clay	1′		143′	3″
Sandrock	24′		167′	3″

TEST HOLE NO. 216.

Hole No. 1 Salzburg, elevation above tide is 593.′

Clay	79′		79′	
Hardpan	4′	6″	83′	6″
Slate	1′		84′	6″
Fire clay	7′		91′	6″
Slate	1′		92′	6″
Salzburg coal	1′	9″	94′	3″ at 499 A. T.
Fire clay	2′		96′	3″
Sandrock	3′		99′	3″
Slate	6′		105′	3″
Black slate	4′	5″	109′	8″
Coal, Upper Verne	4′	9″	114′	5″ at 479 A. T.

TEST HOLE NO. 217.

Hole No. 2 Salzburg, elevation above tide 595.′

Clay	93′		93′	
Black slate	4′		97′	
Salzburg coal		2″	97′	2″ at 498 A. T.
Fire clay	2′	6″	99′	8″
Slate	17′	5″	117′	1″
Coal, Upper Verne	2′	2″	119′	3″ at 476 A. T.
Gray sandrock	6′	6″	125′	9″
Coal, Lower Verne	4′	6″	130′	3″ at 465 A. T.

TEST HOLE NO. 218.

Hole No. 3, Salzburg, elevation above tide is 595.′

Clay	87′		87′	
Fire clay	1′		88′	
Sandrock	1′		89′	
Slate	1′	6″	90′	6″
Fire clay	2′		92′	6″
Sandrock	5′	6″	98′	
Slate	1′		99′	
Sandy fire clay	2′	6″	101′	6″
Salzburg coal	1′	7″	103′	1″ at 492 A. T.
Fire clay	2′		105′	1″
Slate	1′		106′	1″
Black slate	2′		108′	1″
Fire clay	1′		109′	1″
Light slate	1′		110′	1″
Black slate	6′	3″	116′	4″
Coal, Upper Verne	5′	1″	121′	5″ at 474 A. T.

TEST HOLE NO. 219.

Hole No. 4, Salzburg, the elevation above tide is 595.′

Clay	76′		76′	
Hardpan	6′		82′	
Black slate	9′		91′	
Fire clay	3′		94′	
Slate	11′		105′	
Black slate	8′		113′	
Coal, Upper Verne	2′	6.5″	115′	6.5″ at 480 A. T.
Black slate	6′		121′	6.5″
Fire clay	2′		123′	6.5″
Sandy fire clay	4′	6″	128′	
Coal, Lower Verne	3′	8.5″	131′	8.5″ at 463 A. T.
Fire clay	2′		133′	8.5″
Sandy fire clay	2′		135′	8.5″
Black slate	1′	6″	137′	2″
Coal	2′	11″	140′	1″ at 455 A. T.
Fire clay	3′	6″	143′	7″
Coal (Splits of Middle Rider?)	2′	5″	146′	at 449 A. T.
Fire clay	9′		155′	
Slate	2′	6″	157′	6″
Black slate	4′		161′	6″
Fire clay	1′	6″	163′	
Light slate	2′		165′	
Black slate	6′		171′	
Light slate	4′		175′	
Fire clay	5′		180′	
Sandy fire clay	6′		186′	

TEST HOLE NO. 220.

Hole No. 5, Salzburg, elevation above tide is 595.′

Clay	95′		95′	
Black slate	13′	4″	108′	4″
Coal	2′	3″	110′	7″ at 484 A. T.
Fire clay	3′	3″	113′	10″
Black slate		9″	114′	7″
Coal, Upper Verne	3′	9″	118′	4″ at 477 A. T.
Fire clay	1′	6″	119′	10″
Slate	2′		121′	10″
Fire clay	2′	10″	124′	8″
Black slate		9″	125′	5″
Coal and slate, Lower Verne		11″	126′	4″ at 469 A. T.
Sandy fire clay	5′		131′	4″
Sandrock	15′		146′	4″
Slate	6′		152′	4″
Fire clay	3′		155′	4″
Sandrock	4′	6″	159′	10″
Black slate	6′		165′	10″
Sandrock	1′		166′	10″

TEST HOLE NO. 221.

Hole No. 6, Salzburg, elevation above tide is 595.′

Clay	78′		78′	
Hardpan	6′		84′	
Black slate	16′		100′	
Fire clay	3′	6″	103′	6″
Black slate	5′	3″	108′	9″
Coal, Upper Verne	2′	4″	111′	1″ at 484 A. T.
Fire clay	3′		114′	1″
Sandrock	9′		123′	1″
Black slate	2′	6″	125′	7″
Sandy fire clay	8′		133′	7″
Sandrock	2′		135′	7″
Slate	3′	3″	138′	10″
Coal	2′	3″	141′	1″ at 454 A. T.
Black slate	3′	0″	144′	1″

Records from John Werner in Monitor Township, T. 14 N., R. 4 E.

Test Hole Nos. 222-229.

TEST HOLE NO. 222.

In the N. E. ¼ of the N. E. ¼ of Section 20, T. 14 N., R. 4 E., 400-500′ S. of N. line of Sec. On Marrow farm, elevation above tide is 615.′

Clay	75′		75′	
Sand and gravel	32′		107′	
Clay	2′		109′	
Sandrock	8′		117′	
Light slate	26′		143′	
Dark slate	1′		144′	
Coal, Upper Verne		5″	144′	5″ at 471 A. T.
Fire clay		10″	145′	3″
Light slate	7′	9″	153′	
Black slate	9′	8″	162′	8″
Coal, Lower Verne	2′	2″	164′	10″ at 450 A. T.
Fire clay	1′	2″	166′	

TEST HOLE NO. 223.

In the N. W. ¼ of the N. E. ¼ of Section 20, T. 14 N., R. 4 E. On Shaw farm north of railroad, elevation above tide is 615′.

Clay	104′		104′	
Sand	8′		112′	
Hardpan	3′		115′	
Light slate	4′		119′	
Black slate	24′		143′	
Coal, Upper Verne	3′	3″	146′	3″ at 469 A. T.

TEST HOLE NO. 224.

In the N. E. ¼ of the S. E. ¼ of Section 20, T. 14 N., R. 4 E, elevation above tide is 600′.

Clay	62′		62′	
Sand and gravel	4′		66′	
Clay	8′		74′	
Sand and gravel	8′		82′	
Hardpan	12′		94′	
Sandrock	6′		98′	
Salzburg coal		4″	98′	4″ at 502 A. T.
Slate	11′	8″	110′	
Light slate	37′		147′	
Sandrock	3′		150′	
Light slate	20′		170′	

TEST HOLE NO. 225.

In the S. E. ¼ of the N. W. ¼ of Section 20, T. 14 N., R. 4 E., elevation above tide is 602′.

Clay	60′		60′	
Sand and gravel	71′		131′	
Dark slate	6′	6″	137′	6″
Coal, Upper Verne	3′	6″	141′	at 461 A. T.
Fire clay	4′	6″	145′	6″
Light slate	8′	6″	154′	
Coal, Lower Verne		3″	154′	3″ at 448 A. T.
Fire clay		3″	154′	6″
Light slate	26′		180′	6″
Sandrock	9′		189′	6″
Slate	12′		201′	6″
Gray shale	7′		208′	6″
Light slate	3′		211′	6″
Sandrock	3′		214′	6″

TEST HOLE NO. 226.

In the center of the S. W. ¼ of the S. W. ¼ of Section 20, T. 14 N., R. 4 E., elevation above tide is 607′.

Hard clay	38′		38′	
Soft clay	13′		51′	
Hard clay	6′		57′	
Sandy clay	10′		67′	
Sand and gravel	17′		84′	
Hardpan	3′		87′	
Sandy clay	21′		108′	
Sand	10′		118′	
Clay	15′		133′	
Sand	7′		140′	
Clay	15′		155′	
Sand	3′		158′	
Soapstone	25′		183′	

TEST HOLE NO. 227.

In the E. ½ of the E. ½ of the S. W. ¼ of Section 20, T. 14 N., R. 4 E., elevation above tide is 603′.

Clay	55′		55′	
Sand	3′		58′	
Clay	26′		84′	
Sand	4′		88′	
Clay	21′		109′	
Sand	15′		124′	
Gray shale	8′		132′	
Sandrock	6′		138′	
Gray shale	26′		164′	
Fire clay	3′		167′	
Sandrock	13′		180′	

TEST HOLE NO. 228.

In the W. ½ of the E. ½ of the S. W. ¼ of Section 20, T. 14 N., R. 4 E., elevation above tide is 605′.

Clay	55′		55′	
Sand	3′		58′	
Clay	36′		94′	
Sand	49′		143′	

TEST HOLE NO. 229.

In the W. ½ of the S. E. ¼ of Section 20, T. 14 N., R. 4 E., elevation above tide is 600′.

Clay	55′		55′	
Sand and gravel	26′		81′	
Clay	7′		88′	
Sand and gravel	2′		90′	
Clay	4′		94′	
Sandrock	2′		96′	
Light slate	1′	8″	97′	8″
Salzburg coal	3′	10″	101′	6″ at 499 A. T.
Dark slate	1′		102′	6″
Fire clay	1′	6″	104′	

Bangor Township, West Bay City, Monitor Township. Goff Paul.

Test Hole Nos. 230-288.

TEST HOLE NO. 230.

On the E. and W. ¼ line of Section 3, ¼ mile E. of the W. line, T. 14 N., R. 5 E., Goff Paul, Driller, elevation above tide is 583′.

Sand	11′		11′	
Clay	71′		82′	
Hardpan	3′		85′	
Quicksand and gravel	5′		90′	
Quicksand and fine gravel with streaks of hardpan	70′		160′	
Slate	9′		169′	
Hard rock	6′	3″	175′	3″
Black slate	11′	7″	186′	10″
Coal, Saginaw coal?	2′	1″	188′	11″ at 394 A. T.
Fire clay	27′		215′	11″
Slate with streaks of hard rock	60′	4″	276′	3″

Black slate	11′		287′	3″	
Hard rock	3′		290′	3″	
Black slate	4′		294′	3″	
Coal, Lower coal	1′	2″	295′	5″	at 288 A. T.
Fire clay	30′		325′	5″	
Hard rock	2′		327′	5″	
Slate	20′		347′	5″	
Black slate	7′		354′	5″	
Bangor coal Rider		7″	355′		at 228 A. T.
Fire clay	18′	7″	373′	7″	
Hard rock	4′	8″	378′	3″	
Slate	22′		400′	3″	
Black slate	13′		413′	3″	
Bangor coal	1′	9″	415′		at 168 A. T.
Fire clay	27′		442′		
Hard rock	23′		465′		

TEST HOLE NO. 231.

In the center of the S. line of Section 10, T. 14 N., R. 5 E., elevation above tide is 583′.

Clay	75′		75′		
Sandrock	4′	6″	79′	6″	
Crevice	1′	8″	81′	2″	
Sandrock	....		....		

TEST HOLE NO. 232.

On the east line of Section 13, just north of quarter post, T. 14 N., R. 4 E., elevation above tide is 600′.

Clay	80′		80′		
Hardpan and stone	6′		86′		
Then blue slate	19′		105′		
Black slate	4′		109′		
Salzburg coal	3′	10″	112′	10″	at 488 A. T.
Fire clay	20′		132′	10″	

TEST HOLE NO. 233.

At the N. quarter post of Section 10, T. 14 N., R. 5 E., elevation above tide is 583′.

Sand, gravel, stones and old rotten logs	18′		18′		
Clay	60′		78′		
Hardpan	3′		81′		
Water course. Will take water very fast. Natural head from surface	21′		102′		
Hard rock	3′		105′		
Sandrock with 80% brine	62′		167′		
Hardrock	5′	2″	172′	2″	
Slate	41′	6″	213′	8″	
Black slate	3′		216′	8″	
Coal, Lower Rider		6″	217′	2″	at 366 A. T.
Slate mixed with hard streaks of rock	63′		280′	2″	
Slate	7′		287′	2″	
Fire clay	20′		307′	2″	
Coal, Lower coal	3′	2″	310′	4″	at 273 A. T.
Fire clay	10′		320′	4″	

TEST HOLE NO. 234.

Center of N. and S. ¼ line of Section 10, T. 14 N., R. 5 E., elevation above tide is 583′.

On top muck and clay with old logs and shells at 30′ in the muck?	75′		75′		
Hardpan	4′		79′		
Crevice	1′		80′		
The tools dropped through. This will take all the drainage from the surface. Crevice runs N. E. and S. W?					
Sandrock	50′		130′		
Slate	18′		148′		
Black slate	14′	6″	162′	6″	
Coal, Middle rider		6″	163′		at 420 A. T
Fire clay	3′	2″	166′	2″	
Slate and hard rock	25′		191′	2″	
Dark slate	10′		201′	2″	
Light slate	23′		224′	2″	
Slate and hard rock	40′		264′	2″	
One bed of hard rock	33′		297′	2″	
Blue slate	15′		312′	2″	
Black slate	3′		315′	2″	
Coal, Lower coal	2′	2″	317′	4″	at 266 A. T.
Fire clay	6′		323′	4″	

TEST HOLE NO. 235.

South line of Section 10 and east 80 rod corner, T. 14 N., R. 5 E., elevation above tide is 582′.

Clay	78′		78′		
Sandrock	25′		103′		
Light slate	15′		118′		
Blue slate	10′		128′		
Light slate	2′		130′		
Fire clay	2′		132′		
Coal, Verne coal		3″	132′	3″	at 450 A. T.
Light slate	10′		142′	3″	
Dark slate	10′		152′	3″	
Sandrock	4′		156′	3″	
Blue slate	8′		164′	3″	
Sandstone and slate mixed	10′		174′	3″	
Light colored slate	15′		189′	3″	
Dark colored slate	20′		209′	3″	
Fire clay	6′		215′	3″	
Light blue slate	15′	7″	230′	10″	
Coal, Saginaw coal?	1′	4″	232′	2″	at 350 A. T.
Fire clay	3′		235′	2″	
Hard rock	10′		245′	2″	
Light slate	2′		247′	2″	
Hard rock	3′		250′	2″	
Hard blue slate and sandrock	4′		254′	2″	
Fire clay	2′		256′	2″	
Hard rock (sandy limestone)	6′		262′	2″	
Light slate	11′		273′	2″	
Blue slate	20′		293′	2″	
Sandrock	2′		295′	2″	
Fire clay	1′		296′	2″	
Coal, Lower Rider	2′	6″	298′	8″	at 284 A. T.
Hard rock	5′	1″	303′	9″	
Blue slate		3″	304′		
Fire clay		3″	304′	3″	
Coal, Lower coal		2″	304′	5″	at 278 A. T.
Slate		3″	304′	8″	
Fire clay	7′		311′	8″	

TEST HOLE NO. 236.

Eighty rods S. and 100 rods W. of the N. E. corner of Section 9, T. 14 N., R. 5 E., elevation above tide is 586′.

Clay	80′		80′	
Hardpan and gravel	10′		90′	
Sandy slate	20′	6″	110′	6″
Dark slate	10′		120′	6″
Sandrock	14′	6″	135′	
Sandy slate	15′		150′	
Hard sandy limestone	10′		160′	
Light colored slate	2′		162′	
Sandy slate	4′		166′	
Sandy slate and hard flinty rock	12′		178′	
Sandrock	10′		188′	
Dark slate	5′		193′	
Very hard white sandrock	8′		201′	
Sandy slate and hard sandrock	20′		221′	
Bluish black slate	19′	5″	240′	5″
Hard sandy limestone	9′	6″	249′	11″
Hard sandy slate	15′	7″	265′	6″
Hard rock	4′	6″	270′	
Sandy slate and hard rock	15′		285′	
Light slate	4′		289′	
Hard rock	8′		297′	

TEST HOLE NO. 237.

Center of N. and S. $\frac{1}{8}$ line, E. part of Section 10, T. 14 N., R. 5 E., elevation above tide is 583′.

Sand	3′		3′		
Clay	78′		81′		
Hardpan	6′		87′		
Crevice of fine sand and gravel. Will take water	2′	1″	89′	1″	
Sandrock	30′		119′	1″	
Hard rock (sandy limestone?)	7′		126′	1″	
Blue slate	20′		146′	1″	
Sandrock	30′		176′	1″	
Blue slate	10′		186′	1″	
Hard rock	3′		189′	1″	
Black slate	6′		195′	1″	
Coal, Saginaw coal	1′	2″	196′	3″	at 387 A. T.
Fire clay	8′		204′	3″	
Slate	30′		234′	3″	
Hard rock	5′		239′	3″	
Slate	11′		250′	3″	
Coal, Lower Rider		6″	250′	9″	at 332 A. T.
Fire clay	3′		253′	9″	
Black slate	7′		260′	9″	
Coal	1′	4″	262′	1″	at 321 A. T.
Fire clay	4′		266′	1″	
Hard rock	3′		269′	1″	
Black slate	12′		281′	1″	
Coal	1′	2″	282′	3″	at 301 A. T.
Fire clay	7′		289′	3″	
Slate	20′		309′	3″	
Black slate	7′		316′	3″	
Coal, Lower coal		7″	316′	10″	at 267 A. T.
Fire clay	16′		332′	10″	

TEST HOLE NO. 238.

On the N. and S. $\frac{1}{4}$ line of Section 10, $\frac{1}{4}$ mile of N. from the S. end, T. 14 N., R. 5 E., elevation above tide is 583′.

Sand	2′		2′		
Clay	75′		77′		
Hardpan	4′		81′		
Crevice? with fine sand and gravel serving for the purpose of underground drainage. Water head 18′ from level of ground.					
Sandrock	50′		131′		
Slate	18′		149′		
Black slate	4′	6″	153′	6″	
Coal, Middle Rider		6″	154′		at 429 A. T.
Fire clay	3′	2″	157′	2″	
Slate and hard rock mixed	25′		182′	2″	
Dark blue slate	10′		192′	2″	
Light slate	23′		215′	2″	
Slate and hard rock mixed	40′		255′	8″	
Hard rock	33′		288′	8″	
Blue slate	15′		303′	8″	
Black slate	3′		306′	8″	
Coal, Lower coal	3′	1″	309′	9″	at 273 A. T.
Fire clay	2′		311′	9″	
Black slate	4′		315′	9″	
Bangor coal Rider	2′		317′	9″	at 266 A. T.
Fire clay, hard rock	20′		337′	9″	

TEST HOLE NO. 239.

Quarter section line, $\frac{1}{4}$ mile N. of the S. end of Section 3, T. 14 N., R. 5 E., elevation above tide is 583′.

Sand	4′		4′		
Clay	76′		80′		
Sandrock	80′		160′		
Hard rock—limy	9′		169′		
Slate with streaks of very hard rock	63′		232′		
Black slate	17′		249′		
Coal, Lower Rider	1′	3″	250′	3″	at 333 A. T.
Fire clay	21′		271′	3″	
Hard rock	6′	4″	277′	7″	
Slate	33′	2″	310′	9″	
Hard rock	8′		318′	9″	
Black slate	14′	9″	333′	6″	
Bangor coal Rider	1′	11″	335′	5″	at 248 A. T.
Fire clay	24′	8″	360′	1″	
Hard rock	3′	2″	363′	3″	
Slate	21′		384′	3″	
Black slate	7′		391′	3″	
Bangor coal		3″	391′	6″	at 192 A. T.
Fire clay	13′		404′	6″	
Hard rock	2′		406′	6″	

TEST HOLE NO. 240.

On the W. line of Section 3, $\frac{1}{4}$ mile S. of Saginaw Bay, T. 14 N., R. 5 E., elevation above tide is 584′.

Sand	3′		3′	
Clay	76′		79′	
Quicksand	70′		149′	
Hard rock	3′	6″	152′	6″
Sandrock	21′		173′	6″

Slate	30′		203′	6″
Hard rock	2′	7″	206′	1″
Slate with streaks of hard rock	40′		246′	1″
Black slate	10′		256′	1″
Coal, Lower Rider	1′	4″	257′	5″ at 327 A. T.
Fire clay	7′		264′	5″
Hard sandrock	11′	8″	276′	1″
Slate	23′		299′	1″
Hard rock	3′		302′	1″
Slate	5′		307′	1″
Black slate	7′		314′	1″
Coal, Lower coal	1′	9″	315′	10″ at 268 A. T.
Fire clay	13′		328′	10″
Hard rock	8′	2″	337′	

TEST HOLE NO. 241.

On the N. and S. ¼ line, S. part opposite Chesley Wheeler, in Section 4 T. 14 N., R. 5 E., elevation above tide is 585′.

Sand	3′		3′	
Clay	72′		75′	
Hardpan	4′		79′	
Quicksand and gravel	26′		105′	
Slate	20′		125′	
Sandrock	18′		143′	
Hard rock	2′		145′	
Slate	11′		156′	
Sandrock	27′		183′	
Hard rock	6′		189′	
Slate	18′		207′	
Black slate	7′		214′	
Coal, Saginaw coal		7″	214′	7″ at 371 A. T.
Fire clay	8′	3″	222′	10″
Slate	20′		242′	10″
Hard rock	8′		250′	10″
Slate	30′		280′	10″
Hard rock	18′		298′	10″
Black slate	2′		300′	10″
Coal, Lower coal	2′	1″	302′	11″ at 283 A. T.
Fire clay	21′		323′	11″

TEST HOLE NO. 242.

At the N. E. corner of Section 19, T. 14 N., R. 5 E., elevation above tide is 602′.

Clay	76′		76′	
Hardpan	4′	3″	80′	3″
Quicksand and gravel	27′		107′	3″
Blue slate	39′		146′	3″
Hard rock	3′	2″	149′	5″
Dark slate	2′		151′	5″
Coal, Lower Verne	1′	4″	152′	9″ at 450 A. T.
Fire clay	7′		159′	9″
Blue slate	29′		188′	9″
Fire clay	3′	1″	191′	10″
Dark slate	4′		195′	10″
Coal, Saginaw coal		11″	196′	9″ at 405 A. T.
Fire clay	7′		203′	9″
Hard sandy rock	2′	1″	205′	10″
Blue slate	18′		223′	10″
Black slate	7′		230′	10″
Coal, Lower Rider	1′	2″	232′	at 370 A. T.
Fire clay	2′	7″	234′	7″
Hard sandy rock	11′		245′	7″

TEST HOLE NO. 243.

In the N. E. ¼ of the N. E. ¼ of Section 19, T. 14 N., R. 5 E., Bay Co., elevation above tide is 602′.

Clay	77′	2″	77′	2″
Gravel	3′		80′	2″
Blue slate	27′		107′	2″
Black slate	33′		140′	2″
Coal, Lower Verne	2′		142′	2″ at 460 A. T.
Black slate	1′	2″	143′	4″
Fire clay	3′		146′	4″
Hard rock	1′	2″	147′	6″
Blue slate	41′		188′	6″
Black slate	4′		192′	6″
Coal, Saginaw coal?	1′	3″	195′	9″ at 409 A. T.
Fire clay	4′	1″	197′	10″
Hard rock	2′		199′	10″
Blue slate	49′		248′	10″
Dark slate	21′		269′	10″
Hard rock	1′	2″	271′	
Hard sandy rock	22′		293′	

TEST HOLE NO. 244.

In the N. W. ¼ of Section 2, T. 13 N., R. 5 E., elevation above tide is 600′.

