## Henry A. Brockerhoff #1(676) Well.

To mily of the

Holly District, Webster County, W. Va.

By United Fuel Gas Company, Charleston, W. Va.

Located 4.9 miles S. of 38 2 40' and 1.07 miles W. of 80° 30'

Sutton Quadrangle - EC.

Elevation 1420' L.

Penmit - Webster 3

Permit - Webster 3.
Commenced August, 1951; completed December 1951.
Volume 1,852,000 cu. ft. after shot.
Gas at 1065-1093' Maxon Sand 1036-1093
Section based on samples from 0 to 3810'; examine

Sect	ion base	d on samples	from 0 to 3810; examined by Russell R. Flowers.
Top	Bottom	Thickness	
0	20	20	Pottsville Formation, 473, plus, Feet. Sandstone, moderate yellowish brown, fine to medium-grained with many coarse grains, subangular to subrounded, contains a large amount of hydrous iron oxide (from weathering), somewhat micaceous, trace of pyrite; a large amount of dark-gray to grayish-black, silty shale in the lower part
20	33	13	Sandstone (Argillaceous) to siltstone and shale (sandy in part), light- to medium-gray; the sand grains are fine and very fine; contains streaks of dusky yellowish brown siderite
33	40	<b>7</b>	Sandstone, light- to medium-gray, some greenish- gray (chloritic), very fine tdfine-grained, sideritic in part; some coal and black, highly carbonaceous shale
40	<b>4</b> 5	5	Shale, dark-gray to grayish-black, sontains much siderite (nodules and spherulites)
45	55	10	Coal; a large amount of medium to medium dark gray siltstone interlayered with dark-gray shale
<b>5</b> 5	85	30	Shale, dark-gray to grayish-black, some dusky yellowish brown (highly sideritic); some medium dark to dark-gray siltstone
85	105	20	Sandstone, light- to medium light gray, very fine grained; chloritic; somewhat sideritic; contains many rock fragments; some dark gray shale breaks in the lower part
105	116	11	Shale, darkegray, silty
116	152	36	Sandstone, medium-gray to grayish-black, very fine to fine-grained, very shaly to a sandy shale, a large amount of the sand is rock fragments; sideritic in part
152	193	41	Sandstone (Graywacke), light- to medium-gray; very fine grained; some fine grains; kind sideritic, chloritic, kaolinitic; some mica and some carbonaceous ma_terial; contains dark-gray to grayish-black shale breaksiin the upper part; a large amount of dark-gray to grayish-black, very shaly siltstone in the lower part
193	214	21	Sandstone, very light to light-gray, very fine grained, some dark-gray to grayish-black shale in the lower part, some carbonaceous streaks in the upper part
214	270	56	Shale, dark-gray to ,grayish-black interbedded with some medium dark to dark-gray siltstone, sideritic in part

			·
270	303	33	Shale, dark-gray to grayish-black, silty
303	366	63	Shale, dark-gray to grayish-black with some black, highly carbonaceous shale to coal; some dusky yellowish brown, highly sideritic shale
366	<b>397</b>	31	Sandstone, very light to light-gray, very fine to fine- grained in the upper part, fine-grained in the lower part with some medium grains at bottom, sideritic with some dusky yellowish brown siderite at 375 to 384
39 <b>7</b>	409	12	Shale, grayish-black to black, highly carbonaceous with coal streaks and some coal; a very large amount of dark-gray, sandy siltstone and shale
409	417	8	Sandstone, light- to medium-gray, very fine grained, very silty with shaly (carbonaceous) streaks, somemus covite
417	457	40	Sandstone, very light to light-gray, fine to medium- grained, mostly subangular to subrounded quartz; contains grains of chlorite and dark shaly material
457	473	16 V	Sandstone, light-gray, fine- to coarse-grained, sideritic in the upper part with some dusky yellowish brown siderite; some medium dark gray to grayish-black, silty shale breaks
			Manch Chunk 600 Wood
			Mauch Chunk, 620 Feet.
473	485	12	Shale, medium dark gray to dark greenish gray; a large amount of dark yellowish brown shally, calcareous siderite
485	495	10	Siltstone, medium dark gray (with greenish cast), some dark-gray, sideritic in part with some dark yellowish brown siderite, sandy in part
495	503	8	Shale, dark-gray to grayish-black with carbonaceous streaks and some pyrite
503	510	7 <del>12</del>	Clay-shale, light- to dark-gray, very silty and sandy; a large amount of grayish-black, calcareous siderite
510	524	14	Shale and siltatone, medium dark gray to dark greenish gray, some brownish-gray to grayish-brown; some olive-gray to dark yellowish brown limestone
524	544	20	Shale, grayish-brown to grayish-red; a large amount of siltstone and shale, medium-gray to dark greenish gray
544	549	5	Clay-shale, grayish-red to grayish-brown
549	5 <b>63</b>	14	Shale, greenish-gray to medium dark gray, some brownish-gray, highly calcareous in part to limestone, olive gray; a large amount of grayish-brown clay-shale
563	593	<b>30</b>	Clay-shale, grayish-brown to very dusky red, some limestone nodules; some medium dark gray to dark greenish gray shale and siltstone; a large amount of medium-gray to dark greenish gray, shaly, calcareous siltstone at the bottom
593	603	10	Clay-shale, grayish-brown to very dusky red; small amount of dark greenish gray siltstone
603	615	12	Shalle and siltstone, dusky-brown to very dusky red and grayish-red, some greenish-gray to dark greenish gray, some limestone nodules
615	624	9	Clay-shale, very dusky red to grayish-brown
624	622	-2	Depth correction
622	688	66 <sub>v</sub>	Sandstone, greenish-gray to medium and medium dark gray, silty, argilla ceous chloritic, calcareous

688	711	23	Clay-shale and shale, grayish-red and grayish-brown to brownish-gray at the top, grayish-brown to dusky-brown and very dusky red; some greenish-gray siltstone at the bottom
711	755	44	Shale, very dusky red to grayish-brown, reddish-gray to dark-gray, some dark greenish gray to olive-gray at the bottom; a moderate amount of greenish-gray siltstone
755	775	20	Siltstone to sandstone (very fine), greenish-gray to medium dark gray (shaly)
775	813	38	Sandstone, very light to light-gray, very fine grained, contains many dark-gray to grayish-black, very silty shale partings in the middle and lower part
813	857	44	Sandstone, white to very light gray, very fine to fine- grained, subrounded to subangular (mapy secondary crystal facets)
8 <b>57</b>	862	5	Siltstone, dark greenish gray to medium dark gray, highly chloritic and micaceous, calcareous; some shale, grayish-brown to brownish-gray, some dark-gray to grayish-black
862	875	13	Siltstone, dark greenish gray, highly calcareous in part; shale, grayish-brown to dusky-brown, silty
8 <b>75</b>	908	33	Siltstone and shale, dark greenish gray to dark-gray, grayish-brown to dusky-brown, some very dusky red, calcareous in part
908 <b>93</b>	948	40	Shale and some siltstone, grayish-brown to dusky-brown, some dark greenish gray to medium dark gray, small amount is calcareous
948	969	21	Shale and some siltstone, dark-gray to grayish-black (a large amount at the top), grayish-brown to dusky-brown, dark greenish gray to clive-gray (highly calcareous); some clive-gray limestone at the bottom
969	985	16	Clay-shale and shale, brownish-gray to grayish-brown, dark-gray to grayish-black; a small amount of olive-gray to dark yellowish brown; some dark-gray siltstone
985	1020	35	- Limestone, darkpgray to brownish- and olive-black, highly argillaceous, highly fossiliferous
1020	1032	12	Limestone, olive-gray (highly colitic) to light olive gray (very sandy); some light-gray, highly calcareous, very fine sandstone; moderate amount of dark greenish gray shale, very sandy in part
1032	1059	27	Silt stone to sandstone (very fine), very light to light- gray and greenish-gray, some brownish-gray
1059	1097	38	Sandstone, very light gray, fine to fine-grained, very fine grained at the top, quartzitic (depth correction)
			1097 to 1093 - Drillers log but base of sand at 1093')
			Greenbrier Limestone, 221 Feet.
1093	1109	16	Limestone (highly argillaceous) to shale (highly calcareous), dark-gray to grayish-black, fossiliferous
1109	1125	16	Limestone, light olive gray, colitic, admixed with a dark greenish gray, highly calcareous shale, fossiliferous
1125	1144	19	Limestone, olive-gray to brownish-black, colitic, silty, admixed with dark greenish gray fossiliferous, highly calcareous shalle, a few rounded sand grains (medium)
1144	1183	39	Limestone colite, pale yellowish brown to light olive gray, fine, some medium colites, silty, fossiliferous, only partly colitic at the bottom

1183	1198	15 _	Limestone, olive-gray to dark yellowish brown, silty, sandy (vary fine to fine) at the bottom; some olive-gray to dark greenish gray, highly calcareous siltstone in the lower part
1198	1205	7	Limestone, clive-gray, silty, sandy (very fine to medium-grained, well rounded), very sandy in the lower part
1205	1232	27	Limestone, light olive gray to olive-gray, very silty, sandy in part, the sandy streaks are highly argillaceous (dark greenish gray with some brown)
1232	1252	20	Limestone, olive-gray, olive-gray to olive-black in the lower part, some olive-gray to dark greenish gray, some grayish-red to dark-brown, very silty, highly argillaceous
1252	1278	26	Limestone, light-gray to light olive gray, dolomitic; some olive-gray to dark greenish gray and a little grayish-red to brownish-gray, argillaceous limestone
1278	1286	8	Limestone, light-gray to light olive gray, dolomitic in part, very silty
1286	1304	18	Limestone, light olive gray to olive-gray, some olive- gray to dark-gray (argillaceous), very silty, dolomitic in part
1304	1311	7	Limestone, olive-gray to dark yellowish brown, some light olive gray, highly dolomitic in part, very silty, a small amount of fine to doarse sand
			Maccrady Facies of Pocono, 46 Feet.
1311	1357	46	Siltstone, pale-brown to brownish-gray, some dark greenish gray, some very dusky red to blackish-red; a large amount of dark greenish gray to medium dark gray in the lower part, somewhat calcareous
			Pocono Formation, 43? Feet.
135 <b>7</b>	1381	24	Siltstone, medium dark gray, some dark-gray to grayish- black (shaly) dolomitic in part
1381	1400	19	Siltstone, medium dark to dark-gray in the upper part, medium dark gray todark greenish gray in the lower part; a moderate amount of grayish-black shale
			Devonian Shales, 2410, plus, Feet.
1400	1468	<b>6</b> 8 	Siltstone, medium to medium dark gray and dark greenish gray; shalle medium dark to dark-gray
1468	1550	82	Siltstone to sandstone (very fine), medium-gray to dark greenish gray, some coarse grains to granules, contains chlorits, mica, kaolinitic and carbonaceous material, highly chloritic in part; shale, medium dark to dark-gray (greenish cast)
1550	1556	6	Sandstone (very fine) to siltstone, grayish-brown to brownish-gray (highly micaceous), medium dark gray to dark greenish gray, contains some fine to coarse quartz grains and a few granules; shale, medium dark to dark-gray
155 <b>6</b>	1572	16	Shale, dusky-brown to very dusky red; siltstone and shale medium dark to dark-gray and dark greenish gray
1572	1596	24	Shale and siltstone, medium dark to dark-gray; some sand- stone in the middle part, medium-gray to dark greenish gray, very fine to fine-grained