Clay	86′		86′	
Quicksand and gravel	21′		107′	
Blue slate	40′		147′	
Light colored slate	33′		180′	
Hard sand rock	7′		187′	
Slate	61′	3″	248′	3″
Hard sand rock	21′	1″	269′	4″
Black slate	41′	7″	310′	11″
Coal, Lower coal	1′	6″	312′	5″ at 288 A. T.
Fire clay	9′		321′	5″
Slate	21′		342′	5″

TEST HOLE NO. 245.

In the center of the N. E. ¼ of Section 2, T. 13 N., R. 5 E., elevation above tide is 600′.

Clay	81′		81′	
Hard rock	3′		84′	
Slate	21′		105′	
Black slate	3′	2″	108′	2″
Salzburg coal		10″	109′	at 491 A. T.
Fire clay	2′	1″	111′	1″
Hard rock	1′		112′	1″
Sandrock, good water	8′	3″	120′	4″

TEST HOLE NO. 246.

In the S. ½ of the S. E. ¼ of Section 7, T. 13 N., R. 5 E., elevation above tide is 583′.

Clay	81′		81′	
Hardpan	14′		95′	
Boulders	2′	1″	97′	1″
Quicksand and gravel	21′		118′	1″
Slate	8′		126′	1″
Sandrock with good water	4′	7″	130′	8″

TEST HOLE NO. 247.

In the N. E. ¼ of the N. W. ¼ of Section 19, T. 14 N., R. 5 E., elevation above tide is 602′.

Clay	83′		83′	
Blue slate	21′		104′	
Hard rock	2′	1″	106′	1″
Blue slate	11′		117′	1″
Black slate	9′	8″	126′	9″
Coal, Upper Verne	2′	1″	128′	10″ at 474 A. T.
Black slate	1′	2″	130′	
Fire clay	5′	8″	135′	8″
Blue slate with hardstreaks	40′		175′	8–
Hard rock	6′		181′	8″
Blue slate	21′		202′	8″
Black slate	3′	7″	206′	3″
Coal, Saginaw coal	1′	2″	207′	5″ at 395 A. T.
Fire clay	4′		211′	5″
Hard rock	11′		222′	5″

TEST HOLE NO. 248.

In the E. ½ of the N. W. ¼ of the N. E. ¼ of Section 19, T. 14 N., R. 5 E., elevation above tide is 600′.

Clay	81′		81′	
Blue slate	29′		110′	
Hard sandy lime rock	7′		117′	
Dark slate	20′		137′	
Coal, Lower Verne	2′	4″	139′	4″ at 461 A. T.
Fire clay	9′		148′	4″
Slate	23′		171′	4″
Hard rock	3′	2″	174′	6″
Dark slate	37′	8″	212′	2″
Black slate	5′	9″	217′	11″
Coal, Lower Rider	2′	10″	220′	9″ at 379 A. T.
Fire clay	3′	2″	223′	11″
Blue slate	27′		250′	11″
Light colored slate	19′		269′	11″
Hard rock	3′	7″	273′	6″
Dark slate	21′		294′	6″
Black slate	4′	5″	298′	11″
Coal, Lower coal	1′	2″	300′	1″ at 300 A. T.
Black slate	2′	1″	302′	2″
Fire clay	4′	9″	306′	11″
Hard sandrock	26′		332′	11″

TEST HOLE NO. 249.

In the S. E. part of the S. E. ¼ of the N. W. ¼ of Section 32, T. 15 N., R. 5 E., elevation above tide is 584′.

Sand	8′		8′	
Clay	73′		81′	
Sandrock	20′		101′	
Blue slate	8′	8″	109′	8″
White slate	11′	10″	121′	6″
Black slate	8′		129′	6″
Coal, Lower Verne?	1′	2″	130′	8″ at 453 A. T.
Slate	1′		131′	8″
Fire clay	8′		139′	8″
Hard sandrock	20′		159′	8″
Blue slate	18′		177′	8″
Hard sandrock	26′		203′	8″

TEST HOLE NO. 250.

At the dynamite works ¼ mile E. of the M. C. Depot at Kawkawlin Village, elevation above tide is 600,′ more or less.

Clay with boulders	80′		80′
Slate	27′		107′
Hard rock	3′		110′
Slate	18′		128′
Sandrock	4′		132′
Slate and hard rock	32′		164′

TEST HOLE NO. 251.

At the Parks school, the N. E. ¼ of the N. E. ¼ of Section 20, T. 14 N., R. 5 E. On Clara St. from N. Walnut to N. Linn, W. Bay City, elevation above tide is 600′.

Sand	2′		2′	
Clay	81′		83′	
Sand		6″	83′	6″
White rock or fire clay	7′	8″	91′	2″
Crevice (seam) with good water head 10′ less top. Big supply	1′	2″	92′	4″
Blue slate	3′		95′	4″

TEST HOLE NO. 252.

At the Central school in the N. E. ¼ of the S. W. ¼ of Section 20, T. 14 N., R. 5 E. On John St. between S. Center and S. Freemont, W. Bay City, elevation above tide is 595′.

Clay	81′	7″	81′	7″
Blue slate	27′	6″	109′	1″
Black slate	6′		115′	1″
Coal, Upper Verne		2″	115′	3″ at 480 A. T.
Fire clay	3′		118′	3″
Blue slate	21′		139′	3″
Sandy slate	18′		157′	3″
Sandrock and salt water	4′		161′	3″

TEST HOLE NO. 253.

At the Corbin school in the S. E. ¼ of the S. E. ¼ of Section 17, T. 14 N., R. 5 E. On Fulton St., from Litchfield to N. Walnut, W. Bay City, elevation above tide is 594′.

Sand and black muck with old logs and shells on top of clay	33′		33′	
Clay	50′		83′	
Black slate	18′		101′	
Crevice (stratum) with plenty of water, smell like sulphur		11″	101′	11″
Black slate	3′	2″	105′	1″
Coal, Upper Rider		10″	105′	11″ at 488 A. T.
Fire clay	3′		108′	11″

TEST HOLE NO. 254.

At the Dennison school in the S. W. ¼ of the N. W. ¼ of Section 20, T. 14 N., R. 5 E. On W. Indiana St. from May to N. Kiesel, W. Bay City, elevation above tide is 602′.

Clay	83′	83′	
Blue slate	21′	104′	
Black slate	16′	120′	
Coal, Upper Verne	3′ 7″	123′ 7″	at 478 A. T.
Fire clay	3′	126′ 7″	
Sandy rock	14′	140′ 7″	

TEST HOLE NO. 255.

At the Kolb school well in the N. E. ¼ of the N. W. ¼ of Section 29, T. 14 N., R. 5 E. On Muth St. from S. Fremont to S. Chilson, West Bay City, elevation above tide is 597′.

Clay	87′	87′	
Black slate rotten or broken, drill fell in it	21′	108′	
Light slate	12′ 9″	120′ 9″	
Dark slate	11′	131′ 9″	
Blue slate with hard rock	21′	152′ 9″	
Sandrock	12′ 6″	165′ 3″	

TEST HOLE NO. 256.

In the N. E. ¼ of the N. E. ¼ of Section 20, T. 14 N., R. 5 E. Corner Florence and Henry Sts., W. Bay City, elevation above tide is 595.′

Clay	83′	83′	
Slate	12′ 2″	95′ 2″	
Very hard rock	2′ 7″	97′ 9″	
Black slate	11′	108′ 9″	
Coal, Upper Verne	3′ 8″	112′ 5″	at 483 A. T.
Fire clay	4′	116′ 5″	

TEST HOLE NO. 257.

Handy Bros. Mill well in the S. W. ¼ of the N. E. ¼ of Section 29, T. 14 N., R. 5 E. Corner of Main and Jackson Streets, W. Bay City, elevation above tide is 596′.

Clay	88′	88′	
Hardpan	3′	91′	
Black slate	39′ 6″	130′ 6″	
Coal, Lower Verne	2″	130′ 2″	at 466 A. T.
Fire clay	3′	133′ 8″	
Sandrock	62′	195′ 8″	

TEST HOLE NO. 258.

Monitor Shaft record. June, 1895. In the S. W. ¼ of the S. E. ⅛ of Section 28, T. 14 N., R. 4 E., elevation above tide is 602′.

Hard reddish colored clay full of gravel to	26′	26′	
Blue clay	14′ 8″	40′ 8″	
Very black clay with limbs of trees—ash, oak, and maple. Could see the grain of wood and shape of leaves	4′ 5″	45′ 1″	
Blue clay	15′	60′ 1″	
Hardpan, sandy clay and gravel	21′	81′ 1″	

Seam of quicksand	10″	81′ 11″	
Hardpan	8′	89′ 11″	
Quicksand and plenty of water. Water rising 10′. Thickness	4″	90′ 3″	
Hardpan with quicksand streaks	13′	103′ 4″	
Gravel and sand with pieces of coal as large as an egg	1′ 2″	104′ 6″	
Dark blue slate	10′	114′ 6″	
Black slate	4′	118′ 6″	
Coal, Upper Rider	1′ 6″	120′	at 482 A. T.
Very white fire clay becoming hard when dry	4′	124′	
Black slate	10′	134′	
Coal, Upper Verne	3′ 6″	137′ 6″	at 465 A. T.
Slate	2″	137′ 8″	
Fire clay	6′	143′ 8″	

TEST HOLE NO. 259.

In the S. W. ¼ of the S. E. ¼ of Section 28, T. 14 N., R. 4 E., 800 feet northwest of the Monitor shaft elevation above tide is 602′.

Clay	60′	60′
Hardpan	7′	67′
Sand with plenty of gas. Burnt all night	3′	70′
Hardpan	8′ 9″	78′ 9″
Sand and gas	2′ 1″	80′ 10″
Hardpan	7′	87′ 10″
Sand and gravel	4′	91′ 10″
Hardpan	7′	98′ 10″
Sand and gravel	1′ 3″	100′ 1″
Hardpan	2′	102′ 1″
Gravel	1′	103′ 1″
Blue slate	15′	118′ 1″
Dark slate	4′	122′ 1″
Fire clay	2′	124′ 1″
Blue slate	6′	130′ 1″
Sandy fire clay	30′	160′ 1″

TEST HOLE NO. 260.

In the N. W. ¼ of the S. W. ¼ of Section 28, T. 14 N., R. 4 E., 2,500 feet northwest of the Monitor shaft, elevation above tide is 603′.

Clay	40′	40′	
Gas sand and gravel. Blew sand and stones 50′ in the air.	1′ 7″	41′ 7″	
Clay	20′	61′ 7″	

TEST HOLE NO. 261.

On the N. line of the N. W. ¼ of the N. E. ¼ of Section 33, T. 14 N., R. 4 E., 800 feet southwest of Monitor shaft elevation above tide is 602′.

Clay	60′	60′	
Hardpan	42′	102′	
Blue slate	20′ 5″	122′ 5″	
Black slate	12′	134′ 5″	
Coal, Upper Verne	4′ 2″	138′ 7″	at 464 A. T.
Slate	2″	138′ 9″	
Fire clay	7′	145′ 9″	

TEST HOLE NO. 262.

In the center of the S. W. ¼ of the S. W. ¼ of Section 28, T. 14 N., R. 4 E., 3,000 feet west of the Monitor shaft, elevation above tide is 605′.

Clay	62′		62′	
Hardpan and gravel	40′		102′	
Blue slate	30′		132′	
Black slate	1′		133′	
Coal, Upper Verne		1″	133′	1″ at 472 A. T.
Sandy fire clay	30′		163′	1″
Blue slate with layers of hard rock	30′		193′	1″
Black slate	4′		197′	1″
Coal, Saginaw coal	1′	4″	198′	5″ at 407 A. T.
Fire clay	6′		204′	5″

TEST HOLE NO. 263.

On the E. and W. 80-rod line of the E. ½ of the N. W. ¼ of Section 33, T. 14 N., R. 4 E., 3,000 feet southwest of Monitor shaft, elevation above tide is 603′.

Clay	62′		62′	
Hardpan	41′		103′	
Blue slate	26′		129′	
Black slate	3′		132′	
Coal, Upper Verne	1′	2″	133′	2″ at 470 A. T.
Fire clay	10′		143′	2″
Hard rock	3′		146′	2″
Dark slate	21′		167′	2″
Light colored slate	7′		174′	2″
Dark slate with hard layers	21′		195′	2″

TEST HOLE NO. 264.

In the N. E. ¼ of the N. W. ¼ of Section 33, T. 14 N., R. 4 E. This is 1,500 feet southwest of Monitor shaft, elevation above tide is 603.′

Clay	61′		61′	
Hardpan and boulders	42′		103′	
Blue slate	19′		122′	
Black slate	14′		136′	
Coal, Upper Verne	4′	4″	140′	4″ at 463 A. T.
Fire clay	2′		142′	4″

TEST HOLE NO. 265.

In the S. W. ¼ of the S. E. ¼ of Section 28, T. 14 N., R. 4 E., Test hole 333 feet west of Monitor shaft, elevation above tide is 602′.

Clay	60′		60′	
Hardpan	43′		103′	
Dark blue slate	10′		113′	
Black slate	4′		117′	
Coal, Upper Rider	1′	6″	118′	6″ at 484 A. T.
Fire clay	4′		122′	6″
Black slate	10′		132′	6″
Coal, Upper Verne	4′	2″	136′	8″ at 466 A. T.
Slate		2″	136′	10″
Fire clay	2′		138′	10″

TEST HOLE NO. 266.

In the N. ½ of the N. ½ of the N. ½ of the N. W. ¼ of the S. E. ¼ of Section 4, T. 14 N., R. 5 E., elevation above tide is 585′.

Clay	81′		81′	
Hardpan	4′		85′	
Crevice	1′	2″	86′	2″
Hard sandy slate	7′		93′	2″
Blue slate	6′		99′	2″
Dark slate	10′	8″	109′	10″
Black slate	6′		115′	10″
Coal, Upper Verne	3′	10″	119′	8″ at 465 A. T.
Fire clay	20′		139′	8″

TEST HOLE NO. 267.

In the S. ½ of the S. ½ of the S. ½ of the S. W. ¼ of the N. E. ¼ of Section 4, T. 14 N., R. 5 E., elevation above tide is 585′.

Clay	81′		81′	
Hardpan	3′		84′	
Crevice		10″	84′	10″
Hard sandy slate	7′		91′	10″
Black slate	6′		97′	10″
Coal with streaks of slate, Upper Rider	4′	2″	102′	at 483 A. T.
Fire clay		8′	110′	

TEST HOLE NO. 268.

In the S. ½ of the S. ½ of the S. ½ of the S. W. ¼ of the N. E. ¼ of Section 4, T. 14 N., R. 5 E., elevation above tide is 585′.

Clay	80′		80′	
Hardpan	3′		83′	
Crevice		5″	83′	5″
Hard sandy slate	8′		91′	5″
Blue slate	10′		101′	5″
Dark slate	9′		110′	5″
Coal, Upper Verne	4′	3″	114′	8″ at 470 A. T.
Fire clay	6′		120′	8″

TEST HOLE NO. 269.

Near the E. line of the S. ½ of the N. W. ¼ of the S. E. ¼ of Section 4, T. 14 N., R. 5 E., elevation above tide is 585′.

Clay	82′		82′
Hardpan	3′		85′
Quicksand and gravel with streaks of hardpan	27′		112′

TEST HOLE NO. 270.

In the S. ½ of the N. W. ¼ of the S. E. ¼ of Section 4, T. 14 N., R. 5 E., elevation above tide is 585′.

Clay	81′		81′
Hardpan	3′		84′
Quicksand, gravel and streaks of hardpan	41′		125′

TEST HOLE NO. 271.

In the S. ½ of the N. W. ¼ of the S. E. ¼ of Section 4, T. 14 N., R. 5 E., elevation above tide is 585′. West of hole No. 269.

Clay	80′	80′	
Blue slate	10′	90′	
Black slate	7′	97′	
Coal, Upper Rider	5′ 10″	102′ 10″	at 482 A. T.
Fire clay	3′	105′ 10″	

TEST HOLE NO. 272.

In the N. ½ of the N. W. ¼ of the S. E. ¼ of Section 4, T. 14 N., R. 5 E., elevation above tide is 585′.

Clay	80′	80′	
Hardpan	2′	82′	
Crevice	1′	83′	
Hard sandy slate	9′	92′	
Blue slate	7′ 10″	99′ 10″	
Black slate	4′	103′ 10″	
Blue slate	7′	110′ 10″	
Black slate	4′	114′ 10″	
Coal, Upper Verne	3′ 10″	118′ 8″	at 467 A. T.
Fire clay	2′	120′ 8″	

TEST HOLE NO. 273.

In the S. ½ of the N. W. ¼ of the S. E. ¼ of Section 4, T. 14 N., R. 5 E., elevation above tide is 585′.

Clay	86′	86′	
Hardpan	3′	89′	
Quicksand	4′	93′	
Hard rock (boulder)	2′	95′	
Quicksand and gravel	1′ 2″	96′ 2″	
Light sand slate	11′	107′ 2″	
Blue slate	20′	127′ 2″	

TEST HOLE NO. 274.

In the N. W. corner of farm, N. E. ¼ of the S. E. ¼ of Section 4, T. 14 N., R. 5 E., elevation above tide is 584′.

Clay	100′	100′	
Hardpan	3′	103′	
Quicksand and gravel	4′	107′	
Slate	10′	117′	
Coal, Upper Verne	3′ 1″	120′ 1″	at 464 A. T.
Fire clay	20′	140′ 1″	

TEST HOLE NO. 275.

On the E. line of the N. E. ¼ of the S. W. ¼ of Section 4, T. 14 N., R. 5 E., elevation above tide is 585′.

Clay	80′	80′
Hardpan	4′	84′
Quicksand and gravel with streaks of hardpan	91′	175′

TEST HOLE NO. 276.

Near the N. E. corner of the S. E. ¼ of the S. W. ¼ of Section 4, T. 14 N., R. 5 E., elevation above tide is 585′.

Clay	81′	81′
Hardpan	3′	84′
Quicksand and gravel with streaks of hardpan	94′	178′

TEST HOLE NO. 277.

About 400′ N. of the E. and W. ¼ line of Section 4, and just E. of the N. and S. ¼ line, T. 14 N., R. 5 E. This hole is near the shaft of Wolverine mine, number 1 now abandoned. Elevation above tide is 585′.

Clay	72′	72′	
Blue slate	1′ 6″	73′ 6″	
White sandstone	12′ 5″	85′ 11″	
Fine white sandstone	7′ 1″	93′	
Light slate	5′	98′	
Hard rock	4″	98′ 4″	
Blue slate	10′ 8″	109′	
Black slate	3′	112′	
Coal, Upper Verne	3′ 5″	115′ 6″	at 470 A. T.
Dark blue slate—parting	6″	115′ 11″	
Coal	2″	116′ 1″	at 469 A. T.
Dark slate	6″	116′ 7″	
Coal	2″	116′ 9″	at 468 A. T.
Fire clay	2″	116′ 11″	
Black slate	10″	117′ 9″	
Coal	1′ 10″	119′ 7″	at 466 A. T.
Slimy coal	8″	120′ 3″	
Sulphur parting	18″	121′ 9″	
Coal (Lower Verne)	1′	122′ 9″	
Fire clay	1′	123′ 9″	

TEST HOLE NO. 278.

Forty rods N. of the center of Section 27, T. 14 N., R. 5 E., elevation above tide is 600′.

Clay	95′	95′	
Rock	4′ 6″	99′ 6″	
Slate	24′ 2″	123′ 8″	
Dark slate	2′ 9″	126′ 5″	
Fire clay	3′	129′ 5″	
Light shale	4′	133′ 5″	
Hard rock	3′	136′ 5″	
Black slate	3′	139′ 5″	
Hard rock and shale	8′	147′ 5″	
Hard rock	2′	149′ 5″	
Red slate	6′	155′ 5″	
Slate and sandrock	24′	179′ 5″	
Sandrock	3′	182′ 5″	
Slate	60′ 2″	242′ 7″	
Hard rock	4′ 6″	247′ 7″	
Sandrock	22′	269′ 1″	
Hard rock and slate	10′	279′ 1″	
Sandrock	38′ 3″	317′ 4″	
Sandrock	11′ 5″	328′ 9″	

TEST HOLE NO. 279.

In the N. W. $\frac{1}{4}$ of the S. E. $\frac{1}{4}$ of Section 27, T. 14 N., R. 5 E., elevation above tide is 600′.

Clay	88′	88′
Sand and gravel	5′	93′
Hard slate	10′	103′
Blue slate	7′	110′
Fire clay	7′ 6″	117′ 6″
Dark slate	1′ 10″	119′ 4″
Fire clay	3′	122′ 4″
Light sandy slate	5′	127′ 4″
Light sandy slate and hard iron carbonate	15′	142′ 4″
Hard rock	3′	145′ 4″
Hard rock	2′ 3″	147′ 7″
Sandrock	6′	153′ 7″
Blue slate	2′	155′ 7″
Sandrock and hard slate	15′	170′ 7″
Blue slate	5′	175′ 7″
Sandrock and slate	16′	191′ 7″
Dark slate	1′ 7″	193′ 2″
Sandrock and slate	18′ 6″	211′ 8″

TEST HOLE NO. 280.

On the E. line and N. 80 rod corner of Section 33, T. 14 N., R. 5 E., elevation above tide is 597′.

Clay	98′	98′	
Black loose shale	2′	100′	
Solid black shale	1′ 6″	101′ 6″	
Dark blue slate	20′ 9″	122′ 3″	
Black slate	1′ 2″	123′ 5″	
Coal, Upper Rider	6″	123′ 11″	at 473 A. T.
Fire clay	7′	130′ 11″	
Blue slate	4′	134′ 11″	
Black slate	8″	135′ 7″	
Coal, Upper Verne	3″	135′ 10″	at 461 A. T.
Fire clay	11′	146′ 10″	
Hardrock	4′	150′ 10″	
Blue shale	13′	163′ 10″	
Blue shale	20′	183′ 10″	
Blue shale	11′ 6″	195′ 4″	
Sandrock	7′	202′ 4″	
Sandrock	28′	230′ 4″	
Sandrock	20′	250′ 4″	
Sandy slate	10′	260′ 4″	
Sandy shale	20′	280′ 4″	
Hardrock	6′ 2″	286′ 6″	
Sandy shale	11′	297′ 6″	
Blue slate	1′ 7″	299′ 1″	
Blue slate	15′	314′ 1″	
Blue slate	11′	325′ 1″	
Hard sandrock	2′	327′ 1″	
Blue slate	15′	342′ 1″	
Black slate	4′	346′ 1″	
Fire clay	3′	349′ 1″	
Fine sandrock	9′ 7″	358′ 8″	

TEST HOLE NO. 281.

In the S. E. $\frac{1}{4}$ of the S. E. $\frac{1}{4}$ of Section 33, T. 14 N., R. 5 E. On Lincoln Ave., 20 rods north of South Center, elevation above tide is 595′.

Clay	2′	2′	
Sand	1′ 6″	3′ 6″	
Clay	95′	98′ 6″	
Black shale	4′	102′ 6″	
Black shale	2′	104′ 6″	
Black shale (hard)	8″	105′ 2″	
Salzburg coal	2′ 2″	107′ 4″	at 488 A. T.
Fire clay	2′	109′ 4″	
Blue slate	4′	113′ 4″	
Coal, Upper Rider	6″	113′ 10″	at 481 A. T.
Dark blue shale	12′	125′ 10″	
Black slate	2′ 2″	128′	
Coal, Upper Verne	1′	129′	at 466 A. T.
Fire clay	7′	136′	
Blue slate	21′	157′	
Hard rock	3′	160′	
Slate, hard rock	15′	175′	
Sandrock	25′	200′	
Hard rock	13′ 11″	213′ 11″	

TEST HOLE NO. 282.

Twenty rods N. of the S. $\frac{1}{4}$ post of Section 33, T. 14 N., R. 5 E., elevation above tide is 596′.

Clay	90′ 7″	90′ 7″
Hardpan and gravel	15′ 3″	105′ 10″
Hardrock	1′ 10″	107′ 8″
Sand and gravel	2′ 4″	110′
Hardpan	3′	113′
Quicksand	2′ 6″	115′ 6″
Hardpan and gravel	4′ 3″	119′ 9″
Quicksand	2′ 2″	121′ 11″
Hardpan and gravel	3′ 7″	125′ 6″
Quicksand	4′ 8″	130′ 2″

TEST HOLE NO. 283.

On the E. $\frac{1}{4}$ line of Section 16, and 80 rods E. of the W. $\frac{1}{4}$ post, T. 14 N., R. 5 E., elevation above tide is 590′.

Clay	65′	65′
Sand	6′	71′
Clay	8′	79′
Gravel	1′ 3″	80′ 3″
Sandy slate	10′	90′ 3″
Sandrock	12′	102′ 3″
Blue slate	4′	106′ 3″
Sandrock	9′ 8″	115′ 11″
Blue slate	4′	119′ 11″
Sandy slate	6′ 4″	126′ 3″
Blue shale	5′ 7″	131′ 10″
Sandrock	48′	179′ 10″
Dark brown slate	2′	181′ 10″
Coal, Saginaw coal?	3′	184′ 10″ at 405 A. T.
Blue slate	4′ 2″	189′
Hard rock	1′ 8″	190′ 8″
Sandrock	5′	195′ 8″
Light slate	4′	199′ 8″
Sandrock	15′	214′ 8″
Sandy slate	10′ 8″	225′ 4″
Blue slate	11′ 5″	236′ 9″

Black slate	5′	3″	242′	
Coal, Lower Rider		3″	242′	3″ at 342 A. T.
Fire clay	4′		246′	3″
Hard rock	3′	7″	249′	10″
Dark blue slate	12′		261′	10″
Sandy slate	7′		268′	10″
Blue slate	3′		271′	10″
Light shale	5′		276′	10″
Hard rock	1′	2″	278′	
Blue slate	12′		290′	
Hard rock	8′		298′	
Blue slate	4′		302′	
Black slate	1′	8″	303′	8″
Coal, Lower coal	1′	3″	304′	11″ at 285 A. T.
Fire clay	2′	9″	307′	8″
Hard rock	1′	2″	308′	10″
Sandrock	2′		310′	10″
Hard rock	1′	7″	312′	5″
Hard sandrock	20′		332′	5″

TEST HOLE NO. 284.

In the S. E. $\frac{1}{4}$ of Section 23, 120 rods N. of the S. 80-rod corner, T. 14 N., R. 5 E., elevation above tide is 600′.

Sand	11′		11′	
Clay	80′		91′	
Sandrock	20′	7″	111′	7″
Hard rock	8′		119′	7″
Sandy slate	2′	3″	121′	10″
Hard blue slate	4′	2″	126′	
Black slate	1′		127′	
Coal, Upper Verne	2′	9″	129′	9″ at 470 A. T.
Blue slate	1′	4″	131′	1″
Hard rock		11″	132′	
Fire clay	9′	8″	141′	8″
Hard rock	3′		144′	8″
Sandy slate	11′	5″	156′	1″
Light blue slate	18′	3″	174′	4″
Fire clay	2′	6″	176′	10″
Sandrock	16′	3″	193′	1″
Light slate	2′	1″	195′	2″
Hard sandrock	4′		199′	2″
Hard sandrock	3′		202′	2″

TEST HOLE NO. 285.

In the S. E. $\frac{1}{4}$ of the N. E. $\frac{1}{4}$ of Section 23, and the E. 80-rod line, T. 14 N., R. 5 E., elevation above tide is 600′.

Sand	8′		8′	
Clay	80′		88′	
Rotten black slate	5′	8″	93′	8″
Sandrock	11′		104′	8″
Light blue slate	6′		110′	8″
Hard rock	2′	6″	113′	2″
Sandrock	8′		121′	2″
Sandy slate	3′		124′	2″
Light slate	8′		132′	2″
Blue slate	3′		135′	2″
Black slate	2′	2″	137′	4″
Coal, Upper Verne	1′	9″	139′	1″ at 461 A. T.
Blue slate	3′		142′	1″
Sandy slate	6′		148′	1″
Fire clay	8′		156′	1″
Sandy slate	9′	8″	165′	9″
Sandrock	12′		177′	9″

TEST HOLE NO. 286.

In the N. W. $\frac{1}{4}$ of the S. E. $\frac{1}{4}$ of Section 22, T. 14 N., R. 5 E., elevation above tide is 594′.

Sand	6′			6′	
Clay	90′	6″		96′	6″
Hard rock		10″		97′	4″
Crevice		9″		98′	1″
Hard rock		2″		98′	3″
Crevice		6″		98′	9″
Hard rock	3′	7″		102′	4″
Crevice		5″		102′	9″
Hard rock	2′			104′	9″
Sandrock	11′	3″		116′	
Slate	1′	7″		117′	7″
Sandrock	2′			119′	7″
Light slate	6′	2″		125′	9″
Blue slate	2′			127′	9″
Black slate		6″		128′	3″
White slate	2′			130′	3″
Dark blue slate	5′			135′	3″
Coal	1′	1″	Horizon of Lower Verne	136′	4″ at 458 A. T.
Sandy slate		8″		137′	
Coal		6″		137′	6″ at 457 A. T.
Blue slate	2′	2″		139′	8″
Coal		2″		139′	10″ at 454 A. T.
Blue slate	1′	8″		141′	6″
Coal		3″		141′	9″ at 452 A. T.
Fire clay	6′			147′	9″
Hard rock		8″		148′	5″
Sandrock	13′			161′	5″
Hard rock		4″		161′	9″
Sandrock	10′	3″		172′	

TEST HOLE NO. 287.

Eighty rods N. and W. from the S. E. corner of Section 23, T. 14 N., R. 5 E. Eighty rods north of Center St. on Mich. Central Belt Line, Bay City, elevation above tide is 596′.

Sand	8′		8′	
Clay	78′		86′	
Hardpan	1′	2″	87′	2″
Sand and gravel	5′	3″	92′	5″
Sandrock	20′		112′	5″
Slate and hard rock	14′	8″	127′	1″
Red slate	4′		131′	1″
Hard rock	2′	3″	133′	4″
Light blue slate	3′		136′	4″
Light slate	11′	3″	147′	7″
Sandrock	6′		153′	7″
Hard rock	2′		155′	7″
Dark blue slate	1′	3″	156′	10″
Fire clay	9′		165′	10″

TEST HOLE NO. 288.

One hundred twenty rods north of the S. $\frac{1}{4}$ post of Section 23, T. 14 N., R. 5 E., elevation above tide is 594′.

Clay	90′	6″	90′	6″
Hard rock	10′		100′	6″
Crevice	9′		109′	6″
Hard rock		2″	109′	8″
Crevice		2″	109′	10″

Hard rock		5′ 7″	115′ 5″	
Sandrock		11′	126′ 5″	
Slate		2′ 7″	129′	
Sandrock		3′	132′	
Light slate		6′ 2″	138′ 2″	
Black slate		1′ 6″	139′ 8″	
Dark slate		5′	145′ 8″	
Coal	Horizon of Lower Verne	1′ 10″	147′ 6″	at 447 A. T.
Light slate		8′	148′ 2″	
Coal		6′	154′ 2″	at 440 A. T.
Light shale		2′ 2″	156′ 4″	
Coal		10″	157′ 2″	at 437 A. T.
Light shale		1′ 8″	158′ 10″	
Coal		6″	159′ 2″	at 435 A. T.
Fire clay		6′	165′ 2″	
Sandrock		13′	178′ 2″	
Hard rock		10′	188′ 2″	

Records from Captain O. W. Blodgett, Bay City, Michigan

Test Holes Nos. 289-310.

Samples of holes were preserved, and the records are from examination of them by officers of the survey.

TEST HOLE NO. 289.

Mich. Clay Co. In the S. E. ¼ of Section 7, T. 13 N., R. 5 E., elevation above tide is 582.′

Drift	123′	123′	
Bluish gray shale	20′	143′	
Drab shales less argillaceous	7′	150′	
Buff micaceous sandstone	75′	225′	
Dove colored shales	5′	230′	
Buff micaceous sandstone	20′	250′	
Black hard shale	20′	270′	
Hard black shale somewhat bituminous	5′	275′	
Light buff shale ("fire clay")	8′	283′	
Drab shales—sandy	13′	296′	
Light gray sandstone somewhat bituminous	4′	300′	

TEST HOLE NO. 290.

Middle of the N. E. ¼ of the N. W. ¼ of Section 13, T. 13 N., R. 5 E., elevation above tide is 595.′

Drift	122′	122′	
Dove colored shales sandy	30′	152′	
Fawn colored sandstone—slightly micaceous	7′	159′	
Black slate, coal, bituminous shale	14′ 4″	173′ 4″	

TEST HOLE NO. 291.

Just east of the N. and S. quarter line of the S. E. ¼ of the S. W. ¼ of Section 17, T. 13 N., R. 6 E, elevation above tide is 595.′

Drift	108′	108′	
Slightly micaceous fawn colored sandstone with argillaceous matter; calcareous	34′	142′	

Blue argillaceous shale	3′	145′	
Coal, Lower Verne	10″	145′ 10″	at 449 A. T.
Dove colored, slightly micaceous, argillaceous, sandstone, calcareous, bituminous	10′	155′ 10″	
Blue shale	2′	157′ 10″	
Darker blue shale	7′ 7″	165′ 5″	
Coal, Middle Rider	8″	166′ 1″	at 429 A. T.
Coal and black bituminous shale	8′	174′ 1″	
Coal	11″	175′	at 420 A. T.
Light shale—"fire clay"	10′	185′	
Clayey, micaceous slightly calcareous fawn colored sandstone with small amount of bituminous matter	5′ 1″	190′ 1″	

TEST HOLE NO. 292.

Thirty rods S. of the E. and W. ¼ line of the N. W. ¼ of the S. E. ¼ of Section 17, Merritt township, T. 13 N., R. 6 E., elevation above tide is 594.′

Drift	95′	95′	
Light blue shale	15′	110′	
Micaceous, dove colored sandstone with shaly partings	10′	120′	
Sandy slightly micaceous light blue shale	23′	143′	
Darker shale with some coal, Lower Verne	3′	146′	at 448 A. T.
Dove colored shales	26′	172′	
Dove shale and micaceous fawn colored sandstone	6′	178′	

TEST HOLE NO. 293.

Five rods S. of the N. W. corner of Section 21, T. 13 N., R. 6 E. Munger P. O., elevation above tide is 594.′

Drift	89′	89′	
Dove and gray colored shale	46′	135′	
Drab, micaceous shaly sandstone	2′	137′	
Gray shale	2′ 6″	139′ 6″	
Dark shale	1′ 6″	141′	
Black shale	1′ 1″	142′ 1″	
Coal, Lower Verne	1′ 9″	143′ 10″	at 450 A. T.
Light shale "fire clay"	2′ 8″	146′ 6″	
Dove shales	6″	147′	
Light gray shales	6′ 2″	153′ 8″	
Light gray shales some bituminous matter	2′ 10″	156′ 6″	
Gray soft shales	2′ 2″	158′ 8″	
Coal, Middle Rider	1′ 5″	160′ 1″	at 434 A. T.
Light shale—"fire clay"	11″	161′	
Light gray micaceous sandstone, becoming more bituminous at the bottom	58′	219′	
Coffee colored shale	16′	235′	
Dark brown shale	15′	250′	
Dove colored micaceous sandstone	10′	260′	
Black argillaceous shale	5′	265′	
Gray micaceous sandstone	32′	297′	

TEST HOLE NO. 294.

F. R. Tennant just E. of house in the S. E. corner of the S. W. ¼ of Section 16, T. 13 N., R. 6 E., elevation above tide is 591.′

Drift	100′		100′		
Gravel	1′		101′		
Dove colored shales	36′	6″	137′	6″	
Fawn colored, micaceous sandstone	25′	5″	162′	11′	

TEST HOLE NO. 295.

In the middle of the S. end of the W. ½ of the S. E. ¼ of Section 16, T. 13 N., R. 6 E., G. W. Tennant, elevation above tide is 591.′

Drift	95′		95′		
Gray sandy shale	38′		133′		
Micaceous dove colored shale	7′		140′		
Micaceous dove colored sandstone	2′	6″	142′	6″	
Buff micaceous sandstone	23′	3″	165′	9″	

TEST HOLE NO. 296.

Patrick Keating about middle of the N. end of the E. ½ of the N. E. ¼ of Section 22, T. 13 N., R. 6 E., elevation above tide is 588.′

Drift	84′		84′		
Gravelly clay-till or ground moraine	1′	1″	85′	1″	
Sandy clay-till or ground moraine	2′		87′		
Dove colored gravelly clay with bits of coal	1′		88′		
Gray gravelly clay		10″	88′	10″	
Bituminous shale and coal		2″	89′		
Drift coal	22′	6″	111′	6″	

TEST HOLE NO. 297.

In the N. W. corner of the E. 100 acres extending the entire east side of the N. E. ¼ of Section 22, T. 13 N., R. 6 E., elevation above tide is 589.′

Drift	87′		87′		
Sand and gravel	5′		92′		
Gray calcareous shale	29′		121′		
Light buff colored shale	2′		123′		
Gray hard shale	15′	6″	138′	6″	
Coal, Lower Verne		3″	138′	9″	at 450 A. T.
Light shale "fire clay" not calcareous, fairly infusible	8′	3″	147′		
Dove colored shale hard	11′	8″	158′	8″	
Gray colored shale, hard calcareous		4″	159′		
Dove colored shale, bits of coal	8′	6″	167′	6″	
White sandstone	14′		181′	6″	

TEST HOLE NO. 298.

Three-fourths way across going W. at S. end of the E. ½ of the S. E. ¼ of Section 15, T. 13 N., R. 6 E., elevation above tide is 588.′

Drift	80′	80′	
Sand and gravel	3′	83′	
Dove colored shale	....	....	
Gray colored shale gradually becoming darker	39′	122′	
Light buff shale "fire clay"	1′	123′	
Blue shale	6′	129′	
Gray shale with blue seam of coal	5′	134′	
Light shale "fire clay"	6′	140′	

TEST HOLE NO. 299.

In the S. E. corner of Section 15, T. 13 N., R. 6 E., elevation above tide is 588.′

Drift	80′	80′
Gray clay till	1′	81′
Sand and gravel	2′	83′
Ochre colored sand, magnetic	2′	85′
Brown iron bearing sand and effervescing with H Cl Precipitates copper from copper sulphate. Scales bright metallic color—metallic iron[2]	2′	87′
Dove colored shale	49′	136′
Hard pearl gray shale	4′	140′
Hard flaggey light gray shale	20′	160′

TEST HOLE NO. 300.

Center of N. line of the N. W. ¼ of the N. E. ¼ of Section 21, T. 13 N., R. 6 E., elevation above tide is 591.′

Drift	94′	94′
Dove colored shale slightly calcareous	44′	138′
Hard dove colored shale	8′	146′
Light gray micaceous sandstone	17′	163′

TEST HOLE NO. 301.

In the N. E. ¼ of the N. W. ¼, middle of the N. side and 10 rods S. of Munger road in Section 22, T. 13 N., R. 6 E., elevation above tide is 589.′

Drift	80′		80′		
Gravel containing chert from the Corniferous, drift coal, etc.	7′		87′		
Light buff colored sandstone	71′		158′		
Coal, Middle Rider		9″	158′	9″	at 430 A. T.
Sandy dove colored shale	10′	3″	169′		

TEST HOLE NO. 302.

In the center of the W. line of the S. E. ¼ of the S. W. ¼, of Section 16, T. 13, N., R. 6 E., elevation above tide is 592.′

Drift	82′		82′		
Buff micaceous sandstone	7′		89′		
Light gray shale	1′		90′		
Black shale and coal	5′	6″	95′	6″	
Salzburg coal		6″	96′		at 496 A. T.
Gray shale	7′		103′		
Light shale—"fire clay"	1′		104′		
Dark shale with bits of coal	1′		105′		
Dove colored shale	1′		106′		
Drab micaceous sandstone	12′		118′		
Lighter micaceous sandstone	32′		150′		
Drab micaceous sandstone	1′		151′		
Fawn colored micaceous sandstone	19′		170′		
Light slightly calcareous shale	4′		174′		
Buff micaceous sandstone	1′		175′		

[2] From drill or broken casing?

TEST HOLE NO. 303.

In the N. E. corner of the S. W. ¼ of the N. W. ¼ of Section 21, T. 13 N., R. 6 E., elevation above tide is 594.′

Drift	90′	90′	
Light gray sandstone	5′	95′	
Light (buff) shale "fire clay"	51′ 6″	146′ 6″	
Light (pearl) gray micaceous sandstone	3′ 6″	150′	
Light buff shale "fire clay"	13′	163′	
Coal and shale	2′	165′	
Coal, Middle Rider	1′ 6″	166′ 6″	at 428 A. T.
Dove colored shale	8′	174′	
Micaceous buff colored sandstone	2′	176′	

TEST HOLE NO. 304.

In the center of the S. line of the N. E. ¼ of the N. E. ¼ of Section 20, T. 13 N., R. 6 E., elevation above tide is 595.′

Drift	87′	87′	
Light buff shale—"fire clay"	1′	88′	
Gray calcareous sandy shale	1′	89′	
Black calcareous bituminous shale	8′	97′	
Dove colored shale	33′	130′	
Gray shale	18′	148′	
Light buff colored shale	9′	157′	
Pearl (light) gray micaceous sandstone	4′	161′	
Coal, Middle Rider	2′	163′	at 432 A. T.
Hard flaggy dove colored shale	11′ 10″	174′ 10″	
Coal	2″	175′	at 420 A. T.
Coal and shale	6″	175′ 6″	
Coal	1′	176′ 6″	at 418 A. T.
Light buff colored shales "fire clay"	3′ 6″	180′	
Light buff colored sandy micaceous shale	3′	183′	

TEST HOLE NO. 305.

In the center of the S. line of the S. ½ of the S. E. ¼ of Section 19, T. 13 N., R. 6 E., elevation above tide is 593.′

Drift	92′	92′	
Buff colored sandstone	1′	93′	
Dove colored shales	9′	102′	
Gray shales	1′	103′	
Coal, Upper Rider	1′	104′	at 498 A. T.
Dove colored micaceous sandstone and shale	8′	112′	
Dove colored shale	10′	122′	
Gray shale	2′	124′	
Light gray—"fire clay"	7′	131′	
Dove colored shales	11′	142′	
Gray shales and bits of coal, Lower Verne	2′	144′	
Dove colored shales	11′	155′	
Harder dove colored flaggy shales	8′	163′	
Coal with some shale, Middle Rider	2′	165′	at 428 A. T.
Light shale—"fire clay"	2′	167′	
Fawn colored micaceous sandstone	13′	180′	

TEST HOLE NO. 306.

Ten rods E. from N. and S. ¼ line on the north E. and W. sub. ¼ line, N. E. ¼ of Section 32, T. 13 N., R. 6 E., elevation above tide is 600.′

Drift	102′	102′	
Buff colored sandstone	18′	120′	
Gray shale	5′	125′	
Dove colored micaceous shale	7′	132′	
Gray shale with bits of coal	1′	133′	
Dove colored shale	10′	143′	
Gray bituminous shale	1′	144′	
Dove colored shale	21′	165′	
Hard flaggy darker shales	9′	174′	
Light gray micaceous sandstone with bituminous matter	35′	209′	
Gray sandy shale	26′	235′	
Light shale "fire clay"	8′	243′	
Dove colored sandy shales	7′	250′	
Gray calcareous shales	15′	265′	
Dove colored sandy shales and bits of mica	39′	304′	
Black micaceous shale	1′	305′	
Coal, Lower coal	1′	306′	at 294 A. T.
Light gray sandstone	4′	310′	
White micaceous sandstone	15′	325′	
Gray shale	6′	331′	
Buff micaceous sandstone	10′	341′	

TEST HOLE NO. 307.

Five rods W. from Tuscola Stone Road on the north E. and W. sub. ¼ line of Section 32, T. 13 N., R. 6 E., elevation above tide is 600.′

Drift	98′	98′	
Gravel	4′	102′	
Dove colored shale	5′	107′	
Buff colored sandstone	5′	112′	
Black sandy shale and coal	3′	115′	
Dove colored shale	6′	121′	
Gray shale with bits of calcareous material	6′	127′	
Gray shale	13′	140′	
Gray sandy shale	4′	144′	
Darker gray sandy shale	6′	150′	
Dark gray shale with bits of coal	1′	151′	
Coal, Lower Verne	1′	152′	at 448 A. T.
Shale and coal with bits of calcareous material	2′	154′	
Light gray micaceous sandstone	22′	177′	
Gray sandy micaceous shale	7′	184′	
Mottled gray shale "fire clay"	3′	187′	
Buff micaceous sandstone	14′	201′	

TEST HOLE NO. 308.

In the N. W. corner of the E. ½ of the S. W. ¼ of Section 16, T. 13 N., R. 6 E., elevation above tide is 590.′

Drift	96′	96′
Light gray micaceous sandstone	6′	102′
Light gray micaceous sandstone, less argillaceous	7′	109′
White micaceous sandstone	29′	138′
Light gray micaceous sandstone with bituminous matter	2′	140′

Buff colored shale micaceous sandstone	2′	142′	
Dove colored shale	2′	144′	
Dark gray shale with bituminous matter	1′	145′	
Dove colored sandy shales	17′	162′	
Coal, Middle Rider	1′	163′	at 427 A. T.
Buff colored micaceous sandstone	11′	174′	
Light gray micaceous sandstone	2′	176′	
White micaceous sandstone	24′	200′	

TEST HOLE NO. 309.

In the center of the S. end of the N. W. ¼ of the S. W. ¼ of Section 16, T. 13 N., R. 6 E., elevation above tide is 594′.

Drift	86′	86′	
Dove colored sandy shale	10′	96′	
White micaceous, calcareous sandstone	66′	162′	
Sandstone and coal, Middle Rider	1′	163′	at 431 A. T.
White sandy shale or fire clay with calcareous bits	6′	169′	
Light gray or buff micaceous sandstone with calcareous bits	61′	230′	
Gray sandy calcareous shale	3′	233′	
Fawn colored micaceous sandstone	1′	234′	
Gray shale	3′	237′	
White sandy slightly calcareous shale and "fire clay"	1′	238′	
Black sandy shale	1′	239′	
Gray sandy shale	24′	263′	
Fawn colored micaceous sandstone	3′	266′	
White micaceous sandstone	7′	273′	
Gray sandy micaceous shale	2′	275′	
Buff micaceous sandstone	5′	280′	

TEST HOLE NO. 310.