2044	2050	6	Siltatone to sandstone (very fine), brownish-gray; a large amount of dark-gray shale
2050	2971	21	Siltstone and some sandstone (very fine), medium to medium dark gray, some dark-gray, some brownish-gray to grayish-black; some dark-gray shale
20 71	2176	105	Siltstone, medium dark gray (with greenish cast), some medium-gray; a large amount of dark-gray shale, some medium to medium dark gray, very fine sandstone at the bottom
2176	2 <b>3</b> ,97	2 <b>1</b>	Sandstone (very fine) to siltstone, medium- to medium dark gray, a large amount of brownish-gray to dark-gray; a large amount of dark-gray shale
2197	2242	45	Siltstone and shale, medium-dark to dark-gray; some medium to medium dark gray, very fine sandstone at the top
2242	2307	65	Siltstone to sandstone (very fine), medium- to medium dark gray, some brownish-gray to gray ishblack, calcareous in part; a large amount of dark-gray shale
2307	2335	28	Siltstone to sandstone (very fine), medium- to medium dark gray; a large amount of dark-gray shale
2335	2380	45	Siltstone, medium dark gray, some medium-gray to medium dark gray; some dark-gray shale, calcareous and fossiliferous in part
2380	2405	25	Siltstone to sandstone (very fine), medium dark gray, a large amount of medium- to medium dark gray in the upper part, a large amount of dark-gray to grayish black, highly calcaree eous in part; some dark-gray shale
2405	2656	251	Siltstone and shale, medium dark gray to dark-gray, mostly dark-gray in the upper part, small amount is highly calcareous to calcite, small amount of dark-gray to grayish-black from 2470 to 2510, mostly medium dark gray siltstone from 2544 to 2594, mostly dark-gray shale from 2605 to 2623, some grayish-black to black/carbonaceous) streaks at the bottom
2656	2672	16	Siltstone and shale, medium dark to dark-gray, some brown-ish-gray to grayish-black, sandy siltstone
2672	2700	28	Siltstone and shale, medium dark to dark-gray, some medium-gray (highly calcareous) spots
2700	2738	38	Siltstone and some shale, medium dark to dark-gray, a large amount of brownish-gray to grayish-black
2738	2775	37	Siltstone, mostly a medium dark gray, some dark-gray to grayish-black, small amount is highly calcareous; some dark-gray shale
2775	2891	116	Siltstone and shale, medium dark to dark-gray, many grayish-black to black streaks in the lower part
2891	2959	68	Siltstone, medium to medium dark gray; some dark-gray to grayish-black shale
2959	3178	219	Siltstone, medium to medium dark gray; a moderate amount of dark-gray shale, some dark-gray to grayish-black at 3088 to 3104; a moderate amount of dark-gray to grayish-black at 3132 to 3149
31 <b>7</b> 8	3230	52	Siltstone, medium to medium dark gray; a moderate to large amount of dark-gray to grayish-black shale and some siltstone
3230	3249	19	Silt stone, medium to medium dark gray; shale, grayish-black, some dark-gray to grayish-black

## Henry A. Breekerhoff #1(676) Well.

1-13-5-5

Holly District, Webster County, W. Va.

By United Fuel Gas Company, Charleston, W. Va.

Located 4.9 miles S. of 38 40' and 1.07 miles W. of 80° 30'

Sutton Quadrangle - EC.

Elevation 1420' L.

Permit - Webster 3.

Commenced August, 1951; completed December 1951.

Volume 1,852,000 cu. ft. after shot.

Gas at 1065-1925' Maxon Sand 1036-1095

Top	Rottm	Thickness	
0	20	20	Pottaville Formation, 475, plus, Feet. Sandstone, moderate yellowish brown, fine to medium-grained with many coarse grains, subangular to subrounded, contains a large smount of hydrous iron oxide (from weathering), somewhat micaceous, trace of pyrite; a large smount of dark-gray to grayish-black, silty shale in the lower part
20	35	13	Sandstone (Argillaceous) to siltstone and shale (sandy in part), light- to medium-gray; the sand grains are fine and very fine; contains streaks of dusky yellowish brown siderite
33	40	7	Sandstone, light- to medium-gray, some greenish- gray (chloritie), very fine tofine-grained, sideritic in part; some coal and black, highly carbonaceous shale
40	45	<b>5</b> /	Shale, dark-gray to grayish-black, sontains much siderite (nodules and spherulites)
45	55	10	Coal; a large amount of medium to medium dark gray siltstone interlayered with dark-gray simle
<b>5</b> 5	85	30	Shale, dark-gray to grayish-black, some dusky yellowish brown (highly sideritie); some medium dark to dark-gray siltstone
<b>85</b>	105	20	Sandstone, light- to medium light gray, very fine grained; chloritie; somewhat sideritie; contains many rock fragments; some dark gray shale breaks in the lower part
105	116	11	Shale, darkogray, silty
116	152	36	Sandstone, medium-gray to grayish-black, very fine to fine-grained, very shaly to a sandy shale, a large amount of the sand is rock fragments; sideritic in part
152	193	41	Sandstone (Graywacks), light- to medium-gray; very fine grained; some fine grains; dimi sideritie, chloritie, kaolinitie; some mica and some carbonaceous macterial; contains dark-gray to grayish-black shale breaksiin the upper part; a large amount of dark-gray to grayish-black, very shaly siltstone in the lower part
193	21 4	21	Sandstone, very light to light-gray, very fine grained, some dark-gray to grayish-black shale in the lower part, some carbonaceous streaks in the

Sandstone, very light to light-gray, very fine grained, some dark-gray to grayish-black shale in the lower part, some carbonaceous streaks in the upper part

214 270 56 Shale, dark-gray to grayish-black interbedded with some medium dark to dark-gray siltstone, sideritic in part

<b>470</b>	303	35	Shale, dark-gray to grayish-black, silty
303	366	63	Shale, dark-gray to grayish-black with some black, highly carbonaceous shale to coal; some dusky yellowish brown, highly sideritie shale
366	397	31	Sandstone, very light to light-gray, very fine to fine- grained in the upper part, fine-grained in the lower part with some medium grains at bottom, sideritie with some dusky yellowish brown siderite at 375 to 384
397	409	12	Shale, grayish-black to black, highly carbonaceous with coal streaks and some coal; a very large amount of dark-gray, sandy siltstone and shale
409	417	8	Sandsbone, light- to medium-gray, very fine grained, very silty with shaly (carbonaceous) streaks, segemus covite
417	457	40	Sandstone, very light to light-gray, fine to medium- grained, mostly subangular to subrounded quarts; contains grains of chlorite and dark shaly material
457	473	16	Sandstone, light-grap, fine- to coarse-grained, sideritie in the upper part with some dusky yellowish brown siderite; some medium dark gray to grayish-black silty shale breaks
			Mauch Chunk, 620 Peet.
473	485	12	Shale, medium dark gray to dark greenish gray; a large amount of dark yellowish brown shally, calcareous siderite
485	495	10	Siltstone, medium dark gray (with greenish cast), seme dark-gray, sideritic in part with some dark yellowish brown siderite, sandy in part
495	503	8	Shale, dark-gray to grayish-black with carbonaceous streaks and some pyrite
503	510	3.9	Clay-shale, light- to dark-gray, very silty and sandy; a large amount of grayish-black, calcareous siderite
510	524	14	Shale and siltstone, medium dark gray to dark greenish gray, some brownish-gray to grayish-brown; some elive-gray to dark yellowish brown limestone
524	544	20	Shale, grayish-brown to grayish-red; a large amount of siltstone and shale, medium-gray to dark greenish gray
544	549	5	Clay-shale, grayish-red to grayish-brown
549	563	14	Shale, greenish-gray to medium dark gray, seme brownish- gray, highly calcareous in part to limestone, elive gray; a large amount of grayish-brown clay-shale
56\$	593	<b>30</b>	Clay-shale, grayish-brown to very dusky red, some limestene nodules; some medium dark gray to dark greenish gray shale and siltstone; a large amount of medium-gray to dark greenish gray, shaly, calcareous siltstone at the bottom
593	603	10	Clay-shele, grayish-brown to very dusky red; small amount of dark greenish gray siltstone
603	615	12	Shale and siltstone, dusky-brown to very dusky red and grayish-red, some greenish-gray to dark greenish gray, some limestone nodules
615	624	9	Clay-shale, very dusky red to grayish-brown
624	622	-2	Depth correction
682	688	66	Sandstone, greenish-gray to medium and medium dark gray, silty, argilla ceous chloritic, calcareous