On the E. and W. ¼ line 40 rods E. of the N. and S. ¼ line of Section 23, T. 13 N., R. 6 E., elevation above tide is 590′.

Drift	85′	85′	
Dove colored shale with bits of calcareous material	6′	91′	
White sandy shale	3′	94′	
Dove colored shale	2′	96′	
Buff colored sandy shale	7′	103′	
White shaly sandstone	3′	106′	
Light gray shaly sandstone	1′	107′	
Dove colored shale	2′	109′	
Gray shale	1′	110′	
Light gray shaly sandstone	1′	111′	
Buff colored calcareous sandstone with bits of coal, Upper Verne	9′	120′	at 470 A. T.
Buff colored slightly calcareous sandstone	1′	121′	
Light gray sandy shale	5′	126′	
Dove colored slightly calcareous shale	4′	130′	
Gray shale	13′	143′	
Light gray sandstone	4′	147′	
Light gray sandstone	6′	153′	
Gray shale	13′	166′	
Gray sandy shale	2′	168′	
Light gray sandstone and shale	3′	171′	
Dove colored shale	7′	178′	

Gray shale	13′		191′	
Dove colored shale	9′		200′	
Gray shale	19′		219′	
Black shale	2′		221′	
Dove colored sandy shale	1′		222′	
Light gray shaly sandstone	6′		228′	
Brown sandy shale	11′		239′	
Gray shale		6″	239′	6″
Coal, Lower Coal or Lower Rider	1′	6″	241′	at 353 A. T.
Dove colored shale	1′		242′	
Light gray sandstone with bits of shale	3′		245′	
Light gray sandstone	4′		249′	

Records from the Sage Land and Improvement Company.

Test Holes Nos. 311-331.

TEST HOLE NO. 311.

In the S. E. ¼ of the N. E. ¼ of Section 30, T. 15 N., R. 5 E., W. L. Ralston, driller. March 29, 1899, elevation above tide is 583′.

Sand	16′		16′	
Clay	22′		38′	
Sand and gravel	24′		62′	
Gray sandrock	16′		78′	
White sandrock	69′		147′	

TEST HOLE NO. 312.

In the N. W. ¼ of the N. E. ¼ of Section 30, T. 15 N., R. 5 E., elevation above tide is 583′. W. L. Ralston, driller. December 9, 1899.

Sand	18′		18′	
Clay	30′		48′	
Sand	12′		60′	
Gray sandrock	27′		87′	
White sandrock	53′		140′	
Blue shale	7′		147′	
Light gray rock	17′		164′	
White sandrock	4′		168′	
Dark gray rock	2′	8″	170′	8″
Black slate	1′	4″	172′	
White sandrock	1′		173′	

TEST HOLE NO. 313.

In the N. E. ¼ of the S. W. ¼ of Section 19, T. 15 N., R. 5 E., elevation above tide is 583′. W. L. Ralston, driller. January 12, 1900.

Sand	16′		16′		
Clay	44′		60′		
Sand	4′		64′		
Gray sandrock	25′	5″	89′	5″	
Coal, Upper Rider		7″	90′		at 493 A. T.
White sandrock	110′		200′		
Gray shale	16′		216′		
White sandrock	46′		262′		
Black slate	12′		274′		
Coal, Lower Rider	0′	5″	274′	5″	at 309 A. T.
Sandrock	1′		275′	5″	
Gray shale	13′		288′	5″	
Blue shale	12′		300′	5″	
White sandrock	4′		304′	5″	

TEST HOLE NO. 314.

In the S. W. ¼ of the N. E. ¼ of Section 19, T. 15 N., R. 5 E., elevation above tide is 583′. W. L. Ralston, driller, February 15, 1900.

Sand	19′		19′		
Clay	62′		81′		
Sandrock	6′		87′		
Gray shale	26′		113′		
Sandrock	4′		117′		
Gray shale	12′		129′		
Sandrock	7′		136′		
Gray shale	6′		142′		
Sandrock	48′		190′		
Gray rock	16′		206′		
Sandrock	39′		245′		
Gray shale	11′		256′		
Black slate	8′		264′		
Gray rock	9′		273′		
Sandrock	17′		290′		
Black slate	7′		297′		
Gray rock	4′		301′		
Gray shale	7′		308′		
Gray sandrock	12′		320′		
Gray shale	10′		330′		
Black slate	1′	6″	331′	6″	
Gray shale	3′		334′	6″	
White sandrock	5′		339′	6″	

TEST HOLE NO. 315.

On the east side of the S. E. ¼ of the N. E. ¼ of Section 24, T. 15 N., R. 4 E., elevation above tide is 582′. W. L. Ralston, driller. March 5, 1900.

Sand	16′		16′		
Clay	52′		68′		
Gray shale	7′		75′		
Salzburg coal		3″	75′	3″	at 507 A. T.
Gray shale	43′		118′	3″	
Sandrock	12′		130′	3″	
Gray shale	16′		146′	3″	
White sandrock	14′		160′	3″	
Gray sandrock	49′		209′	3″	

TEST HOLE NO. 316.

In the S. E. ¼ of the S. W. ¼ of Section 24, T. 15 N., R. 4 E., elevation above tide is 585′. A. J. Wampler, driller, August 15, 1899.

Sand	10′		10′		
Clay	61′		71′		
Gray shale	17′		88″		
Black slate	1′		89′		
Gray shale	57′		146′		
Coal		2″	146′	2″	at 439 A. T.
Sandrock	47′	7″	193′	9″	

TEST HOLE NO. 317.

In the N. W. ¼ of the N. W. ¼ of Section 24, T. 15 N., R. 4 E., A. J. Wampler, driller, August 24, 1899, elevation above tide is 585′.

Clay	61′		61′		
Sandrock	10′		71′		
Gray shale	6′		77′		
Fire clay	1′		78′		
Gray shale	3′		81′		

Slate	2′		83′		
Salzburg coal		6″	83′	6″	at 502 A. T.
Slate		6″	84′		
Fire clay	3′	6″	87′	6″	
Slate		6″	88′		
Gray shale	3′		91′		
Slate	1′	6″	92′	6″	
Gray shale	2′	6″	95′		
Fire clay	1′		96′		
Gray shale	37′		133′		
Fire clay	3′		136′		
Sandrock	1′		137′		
Fire clay	1′		138′		
Sandrock	23′		161′		
Gray shale	2′		163′		
Sandrock	2′		165′		
Gray shale	3′		168′		
Sandrock	7′		175′		

TEST HOLE NO. 318.

In the N. E. ¼ of the N. W. ¼ of Section 24, T. 15 N., R. 4 E., elevation above tide is 584′. A. J. Wampler, driller, September 8, 1899.

Sand	6′		6′		
Clay	62′		68′		
Gray shale	26′	6″	94′	6″	
Slate		9″	95′	3″	
Coal, Upper Rider		3″	95′	6″	at 489 A. T.
Gray shale	44′	6″	140′		
Sandrock	18′		158′		
Gray shale	20′		178′		
Sandrock	6′		184′		
Gray shale	8′		192′		
Sandrock	8′		200′		

TEST HOLE NO. 319.

In the S. W. ¼ of the N. E. ¼ of Section 24, T. 15 N., R. 4 E., elevation above tide is 584′. A. J. Wampler, driller, September 19, 1899.

Clay	58′		58′		
Gray shale	1′		59′		
Salzburg coal and slate Rider	1′		60′		at 524 A. T.
Gray shale	38′		98′		
Sandrock	3′		101′		
Gray shale	9′		110′		
Sandrock	12′		122′		
Gray shale	2′		124′		
Sandrock	2′		126′		
Gray shale	9′		135′		
Sandrock	55′		190′		
Gray shale	10′		200′		

TEST HOLE NO. 320.

In the S. W. part of the N. E. ¼ of the S. E. ¼ of Section 24, T. 15 N., R. 4 E., elevation above tide is 583′. A. J. Wampler, driller, September 20, 1899.

Sand	20′		20′		
Clay	45′		65′		
Gray shale	21′		86′		
Slate		3″	86′	3″	
Salzburg coal		7″	86′	10″	at 496 A. T.
Slate	1′	8″	88′	6″	

Fire clay	3′	6″	92′	
Gray shale	1′		93′	
Fire clay	6′		99′	
Gray shale	13′		112′	
Sandrock	1′	6″	113′	6″
Gray shale	4′	6″	118′	
Sandrock	10′		128′	
Gray shale	25′		153′	
Sandrock	17′		170′	

TEST HOLE NO. 321.

In the N. W. part of the S. E. ¼ of the S. E. ¼ of Section 24, T. 15 N., R. 4 E., elevation above tide is 583′. A. J. Wampler, driller, October 9, 1899.

Sand	18′		18′	
Clay	45′		63′	
Gray shale	25′		88′	
Slate		8″	88′	8″
Salzburg coal		10″	89′	6″ at 494 A. T.
Gray shale	3′	6″	93′	
Slate		3″	93′	3″
Coal, Upper Rider		3″	93′	6″ at 490 A. T.
Slate		6″	94′	
Fire clay	4′		98′	
Gray shale	48′		146′	
Sandrock	1′		147′	
Gray shale	14′		161′	
Sandrock	9′		170′	

TEST HOLE NO. 322.

In the S. E. part of the N. E. ¼ of the S. E. ¼ of Section 24, T. 15 N., R. 4 E., A. J. Wampler, driller, October 16, 1899. The elevation above tide is 583′.

Sand	25′		25′	
Clay	35′		60′	
Sand	4′		64′	
Gray shale	15′		79′	
Salzburg coal		4″	79′	4″ at 504 A. T.
Gray shale	14′	8″	94′	
Fire clay	4′		98′	
Gray shale	1′		99′	
Slate		8″	99′	8″
Coal, Upper Rider		2″	99′	10″ at 483 A. T.
Gray shale	15′	2″	115′	
Sandrock	17′		132′	
Gray shale	2′		134′	
Sandrock	2′		136′	
Gray shale	4′		140′	
Sandrock	3′		143′	
Gray shale	7′		150′	

TEST HOLE NO. 323.

In the S. W. ¼ of the S. E. ¼ of Section 24, T. 15 N., R. 4 E. The elevation above tide is 585′. A. J. Wampler, driller, October 18, 1899.

Sand	16′		16′	
Clay	52′		68′	
Gray shale	21′		89′	
Salzburg coal		2″	89′	2″ at 496 A. T.
Gray shale	1′	10″	91′	

Coal	Riders of Upper Verne	2″	91′	2″ at 491 A. T.
Gray shale		10″	92′	
Coal		2″	92′	2″ at 490 A. T.
Gray shale		4″	92′	6″
Coal		2″	92′	8″ at 489 A. T.
Gray shale	3′		95′	8″
Slate		3″	95′	11″
Gray shale		11″	96′	10″
Slate		2″	97′	
Fire clay	1′		98′	
Gray shale	10′		108′	
Slate		4″	108′	4″
Fire clay	2′	8″	111′	
Gray shale	5′		116′	
Sandrock	4′		120′	

TEST HOLE NO. 324.

In the S. W. part of the S. W. ¼ of the S. W. ¼ of Section 19, T. 15 N., R. 5 E., elevation above tide is 583′. A. J. Wampler, driller, October 23, 1899.

Sand	18′		18′	
Clay	40′		58′	
Gray shale	22′		80′	
Slate	2′		82′	
Gray shale	2′	6″	84′	6″
Slate		6″	85′	
Salzburg coal		10″	85′	10″ at 497 A. T.
Gray shale	27′	2″	113′	
Sandrock	13′		126′	
Blue shale	2′		128′	
Sandrock	3′		131′	
Gray shale	5′		136′	
Sandrock	8′		144′	
Gray shale	2′		146′	
Sandrock	3′		149′	
Blue shale	1′		150′	

TEST HOLE NO. 325.

Near the center of the N. W. ¼ of Section 13, T. 15 N., R. 4 E., elevation above tide is 582′. A. J. Wampler, driller, November 1, 1899.

Sand	16′		16′	
Clay	58′		74′	
Gray shale	15′		89′	
Fire clay	7′		96′	
Sandrock	2′		98′	
Fire clay	3′		101′	
Sandrock	9′		110′	
Gray shale	12′		122′	
Sandrock	4′		126′	
Gray shale	8′		134′	
Sandrock	7′		141′	
Gray shale	9′		150′	

TEST HOLE NO. 326.

In the N. E. ¼ of the N. W. ¼ of Section 13, T. 15 N., R. 4 E., elevation above tide is 583′. A. J. Wampler, driller, November 25, 1899.

Sand	7′		7′	
Clay	58′		65′	
Gray shale	14′		79′	
Slate	1′	6″	80′	6″

Gray shale	16′		96′	6″	
Fire clay	6′		102′	6″	
Gray shale	5′	6″	108′		
Sandrock	8′		116′		
Fire clay		6″	116′	6″	
Sandrock	23′	6″	140′		

TEST HOLE NO. 327.

In the S. E. part of the S. W. ¼ of the N. E. ¼ of Section 13, T. 15 N., R. 4 E., elevation above tide is 583′. A. J. Wampler, driller, December 14, 1899.

Sand	10′		10′		
Clay	57′		67′		
Gray shale	3′		70′		
Sandrock	2′		72′		
Gray shale	9′	6″	81′	6″	
Slate		6″	82′		
Salzburg coal	1′	1″	83′	1″	at 500 A. T.
Gray shale	10′	11″	94′		
Slate		6″	94′	6″	
Gray shale	35′	6″	130′		
Sandrock	5′		135′		
Gray shale	5′		140′		
Sandrock	20′		160′		

TEST HOLE NO. 328.

In the S. E. part of the N. E. ¼ of the S. E. ¼ of Section 13, T. 15 N., R. 4 E., elevation above tide is 585′. A. J. Wampler, driller.

Sand	12′		12′		
Clay	56′		68′		
Gray shale	6′		74′		
Slate		3″	74′	3″	
Gray shale	1′	9″	76′		
Fire clay	1′		77′		
Gray shale	5′		82′		
Fire clay	1′	6″	83′	6″	
Gray shale	38′	6″	122′		
Slate	1′	1″	123′	1″	
Gray shale	16′	11″	140′		
Sandrock	123′		263′		
Gray shale	34′		297′		
Sandrock	3′		300′		
Gray rock	3′		303′		
Gray shale	25′		328′		
Blue shale	3′		331′		
Gray rock		6″	331′	6″	
Slate		2″	331′	8″	
Bangor coal Rider	1′		332′	8″	at 252 A. T.
Slate		4″	333′		
Sandrock	3′		336′		
Gray shale	16′		352′		
Sandrock	2′		354′		

TEST HOLE NO. 329.

In the S. W. part of the S. W. ¼ of the S. E. ¼ of Section 13, T. 15 N., R. 4 E., elevation above tide is 583′. A. J. Wampler, driller, March, 1900.

Sand	8′	8′	
Clay	59′	67′	
Gray shale	25′	92′	
Sandrock	148′	240′	
Gray shale	31′	271′	
Sandrock	7′	278′	

TEST HOLE NO. 330.

In the W. ½ of the S. W. ¼ of Section 17, T. 14 N., R. 5 E. In Bangor township; Jennison, owner. Theodore Archambeau, driller, elevation above tide is 598′.

Clay	85′		85′		
Gravel	3′		88′		
Black slate	2′		90′		
White sandrock	3′		93′		
Black sandrock	4′		97′		
Gray sandrock	3′		100′		
Black slate		10″	100′	10″	
Coal, Upper Rider		4″	111′	2″	at 487 A. T.
Sandy shale	21′	10″	133′		
Black slate	3′		136′		
White sandrock	11′	5″	147′	5″	
Coal, Lower Verne	1′	11″	149′	4″	at 449 A. T.
Gray shale	15′	8″	165′		
Black slate	5′		170′		
White sandrock	6′		176′		

TEST HOLE NO. 331.

In the N. W. ¼ of the N. E. ¼ of Section 18, T. 14 N., R. 5 E., elevation above tide is 594.′ Theodore Archambeau, driller.

Clay	83′	83′
Sand	2′	85′
Sandrock	1′	86′
Gray slate	2′	88′
Black slate	1′	89′

Miscellaneous Records.

Test Hole Nos. 332-361.

TEST HOLE NO. 332.

Bay Coal Mining Company. No. 2 shaft in the S. E. ¼, Section 4, T. 13 N., R. 4 E., elevation 605′ A. T.

Clay most of the way to the bed rock at	111′	111′	
Eleven feet of black shale above coal at	139′	139′	
Coal 3 feet thick, Upper Verne	3′	142′	at 463 A. T.
Gray sandstone below the coal	....	....	

TEST HOLE NO. 333.

Central Mine shaft record. Elevation, A. T. 594′. The S. E. ¼ of the S. E. ¼ of Section 25, T. 14 N., R. 4 E.

Clay	75′		75′		
Sand, gravel and boulders	5′	5″	80′	5″	
Soft shale	7′	8″	88′	1″	
Salzburg coal	2′	8″	90′	9″	at 503 A. T.
Slate	5′		95′	9″	
Sandstone	11′	9″	107′	2″	
Soft black slate	5′		112′	2″	
Hard slate	2′	10″	115′		
Coal, Upper Verne	2′	8″	117′	8″	at 476 A. T.
Fire clay	3′	5″	121′	1″	
Soft blue slate	10′		131′	1″	

TEST HOLE NO. 334.

Hecla shaft record. Summer of 1902. The N. W. ¼ of the S. E. ¼ of Section 2, T. 13 N., R. 4 E., elevation above tide is 598′.

Sandy loam	2′		2′	
Clay subsoil	8′		10′	
Brown clay	20′		30′	
Blue clay	14′		44′	
Brown sandy clay and boulders	20′		64′	
Blue clay and boulders	13′		77′	
Blue clay and boulders	6′		83′	
Quicksand with fragments of trees	2′		85′	
Rotten slate	9′		94′	
Light sandrock	4′		98′	
Coal and slate, Upper Verne Rider	2′	4″	100′	4″ at 498 A. T.
Fire clay	1′	8″	102′	
Slate	3′		105′	
Coal, Upper Verne	2′	4″	107′	4″ at 491 A. T.
Light colored sandstone	12′	8″	120′	
Slate	6′		126′	
Dark black shale	5′		131′	

TEST HOLE NO. 335.

Wenona Beach Coal Company. The N. W. ¼ of Section 4, T. 14 N., R. 5 E. Elevation above tide, 583′.

Clay		74′		74′	
Sandrock		9′		83′	
Shale		37′		120′	
Coal	Upper Verne	3′	6″		
Slate	Upper Verne		10″		
Coal	Upper Verne	3′			
Fire clay		8′	9″	127′	5″ at 456 A. T.
White sandstone		....		135′	5″

TEST HOLE NO. 336.

Valley Coal Co. shaft, 583′ above tide. In the S. E. ¼ of the N. E. ¼ of Section 1, T. 13 N., R. 4 E.

Clay	83′		83′	
Coal, Upper Rider		4″	83′	4″ at 500 A. T.
Light fire clay	3′		86′	4″
Dark fire clay	4′		90′	4″
Fire clay, shale	23′		113′	4″
Coal, Upper Verne	4′		117′	4″ at 466 A. T.
Fire clay	3′		120′	4″

TEST HOLE NO. 337.

In the N. W. ¼ of the N. E. ¼ of Section 25, T. 14 N., R. 4 E., elevation above tide is 597′.

Clay	84′		84′	
Blue shale	2′		86′	
Black rock	10′		96′	
Gray rock	14′		110′	
Black rock	11′		121′	
Gray rock	8′		129′	
Coal, Upper Verne		8″	129′	8″ at 467 A. T.
Gray shale	7′	8″	137′	4″
Slate		8″	138′	
Gray shale	23′		160′	
Dark shale	17′		177′	
Black slate	6′		183′	
Fire clay		6″	183′	6″
Sandrock	2′		185′	6″

TEST HOLE NO. 338.

N. part of the S. E. ¼ of the N. E. ¼ of Section 25, T. 14 N., R. 4 E., elevation above tide is 597′. Theodore Archambeau, driller.

Gravelly clay	50′		50′	
Gray clay	30′		80′	
Gravelly clay	9′		89′	
Gray shale	3′		92′	
Gray slate	4′		96′	
Sandy shale	2′		98′	
Black slate	3′		101′	
Dark sandrock	4′		105′	
White sandrock	6′		111′	
Gray sandrock	7′		118′	
Gray slate	12′		130′	
Bone coal, Upper Verne		5″	130′	5″ at 467 A. T.
Dark gray rock	16′		146′	5″

TEST HOLE NO. 339.

In the N. ½ of the N. E. ¼ of Section 15, T. 14 N., R. 4 E., in river bed. Theodore Archambeau, driller.

Muck	8′	8′	
Sand	6′	14′	
Clay and gravel	32′	46′	
Sand	10′	56′	
Gravel	18′	74′	
With water flowing above surface—strong 5′+ ground— hard—sulphur and iron. Sand.			

TEST HOLE NO. 340.

In the center of Section 4, T. 13 N., R. 4 E., elevation above tide is 609′. W. L. Ralston, driller.

Clay	90′		90′	
Sand	18′		108′	
Blue shale	6′	9″	114′	9″
Coal		7″	115′	4″ at 494 A. T.
Gray shale	11′	8″	127′	
Coal, Upper Rider		10″	127′	10″ at 481 A. T.
Coal and slate		7″	128′	5″
Gray shale	9′	7″	138′	
Coal, Upper Verne	1′	10″	139′	10″ at 469 A. T.
Gray shale	14′	2″	154′	
Slate	2′		156′	
Coal, Lower Verne	2′	7″	158′	7″ at 450 A. T.
Gray shale	7′	3″	165′	10″
Coal, Middle Rider		2″	166′	at 443 A. T.
Gray shale	5′		171′	
Coal, Saginaw coal?		3″	171′	3″ at 438 A. T.
White shale	7′	9″	179′	
Sandrock (white)	12′		191′	
Gray shale	22′		213′	
White sandrock	8′		221′	
Gray shale	19′		240′	
White sandrock	16′		256′	
Slate	1′		257′	
Sandrock	12′		269′	
Blue shale	11′		280′	
Sandrock	3′		283′	
Gray shale	10′	4″	293′	4″
Chip slate		8″	294′	

White sandrock	13′		307′	
Blue shale	37′		344′	
Gray shale	4′		348′	
Black shale	5′		353′	
Chip slate	1′		354′	
White shale	2′		356′	
Gray rock	10′		366′	
Black shale	22′		388′	
White sandrock	21′		409′	
Gray shale	20′		429′	
Conglomerate rock	4′		433′	
Gray shale	11′		444′	
Conglomerate rock	6′		450′	

TEST HOLE NO. 341.

N. W. corner of Section 14, T. 14 N., R. 4 E. Fred Pierson, owner; W. L. Ralston, driller, elevation above tide is 601′.

Clay	60′		60′		
Sand	44′		104′		
Blue shale	11′		115′		
Gray shale	15′		130′		
Gray slate	1′	9″	131′	9″	
Gray rock	24′	3″	156′		
White sandrock	5′		161′		
Black slate	2′		163′		
Fire clay	2′		165′		
Gray rock	7′		172′		
White sandrock	25′		197′		
Gray rock	15′	5″	212′	5″	
Chip slate		7″	213′		
Gray shale	9′		222′		
Coal, Lower Rider		3″	222′	3″	at 379 A. T.
White sandrock	2′	9″	225′		

TEST HOLE NO. 342.