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dark-gray, some dark greenish gray to elsve-gray at the bottom; a maderate smount of greenish-gray slitations  755 776 20 Siltatoms to sandatome (very fine), greenish-gray te medium dark gray (shaly)  775 815 38 Sandatome, vory light to light-gray, very fine grained, centains many dark-gray to grayish-black, very slity shale partings in the middle and lower part  613 857 44 Sandatome, white to very light gray, very fine to fine-grained, subrounded to subangular (magy secondary crystal facets)  867 882 5 Siltatome, dark greenish gray to medium dark gray, highly chloritic and missecous, salesveous; some shale, grayish-brews to brownish-gray; mose dark-gray to grayish-black parameters to dark greenish gray, highly calcareous in part; shale, grayish-brown to dark-gray, grayish-brews to dark-gray to grayish-brews to dark-gray grayish-brews to dusky-brown, saley yrayish-brews to dusky-brown, saley yrayish-brews to dusky-brown, seem very dusky red, calcareous in part  9082 948 949 40 Shale and sale siltatome, grayish-brown to dusky-brown, seem dark greenish gray to make the bettom  948 969 21 Shale and some siltatome, dark-gray to grayish-brown, dark-gray to grayish-black (a large menuta to the bettom  950 985 15 Clay-shale and shale, brownish-gray to grayish-brown, dark-gray to grayish-black; a small amount of clive-gray to dark-gray to grayish-black; a small amount of clive-gray to dark-gray to grayish-black; a small amount of clive-gray to dark-gray to grayish-black; a small amount of clive-gray to dark-gray to grayish-black; a small amount of clive-gray to dark-gray to grayish-black; highly enleareous, very fine sandatome; nederate amount of think proving some dark-gray siltatoms  960 985 16 Climatome, dark-gray to grayish-brown, dark-gray to grayish-black; finelly and proving a grayish-black; finelly calcareous, very fine gray and greenish gray, some brownish-gray  1080 1081 12 Limatome, clive-gray to brownish-black of highly enleareous shale, a few rounded amd grayis colitic, admixed with a dark greenish gray, h	,8 <b>8</b>	711	23	brownish-gray at the top, grayish-brown to dusky-brown and ver;
Sandstone, very light to light-gray, very fine grained, commains many dark-gray to grayinh-black, very silty shale partings in the middle and lower part  Sandstone, white to very light gray, very fine to fine-grained, subrounded to subangular (many secondary crystal facets)  Sec 5 Salitatone, dark greenish gray to medium dark gray, highly elleritic and misaceous, calcureous; seme shale, grayish-back brown to brownish-gray, some dark-gray to grayish-back shale, grayish-brown te dusky-brown, silty  Siltatone, dark greenish gray highly calcareous in part; shale, grayish-brown te dusky-brown, silty grayish-brown to dusky-brown, seme very dusky red, calcareous in part  Siltatone and shale, dark greenish gray to dark-gray, grayish-brown to dusky-brown, seme dark greenish gray to calcareous in part  Shale and some siltatone, grayish-brown to dusky-brown, some dark greenish gray to medium dark gray, small amount to calcareous  Shale and some siltatone, dark-gray to grayish-brown, dark greenish gray to clave-gray lingly calcareous; some clive-gray lingly calcareous; some clive-gray lingly calcareous; some clive-gray to grayish-brown, dark greenish gray to grayish-brown, dark greenish gray to grayish-brown, dark greenish gray to grayish-brown, dark-gray to grayish-brown, some clive-gray siltatone  Clay-shale and shale, wronish-gray to grayish-brown, dark-gray to grayish-brown, some dark-gray siltatone  Limestone, darkgray to brownish-gray to grayish-brown, dark-gray to grayish-brown, some clive-gray (highly seleareous, very fine sandstone; some order to sandstone (very fine), very light to light-gray and groenish-gray, some brownish-gray  Limestone, light yargilaceous) to shale (highly calcareous), dark-gray to grayish-block, feasiliferous  Limestone, light dark groenish gray feasiliferous  Limestone, light dark groenish gray feasiliferous and larked with dark groenish gray calcaline	711	755	44	dark-gray, some dark greenish gray to elive-gray at the
centeins many derivegray to grayish-black, very silty shale partings in the middle and lower part  813 SF7 44 Sandatone, white to very light gray, very fine to fine-grained, subrounded to subangular (many secondary crystal facets)  857 862 5 Siltatone, dark greenish gray to medium dark gray, highly chievitic and mis accous, calcareous; some shale, grayish-brown to breenish-gray, some dark-gray to grayish-black  862 875 15 Siltatone, dark greenish gray, highly calcareous in part; shale, grayish-brown to dusky-brown, silty  876 908 35 Siltatone and shale, dark greenish gray to dark-gray, grayish-brown to dusky-brown, seme dark greenish gray to medium dark gray, small amount is calcareous in part  908222 948 40 40 Shale and seme siltatone, grayish-brown to dusky-brown, seme dark greenish gray to medium dark gray, small amount is calcareous acreases  948 949 21 Shale and seme siltatone, dark-gray to grayish-black (a large smaunt at the top), grayish-brown to dusky-brown, dark greenish gray to clive-gray (highly calcareous); seme clive-gray limeatone at the buttom  969 985 16 Clay-shale and shale, brownish-gray to grayish-brown, dark-gray to grayish-brown, seme dark-gray siltatone  985 1080 35 Limeatone, at the buttom dark-gray siltatone  1080 1082 12 Limeatone, highly fossiliferous  1080 1082 12 Limeatone, highly fossiliferous  1081 1089 27 Siltatone to sandatone (very fine), very light to light clive gray was greenish gray shale, very fine grained at the top, quartatite (depth correction)  1097 to 1093 - Drillers log but base of sand at 1093*)  Orcembrier Limeatone, 221 Feet.  1098 1109 16 Limeatone, light clive gray, colitic, admixed with a dark greenish gray, highly calcareous highly calcareous shale, fossiliferous and dark-gray to greyish-black, fossiliferous and dark-gray to greyish-black, fossiliferous and dark-gray to greenish gray	755	775	20	
grained, subrounded to subangular (magy secondary crystal facets)  867 862 5 Siltstone, dark greenish gray to medium dark gray, highly chloritic and misaceous, celeareous; some shale, grayish-brown to brownish-gray, some dark-gray to grayish-black  862 875 13 Siltstone, dark greenish gray, highly calcareous in part; shale, grayish-brown to dusky-brown, silty  875 906 53 Siltstone and shale, dark greenish gray to dark-gray, grayish-brown to dusky-brown, seem very dusky red, calcareous in part  908242 948 40 Shale and some siltstone, grayish-brown to dusky-brown, some dark greenish gray to medium dark gray, small amount in calcareous  948 969 21 Shale and some siltstone, dark-gray to grayish-black (a large amount at the top), grayish-brown to dusky-brown, dark greenish gray to clive-gray (highly calcareous); some clive-gray limestone at the bottom  969 965 16 Clay-shale and shale, brownish-gray to grayish-brown, dark gray limestone at the bottom  968 1090 35 Limestone, darkgray to brownish-gray to grayish-brown, dark-gray to grayish-black; a small amount of clive-gray to dark yellowish brown; some dark-gray siltstome  1080 1082 12 Limestone, clive-gray (highly cellareous, very fine amintens; materate amount of cark greenish gray shale, very sandy); some light-gray, highly celsareous, very fine amintens; materate amount of cark greenish gray shale, very sandy in part  1032 1069 27 Siltstone to sandstone (very fine), very light to light-gray and greenish-gray, seem brownish-gray  1097 to 1095 - Drillers log but base of sand at 1095')  1098 1109 16 Limestone, (highly arglilaceous) to shale (highly calcareous), dark-gray to grayish-black, fessiliferous  1109 1125 16 Limestone, light clive gray, colitic, admixed with a dark greenish gray, highly calcareous shale, fessiliferous  1109 1125 16 Limestone, elive-gray to brownish-black, colitie, silty, admixed with dark greenish gray fessiliferous and and are a few rounded and grains (medium)  1144 1185 39 Limestone selite, pale yellowish brown to light contents.	775	813	38	contains many dark-gray to grayish-black, very silty shale