In the N. ½ of the S. E. ¼ of Section 11, T. 14 N., R. 4 E. Sarah Phillips, owner; W. L. Ralston, driller, elevation above tide is 597′.

Clay	90′		90′		
Sand	19′		109′		
Blue shale	5′		114′		
Gray shale	6′		120′		
Coal, Upper Rider		3″	120′	3″	at 477 A. T.
Fire clay	2′	9″	123′		
Gray sandrock	7′		130′		
Gray slate	12′	4″	142′	4″	
Gray rock	6′	8″	149′		
White sandrock	17′		166′		
Gray slate	7′		173′		
Black slate		5″	173′	5″	
Coal, Saginaw coal	1′	7″	175′		at 422 A. T.
Fire clay	2′		177′		
White sandrock	3′		180′		
Blue shale	40′		220′		
White sandrock	3′	5″	223′	5″	
Chip slate		7″	224′		
Gray shale	16′		240′		
Black shale	9′		249′		
Gray rock	8′		257′		
Fire clay	3′		260′		
White sandrock	2′		262′		

TEST HOLE NO. 343.

In the S. ½ of the S. W. ¼ of Section 11, T. 14 N., R. 4 E. Theodore Archambeau, owner; W. L. Ralston, driller, elevation above tide is 600′.

Clay	90′		90′		
Sand	30′		120′		
Soapstone	4′		124′		
Gray shale	9′		133′		
Coal, Upper Verne		10″	133′	10″	at 466 A. T.
Gray shale	15′		148′	10″	
Gray slate	1′	2″	150′		
Light gray rock	5′		155′		
White sandrock	6′		161′		
Gray shale	10′		171′		
Slate and coal, Saginaw coal	1′		172′		at 428 A. T.
Gray slate	7′		179′		
White sandrock	7′		186′		

TEST HOLE NO. 344.

Section 12, T. 14 N., R. 5 E. (S. ½ of N. W. ¼). Mr. Penniman. Commenced December 1, 1897, elevation above tide is 582′.

To the rock 80 feet	80′		80′	
Lime	20′		100′	
Coal, Upper Verne	4′		104′	at 478 A. T.
Sandrock	15′		119′	
Shale	31′		150′	
Coal, Lower Verne	3′		153′	at 429 A. T.
Sandrock	6′		159′	
Lime rock	5′		164′	
Shale	3′		167′	
Coal, Middle Rider	2′		169′	at 413 A. T.
Lime rock	12′		181′	
Plaster [1]	15′		196′	
Salt rock	10′		206′	
Lime	2′		208′	

TEST HOLE NO. 345.

In the S. ½ of the N. W. ¼ of Section 12, T. 14 N., R. 5 E. Mr. Penniman, owner. Commenced, December 28, 1897, elevation above tide is 582′.

To rock	80′	80′	
Lime	40′	120′	

Lost our drill and abandoned hole.

TEST HOLE NO. 346.

In the S. ½ of the N. W. ¼ of Section 12, T. 14 N., R. 5 E. Commenced January 10, 1898, elevation above tide is 582′.

To rock	82′		82′		
Lime	20′		102′		
Coal, Upper Verne	1′		103′		at 479 A. T.
Sandrock	10′		113′		
Plaster [2]	1′		114′		
Lime rock	6′		120′		
Shale	10′		130′		
Lime rock	10′		140′		
Coal, Middle Rider	2′		142′		at 440 A. T.
Sandrock	6′		148′		
Lime	10′		158′		
Shale	2′		160′		
Lime rock	12′		172′		
Plaster [2]	4′	6″	176′	6″	

[1] Probably not rock salt or gypsum.

TEST HOLE NO. 347.

In the S. ½ of the N. W. ¼ of Section 12, T. 14 N., R. 5 E. Mr. Penniman, owner. Commenced February 17, 1898, elevation above tide is 582′.

To the rock	80′		80′	
Lime	64′		144′	
Shale	4′	6″	148′	6″
Coal, Middle Rider		6″	149′	at 433 A. T.
Shale	7′		156′	
Plaster[2]	3′		159′	
Sandrock	2′		161′	
Lime	3′		164′	

TEST HOLE NO. 348.

In the S. ½ of the N. W. ¼ of Section 12, T. 14 N., R. 5 E. Mr. Penniman, owner. Commenced March 7, 1898, elevation above tide is 582′.

To the rock	82′	82′	
Lime	15′	97′	
Coal, Upper Verne	1′	98′	at 484 A. T.
Sandrock	10′	108′	
Shale	6′	114′	
Lime rock	5′	119′	
Sandrock	5′	124′	
Shale	20′	144′	
Coal, Middle Rider	2′	146′	at 436 A. T.
Sandrock	3′	149′	
Lime rock	3′	152′	
Shale	22′	174′	
Lime rock	3′	177′	
Shale	14′	191′	
Lime rock	7′	198′	
Coal, Saginaw coal	2′	200′	at 382 A. T'
Lime rock	4′	204′	

TEST HOLE NO. 349.

In the S. ½ of the N. W. ¼ of Section 12, T. 14 N., R. 5 E. Mr. Penniman, owner. Commenced November 14, 1898, elevation above tide is 582′.

To rock	82′	82′	
Lime	30′	112′	
Shale	12′	124′	
Lime rock	21′	145′	
Shale	20′	165′	
Coal, Middle Rider	1′	166′	at 416 A. T.
Shale	5′	171′	
Lime rock	21′	192′	
Shale	14′	206′	
Coal, Saginaw coal	3′ 2″	209′ 2″	at 373 A. T.
Fire clay	3′ 10″	213′	

TEST HOLE NO. 350.

In the S. ½ of the N. W. ¼ of Section 12, T. 14 N., R. 5 E. Mr. Penniman, owner. Commenced December 21, 1898, elevation above tide is 582′.

To the rock	80′	80′	
Lime	50′ 10″	130′ 10″	
Shale	8″	131′ 6″	
Coal, Lower Verne	3′ 5″	134′ 11″	at 447 A. T.
Lime rock	2′	136′ 11″	
Fire clay	3′	139′ 11″	
Lime rock	8′ 6″	148′ 5″	

[2] Probably not rock salt or gypsum.

Shale	12′	160′ 5″	
Coal, Middle Rider	2′	162′ 5″	at 420 A. T.
Shale	20′	182′ 5″	
Flint rock	1′	183′ 5″	
Lime	3′	186′ 5″	
Shale and coal mixed, Saginaw coal	8′	194′ 5″	at 388 A. T.

TEST HOLE NO. 351.

In the S. ½ of the N. W. ¼ of Section 12, T. 14 N., R. 5 E. Mr. Penniman, owner. Commenced January 4, 1899, elevation above tide is 582′.

To the rock	75′	75′	
Sandstone	51′	126′	
Coal, Lower Verne	2′	128′	at 454 A. T.
Lime	7′	135′	
Shale	31′	166′	
Lime rock	19′	185′	
Shale	15′	200′	

TEST HOLE NO. 352.

In the S. ½ of the N. E. ¼ of Section 6, T. 13 N., R. 6 E., elevation above tide is 598′.

Clay	90′		90′	
Hardpan	4′		94′	
Sandy gravel	3′		97′	
Black slate	8′		105′	
Fire clay	4′	6″	109′	6″
Black slate	5′		114′	6″
Fire clay	5′	6″	120′	
Gray slate	2′		122′	
Sandrock	3′		125′	
Fire clay	2′	6″	127′	6″
Gray slate	7′	6″	135′	
Black slate		6″	135′	6″
Coal, Upper Verne	1′	5″	136′	11″ at 461 A. T.
Fire clay	5′		141′	11″
Gray slate	11′		152′	11″
Black slate	1′		153′	11″
Fire clay	4′		157′	11″
Gray slate	5′		162′	11″
Coal, Lower Verne		5″	163′	4″ at 435 A. T.
Gray slate	1′	6″	164′	10″
Gray shale	3′		167′	10″
Gray slate	7′		173′	10″
Black slate	1′		174′	10′
Coal, Middle Rider		2″	175′	at 423 A. T.
Fire clay	1′		176′	
Coal		7″	176′	7″ at 421 A. T.
Fire clay	1′		177′	7″
Sand rock	1′	6″	179′	1″
Gray slate	3′		182′	1″
Black slate		6″	182′	7″
Sandrock	15′		197′	7″
Gray slate	2′		199′	7″
Black slate	3′		202′	7″
Coal, Saginaw coal	1′	1″	203′	8″ at 395 A. T.
Gray slate	28′		231′	8″
Sandrock	4′		235′	8″

TEST HOLE NO. 353.

In the N. W. ¼ of the N. E. ¼ of Section 6, T. 13 N., R. 6 E., elevation above tide, 596′.

Clay	92′		92′	
Fire clay	2′		94′	
Sandrock	7′		101′	
Gray shale	6′	6″	107′	6″
Gray slate	3′		110′	6″
Black slate	9′	6″	120′	
Fire clay	4′		124′	
Gray slate	5′		129′	
Black slate	6′		135′	
Coal, Upper Verne	1′	1″	136′	1″ at 460 A. T.
Black slate		6″	136′	7″
Fire clay	4′		140′	7″
Gray slate	1′		141′	7″
Sandrock	3′	6″	145′	1″
Gray slate	24′		169′	1″
Black slate	1′		170′	1″
Coal, Middle Rider	2′		172′	1″ at 424 A. T.
Fire clay	7′		179′	1″
Sandrock	3′		182′	1″
Gray slate	3′		185′	1″
Fire clay	2′	6″	187′	7″
Gray slate	1′	6″	189′	1″
Coal, Saginaw coal		7″	189′	8″ at 406 A. T.
Sandrock	6′	5″	196′	1″

TEST HOLE NO. 354.

In the S. W. corner of Section 4, T. 16 N., R. 3 E. F. J. Tromble, operator, elevation above tide is 665′.

Clay	104′		104′	
Sand	6′		110′	
Plastic clay	17′		127′	
Gray shale	13′		140′	
Slate	1′		141′	
Coal	2′	8″	143′	8″ at 522 A. T.
Slate } Upper Verne?		2″	143′	10″
Coal		10″	144′	8″ at 521 A. T.
Gray shale	5′		149′	8″
Slate	1′		150′	8″
Coal, Lower Verne?	2′	2″	152′	10″ at 512 A. T.
Slate		4″	153′	2″
Gray shale to	31′	10″	185′	

TEST HOLE NO. 355.

In the S. E. ¼ of Section 10, T. 17 N., R. 3 E. Land of J. Mansfield. Average elevation is 660′ above tide[1].

Clay	80′		80′	
Sand	4′		84′	
Hardpan	8′		92′	
Black shale	2′		94′	
Blue shale	20′		114′	
Gray shale	18′		132′	
Black shale	2′		134′	
Coal, Verne coal?		6″	134½′	at 526 A. T.
Blue shale	15′	6″	150′	
Gray shale	10′		160′	
Sandrock	5′		165′	
Coal, Middle Rider?		5″	165′	5″ at 495 A. T.

[1] See Mich. Geol. Sur. Vol. VIII, pt. 2, pp. 98, 99.

Black shale	9′	6″	174′	11″
Coal, Saginaw coal?		6″	175′	5″ at 485 A. T.
Blue shale	10′		185′	5″

TEST HOLE NO. 356.

In the S. E. ¼ of Section 10, T. 17 N., R. 3 E. Land of J. Mansfield. Average elevation above tide is 660′.

Clay	82′		82′	
Hardpan	9′		91′	
Black shale	1′	6″	92′	6″
Blue shale	15′		107′	6″
Hardpan	15′	6″	123′	
Sandrock	8′		131′	
Hardpan	10′		141′	
Sandrock	40′	6″	181′	6″
Coal	11′	5″	182′	6″ at 477 A. T.
Blue shale	2′		184′	6″
Sandrock		6″	185′	
Coal, Saginaw coal		2″	185′	2″ at 475 A. T.
Blue shale	3′		188′	2″
Sandrock	6′		194′	2″
Blue shale	1′		195′	2″
Sandrock	....		....	

TEST HOLE NO. 357.

In the S. E. ¼ of Section 10, T. 17 N., R. 3 E. Land of J. Mansfield. Average elevation above tide is 660′.

Clay	36′		36′	
Gravel	1′		37′	
Red gravel	1′		38′	
Clay	52′		90′	
Black shale	2′		92′	
Hardpan	4′		96′	
Black shale	3′		99′	
Slate rock	4′		103′	
White shale	3′		106′	
Blue shale	21′		127′	
Black shale	2′	9″	129′	9″
Coal, Verne coal?		8″	130′	5″ at 530 A. T.
Blue shale	25′	7″	156′	
Sandrock	24′		180′	
Coal, Saginaw coal		3″	180′	3″ at 480 A. T.
Sandrock	5′		185′	3″

TEST HOLE NO. 358.

Five and one-half miles due west of Lengsville, Section 26, T. 16 N., R. 3 E, elevation above tide is 630′.

Muck at surface.	
Clay to	80′
Stones and gravel	
Hardpan to	135′
Mainly sandstone to	300′

TEST HOLE NO. 359.

Record of hole for N. B. Bradley with Bullock Diamond Core Drill (3-inch) near Bay City, Mich. (See T. 14 N., R. 6 E., near head waters of Quanicassee,) elevation above tide is 583′.

Date, 1889.	Hours worked.	Formations.	Amount drilled.		Core saved.	
6/7 to 6/13		Driving casing	80′	(Boulder core) 4′	6″	
6/15	10	Drilling and churning	5′	85′ 1′		
6/17	10	Drilling and churning	3′	88′ 2′		
6/18	10	Drilling with bit	17′	105′ 10′		
6/19	10	Drilling with bit	15′	120′ 11′		
6/20	10	Drilling—pipe	10′	130′ 8′		
6/21	10	Dark shale	10′	140′ 8′		
		Light shale	3′	143′ 2′		
6/22	10	Sandstone	12′	155′ 10′		
		Dark shale	3′	158′ 2′		
		Sandstone	3′	161′ 2′		
6/24	10	Sand and shale	12′	173′ 10′		
6/25	10	Sandstone	6′	179′ 4′		
		Black shale	4′	183′ 3′		
		Gray slate rock	8′	191′ 7′		
6/26	10	Gray slate rock	4′	195′ 3′		
		Black shale	4′	199′ 3′		
		Black shale and sand	9′	208′ 8′		
		Drove 7 ft. 4″ pipe.				
6/27	10	Black shale and sandstone	7′	215′ 6′	6″	
		Sandstone	2′	217′ 2′		
6/28	10	Sandstone mixed	13′	230′ 12′	6″	
6/29	10	Black shale and fire clay	7′	237′ 6′		
7/1	10	Black shale	3′	240′		
		Fire clay	3′	243′ 13′		
		Sand and shale	5′	248′		
		Dark shale	2′	250′		
7/2	10	Dark shale	6′	256′		
		Coal, Lower Rider	1′	257′		at 326 A. T.
		Sand, white mixed	4′	261′		
		Fire clay	5′	266′ 16′		
7/3	10	Dark shale	18′	284′ 18′		
7/4	10	Dark shale	8′	292′		
		Coal, Lower coal	1′	293′		at 290 A. T.
		Dark shale	2′	295′		
		Sandstone	8′ 9″	303′ 9″ 19′		
7/5	10	Fire clay and shale	4′	307′ 9″		
		Coal	6″	308′ 3″		4″at 275 A. T.
		Sand and shale	6′	314′ 3″ 11′		
7/6	10	Black shale	5′ 6″	319′ 9″		
		Black shale and clay	4′	323′ 9″		
7/8	10	Black jack	3′	326′ 9″		
		Bangor coal Rider	6″	327′ 3″		at 256 A. T.
		Soft white clay	5′ 6″	332′ 9″ 8′		
7/9	10	Black shale	10′	342′ 9″		
7/10	10	Sand and shale mixed	3′	345′ 9″ 12′		
7/10	10	Dark shale	11′	353′ 9″ 10′		
		Black jack	3′	356′ 9″		
		Bangor coal	1′	360′ 9″		at 222 A. T.
		White sandstone	3′	363′ 9″		
7/13	10	Blue shale and sand. Top of Parma?	3′	366′ 9″ 2′		
		Iron pyrites	1′	367′ 9″		
		Blue sand with grit	6′	373′ 9″ 9′		
7/15	10	Sand	13′	386′ 9″ 10′		
7/16	10	Sandstone pins	20′	406′ 9″ 12′		

7/17	10	Same	20′	426′ 9″	12′
7/18	10	Hard quartz	23′	449′ 9″	16′
7/19 7/20	10	Setting bit and replacing rods.			
7/22	10	Sandstone	10′	459′ 9″	7′
7/23 7/24	10	Sandstone	4′	463′ 9″	3′
7/26		Repairing pump			
7/27	10	Sandstone	10′	473′ 9″	9′
7/29	10	Limestone quartz	10′	483′ 9″	9′
7, 30	10	Same	12′	495′ 9″	11′

TEST HOLE NO. 360.

One hundred feet west of the N. and S. ¼ line of Section 34, and 5′ north of the Pinconning & Glencoe R. R., T. 17 N., R. 3 E., elevation above tide is 650′.

Sand	6′	6′	
Clay and gravel	102′	108′	
Hard sandy fire clay	13′	121′	
Argillaceous sandrock	1′	122′	
Light blue shale	13′ 6″	135′ 6″	
Coal, Verne coal	1′ 1″	136′ 7″	at 513 A. T.
Sandy fire clay	8′ 11″	145′ 6″	

TEST HOLE NO. 361.

Near the N. and S. ¼ line of Section 33, T. 17 N., R. 3 E., elevation above tide is 660′.

Soil	8″	8″	
Sand	7′ 4″	8′ 0″	
Gray clay	42′	50′	
Clay with blue streaks	11′	61′	
Clay fine grained, gray when dry	26′	87′	
Clay, fine grained, pinkish when wet	1′	88′	
Clay, light blue	6′	94′	
Clay, brown, hard	6′	100′	
Clay, sandy bluish	7′	107′	
Sandrock, ⅓ argillaceous	6′	113′	
Shale	2′ 6″	115′ 6″	
Breccia, hard, sand, clay and gray shale cemented	4′ 11″	120′ 5″	
Shale with layer of coal about 2″ thick and about 7″ from bottom, Verne Coal	27′	147′ 5″	at 513 A. T.

TEST HOLE NO. 362.

Elevation above tide is 608′. N. E. ¼, Sec. 12, T. 14 N., R. 3 E.; 550 feet from N. line, 480 feet from W. line. Commenced February 10, 1902; completed February 19, 1902. Amos J. Wampler, driller.

Clay	70′	70′	
Gray shale	38′	108′	
Slate	6″	108′ 6″	
Salzburg coal	6″	109′	at 499 A. T.
White shale	7′	116′	
Gray shale	10′	126′	
Coal, Rider	1′	127′	at 481 A. T.
Slate	1′	128′	
White shale	3′	131′	
Gray shale	1′	132′	
Coal, Rider	3″	132′ 3″	at 476 A. T.
White shale	1′	133′ 3″	

Gray shale	6′	6″	139′	9″	
Slate		3″	140′		
Coal, Upper Rider		3″	140′	3″	at 468 A. T.
Fire clay	8′	9″	149′		
Gray shale	5′		154′		
Slate		3″	154′	3″	
Gray shale	8′	3″	162′	6″	
Slate		6″	163′		
Coal, Lower Verne	2′		165′		at 443 A. T.
Gray shale	16′	6″	181′	6″	
Black shale		6″	182′		
Coal, Middle Rider	1′		183′		at 425 A. T.
Gray shale	6′		189′		
Coal, Saginaw coal	5′		194′		at 414 A. T.
Gray shale	34′		228′		

TEST HOLE NO. 363.

Elevation above tide is 610 feet. N. E. ¼, Sec. 12, T. 14 N., R. 3 E.; 200 feet from E. line, 1,050 feet from N. line. Commenced June 10, 1902; completed June 17, 1902. Amos J. Wampler, driller.

Clay	70′		70′		
Sand	11′		81′		
Gray shale	22′		103′		
Salzburg coal	1′		104′		at 506 A. T.
Gray shale	15′		119′		
Coal, Rider		6″	119′	6″	at 491 A. T.
Gray shale	18′	6″	138′		
Slate	1′		139′		
Coal, Upper Rider	1′		140′		at 470 A. T.
Gray shale	26′		166′		
Black shale	2′		168′		
Gray shale	4′		172′		
Slate	1′		173′		
Coal, Lower Verne		6″	173′	6″	at 437 A. T.
Gray shale	14′	6″	188′		
Coal, Middle Rider	1′		189′		at 421 A. T.
Gray shale	19′		208′		
Coal, Saginaw coal	1′	8″	209′	8″	at 401 A. T.
Gray shale	4′	4″	214′		
Black shale	10′		224′		
Gray shale	5′		229′		

TEST HOLE NO. 364.

Elevation above tide is 600 feet. N. E. ¼, Sec. 12, T. 14 N., R. 3 E.; 700 feet from E. line, 2,000 feet from N. line. Commenced June 28, 1902. Amos J. Wampler, driller.

Clay	88′		88′		
Sand	4′		92′		
Gray shale	18′		110′		
Coal, Upper Rider	1′		111′		at 489 A. T.
Slate	1′		112′		
Gray shale	44′		156′		
Coal	3′	6″	159′	6″	at 441 A. T.
Gray shale		6″	160′		
Sandrock	4′		164′		
Coal, Rider	1′	6″	165′	6″	at 435 A. T.
Gray shale	1′	6″	167′		
Slate		6″	167′	6″	
Coal, Upper and Lower Verne	7′		174′	6″	at 426 A. T.
Gray shale	9′	6″	184′		
Black shale	4′		188′		

Gray shale	7′		195′		
Coal, Middle Rider	1′	6″	196′	6″	404 at A. T.
Gray shale	5′	6″	202′		

TEST HOLE NO. 365.

Elevation above tide is 600 feet. N. E. ¼, Sec. 12, T. 14 N., R. 3 E.; 2,050 feet from N. line, 1,025 feet from E. line. Commenced July 14, 1902; completed July 30, 1902. Amos J. Wampler, driller.

Clay	60′		60′		
Sand	32′		92′		
Salzburg coal	2′		94′		at 506 A. T.
White shale	1′		95′		
Gray shale	21′		116′		
Coal, Upper Rider	2′		118′		at 482 A. T.
Slate	1′	6″	119′	6″	
Gray shale	26′	6″	146′		
Slate		6″	146′	6″	
Coal	4′	2″	150′	8″	at 450 A. T.
Slate		4″	151′		
Gray shale	4′		155′		
Slate		6″	155′	6″	
Coal, Rider	1′		156′	6″	at 444 A. T.
Gray shale		6″	157′		
Slate	1′		158′		
Coal, Upper Verne	1′	11″	159′	11″	at 440 A. T.
Shale		2″	160′	1″	
Coal, Lower Verne	4′	9″	164′	10″	at 436 A. T.
Gray shale	24′	2″	189′		
Coal, Middle Rider	1′		190′		at 410 A. T.
White shale	5′		195′		
Black shale	6′		201′		
Gray shale	12′		213′		

TEST HOLE NO. 366.