ealertitic and micacoous, calcareous; some shale, grayish-brown to brownish-gray, some dark-gray to grayish-black  Siltatome, dark greenish gray, highly calcareous in part; shale, grayish-brown to dusky-brown, ailty  Siltatome and shale, dark greenish gray to dark-gray, grayish-brown to dusky-brown, some very dusky red, calcareous in part  Siltatome and shale, dark greenish gray to dark-gray, grayish-brown to dusky-brown, some dark greenish gray to medium dark gray, small amount is calcareous  Shale and some siltatome, grayish-brown to dusky-brown, dark greenish gray to clive-gray (bighly esteracous); some clive-gray libestome at the boottom  Clay-and, and shale, brownish-gray to grayish-brown, dark greenish gray to grayish-black; a small amount of clive-gray to dark yellowish brown; some dark-gray siltatome  Clay-and, and shale, brownish-gray to grayish-brown, dark-gray to grayish-black; a small amount of clive-gray to dark yellowish brown; some dark-gray siltatome  Limestome, darksgray to brownish- and clive-black, highly argillacous, highly fossiliferous  Limestome, clive-gray (highly cellatic) to light clive gray (very sandy); some light-gray, highly calcareous, very fine gray and greenish-gray, some brownish-gray  Siltatome to sandstome (very fine), very light to light-gray and greenish-gray, some brownish-gray  Sandstoms, very light gray, fine to fine-grained, very fine grained at the top, quartaitic (dapth correction)  1097 to 1093 - Drillers leg but base of sand at 1095;)  Greenbrier Limestone, 221 Feet.  Limestone, lighty argillaceous) to shale (highly calcareous), dark-gray to grayish-black, fossiliferous  Limestone, lighty argillaceous to shale, fossiliferous  Limestone, elive-gray to brownish-black, colitie, silty, admixed with cark greenish gray, fossiliferous highly calcareous shale, a few rounded sand grains (midus)	913	857	44	grained, subrounded to subangular (magy secondary crystal
shale, grayish-brown to dusky-brown, silty  Siltstome and shale, dark greenish gray to dark-gray, grayish-brown to dusky-brown, seem very dusky red, esleareous in part  Shale and seem siltstone, grayish-brown to dusky-brown, seems dark greenish gray to medium dark gray, small amount is calcureous  Shale and some siltstone, dark-gray to grayish-black (a large amount at the top), grayish-brown to dusky-brown, dark greenish gray to dive-gray (highly celeareous); some clive-gray limestome at the bottom  Glay-shale and shale, brownish-gray to grayish-brown, dark gray it grayish-black; a small amount of clive-gray to dark-gray to grayish-black (a large-gray to grayish-black, a small amount of clive-gray to dark-gray to grayish-black; a small amount of clive-gray to dark-gray to grayish-black, highly argillaceous, highly fossiliferous  Limestone, dark/gray to brownish-gray siltstone  Limestone, clive-gray (highly celistic) to light clive gray (very sandy); some light-gray, highly calcureous, very fine sandstone; moderate amount of dark greenish gray shale, very sandy in part  Siltstone to sandstone (very fine), very light to light-gray and greenish-gray, seem brownish-gray  Sendstone, very light gray, fine to fine-graimed, very fine gray and greenish-gray, seem brownish-gray  Sendstone, very light gray, fine to fine-graimed, very fine gray and greenish gray, highly calcureous bale (highly calcureous), dark-gray to grayish-black, fessiliferous  Limestone, light clive gray, colitic, admixed with a dark greenish gray, highly calcureous shale, fessiliferous highly calcureous shale, a few rounded sand grains (medium)  Limestone colite, pale yellowish brown to light olive gray, fine, some medium colites, silty, fessiliferous and matches.  Limestone colite, pale yellowish brown to light olive gray, fine, some medium colites, silty, fessiliferous and matches.	857	862	5	chloritic and micaceous, calcareous; some shale, grayish-
grayish-brown to dusky-brown, some very dusky red, calcareous in part  308222 948 45    Shale and some siltstone, grayish-brown to dusky-brown, some dark greenish gray to medium dark gray, small amount is calcareous  948 969 21   Shale and some siltstone, dark-gray to grayish-black (a large smount at the tops, grayish-brown to dusky-brown, dark greenish gray to clive-gray (highly calcareous); some clive-gray limestone at the bottom  969 965 16   Clay-shalle and shale, brownish-gray to grayish-brown, dark-gray to grayish-black; a small amount of clive-gray to dark-gray to dark-gray siltstone  986 1020 55   Limestone, dark-gray to brownish- and clive-black, highly argilaceous, highly calcareous, very fine sandstene; moderate smount of dark greenish gray shale, very sandy in part  1032 1059 12   Siltstone to sandstone (very fine), very light to light-gray and greenish-gray, sems brownish-gray  1059 1097 36   Sandstone, very light gray, fine to fine-grained, very fine grained at the top, quartiitic (depth cerrection)  1097 to 1093 - Drillers leg but base of sand at 1093:}  Greenbrier Limestone, 221 Feet.  1098 1109 16   Limestone (highly argillaceous) to shale (highly calcareous), dark-gray to grayish-black, feesiliferous  1109 1125 16   Limestone, light clive gray, colitic, admixed with a dark greenish gray, highly calcareous shale, feesiliferous, highly calcareous shale, a few rounded sand grains (modium)  1144 1185 59   Limestone colite, pale yellowish brown to light clive gray, fine, some medium colites, silty, feesiliferous	862	875	13	
seme dark greenish gray to medium dark gray, small amount is esloareous slatereous and some siltstone, dark-gray to grayish-black (a large smount at the tops, grayish-brown to dusky-brown, dark greenish gray to clive-gray (highly calcareous); some clive-gray limestome at the bottom  969 985 16 Clay-shale and shale, brownish-gray to grayish-brown, dark-gray to grayish-black; a small amount of clive-gray to dark yellowish brown; some dark-gray siltstone  985 1020 35 Limestone, darkigray to brownish- and clive-black, highly argillaceous, highly fossiliferous (very sandy); some light-gray, highly calcareous, very fine sandstone; moderate amount of dark greenish gray shale, very sandy in part  1032 1059 27 Siltstone to sandstone (very fine), very light to light-gray and greenish-gray, seme brownish-gray  1059 1097 36 Sandstone, very light gray, fine to fine-grained, very fine grained at the top, quartritic (depth correction)  1097 to 1093 - Drillers leg but base of sand at 1093')  Greenbrier Limestone, 221 Feet.  1095 1109 16 Limestone, light clive gray, colitic, admixed with a dark greenish gray, highly calcareous shale, fossiliferous  1109 1125 16 Limestone, clive-gray to brownish-black, colitie, silty, admixed with dark greenish gray fessiliferous, highly calcareous shale, a few rounded sand grains (medium)  1124 1185 39 Limestone colite, pale yellowish brown to light clive gray, fine, seme medium colites, silty, fossiliferous only nearly, fine, seme medium colites, silty, fossiliferous only nearly fine, seme medium colites, silty, fo	8 <b>75</b>	908	33	grayish-brown to dusky-brown, some very dusky red, ealoareous
large smeunt at the tops, grayish-brown to dusky-brown, dark greenish gray to olive-gray (highly calcareous); some clive-gray limestom at the bottom  985 16 Clay-shale and shale, brownish-gray to grayish-brown, dark-gray to grayish-black; a small amount of clive-gray to dark-gray to grayish-black; a small amount of clive-gray to dark-gray siltstome  985 1020 35 Limestone, dark-gray to brownish- and clive-black, highly argillaceous, highly fossiliferous  1080 1032 12 Limestone, clive-gray (highly celitic) to light clive gray (very sandy); some light-gray, highly calcareous, very fine sandstone; moderate amount of dark greenish gray shale, very sandy in part  1032 1059 27 Siltstone to sandstone (very fine), very light to light-gray and greenish-gray, sems brownish-gray  1059 1097 36 Semdstone, very light gray, fine to fine-grained, very fine grained at the top, quartitic (depth cerrection)  1097 to 1095 - Drillers log but base of sand at 1095')  Greenbrier Limestone, 221 Feet.  1095 1109 16 Limestone (highly argillaceous) to shale (highly calcareous), dark-gray to grayish-black, fossiliferous  1109 1125 16 Limestone, light clive gray, colitic, admixed with a dark greenish gray, highly calcareous shale, fossiliferous  1126 1144 19 Limestone, clive-gray to brownish-black, colitie, silty, admixed with dark greenish gray fessiliferous, highly calcareous shale, a few rounded sand grains (midium)  1126 1127 Limestone colite, pale yellowish brown to light clive gray, fine, some medium colites, silty, fossiliferous calcareous shale, some medium colites, silty, fossiliferous calcareous calc	9082	948	46	some dark greenish gray to medium dark gray, small amount is
dark-gray to grayish-black; a small amount of clive-gray to dark yellowish brown; seem dark-gray siltstome  1020 35 Limestone, darkggray to brownish- and clive-black, highly argillaceous, highly fossiliferous  1020 1032 12 Limestone, clive-gray (highly celitic) to light clive gray (very sandy); some light-gray, highly calcareous, very fine sandstone; moderate amount of dark greenish gray shale, very sandy in part  1032 1059 27 Siltstone to sandstone (very fine), very light to light-gray and greenish-gray, seem brownish-gray  1059 1097 36 Sandstone, very light gray, fine to fine-grained, very fine grained at the top, quartsitic (depth cerrection)  1097 to 1095 - Drillers leg but base of sand at 1095')  Greenbrier Limestone, 221 Feet.  1093 1109 16 Limestone (highly argillaceous) to shale (highly calcareous), dark-gray to grayish-black, fossiliferous  1109 1125 16 Limestone, light clive gray, colitic, admixed with a dark greenish gray, highly calcareous shale, fossiliferous  1125 1144 19 Limestone, elive-gray to brownish-black, colitie, silty, admixed with dark greenish gray fessiliferous, highly calcareous shale, a few rounded sand grains (medium)  1144 1185 39 Limestone colite, pale yellowish brown to light clive gray, fine, some medium colites, silty, fossiliferous and meable of the pale yellowish brown to light clive gray,	948	969	21	large amount at the top), grayish-brown to dusky-brown, dark greenish gray to clive-gray (highly calcareous); some clive-
loss likesous, highly fossiliferous  Limstone, clive-gray (highly celitic) to light clive gray (very sandy); some light-gray, highly calcareous, very fine sandstone; moderate amount of dark greenish gray shale, very sandy in part  loss loss 27 Siltstone to sandstone (very fine), very light to light-gray and greenish-gray, sems brownish-gray  loss loss Sandstone, very light gray, fine to fine-grained, very fine grained at the top, quartitie (depth correction)  loss to loss - Drillers log but base of sand at loss;)  Greenbrier Limestone, 221 Feet.  loss loss to shale (highly calcareous), dark-gray to grayish-black, fessiliferous  lice limestone, light clive gray, colitic, admixed with a dark greenish gray, highly calcareous shale, fossiliferous  limestone, clive-gray to brownish-black, colitie, silty, admixed with dark greenish gray fessiliferous, highly calcareous shale, a few rounded sand grains (medium)  Limestone colite, pale yellowish brown to light clive gray, fine, some medium colites, silty, fessiliferous colleges, and the partition of the pale yellowish brown to light clive gray, fine, some medium colites, silty, fessiliferous colleges, and partitions of the pale yellowish brown to light clive gray,	969	985	16	dark-gray to grayish-black; a small amount of olive-gray to
(very sandy); some light-gray, highly calcareous, very fine sandstene; moderate amount of dark greenish gray shale, very sandy in part  1032 1059 27 Siltstone to sandstene (very fine), very light to light-gray and greenish-gray, sems brownish-gray  1059 1097 38 Sandstene, very light gray, fine to fine-grained, very fine grained at the top, quartistic (depth correction)  1097 to 1093 - Drillers log but base of sand at 1098:)  Greenbrier Limestone, 221 Feet.  1095 1109 16 Limestone (highly argillaceous) to shale (highly calcareous), dark-gray to grayish-black, fessiliferous  1109 1125 16 Limestone, light clive gray, colitic, admixed with a dark greenish gray, highly calcareous shale, fessiliferous  1125 1144 19 Limestone, clive-gray to brownish-black, colitie, silty, admixed with dark greenish gray fessiliferous, highly calcareous shale, a few rounded sand grains (medium)  1144 1185 59 Limestone colite, pale yellowish brown to light olive gray, fine, some medium colites, silty, fessiliferous calcareous colites, some medium colites, silty, fessiliferous calcareous colites, some medium colites, silty, fessiliferous calcareous calc	985	1020	35	Limestone, darkegray to brownish- and olive-black, highly argillaceous, highly fessiliferous
Sendstone, very light gray, fine to fine-grained, very fine grained at the top, quartiitic (depth correction)  1697 to 1095 - Drillers log but base of sand at 1095;  Greenbrier Limestone, 221 Feet.  1095 1109 16 Limestone (highly argillaceous) to shale (highly calcareous), dark-gray to grayish-black, fossiliferous  1109 1125 16 Limestone, light clive gray, colitic, admixed with a dark greenish gray, highly calcareous shale, fossiliferous  1125 1144 19 Limestone, elive-gray to brownish-black, colitie, silty, admixed with dark greenish gray fessiliferous, highly calcareous shale, a few rounded sand grains (medium)  1144 1185 59 Limestone colite, pale yellowish brown to light olive gray, fine, some medium colites, silty, fossiliferous only persil	1020	1032	12	(very sandy); some light-gray, highly calcareous, very fine sandstone; moderate amount of dark greenish gray shale. very
fine grained at the top, quartzitic (depth correction)  1097 to 1093 - Drillers log but base of sand at 1095;  Greenbrier Limestone, 221 Feet.  1093 1109 16 Limestone (highly argillaceous) to shale (highly calcareous), dark-gray to grayish-black, fessiliferous  1109 1125 16 Limestone, light clive gray, colitic, admixed with a dark greenish gray, highly calcareous shale, fessiliferous  1125 1144 19 Limestone, clive-gray to brownish-black, colitie, silty, admixed with dark greenish gray fessiliferous, highly calcareous shale, a few rounded sand grains (medium)  1144 1185 59 Limestone colite, pale yellowish brown to light clive gray, fine, some medium colites, silty, fessiliferous, only negative.	1032	1059	27	Silt stone to sandstone (very fine), very light to light- gray and greenish-gray, some brownish-gray
Greenbrier Limestone, 221 Feet.  1095 1109 16 Limestone (highly argillaceous) to shale (highly calcareous), dark-gray to grayish-black, fessiliferous  1109 1125 16 Limestone, light clive gray, colitic, admixed with a dark greenish gray, highly calcareous shale, fessiliferous  1125 1144 19 Limestone, elive-gray to brownish-black, colitia, silty, admixed with dark greenish gray fessiliferous, highly calcareous shale, a few rounded sand grains (medium)  1144 1185 59 Limestone colite, pale yellowish brown to light clive gray, fine, some medium colites, silty, fessiliferous only partition.	1059	1097	<b>3</b> 8	Sandstone, very light gray, fine to fine-grained, very fine grained at the top, quartzitic (depth correction)
Limestone (highly argillaceous) to shale (highly calcareous), dark-gray to grayish-black, fessiliferous  Limestone, light clive gray, colitic, admixed with a dark greenish gray, highly calcareous shale, fessiliferous  Limestone, elive-gray to brownish-black, colitic, silty, admixed with dark greenish gray fessiliferous, highly calcareous shale, a few rounded sand grains (medium)  Limestone colite, pale yellowish brown to light clive gray, fine, some medium colites, silty, fessiliferous, only penalty				1097 to 1093 - Drillers log but base of sand at 1095')
dark-gray to grayish-black, fessiliferous  1109 1125 16 Limestone, light clive gray, colitic, admixed with a dark greenish gray, highly calcareous shale, fessiliferous  1125 1144 19 Limestone, clive-gray to brownish-black, colitie, silty, admixed with dark greenish gray fessiliferous, highly calcareous shale, a few rounded sand grains (medium)  1144 1185 59 Limestone colite, pale yellowish brown to light clive gray, fine, some medium colites, silty, fessiliferous, only nearly				Greenbrier Limestone, 221 Feet.
greenish gray, highly calcareous shale, fossiliferous  1125 1144 19 Limestone, elive-gray to brownish-black, colitie, silty, admixed with dark greenish gray fessiliferous, highly calcareous shale, a few rounded sand grains (medium)  1144 1185 59 Limestone colite, pale yellowish brown to light olive gray, fine, some medium colites, silty, fossiliferous, colymanstic	1093	1109	16	Limestone (highly argillaceous) to shale (highly calcareous), dark-gray to grayish-black, fessiliferous
admixed with dark greenish gray fessiliferous, highly cal- careous shale, a few rounded sand grains (medium)  1144 1185 59 Limestone colite, pale yellowish brown to light olive gray, fine, some medium colites, silty, fessiliferous, only negative.	1109	1125	16	Limestone, light olive gray, colitic, admixed with a dark greenish gray, highly calcareous shale, fossiliferous
fine, some medium colites, silty, fossiliferous only next	1125	1144	19	admixed with dark greenish gray fessilifermia, highly cal-
•	1144	1183	39	Tine, some medium colites, silty, fossiliferous only next