Elevation above tide is 610 feet. N. ½, S. ½, N. E. ¼ Sec. 13, T. 14 N., R. 3 E.; 627 feet from N. line, 725 feet from west line. Commenced July 15, 1901, completed July 24, 1901. Amos J. Wampler, driller.

Clay	55′		55′		
Sand	36′		91′		
Clay	4′		95′		
Gray shale	1′		96′		
Salzburg coal		6″	96′	6″	at 514 A. T.
Gray shale	5′		101′	6″	
Coal, Rider		6″	102′		at 508 A. T.
White shale	4′		106′		
Gray shale	3′	6″	109′	6″	
Coal, Rider		6″	110′		at 500 A. T.
White shale	4′		114′		
Gray shale	2′		116′		
White shale	13′		129′		
Gray shale	5′		134′		
Black shale	4′		138′		
Coal, Upper Rider	3′	6″	141′	6″	at 469 A. T.
Slate		6″	142′		
White shale	1′	6″	143′	6″	
Coal	4′	8″	148′	2″	at 462 A. T.
Slate		4″	148′	6″	
White shale	1′	6″	150′		
Black shale	10′		160′		
White shale	4′		164′		
Black shale	2′		166′		

TEST HOLE NO. 367.

Elevation above tide is 612. N. ½, N. ½, S. E. ¼ Sec. 13, T. 14 N., R. 3 E.; 20 feet from N. line, 1,225 feet from E. line. Commenced June 28, 1901; completed July 12, 1901. Amos J. Wampler, driller.

Clay	70′	70′	
Sand	82′	152′	

TEST HOLE NO. 368.

Elevation above tide is 612 feet. N. ½ of the N. E. ¼, Sec. 13, T. 14 N., R. 3 E.; 437 feet from S. line, 967 feet from W. line. Commenced April 10, 1901, completed May 6, 1901. Amos J. Wampler, driller.

Clay	85′		85′	
Sand	21′		106′	
Gray shale	3′		109′	
Sandrock	3′		112′	
Slate	1′		113′	
White shale	2′		115′	
Sandrock	8′		123′	
Gray shale	20′		143′	
Black shale	16′		159′	
Coal	1′		160′	at 452 A. T.
Gray shale	2′		162′	
White shale	5′		167′	
Gray shale	5′		172′	
Coal, Rider	1′	5″	173′	5″ at 439 A. T.
Gray shale	1′	7″	175′	
White shale	1′		176′	
Gray shale		9″	176′	9″
Slate		3″	177′	
Coal, Rider	1′	7″	178′	7″ at 433 A. T.
Slate		3″	178′	10″
Gray shale	7′	2″	186′	
Coal, Lower Verne	1′	7″	187′	7″ at 425 A. T.
White shale	4′	5″	192′	
Black shale	5′		197′	
White shale	4′		201′	
Gray shale	19′		220′	

TEST HOLE NO. 369.

Elevation above tide is 612 feet. N. W. ¼ Sec. 13, T. 14 N., R. 3 E.; 1,400 feet from W. line, 1,365 feet from N. line. Commenced November 23, 1900; completed December 15, 1900. Amos J. Wampler, driller.

Clay	60′		60′	
Sand	64′		124′	
Sandrock	6′		130′	
Coal	1′	1″	131′	1″ at 481 A. T.
Gray shale	6′	11″	138′	
Coal, Rider	1′		139′	at 473 A. T.
Slate		8″	139′	8″
Coal	3′	6″	143′	2″ at 469 A. T.
Slate		10″	144′	
White shale	2′		146′	
Black shale	6′		152′	
White shale	7′		159′	
Gray shale	9′		168′	
Coal, Lower Verne coal	1′	3″	169′	3″ at 443 A. T.
Slate	2′	9″	172′	
White shale	9′		180′	
Gray shale	25′		205′	

Black shale	32′	237′	
Fire clay	3′	240′	
Black shale	13′	253′	
Gray shale	4′	257′	

TEST HOLE NO. 370.

Elevation above tide is 591 feet. S. ½, N. W. ¼ Sec. 12, T. 14 N., R. 4 E.; 50 feet from E. line, 95 feet from N. line. Commenced February 21, 1902; completed February 27, 1902. Amos J. Wampler, driller.

Clay	56′		56′	
Gravel	2′		58′	
Gray shale	35′		93′	
Salzburg coal	1′		94′	at 497 A. T.
Gray shale	61′		155′	
Slate	2′		157′	
Gray shale	3′		160′	
Coal, Rider		6″	160′	6″ at 431 A. T.
Gray shale	5′		165′	6″
Slate		6″	166′	
Coal, Lower Verne	3′	7″	169′	7″ at 422 A. T.
Gray shale	4′		173′	7″
Slate		5″	174′	
Coal, Saginaw coal	3′	10″	177′	10″ at 413 A. T.
Gray shale	7′	2″	185′	
Black shale	4′		189′	
Gray shale	21′		210′	
Sandrock	5′		215′	
Gray shale	2′		217′	
Sandrock	5′		222′	

TEST HOLE NO. 371.

Elevation above tide is 596 feet. N. E. ¼ S. E. ¼, Sec. 12, T. 14 N., R. 4 E.; 252 feet from N. line, 217 feet from W. line. Commenced March 1 1902; completed March 25, 1902. Amos J. Wampler, driller.

Clay	88′		88′	
Sand	28′		116′	
Gray shale	16′		132′	
Coal, Upper Verne	4′	4″	136′	4″ at 460 A. T.
Gray shale	5′		141′	4″
Slate	1′	8″	143′	
Coal, Rider	2′		145′	at 451 A. T.
Sulphur		8″	145′	8″
Coal, Lower Verne	5′	5″	151′	1″ at 445 A. T.
Slate		11″	152′	
Gray shale	8′		160′	
Black shale	4′		164′	
Coal, Middle Rider	1′		165′	at 431 A. T.
Gray shale	6′		171′	
Sandrock	4′		175′	
Gray shale	4′		179′	
Sandrock	6′		185′	
Coal, Saginaw coal	1′	10″	186′	10″ at 410 A. T.
White shale	4′	2″	191′	
Black shale	7′		198′	
Coal	2′	3″	200′	3″ at 396 A. T.
Slate		9″	201′	
Gray shale	1′		202′	

TEST HOLE NO. 372.

Elevation above tide is 597 feet. N. E. ¼ S. E. ¼, Sec. 12, T. 14 N., R. 4 E.; 525 feet from E. line, 275 feet from S. line. Commenced March 26, 1902; completed April 8, 1902. Amos J. Wampler, driller.

Clay	60′		60′	
Sand	25′		85′	
Clay	16′		101′	
Sand	5′		106′	
Gray shale	7′		113′	
Sandrock	2′		115′	
Gray shale	4′		119′	
Slate	2′		121′	
Coal	1′	6″	122′	6″ at 475 A. T.
Gray shale	12′	6″	135′	
Coal, Rider	2′		137′	at 460 A. T.
Sulphur		7″	137′	7″
Coal, Lower Verne	4′	3″	141′	10″ at 456 A. T.
Slate		2″	142′	
Gray shale	22′		164′	
Slate		6″	164′	6″
Coal, Middle Rider		6″	165′	at 432 A. T.
Gray shale	9′		174′	
Coal, Saginaw coal?	2′	6″	176′	6″ at 421 A. T.
Slate		6″	177′	
Coal	1′		178′	at 419 A. T.
White shale	4′		182′	
Coal		6″	182′	6″ at 415 A. T.
Slate	3′	6″	186′	
Gray shale	1′		187′	
Slate	1′	6″	188′	6″
Coal		6″	189′	at 408 A. T.
Black shale	19′		208′	
White shale	2′		210′	

TEST HOLE NO. 373.

Elevation above tide is 618 feet. S. ½, S. ½, S. ½, S. W. ¼ Sec. 6, T. 14 N., R. 4 E.; 890 feet from E. line, 157 from S. line. Commenced September 17, 1901; completed October 5, 1901. Amos J. Wampler, driller.

Clay	80′		80′	
Sand	8′		88′	
Gray shale	23′		111′	
Salzburg coal	3′	6″	114′	6″ at 504 A. T.
White shale	3′	6″	118′	
Gray shale	32′		150′	
Slate	1′	6″	151′	6″
Coal, Upper Rider	1′	7″	153′	1″ at 465 A. T.
White shale	2′	11″	156′	
Gray shale	10′		166′	
Slate		8″	166′	8″
Coal, Upper Verne	1′	8″	168′	4″ at 450 A. T.
White shale	2′	8″	171′	
Gray shale	16′		187′	
Slate	1′		188′	
Gray shale	8′		196′	
Coal, Lower Verne?	1′	3″	197′	3″ at 421 A. T.
Gray shale	15′		212′	3″
Coal, Middle Rider		9″	213′	at 405 A. T.
Gray shale	11′		224′	
Coal, Saginaw coal	2′		226′	at 392 A. T.
White shale	2′		228′	
Black shale	4′		232′	
Slate		9″	232′	9″

Coal, Lower Rider		3″	233′	at 385 A. T.
White shale	3′		236′	
Gray shale	3′	9″	239′	9″
Slate		3″	240′	
Coal, Lower coal	2′		242′	at 376 A. T.
Gray shale	6′		248′	

TEST HOLE NO. 374.

Elevation above tide is 603 feet. W. ½, W. ½, N. W. ¼ Sec. 7, T. 14 N., R. 4 E.; 48 feet from E. line, 880 feet from S. line. Commenced July 27, 1901; completed August 7, 1901. Amos J. Wampler, driller.

Clay	65′		65′	
Sand	20′		85′	
Gray shale	20′		105′	
Salzburg coal	2′	9″	107′	9″ at 495 A. T.
Slate		3″	108′	
White shale	2′		110′	
Gray shale	8′		118′	
Slate		6″	118′	6″
White shale	6′		124′	6″
Gray shale	17′		141′	6″
Slate		2″	141′	8″
Coal, Upper Rider	3′	2″	144′	10″ at 458 A. T.
Slate		2″	145′	
Gray shale	8′		153′	
Slate	1′		154′	
White shale	5′		159′	
Slate	1′		160′	
Coal, Upper and Lower Verne	7′	7″	167′	7″ at 436 A. T.
Slate		9″	168′	4″
Gray shale	19′	5″	187′	9″
Coal, Middle Rider		3″	188′	at 415 A. T.
Sandrock	4′		192′	

TEST HOLE NO. 375.

Elevation above tide is 610 feet. S. E. ¼, N. W. ¼, Sec. 7, T. 14 N., R. 4 E.; 500 feet from E. line, 700 feet from S. line. Commenced August 9, 1901; completed August 21, 1901. Amos J. Wampler, driller.

Clay	68′		68′	
Sand	48′		116′	
Gray shale	4′		120′	
Coal, Rider		3″	120′	3″ at 490 A. T.
White shale		9″	121′	
Gray shale	11′		132′	
Coal, Rider	1′	3″	133′	3″ at 477 A. T.
White shale	2′	9″	136′	
Slate		3″	136′	3″
Coal, Upper Rider	1′		137′	3″ at 473 A. T.
Slate		3″	137′	6″
White shale	1′	6″	139′	
Gray shale	10′		149′	
Coal, Rider	1′		150′	at 460 A. T.
Slate	6′		150′	6″
White shale	1′		151′	6″
Slate		6″	152′	
Coal	2′	5″	154′	5″ at 456 A. T.
Slate		7″	155′	
Gray shale	3′		158′	
Coal, Rider		6″	158′	6″ at 452 A. T.
Slate	1′	6″	160′	
Gray shale	16′		176′	
Sandrock	14′		190′	

TEST HOLE NO. 376.

Elevation above tide is 620 feet. S. ½, N. E. ¼ Sec. 7, T. 14 N., R. 4 E.; 1,325 feet from E. line, 50 feet from S. line. Commenced August 23, 1901; completed September 14, 1901. Amos J. Wampler, driller.

Sand	20′			20′	
Clay	55′			75′	
Sand	5′			80′	
Clay	20′			100′	
Sand	52′			152′	
Gray shale	6′			158′	
Slate	1′	6″		159′	6″
Coal, Upper Verne	2′			161′	6″ at 459 A. T.
Slate		6″		162′	
Gray shale	2′	6″		164′	6″
Slate		6″		165′	
Gray shale	14′			179′	

TEST HOLE NO. 377.

Elevation above tide is 604 feet. S. ½, S. ½, S. W. ¼ Sec. 7, T. 14 N., R. 4 E.; 535 feet from E. line, 60 feet from S. line. Commenced April 9, 1902; completed April 18, 1902. Amos J. Wampler, driller.

Clay	60′			60′	
Sand	56′			116′	
Clay	24′			140′	
Gray shale	34′			174′	
Black shale	10′			184′	
Gray shale	40′			224′	
Coal, Lower Rider		6″		224′	6″ at 380 A. T.
White shale	5′	6″		230′	
Gray shale	7′			237′	
Coal, Lower coal	2′	3″		239′	3″ at 365 A. T.
Gray shale		9″		240′	
White shale	4′			244′	
Gray shale	5′			249′	

TEST HOLE NO. 378.

Elevation above tide is 605 feet. S. ½, S. ½, S. W. ¼ Sec. 7, T. 14 N., R. 4 E.; 740 feet from E. line, 275 feet from S. line. Commenced April 19, 1902; completed April 30, 1902. Amos J. Wampler, driller.

Clay	70′			70′	
Sand	58′			128′	
Gray shale	1′			129′	
Coal, Rider	2′	6″		131′	6″ at 474 A. T.
Fire clay		6″		132′	
Gray shale	6′			138′	
Coal, Upper Rider	1′	8″		139′	8″ at 466 A. T.
White shale	6′	4″		146′	
Coal		6′		146′	6″ at 459 A. T.
Gray shale	16′	6″		163′	
Black shale	36′			199′	

TEST HOLE NO. 379.

Elevation above tide is 610 feet. N. ½, S. ½, S. W. ¼ Sec. 7, T. 14 N., R. 4 E.; 610 feet from S. line, 170 feet from W. line. Commenced May 1, 1902; completed May 16, 1902. Amos J. Wampler, driller.

Clay	66′			66′	
Sand	14′			80′	
Clay	3′			83′	

Gray shale	21′			104′	
Sand	2′			106′	
Clay	6′			112′	
Gray shale	11′			123′	
Sandrock	4′			127′	
Gray shale	8′			135′	
Slate		3′		135′	3″
Coal, Upper Rider	1′	3″		136′	6″ at 474 A. T.
Slate		6″		137′	
Gray shale		6″		137′	6″
Slate		6″		138′	
White shale	3′			141′	
Gray shale	2′			143′	
Coal, Upper and Lower Verne	7′			150′	at 460 A. T.
Slate	1′			151′	
Gray shale	17′			168′	
Coal	1′	3″		169′	3″ at 441 A. T.
Slate		9″		170′	
Fire clay	7′			177′	
Gray shale	24′			201′	

TEST HOLE NO. 380.

Elevation above tide is 605 feet. N. W. ¼, S. W. ¼, Sec. 7, T. 14 N., R. 4 E.; 480 feet from E. line, 500 feet from S. line. Commenced May 17 1902; completed May 22, 1902. Amos J. Wampler, driller.

Clay	68′			68′	
Gray shale	2′			70′	
Sand	19′			89′	
Gray shale	21′			110′	
Black shale	4′	6″		114′	6″
Coal rider	1′	6″		116′	at 489 A. T.
Gray shale	13′	6″		129′	6″
Slate		3″		129′	9″
Coal, Upper Rider	4′	2″		133′	11″ at 471 A. T.
White shale	4′	1″		138′	
Gray shale	3′			141′	
Black shale	2′			143′	
Coal, Rider		4″		143′	4″ at 462 A. T.
Gray shale	10′	8″		154′	
Coal, Upper Verne	1′			155′	at 450 A. T.
Gray shale	6′			161′	
White shale	4′			165′	
Gray shale	20′			185′	

TEST HOLE NO. 381.

Elevation above tide is 606 feet. N. W. ¼, S. W. ¼ Sec. 7, T. 14 N.,R. 4 E., 200 feet from S. line, 420 feet from W. line. Commenced May 23, 1902; completed May 29, 1902. Amos J. Wampler, driller.

Clay	58′			58′	
Sand	40′			98′	
Gray shale	17′			115′	
Coal, Rider	1′	6″		116′	6″ at 490 A. T.
Slate		6″		117′	
Gray shale	10′	6″		127′	6″
Slate	1′			128′	6″
Coal, Rider	1′	6″		130′	at 476 A. T.
Gray shale	2′			132′	
Coal, Upper Rider	2′	9″		134′	9″ at 471 A. T.
Slate		3″		135′	
Gray shale	6′			141′	
Black shale	6′			147′	

Gray shale	11′		158′	
Sandrock	8′		166′	
Gray shale	1′		167′	
Coal, Lower Verne	2′		169′	at 437 A. T.
White shale	1′		170′	
Slate	3′		173′	
Coal, Middle Rider	1′		174′	at 432 A. T.
Gray shale	16′		190′	

TEST HOLE NO. 382.

Elevation above tide is 598 feet. N. ½, S. ½, S. W. ¼ Sec. 7, T. 14 N., R. 4 E.; 350 feet from E. line, 6 feet from N. line. Commenced May 30, 1902; completed June 6, 1902. Amos J. Wampler, driller.

Clay	60′		60′	
Sand	45′		105′	
Slate	9′		114′	
Coal, Rider		6″	114′	6″ at 484 A. T.
Gray shale	7′	6″	122′	
Coal, Rider	1′	4″	123′	4″ at 475 A. T.
Gray shale	3′		126′	4″
Coal, Upper Rider	2′	8″	129′	at 469 A. T.
Gray shale	18′		147′	
Black shale	42′		189′	
Sandrock	3′		192′	
Gray shale	1′		193′	
Black shale	1′		194′	
Fire clay	3′		197′	
Black shale	11′		208′	
Sandrock	3′		211′	

TEST HOLE NO. 383.

Elevation above tide is 600 feet. E. ½, W. ½, N. W. ¼ Sec. 7, T. 14 N., R. 4 E.; 450 feet from W. line, 712 from S. line. Commenced June 19, 1902; completed June 26, 1902. Amos J. Wampler, driller.

Clay	98′		98′	
Coal, Upper Coal	1′	6″	99′	6″ at 501 A. T.
Gray shale	5′	6″	105′	
Coal, Rider		6″	105′	6″ at 495 A. T.
Fire clay	1′	6″	107′	
Gray shale	14′		121′	
Coal, Rider	1′		122′	at 478 A. T.
Gray shale	9′		131′	
Coal, Upper Rider	2′		133′	at 467 A. T.
Gray shale	1′		134′	
Coal, Rider	1′		135′	at 465 A. T.
Sandrock	2′		137′	
Gray shale	6′		143′	
Slate	1′		144′	
Gray shale	8′		152′	
Slate	1′		153′	
Coal, Upper and Lower Verne	7′	1″	160′	1″ at 440 A. T
Gray shale	8′	11″	169′	
Sandrock	8′		177′	

TEST HOLE NO. 384.

Elevation above tide is 605 feet. N. ½, S. ½, S. W. ¼ Sec. 7, T. 14 N., R. 4 E.; 10 feet from S. line, 1,030 feet from E. line. Commenced July 31, 1903, completed August 3, 1903. Amos J. Wampler, driller.

Clay	64′		64′	
Sand	8′		72′	
Clay	18′		90′	
Sandy clay	28′		118′	
Sand	4′		122′	
White shale	3′		125′	
Sandrock	21′		146′	
White shale	4′		150′	
Black shale	3′	8″	153′	8″
Slate	1′		154′	8″
White shale	3′	4″	158′	
Slate	3′		161′	
Coal, Lower and Upper Verne	7′	8″	168′	8″ at 437 A. T.
Slate		4″	169′	

TEST HOLE NO. 385.

Elevation above tide is 611 feet. S. ½, S. W. ¼ Sec. 18, T. 14 N., R. 4 E.; 500 feet from W. line, 600 feet from S. line. Commenced March 22, 1901; completed April 6, 1901. Amos J. Wampler, driller.

Clay	25′	25′	
Sand	10′	35′	
Clay	25′	60′	
Sand	80′	140′	
Gray shale	30′	170′	

TEST HOLE NO. 386.

Elevation 613′ A. T. Geo. Campbell. North ½ of N. E. ¼, Sec. 19, T. 14 N., R. 4 E.; 350 feetE. of W. line and 550 feet S. of N. line. Auburn Coal Co., Hole No. 1.

Clay	59′		59′	
Sand and gravel	3′		62′	
Clay	8′		70′	
Gravel	11′		81′	
Sand	9′		90′	
Gravel	7′		97′	
Fire clay	25′		122′	
Salzburg coal		3″	122′	3″ at 491 A. T.
Black slate	9′	9″	132′	
Light slate	5′		137′	
Black slate	3′	6″	140′	6″
Coal, Upper Verne	5′	6″	146′	at 467 A. T.
Fire clay	1′		147′	
Total	147′			

TEST HOLE NO. 387.

Elevation 607′ A. T. Geo. Campbell. N. ½ of N. E. ¼, Sec. 19, T. 14 N., R. 4 E., 400 feet N. of M. C. R. R. and 1,000 feet W. of E. line.
Auburn Coal Co., Hole No. 2.

Clay	48′	48′	
Sand	10′	58′	
Sandy clay (soft)	8′	66′	
Sand	11′	77′	
Red shale	24′	101′	
Gray slate	15′	116′	
Black slate	6′	122′	
Fire clay	3′	125′	
Black slate	13′	138′	
Coal, Upper Verne	4′ 1″	142′ 1″	1″ at 465 A. T.
Fire clay	1′ 11″	144′	
Total		144′	

TEST HOLE NO. 388.

Elevation 607′ A. T. Geo. Campbell. N. ½ of N. E. ¼, Sec. 19, T. 14 N., R. 4 E., 320 feet W. of E. line and 400 feet N. of S. line.
Auburn Coal Co., Hole No. 3.

Clay	60′	60′	
Sand and gravel	10′	70′	
Black slate	12′	82′	
Sandy clay	16′	98′	
Light shale	2′	100′	
Salzburg coal	2′ 8″	102′ 8″	8″ at 504 A. T.
Dark shale	21′ 4″	124′	
Black slate	13′ 10″	137′ 10″	
Coal	1′ 5″	139′ 3″	3″ at 468 A. T.
Sulphur band, Verne	1″	139′ 4″	
Coal	1′ 1″	140′ 5″	5″ at 467 A. T.
Blue slate	1′ 7″	142′	
Light shale	33′	175′	
Total		175′	

TEST HOLE NO. 389.

Elevation 607′ A. T. Geo. Campbell. S. ½ of N. E. ¼, Sec. 19, T. 14 N., R. 4 E., 50 feet E. of W. line and 50 feet N. of S. line.
Auburn Coal Co., Hole No. 4.

Clay	60′	60′	
Hardpan	10′	70″	
Sand	42′	112′	
Clay	12′	124′	
Gray slate	34′	138′	
Black slate	1′ 6″	159′ 6″	
Slate and coal	8″	160′ 2″	
Coal, Lower Verne	3′1.5″	163′ 3.5″	3.5″ at 444 A. T.
Slate	1′	164′ 3.5″	
Fire clay	2′ 9″	167′	
Gray slate	15′	182′	
Gray shale	6′	188′	
Sandrock	9′	197′	
Total		197′	

TEST HOLE NO. 390.