1183	1198	15	Limestone, clive-gray to dark yellowish brown, silty, sandy (vary fine to fine) at the bottom; some clive-gray to dark greenish gray, highly calcareous siltstene in the lower part
1198	12 <b>05</b>	7	Limestone, olive-gray, silty, sandy (very fine to medium- grained, well rounded), very sandy in the lower part
1205	1232	27	Limestone, light clive gray to clive-gray, very silty, sandy in part, the sandy streaks are highly argillaceous (dark greenish gray with some brown)
1232	1252	20	Limestone, elive-gray, elive-gray to elive-black in the lower part, some elive-gray to dark greenish gray, some grayish-red to dark-brown, very silty, highly argillaceous
1252	1278	26	Limestone, light-gray to light olive gray, dolomitic; some elive-gray to dark greenish gray and a little grayish-red to brownish-gray, argillaceous limestone
1278	1286	8	Limestone, light-gray to light elive gray, dolomitic in part, very silty
1286	1304	18	Limestone, light clive gray to clive-gray, some clive- gray to dark-gray (argillaceous), very silty, delomitie in part
1304	1511	7	Limestone, elive-gray to dark yellowish brown, some light elive gray, highly delomitie in part, very silty, a small amount of fine to dearse sand
			Macorady Pacies of Poseno, 46 Feet.
1311	1357	46	Siltstone, pale-brown to brownish-gray, some dark greenish gray, some very dusky red to blackish-red; a large amount of dark greenish gray to medium dark gray in the lower part, somewhat calcareous
			Peceno Formation, 43? Feet.
1357	1381	24	Siltstone, medium dark gray, some dark-gray to grayish- black (shaly) delemitic in part
1381	1400	19	Siltatone, medium dark to dark-gray in the upper part, medium dark gray todark greenish gray in the lower part; a mederate amount of grayish-black shale
			Devenien Shales, 2410, plus, Feet.
1400	1468	68	Siltstone, medium to medium dark gray and dark greenish gray; shale medium dark to dark-gray
1468	1550	<b>38</b>	Siltstone to sandstone (very fine), medium-gray to dark greenish gray, some coarse grains to granules, contains chlorite, mica, kaclinitie and carbonaceous material, highly chloritie in part; shale, medium dark to dark-gray (greenish oast)
1550	1556	6	Sandstone (very fine) to siltstone, grayish-brown to brownish-gray (highly micaceous), medium dark gray to dark greenish gray, contains some fine to coarse quartz grains and a few granules; shale, medium dark to dark-gray
1556			
1572	1572 1596	16	Shale, dusky-brown to very dusky red; siltstene and shale medium dark to dark-gray and dark greenish gray  Shale and siltstene, medium dark to dark-gray; some sand-