Elevation 605′ A. T. Geo. Campbell. S. ½ of the N. E. ¼, Sec. 19, T. 14 N., R. 4 E., 590 feet N. of S. line and 607 feet E. of W. line.
Auburn Coal Co., Hole No. 5.

Clay	75′	75′	
Sand	30′	105′	
Gravel	27′	132′	
Coal, Upper Rider	2″	132′ 2″	2″ at 473 A. T.
Gray shale	4′ 10″	137′	
Black shale	4′	141′	
Gray shale	8′	149′	
Draw slate	1′	150′	
Coal, Upper Verne	4′	154′	at 451 A. T.
Total		154′	

TEST HOLE NO. 391.

Elevation 606′ A. T. Geo. Campbell. S. ½ of N. E. ¼, Sec. 19, T. 14 N., R. 4 E., 500 feet N. of S. line and 835 feet W. of E. line.
Auburn Coal Co., Hole No. 6.

Clay	60′	60′	
Hardpan	20′	80′	
Clay	17′	97′	
Sand and gravel	39′	136″	
Gray slate	2′	138′	
Black slate	6′ 6″	144′ 6″	
Gray slate	2′	146′ 6″	
Black slate	1″ 6″	148′	
Gray slate	7″	148′ 7″	
Coal, Upper Verne	3′ 10″	152′ 5″	5″ at 454 A. T.
Slate	3″	152″ 8″	
White shale	4′ 4″	157′	
Shale	1′	158′	
Total		158′	

TEST HOLE NO. 392.

Elevation 609′ A. T. Geo. Campbell. E. ½ of S. E. ¼, Sec. 19, T. 14 N., R. 4 E., S. W. corner.
Auburn Coal Co., Hole No. 7.

Clay	59′	59′	
Hardpan	8′	67′	
Sand	39′	106′	
Clay	2′	108′	
Gravel	4′	112′	
Gray slate	24′	136′	
Coal, Upper Rider	3′	139′	at 470 A. T.
Fire clay	9′ 6″	148′ 6″	
Sandy fire clay	2′	150′ 6″	
Gray slate	12′ 6″	163′	
Sandrock	37′	200′	
Total		200′	

TEST HOLE NO. 393.

Elevation 605′ A. T. Geo. Campbell. E. ½ of S. E. ¼, Sec. 19, T. 14 N., R. 4 E., 950 feet W. of E. line and 10 feet S. of N. line.
Auburn Coal Co., Hole No. 8.

Clay	64′		64′	
Sand	4′		68′	
Hardpan	32′		100′	
Sandy gravel	4′		104′	
Gravel	20′		124′	
Black slate	12′		136′	
Coal, Upper Rider		7.75″	136′	7.75″ at 468 A. T.
Fire clay	6′		142′	7.75″
Slate	3′	6″	146′	1.75″
Black slate		6″	146′	7.75″
Coal, Upper Verne	3′	7″	150′	2.75″ at 455 A. T.
Fire clay	4′	1″	154′	3.75″
Total			154′	3¾″

TEST HOLE NO. 394.

Elevation 605′ A. T. Geo. Campbell. S. ½ of N. E. ¼, Sec. 19, T. 14 N., R. 4 E., 1,250 feet W. of E. line and 455 feet S. of N. line.
Auburn Coal Co., Hole No. 9.

Clay	60′		60′	
Hardpan	20′		80′	
Sandy gravel	9′		89′	
Clay	17′		106′	
Gravel	30′		136′	
Gray slate	2′		138′	
Black slate	6′	6″	144′	6″
Gray slate	2′		146′	6″
Black slate	1′	6″	148′	
Slate		7″	148′	7″
Coal, Upper Verne	3′	10″	152′	5″ at 453 A. T.
Black slate		3″	152′	8″
Fire clay	4′	6″	157′	2″
Sandy shale	1′		158′	2″
Total			158′	2″

TEST HOLE NO. 395.

Elevation 607′ A. T. Geo. Campbell. S. ½ of N. E. ¼, Sec. 19, T. 14 N., R. 4 E., 55 yds. E. of W. line and 8 yds. S. of N. line.
Auburn Coal Co., Hole No. 10.

Yellow clay	12′		12′	
Blue clay	52′		64′	
Hardpan	8′		72′	
Sand, gravel	43′		115′	
Slate	15′		130′	
Sandy shale	9′		139′	
Black slate		7″	139′	7″
Coal, Upper Verne	3′	6″	143′	1″ at 464 A. T.
Total			143′	1″

TEST HOLE NO. 396.

Elevation 605′ A. T. Geo. Campbell. E. ½ of S. E. ¼, Sec. 19, T. 14 N., R. 4 E., 120 feet E. of W. line and 200 feet S. of N. line.
Auburn Coal Co., Hole No. 11.

Clay	68′		68′	
Sandy clay	47′		115′	
Sand	10′		125′	
Hardpan	7′		132′	
Sand	3′		135′	
Gray shale	4′		139′	
Dark shale	7′		146′	
Black slate	5′		151′	
C. B. coal, Upper Verne	3′	6″	154′	6″ at 451 A. T.
Black slate		6″	155′	
Fire clay	2′		157′	
Gray shale	3′		160′	
Total			160′	

TEST HOLE NO. 397.

Elevation 608′ A. T. Geo. Campbell. S. ½ of N. E. ¼, Sec. 19, T. 14 N., R. 4 E., 600 feet S. of N. line and 140 feet E. of W. line. (Shaft.)
Auburn Coal Co., Hole No. 12.

Clay	57′		57′	
Hardpan	8′		65′	
Coarse gravel	14′		79′	
Sand, coarse	11′		90′	
Sand, fine	10′		100′	
Gravel	2′	6″	102′	6″
Shale	3′	6″	106′	
Fire clay	2′		108′	
Shale	16′		124′	
Slate	23′		147′	
Coal, Upper Verne	4′	5″	151′	5″ at 457 A. T.
Fire clay		7″	152′	
Total			152′	

TEST HOLE NO. 398.

Elevation 610′ A. T. Hughes farm. S. E. ¼ of N. W. ¼, Sec. 19, T. 14 N., R. 4 E., 100 feet E. of barn.
Auburn Coal Co., Hole No. 13.

Clay	57′		57′	
Sand	4′		61′	
Gravel	69′		130′	
Clay	6′		136′	
Hardpan	1′		137′	
Gravel	2′		139′	
Slate	2′		141′	
Sandrock	7′	6″	148′	6″
Slate	5′	6″	154′	
Coal, Upper Verne	4′	3″	158′	3″ at 452 A. T.
Fire clay		6″	158′	9″
Total			158′	9″

TEST HOLE NO. 399.

Elevation 608′ A. T. Hughes farm. S. E. ¼ of N. W. ¼, Sec. 19, T. 14 N., R. 4 E., N. E. corner S. of M. C. R. R. and W. of Campbell land.
Auburn Coal Co., Hole No. 14.

Clay	63′		63′	
Sand	19′		82′	
Gravel	30′		112′	
Slate	12′		124′	
Sandrock	2′		126′	
Slate	1′	6″	127′	6″
Sandrock	10′	6″	138′	
Coal, Upper Verne	3′	10.5″	141′	10.5″ at 466 A. T.
Fire clay		6″	142′	4.5″
Sandy fire clay	4′	6″	146′	10.5″
Sandrock	11′	1.5″	158′	
Total			158′	

TEST HOLE NO. 400.

Elevation 610′ A. T. Wm. Gaiser farm. N. W. ¼ of S. W. ¼, Sec. 19, T. 14 N., R. 4 E., 500 feet S. of barn.
Auburn Coal Co., Hole No. 15.

Clay	67′		67′	
Sand	2′		69′	
Hardpan	2′	6″	71′	6″
Sand	8′	6″	80′	
Hardpan	6′		86′	
Sand	4′		90′	
Clay	4′		94′	
Sand	7′		101′	
Slate	8′		109′	
Black slate	2′		111′	
Slate	4′	6″	115′	6″
Black slate	2′	6″	118′	
Fire clay	7′		125′	
Slate	23′		148′	
Black slate		5″	148′	5″
Coal, Upper Verne	3′	5″	151′	10″ at 458 A. T.
Total			151′	10″

TEST HOLE NO. 401.

Elevation 611′ A. T. Wm. Gaiser farm. N. W. ¼ of S. W. ¼, Sec. 19, T. 14 N., R. 4 E., 1,000 feet S. W. of house.
Auburn Coal Co., Hole No. 16.

Clay	60′		60′	
Sand	2′		62′	
Clay	13′		75′	
Gravel	15′		90′	
Sandy gravel	13′		103′	
Sand	9′		112′	
Gravel	6′		118′	
Fire clay	4′	6″	122′	6″
Slate	2′		124′	6″
Sandy fire clay	3′	6″	128′	
Fire clay	4′		132′	
Slate	2′		134′	
Sandy fire clay	4′	6″	138′	6″
Slate	17′	6″	156′	

Black slate		6″	156′	6″
Coal, Upper Verne	3′	10″	160′	4″ at 451 A. T.
Fire clay	10′	3″	170′	7″
Total			170′	7″

TEST HOLE NO. 402.

Elevation 610′ A. T. Anthony Reader farm. In yard near Eight Mile Road. N. W. ¼ of N. W. ¼? Sec. 19, T. 14 N., R. 4 E.
Auburn Coal Co., Hole No. 17.

Clay	56′		56′	
Hardpan	7′		63′	
Gravel	43′		106′	
Sand	21′		127′	
Gravel	10′		137′	
Slate	3′		140′	
Sandrock	9′		149′	
Slate	3′		152′	
Black slate		6″	152′	6″
Coal, Upper Verne?	4′	5″	156′	11″ at 453 A. T.
Fire clay		6″	157′	5″
Total			157′	5″

TEST HOLE NO. 403.

Elevation 610′ feet A. T. Fred Ruffertshofer. S. ½ of S. W. ¼, Sec. 18, T. 14 N., R. 4 E., 600 feet E. of W. line and 500 feet N. of S. line.
Auburn Coal Co., Hole No. 18.

Clay	73′		73′	
Sand and gravel	34′		107′	
Light shale	3′		110′	
Black slate	2′		112′	
Light slate	3′		115′	
Black slate	27′	6″	142′	6″
Coal, Upper Verne	3′	9″	146′	3″ at 464 A. T.
Total			146′	3″

TEST HOLE NO. 404.

Elevation 610′ A. T. F. Ruffertshofer. S. ½ of S. E. ¼, Sec. 18, T. 14 N., R. 4 E.
Auburn Coal Co., Hole No. 19.

Clay	55′		55′	
Sand	3′		58′	
Clay	12′		70′	
Gravel	16′		86′	
Clay	3′		89′	
Sand	4′		93′	
Salzburg coal Rider	1′		94′	at 516 A. T.
Light slate	3′		97′	
Fire clay	1′		98′	
Black slate	1′	6″	99′	6″
Salzburg coal	7′	6″	107′	at 503 A. T.
Fire clay	1′		108′	
Light slate	10′		118′	
Sandrock	3′		121′	
Black slate	26′		147′	

Coal, Upper Verne	4′	6″	151′	6″ at 459 A. T.
Black slate	1′		152′	6″
Fire clay		6″	153′	
Total			153′	

TEST HOLE NO. 405.

Elevation 610′ A. T. F. Ruffertshofer. S. ½ of S. E. ¼, Sec. 18, T. 14 N., R. 4 E.

Auburn Coal Co., Hole No. 20.

Clay	68′		68′	
Hardpan	2′		70′	
Gravel	10′		80′	
Clay	3′		83′	
Sand	3′		86′	
Gravel	6′		92′	
Light slate	8′		100′	
Coal	Salzburg Rider		3″	100′ 3″ at 510 A. T.
Fire clay	Salzburg Rider	1′	9″	102′
Coal	Salzburg Rider	1′	7″	103′ 7″ at 507 A. T.
Fire clay		1′	5″	105′
Black slate		2′		107′
Salzburg coal		7′		114′ at 496 A. T.
Fire clay			6″	114′ 6″
Light slate		10′	6″	125′
Black slate		27′		152′
Coal, Upper Verne		5′	6″	157′ 6″ at 453 A. T.
Black slate		1′		158′ 6″
Fire clay			6″	159′
Total				159′

TEST HOLE NO. 406.

Elevation 608′ A. T. F. Ruffertshofer. W. line of S. ½ of S. E. ¼, Sec. 18, T. 14 N., R. 4 E.

Auburn Coal Co., Hole No. 21.

Clay	86′	86′
Sand, gravel	44′	130′
Total		130′

TEST HOLE NO. 407.

Elevation 607′ A. T. F. Ruffertshofer. N. line of S. ½ of S. E. ¼, Sec. 18, T. 14 N., R. 4 E.

Auburn Coal Co., Hole No. 22.

Clay	85′	85′	
Sand	7′	92′	
Light slate	2′	94′	
Salzburg coal	6′	100′	at 507 A. T.
Light slate	10′	110′	
Black slate	18′	128′	
Light shale	11′	139′	
Sandrock	12′	151′	
Black slate	2′	153′	
Sandrock	24′	177′	
Light slate	1′	178′	
Sandrock	2′	180′	
Total		180′	

TEST HOLE NO. 408.

Elevation 607′ A. T. F. Ruffertshofer. E. line of S. ½ of S. E. ¼, Sec. 18, T. 14 N., R. 4 E.

Auburn Coal Co., Hole No. 23.

Clay	60′		60′	
Gravel	1′		61′	
Hardpan	9′		70′	
Sand	6′		76′	
Gravel	4′		80′	
Sand	6′		86′	
Gravel	6′		92′	
Fire clay	5′		97′	
Light slate	2′		99′	
Black slate	1′		100′	
Fire clay	1′		101′	
Salzburg coal split	1′	7″	102′	7″ at 504 A. T.
Light slate	2′	5″	105′	
Salzburg coal	5′	3″	110′	3″ at 497 A. T.
Light slate	14′	9″	125′	
Black slate	17′		142′	
Coal, Upper Verne	4′	3″	146′	3″ at 461 A. T.
Fire clay		9″	147′	
Total			147′	

TEST HOLE NO. 409.

Elevation 607′ A. T. F. Ruffertshofer. S. ½ of S. E. ¼, Sec. 18, T. 14 N., R. 4 E.

Auburn Coal Co., Hole No. 24.

Clay	55′		55′	
Gravel	9′		64′	
Clay	12′		76′	
Sand	3′		79′	
Clay	6′		85′	
Sand	2′		87′	
Fire clay	1′		88′	
Light slate	9′		97′	
Salzburg coal	4′	7″	101′	7″ at 505 A. T.
Light slate	11′	5″	113′	
Black slate	5′		118′	
Coal, Upper rider	3′	6″	121′	6″ at 486 A. T.
Fire clay	1′	6″	123′	
Sandrock	27′		150′	
Total			150′	

TEST HOLE NO. 410.

Elevation 607′ A. T. F. Ruffertshofer. S. ½ of S. E. ¼, Sec. 18, T. 14 N., R. 4 E.

Auburn Coal Co., Hole No. 25.

Clay	71′	71′
Gravel	14′	85′
Sand	5′	90′
Gravel	19′	109′
Light slate	2′	111′
Sandrock	6′	117′
Light slate	1′	118′
Black slate	2′	120′

Coal, Upper Rider		3″	120′	3″ at 487 A. T.
Fire clay	2′	9″	123′	
Light slate	3′		126′	
Black slate	12′		138′	
Coal, Upper Verne	3′	6″	141′	6″ at 466 A. T.
Fire clay		6″	142′	
Total			142′	

HOLE NO. 411.

Elevation 590′ A. T. In the S. W. ¼ of S. W. ¼, Sec. 30, T. 13 N., R. 6 E. What Cheer Mining Co., Shaft Hole, 1904.

Hard clay	30′		30′	
Soft blue clay	52′		82′	
Hardpan with glacial boulders	7′		89′	
Quicksand		42″	92′	6″
Hardpan	3′	8″	96′	2″
Gray shale	2′		98′	2″
Salzburg coal Rider		10″	99′	at 491 A. T.
Gray shale	8′	2″	107′	2″
Salzburg coal	1′		108′	2″ at 482 A. T.
Gray shale	7′		115′	2″
Gray sandrock, plant remains	4′		119′	2″
Lingula black shale	4′		123′	2″
Upper Verne coal	1′	6″	124′	8″ at 466 A. T.
Black gray shale	12′	6″	137′	2″
Coal, Lower Verne Rider	1′	3″	138′	5″ at 452 A. T.
Black shale	10′	9″	149′	2″
Light sandrock	6′		155′	2″
Coal, Black shale, Coal — Lower Verne	1′	6″	156′	8″ at 433 A. T.
	2′	6″	159′	2″
	2′	8″	161′	10″ at 428 A. T.
Light gray shale	13′		174′	10″
Blue gray shale	3′		177′	10″
Sandrock with dark streaks	5′		182′	10″
Bluish gray shale	3′		185′	10″
Light clayey micaceous sandrock	2′		187′	10″
Dark micaceous shale	2′		189′	10″
Black shale	6′		195′	10″
Light sandrock, plant remains	1′		196′	10″
Coal, Saginaw coal	3′	10″	200′	8″ at 390 A. T.
Black slate	6′		206′	8″

HOLE NO. 412.

United City Coal Co. Shaft in West Bay City. North Union and C., S. & M. R. R. About 600′ A. T.

Clay	78′	78′	
Sand with sandstone boulders	23′	101′	
Sandstone, more bituminous towards bottom	18′	119′	
Lingula black slate	3′	122′	
Coal, Upper Verne	1′	123′	
Gray shale	3′	126′	
Coal, Verne	4′	130′	at 470 A. T.

TEST HOLE NO. 413.

Two hundred ninety-four feet from S. line, 957′ from E. line, S. ½, S. ½, S. E. ¼, Sec. 13, T. 14 N., R. 3 E. The elevation above tide is 613.′

Plastic clay	65′	65′
Sand	141′	206′

TEST HOLE NO. 414.

One hundred fifty feet from E. line, 170′ from S. line, E. ½ of the N. E. ¼, Sec. 24, T. 14 N., R. 3 E. The elevation above tide is 610.′

Clay	65′		65′	
Sand	64′		129′	
Gray shale	29′		158′	
Slate		2″	158′	2″
Coal, Upper Verne		9″	158′	11″ at 451 A. T.
Slate		9″	159′	8″
Coal, Lower Verne	4′		163′	8″ at 446 A. T.
Gray shale		4″	164′	

TEST HOLE NO. 415.

Two hundred three feet from S. line, 508′ from E. line, W. ½, S. E. ¼, Sec. 17, T. 14 N., R. 3 E. The elevation above tide is 643.′

Clay	65′		65′	
Sandy clay	22′		87′	
White shale	10′		97′	
Gray shale	13′		110′	
Salzburg coal Rider		6″	110′	6″ at 533 A. T.
White shale	5′		115′	6″
Gray shale	9′	6″	125′	
Black shale	12′	5″	137′	5″
Salzburg coal	2′	8″	140′	1″ at 503 A. T.
White shale	3′	11″	144′	
Gray shale	63′		207′	
Sandrock	8′		215′	
Gray shale	2′	6″	217′	6″
Slate		6″	218′	
Coal, Lower Verne	1′	4″	219′	4″ at 424 A. T.
Gray shale	5′	8″	225′	

TEST HOLE NO. 416.

Four hundred feet from W. line, 700′ from N. line, E. ½, S. E. ¼, Sec. 17, T. 14 N., R. 4 E., The elevation above tide is 600.′

Plastic clay	60′		60′	
Sandy clay	19′		79′	
White shale	5′		84′	
Salzburg coal Rider		6″	84′	6″ at 516 A. T.
Gray shale	20′	6″	105′	
Black shale	12′	6″	117′	6″
Coal, Upper Verne	3′	2″	120′	8″ at 480 A. T.
Gray shale	39′	4″	160′	

TEST HOLE NO. 417.

One thousand three hundred thirty eight feet from N. line, 84′ from E. line, W. ½, N. E. ¼, Sec. 17, T. 14 N., R. 4 E. The elevation above tide is 600.′

Plastic clay	65′	65′	
Sandy clay	25′	90′	
Gray shale	18′	108′	
Black shale	5′	113′	
Coal, Upper Rider	2′	115′	at 485 A. T.
White shale	6′	121′	
Gray shale	55′	176′	

TEST HOLE NO. 418.

Six hundred thirty feet from E. line, 675′ from S. line, N. ½, S. ½, N. E. ¼, Sec. 17, T. 14 N., R. 4 E. The elevation above tide is 590.′

Plastic clay	65′	65′	
Sandy clay	25′	90′	
Gray shale	20′	110′	
Black shale	15′	125′	
Coal, Upper Verne	2′ 7″	127′	7″ at 462 A. T.
Slate	5″	128′	
White shale	10′	138′	
Gray shale	42′	180′	

TEST HOLE NO. 419.

One hundred feet from E. line, 480′ from N. line, E. ½, S. W. ¼, Sec. 17, T. 14 N., R. 4 E. The elevation above tide is 600.′

Sand	8′	8′	
Plastic clay	67′	75′	
Sand	39′	114′	
Black shale	12′	126′	
Coal, Upper Verne	2′ 4″	128′	4″ at 472 A. T.
White shale	6′ 8″	135′	
Gray shale	4′	139′	

TEST HOLE NO. 420.

Twenty-three feet from W. line, 56′ from S. line, W. ½, S. E. ¼, Sec. 17, T. 14 N., R. 4 E. The elevation above tide is 601.′

Clay	60′	60′	
Sand	60′	120′	
Gray shale	9′	129′	
Black shale	11′	140′	
Coal, Upper Verne	2′ 8″	142′	8″ at 458 A. T.
White shale	2′ 4″	145′	

TEST HOLE NO. 421.

Four hundred feet from E. line, 1,300′ from S. line, W. ½ S. E. ¼, Sec. 17, T. 14 N., R. 4 E. The elevation above tide is 601.′

Plastic clay	65′	65′	
Sandy clay	20′	85′	
White shale	4′	89′	
Gray shale	11′	100′	
Coal, Salzburg coal	3″	100′	3″ at 501 A. T.
White shale	3′ 9″	104′	

Slate	6″	104′	6″
White shale	5′	109′	6″
Coal, Upper Rider	6″	110′	at 491 A. T.
Gray shale	8′	118′	
Black shale	8′	126′	
Coal, Upper Verne	2′ 7″	128′	7″ at 472 A. T.
White shale	4′ 5″	133′	

TEST HOLE NO. 422.

Five hundred sixty feet from S. line, 275′ from E. line, W. ½, S. E. ¼, Sec. 17, T. 14 N., R. 4 E. The elevation above tide is 600.′

Clay	60′	60′	
Sand	35′	95′	
Coal, Salzburg coal	6″	95′	6″ at 505 A. T.
White shale	4′ 6″	100′	
Black shale	2′	102′	
Gray shale	18′	120′	
Slate	1′	121′	
Gray shale	4′	125′	
Black shale	9′ 6″	134′	6″
Coal, Upper Verne	2′ 6″	137′	at 463 A. T.
Gray shale	39′	176′	

TEST HOLE NO. 423.

Three hundred thirty-eight feet from N. line, 700′ from W. line, N. E. ¼, Sec. 18, T. 14 N., R. 4 E. The elevation above tide is 602.′

Plastic clay	62′	62′	
Sand	108′	170′	

TEST HOLE NO. 424

Five hundred ninety feet from S. line, 607′ from W. line, S. ½, N. E. ¼, Sec. 19, T. 14 N., R. 4 E. The elevation above tide is 606.′

Clay	75′	75′	
Sand	30′	105′	
Gray shale	22′	127′	
Coal, Upper Rider	2″	127′	2″ at 479 A. T.
Gray shale	4′ 10″	132′	
Black shale	4′	136′	
Gray shale	8′	144′	
Slate	1′	145′	
Coal, Upper Verne	4′	149′	at 457 A. T.
Gray shale	26′	175′	

TEST HOLE NO. 425.

One thousand two hundred fifty feet from E. line, 105′ from N. line, S. E. ¼, of N. E. ¼, Sec. 19, T. 14 N., R. 4 E. The elevation above tide is 605.′

Clay		55′	55′	
Sand		62′	117′	
Gray shale		20′ 6″	137′	6″
Slate		6″	138′	
Coal		11″	138′	11″ at 466 A. T.
Gray shale	Upper Verne	1′ 7″	140′	6″
Coal		5″	140′	11″ at 464 A. T.
Slate		7″	141′	6″
Gray shale		28′ 6″	170′	

TEST HOLE NO. 426.

One thousand two hundred fifty feet from E. line, 455′ from N. line, S. E. ¼, of N. E. ¼, Sec. 19, T. 14 N., R. 4 E. The elevation above tide is 604.′

Clay		55′		55′	
Sand		57′		112′	
Gray shale		6′		118′	
Slate			6″	118′	6″
Coal	Upper Rider		6″	119′	at 485 A. T.
Gray shale	Upper Rider	1′		120′	
Coal	Upper Rider		6″	120′	6″ at 484 A. T.
Gray shale		17′		137′	6″
Slate			6″	138′	
Coal	Upper Verne	2′	6″	140′	6″ at 464 A. T.
Sulphur	Upper Verne		10″	141′	4″
Coal	Upper Verne	1′	4″	142′	8″ at 462 A. T.
Gray shale			4″	143′	

TEST HOLE NO. 427.

Thirty feet from E. line, 600′ from N. line, S. W. ¼ S. W. ¼, Sec. 20, T. 14 N., R. 4 E. The elevation above tide is 605.′

Clay		59′		59′	
Gravel		7′		66′	
Sand		72′		138′	
Gray shale		15′		153′	
Coal, Lower Verne		3′		156′	at 449 A. T.
Gray shale		11′		167′	
Sandrock		7′		174′	
Coal, Middle Rider		1′	9″	175′	9″ at 429 A. T.
Gray shale		19′	3″	195′	
Coal	Saginaw coal		6″	195′	6″ at 410 A. T.
Gray shale	Saginaw coal	2′	6″	198′	
Coal	Saginaw coal	1′		199′	at 406 A. T.
Gray shale		2′		201′	
Black shale		19′		220′	

TEST HOLE NO. 428.

Seventy-four feet from W. line, 400′ from N. line, W. ½, S. E. ¼, Sec. 20, T. 14 N., R. 4 E. The elevation above tide is 605.′

Clay		60′		60′	
Sand		64′		124′	
Gray shale		11′		135′	
Slate			6″	135′	6″
Coal, Upper Verne			3″	135′	9″ at 469 A. T.
Black shale		11′	3″	147′	
Coal, Lower Verne		3′	2″	150′	2″ at 455 A. T.
Gray shale			10″	151′	

TEST HOLE NO. 429.

Thirty feet from S. line, 665′ from W. line, S. W. ¼, S. W. ¼, Sec. 20, T. 14 N., R. 4 E. The elevation above tide is 607.′

Clay	63′		63′	
Gravel	10′		73′	
Sand	28′		101′	
Clay	6′		107′	
Sand	35′		142′	
Gray shale	16′		158′	

Coal	Lower Verne		3″	158′	3″ at 449 A. T.
Gray shale	Lower Verne		9″	159′	
Coal	Lower Verne		2″	159′	2″ at 448 A. T.
Gray shale		26′	10″	186′	
Sandrock		6′		192′	
Gray shale		2′		194′	

TEST HOLE NO. 430.

Five hundred three feet from N. line, 75′ from W. line, S. W. ¼, S. W. ¼, Sec. 20, T. 14 N., R. 4 E. The elevation above tide is 607.′

Clay	65′		65′	
Sand	15′		80′	
Clay	30′		110′	
Sand	3′		113′	
Gray shale	20′		133′	
Coal, Upper Verne	3′		136′	at 471 A. T.
Gray shale	39′		175′	

TEST HOLE NO. 431.

One hundred ninety-six feet from E. line, 1,382′ from N. line, E. ½, S. W. ¼, Sec. 20, T. 14 N., R. 4 E. The elevation above tide is 603.′

Clay	59′		59′	
Sand	64′		123′	
Black shale	10′		133′	
Gray shale	45′		178′	
Coal, Middle Rider		6″	178′	6″ at 425 A. T.
Gray shale	12′	6″	191′	
Sandrock	1′		192′	
Gray shale	13′		205′	
Black shale	5′		210′	
Gray shale	2′		212′	
Black shale	6′		218′	
Gray shale	12′		230′	
Slate	1′		231′	
Coal, Lower coal		2″	231′	2″ at 372 A. T.
Gray shale	6′	10″	238′	

TEST HOLE NO. 432.

Five hundred seventeen feet from W. line, 450′ from N. line, W. ½, N. E. ¼, Sec. 20, T. 14 N., R. 4 E. The elevation above tide is 600.′

Clay	65′		65′	
Sand	43′		108′	
Black shale	17′		125′	
Gray shale	7′		132′	
Black shale	18′		150′	
Coal, Lower Verne	3′	4″	153′	4″ at 447 A. T.
White shale		8″	154′	

TEST HOLE NO. 433.

Four hundred fifty feet from N. line, 17′ from W. line, W. ½, N. E. ¼, Sec. 20, T. 14 N., R. 4 E. The elevation above tide is 600.′

Clay	60′	60′
Sandy clay	35′	95′
Gray shale	15′	110′
Black shale	10′	120′
Gray shale	20′	140′

Black shale	8′	3″	148′	3″	
Coal, Lower Verne	3′	6″	151′	9″	at 449 A. T.
Slate	1′		152′	9″	
Gray shale	2′	3″	155′		

TEST HOLE NO. 434.

Fifteen feet from W. line, 200′ from S. line, W. ½, N. E. ¼, Sec. 20, T. 14 N., R. 4 E. The elevation above tide is 598.′

Clay	60′		60′		
Sand	58′		118′		
Gray shale	22′		140′		
Coal, Lower Verne	3′		143′		at 455 A. T.
Gray shale	36′		179′		

TEST HOLE NO. 435.

Sixty feet from E. line, 1,240′ from S. line, E. ½, S. E. ¼, Sec. 20, T. 14 N., R. 4 E. The elevation above tide is 602.′

Clay	56′		56′		
Sand	93′		149′		
Gray shale	25′		174′		
Slate		5″	174′	5″	
Coal, Middle Rider	1′	7″	176′		at 426 A. T.
Gray shale	9′		185′		
Black shale	5′		190′		
Gray shale	4′		194′		
Black shale	36′		230′		
Gray shale	36′		266′		

TEST HOLE NO. 436.

Thirteen feet from S. line, 413′ from E. line, N. E. ¼, S. W. ¼, Sec. 21, T. 14 N., R. 4 E. The elevation above tide is 600.′

Clay, plastic	45′		45′		
Sand	50′		95′		
White shale	5′		100′		
Gray shale	9′		109′		
Slate	1′		110′		
White shale	4′		114′		
Gray shale	8′		122′		
Slate	1′		123′		
Coal, Upper Rider	1′	8″	124′	8″	at 475 A. T.
White shale	6′		130′	8″	
Gray shale	40′	4″	171′		
Slate		6″	171′	6″	
Coal, Middle Rider		6″	172′		at 428 A. T.
White shale	3′		175′		

TEST HOLE NO. 437.

Two hundred seventeen feet from S. line, 285′ from W. line, N. E. ¼, S. W. ¼, Sec. 21, T. 14 N., R. 4 E. The elevation above tide is 608.′

Clay	60′		60′		
Sand	50′		110′		
Gray shale	12′		122′		
Coal, Upper Rider		6″	122′	6″	at 486 A. T.
White shale	2′	6″	125′		
Gray shale	29′		154′		
Black shale	3′		157′		

Coal, Lower Verne Rider		8″	157′	8″	at 450 A. T.
White shale	2′		159′	8″	
Gray shale	5′		164′	8″	
Slate		10″	165′	6″	
Coal, Lower Verne		6″	166′		at 442 A. T.
Gray shale	9′		175′		
Black shale	7′		182′		

TEST HOLE NO. 438.

Thirty-two feet from W. line, 820′ from N. line, N. E. ¼, S. E. ¼, Sec. 21, T. 14 N., R. 4 E. The elevation above tide is 610.′

Clay, plastic	55′		55′		
Sandy clay	59′		114′		
Gray shale	55′		169′		
Slate		6″	169′	6″	
Coal, Lower Verne		6″	170′		at 440 A. T.
White shale	1′		171′		
Gray shale	4′		175′		
Slate		6″	175′	6″	
White shale	4′		179′	6″	
Gray shale	13′	6″	193′		

TEST HOLE NO. 439.

Six hundred sixty feet from N. line, 645′ from W. line, N. E. ¼, S. W. ¼, Sec. 21, T. 14 N., R. 4 E. The elevation above tide is 605.′

Clay, plastic	60′		60′		
Sandy clay	40′		100′		
Gray shale	7′		107′		
Coal, Salzburg coal	2′		109′		at 496 A. T.
White shale	10′		119′		
Gray shale	25′		144′		
Slate	1′		145′		
Gray shale	14′	8″	159′	8″	
Slate		4″	160′		
Black shale	2′		162′		
Coal, Lower Verne	2′		164′		at 441 A. T.
Slate	1′		165′		
Gray shale	7′		172′		

TEST HOLE NO. 440.

Three hundred fifty feet from S. line, 250′ from E. line, N. W. ¼, S. E. ¼, Sec. 21, T. 14 N., R. 4 E. The elevation above tide is 600.′

Clay	55′		55′		
Sandy clay	35′		90′		
Gray shale	27′		117′		
Slate		6″	117′	6″	
Coal, Upper Rider	1′		118′	6″	at 482 A. T.
White shale	4′	6″	123′		
Gray shale	4′		127′		
Coal, Upper Verne	1′	6″	128′	6″	at 472 A. T.
White shale	1′	6″	130′		
Gray shale	12′		142′		
Slate		10″	142′	10″	
Black shale	4′		146′	10″	
Gray shale	24′	2″	171′		

TEST HOLE NO. 441.

One hundred eighty-five feet from E. line, 220′ from N. line, S. E. ¼, Sec. 21, T. 14 N., R. 4 E. The elevation above tide is 600.′

Clay	45′		45′		
Sand	58′		103′		
White shale	3′		106′		
Gray shale	51′		157′		
Slate		4″	157′	4″	
Coal, Lower Verne		8″	158′		at 442 A. T.
White shale	5′		163′		
Gray shale	12′		175′		
Slate		3″	175′	3″	
Coal, Middle Rider	1′	4″	176′	7″	at 423 A. T.
White shale	1′	5″	178′		

TEST HOLE NO. 442.

One hundred sixty-one feet from N. line, 831′ from W. line, S. E. ¼, Sec. 21, T. 14 N., R. 4 E. The elevation above tide is 600.′

Clay	55′		55′		
Sand	47′		102′		
Gray shale	25′		127′		
Slate		2″	127′	2″	
Coal, Upper Verne	2′	3″	129′	5″	at 471 A. T.
Slate		1″	129′	6″	
Gray shale	31′	6″	161′		
Black shale	1′	8″	162′	8″	
Coal, Lower Verne		4″	163′		at 437 A. T.
White shale	10′		173′		
Gray shale	2′		175′		

TEST HOLE NO. 443.

Five hundred sixty feet from E. line, 994′ from S. line, S. E. ¼, Sec. 21, T. 14 N., R. 4 E. The elevation above tide is 600.′

Clay	65′		65′		
Sand	34′		99′		
Gray shale	11′		110′		
White shale	10′		120′		
Gray shale	5′		125′		
Coal, Upper Rider	1′	4″	126′	4″	at 474 A. T.
White shale	3′	8″	130′		
Gray shale	42′		172′		

TEST HOLE NO. 444.

Five hundred fifty-five feet from E. line, 646′ from N. line, S. E. ¼, Sec. 21, T. 14 N., R. 4 E. The elevation above tide is 600.′

Plastic clay	45′		45′		
Sandy clay	45′		90′		
Sand	33′		123′		
Gray shale	7′		130′		
White shale	20′		150′		
Gray shale	16′		166′		
Slate		4″	166′	4″	
Coal, Lower Verne		8″	167′		at 433 A. T.
Gray shale	8′		175′		

TEST HOLE NO. 445.

Two hundred thirty-five feet from E. line, 1,255′ from S. line, W. ½, W. ½, S. W. ¼, Sec. 22, T. 14 N., R. 4 E., The elevation above tide is 600.′

Plastic clay	55′		55′		
Sandy clay	24′		79′		
Gray shale	33′		112′		
Black shale	10′		122′		
Coal, Upper Rider	1′		123″		at 477 A. T.
Gray shale	10′		133′		
Slate		4″	133′	4″	
Coal, Upper Verne	3′	5″	136′	9″	at 463 A. T.
Slate		3″	137′		
White shale	7″		144′		
Gray shale	14′		158′		

TEST HOLE NO. 446.

One hundred forty-five feet from S. line, 560′ from W. line, E. ½, N. E. ¼, Sec. 22, T. 14 N., R. 4 E. The elevation above tide is 601.′

Plastic clay	45′		45′		
Sandy clay	70′		115′		
Gray shale	18′		133′		
Black shale	6′		139′		
Coal, Upper Verne		6″	139′	6″	at 461 A. T.
Gray shale	19′		158′	6″	
Slate		3″	158′	9″	
Coal, Lower Verne	1′		159′	9″	at 441 A. T.
Slate		3″	160′		
White shale	13′		173′		

TEST HOLE NO. 447.

Ninety feet from E. line, 1,230′ from S. line, E. ½, N. E. ¼, Sec. 22, T. 14 N., R. 4 E. The elevation above tide is 601.′

Plastic clay	42′		42′		
Sandy clay	53′		95′		
Sand	5′		100′		
Gray shale	21′		121′		
Slate	1′		122′		
Coal, Upper Rider		6″	122′	6″	at 478 A. T.
Gray shale	39′	6″	162′		
Slate		4″	162′	4″	
Coal, Lower Verne	2′	2″	164′	6″	at 436 A. T.
Gray shale	22′	6″	187′		

TEST HOLE NO. 448.

Six hundred forty-nine feet from N. line, 342′ from E. line, E. ½, E. ½, S. W. ¼, Sec. 22, T. 14 N., R. 4 E. The elevation above tide is 600.′

Clay	40′		40′		
Sand	40′		80′		
Clay	20′		100′		
White shale	6′		106′		
Gray shale	9′		115′		
Slate	1′		116′		
Coal	2′		118′		at 482 A. T.
White shale	3′		121′		
Gray shale	45′		166′		
Coal, Lower Verne		3″	166′	3″	at 434 A. T.
White shale	2′	9″	169′		
Gray shale	6′		175′		

TEST HOLE NO. 449.

Three hundred fourteen feet from E. line, 1,259′ from S. line, E. ½, W. ½, S. W. ¼, Sec. 22, T. 14 N., R. 4 E. The elevation is 600′ A. T.

Plastic clay	70′		70′	
Sandy clay	23′		93′	
Gray shale	10′		103′	
Black shale	7′		110′	
Slate		6″	110′	6″
Coal	1′	6″	112′	at 488 A. T.
Gray shale (Upper Rider)	4′		116′	
Coal (Upper Rider)		6″	116′	6″ at 484 A. T.
Gray shale	21′		137′	6″
Slate		6″	138′	
Coal, Upper Verne	5′	3″	143′	3″ at 457 A. T.
Slate		9″	144′	
Gray shale	14′		158′	
Coal, Lower Verne	1′	6″	159′	6″ at 440 A. T.
Gray shale	24′	6″	184′	

TEST HOLE NO. 450.

Three hundred fourteen feet from E. line, 259′ from S. line, E. ½, W. ½, S. W. ¼, Sec. 22, T. 14 N., R. 4 E. The elevation above tide is 598.′

Plastic clay	60′		60′	
Sandy clay	13′		73′	
Gray shale	32′		105′	
Black shale	6′		111′	
Coal, Upper Rider		6″	111′	6″ at 487 A. T.
White shale	23′	6″	135′	
Gray shale	25′		160′	
Slate		6″	160′	6″
Coal, Lower Verne		6″	161′	at 437 A. T.
White shale	21′		182′	

TEST HOLE NO. 451.

N. ½, N. W. ¼, Sec. 2, T. 15 N., R. 3 E., 400′ from W. line, 480′ from S. line. The elevation above tide is 632.′

Clay	135′		135′
Sand	27′		162′
Sandrock	10′		172′
Gray shale	2′		174′
Sandrock	2′		176′
Gray shale	3′		179′
Sandrock	22′		201′
Gray shale	9′		210′
Sandrock	86′		296′

TEST HOLE NO. 452.

Two thousand ten feet from E. line, 1,320′ from N. line, N. E. ¼, Sec. 3, T. 15 N., R. 3 E. The elevation above tide is 630.′

Clay	116′		116′
Sand	69′		185′
Sandrock	40′		225′

TEST HOLE NO. 453.

Six hundred feet from S. line, 550′ from W. line, N. ½, S. W. ¼, Sec. 23, T. 15 N., R. 3 E. The elevation above tide is 613.′

Sand	8′		8′	
Clay	37′		45′	
Sand	123′		168′	
Gray shale	4′		172′	
Coal	1′		173′	at 440 A. T.
Gray shale (Verne coals)	4′		177′	
Coal (Verne coals)	1′		178′	at 435 A. T.
Gray shale	12′		190′	
Black shale	10′		200′	
Gray shale	20′		220′	
White shale	5′		225′	
Gray shale	40′		265′	
Slate	1′		266′	
Gray shale	2′		268′	
Black shale	10′		278′	
White shale	5′		283′	
Gray shale	5′		288′	

TEST HOLE NO. 454.

Eighty-five feet from N. line, 595′ from E. line, N. W. ¼, N. E. ¼, Sec. 24, T. 16 N., R. 3 E. The elevation above tide is 620.′

Clay	40′		40′	
Sand	40′		80′	
Sandrock	58′		138′	
Gray shale	1′		139′	
Slate		6″	139′	6″
Coal, Upper Rider		6″	140′	at 480 A. T.
Sandrock	2′		142′	
Gray shale	2′		144′	
Sandrock	16′		160′	
Gray shale	5′		165′	
Sandrock	48′		213′	

TEST HOLE NO. 455.

Five hundred fifty-seven feet from E. line, 65′ from S. line, N. E. ¼, N. E. ¼, Sec. 24, T. 16 N., R. 3 E. The elevation above tide is 622.′

Clay	50′		50′	
Sand	50′		100′	
Gray shale	25′		125′	
Sandrock	6′		131′	
Gray shale	2′		133′	
Black shale	6′		139′	
Sandrock	14′		153′	
Gray shale	2′		155′	
Slate	1′		156′	
Bone coal, Upper Verne		6″	156′	6″ at 465 A. T.
Bituminous coal		6″	157′	
White shale	5′		162′	
Sandrock	13′		175′	
Gray shale	1′		176′	
Sandrock	37′		213′	

TEST HOLE NO. 456

Four hundred forty feet from S. line, 538′ from E. line, S. E. ¼, S. E. ¼, Sec. 24, T. 16 N., R. 3 E. The elevation above tide is 625.′

Clay	65′	65′
Sand	45′	110′
Gray shale	20′	130′
Black shale	2′	132′
White shale	4′	136′
Gray shale	44′	180′
White shale	10′	190′
Gray shale	30′	220′
Sandrock	2′	222′
Gray shale	4′	226′
Sandrock	16′	242′

TEST HOLE NO 457.

Six hundred feet from W. line, 535′ from N. line, S. E. ¼, S. W. ¼, Sec. 32, T. 16 N., R. 3 E. The elevation above tide is 635.′

Clay	65′	65′
Sand	58′	123′
Clay	52′	175′
Sand	5′	180′
Sandrock	36′	216′
Gray shale	4′	220′
Sandrock	10′	230′

TEST HOLE NO 458.

Nine hundred feet from S. line, 200′ from W. line, S. E. ¼, S. E. ¼, Sec. 32, T. 16 N., R. 3 E. The elevation above tide is 633.′

Clay	60′	60′
Sand	84′	144′
Gray shale	6′	150′
Black shale	3′	153′
Gray shale	17′	170′
Sandrock	20′	190′

TEST HOLE NO. 459.

Fifty feet from S. line, 48′ from W. line, N. W. ¼, S. W. ¼, Sec. 33, T. 16 N., R. 3 E. The elevation above tide is 625.′

Clay	55′		55′	
Sand	93′		148′	
White shale	1′		149′	
Slate		6″	149′	6″
Coal, Upper Verne	2′		151′	6″ at 473 A. T.
Slate		6″	152′	
White shale	3′		155′	
Gray shale	4′		159′	
Black shale	5′		164′	
White shale	6′		170′	
Gray shale	8′		178′	
Black shale	6′		184′	
Gray shale	56′		240′	
Sandrock	8′		248′	

TEST HOLE NO. 460.

Two hundred ninety-six feet from N. line, 80′ from W. line, S. E. ¼, S. W. ¼, Sec. 33, T. 16 N., R. 3 E. The elevation above tide is 630.′

Sand	8′	8′
Clay	47′	55′
Sand	93′	148′
Gray shale	1′	149′
Black shale	2′	151′
Gray shale	69′	220′
Sandrock	32′	252′

TEST HOLE NO. 461.

Two hundred two feet from W. line, 421′ from S. line, S. W. ¼, N. W. ¼, Sec. 30, T. 16 N., R. 4 E. The elevation above tide is 620.′

Clay	70′		70′	
Sand	10′		80′	
Clay	20′		100′	
Sand	6′		106′	
White shale	2′		108′	
Slate	1′		109′	
Gray shale	6′		115′	
Slate	1′		116′	
Salzburg coal	2′	6″	118′	6″ at 502 A. T.
Slate		6″	119′	
Gray shale	6′		125′	
Black shale	10′		135′	
Brown shale	5′		140′	
Gray shale	62′		202′	
Sandrock	27′		229′	

TEST HOLE NO. 462.

One hundred forty-four feet from N. line, 642′ from W. line, N. W. ¼, N. W. ¼, Sec. 30, T. 16 N., R. 4 E. The elevation above tide is 617.′

Sandy clay	70′		70′	
Gravel	5′		75′	
Plastic clay	20′		95′	
Sand	15′		110′	
Slate	5′		115′	
Gray shale	55′		170′	
Slate	2′		172′	
Gray shale	4′		176′	
Coal, Lower Verne		4″	176′	4″ at 441 A. T.
Black shale		8″	177′	
Gray shale	50′		227′	
Sandrock	21′		248′	