159 A	1623	27	Sandstone, light- to medium-gray, very fine to fine- grained (with conglomerates spots of medium to coarse grains and occasional granules), very fine to silty at the top
1623	1635	12	Sandstone (very fine) to silt stone, olive-gray to dark greenish gray and medium dark gray, delomitic in part; some dark greenish gray to dark-gray clay-shale; a large amount of shale, medium dark to dark-gray; some grayish-black
1635	1657	22	Sandstone, pale-brown to grayish-red, very fine to fine- grained; a moderate amount of siltstone and shale, medium dark to dark-gray, some dusky-brown
1657	1679	22	Sandstone (very fine) to siltstone, very dusky red to dusky-brown, some grayish-red at the top; shale and siltstone, medium dark to dark-gray, highly micaecous in part, somewhat carbonaccous in part
1679	1687	8	Shale and some siltatone, medium dark to dark-gray
1687	1700	13	Sandstone (very fine) to siltstone, medium light to medium dark gray (with greenish cast), conglemeratic in the lower part (many coarse quartz grains to granules); a large amount of medium dark to dark-gray shale
1700	1729	29	Siltstone (sandy) and shale, very dusky red to dusky-brown, olive-gray to medium dark gray, micaceous and chloritie, a large amount of medium dark to dark-gray and some dark yellewish brown at the bottom
1729	1755	26	Siltstone to sandstone (very fine), elive-gray to dark greenish gray and medium dark gray, contains medium to charse quartz grains and granules; a very large amount of medium dark to dark-gray shale
1755	1809	54	Shale and siltstone, medium dark to dark-gray, some of the siltstone is medium dark gray to dark greenish gray
1809	1878	69	Sandstone, light-gray, very fine to fine-grained, con- glomeratic (many medium to very coarse quartz grains) in the upper part, some medium to coarse grains at the bottom; a large amount of fark-gray shale in the bottom 25 feet
1878	1901	23	Shale, dark-gray; seme siltstone to sandstone (very fine), medium- to medium dark gray and dark greenish gray
1901	1958	57	Siltstone to sandstone (very fine), medium-gray to medium dark gray, some medium dark gray to dark greenish gray; shale, dark-gray
1958	1965	7	Sandstone, dark-gray to grayish-black, very fine, some medium grains to granules, a large amount of grayish-black interstitial material; a very large amount of dark-gray shale and siltstone
1965	1988	23	Shale and siltstone, medium dark todark-gray
1988	2005	17	Siltatene to sandstone (very fine), medium- to medium dark gray, some medium dark gray to dark greenish gray; a very large amount of medium dark to dark-gray siltatone and shale
2005	2021	16	Siltatone and shale, medium dark to dark-gray, some medium dark gray to dark greenish gray; a large amount of dark-gray to greenish-black sandstone (very fine), very silty)
5051	2030	9	Sandstone (very fine) to siltatone, light- to medium-gray; siltatone, (sandy) and some shale, medium dark to dark-gray
2030	2035	5	Sandstone, brownish-gray to grayish-black, some medium to medium dark gray, very fine, silty; some dark-gray shale
<b>30</b> 35	400-	1	(5)

2044	2050	6	Siltatone to sandstone (very fine), brownish-gray; a large amount of dark-gray shale
2050	2071	21	Siltatone and some sandstone (very fine), medium to medium dark gray, some dark-gray, some brownish-gray to grayish-black; some dark-gray shale
2071	2176	105	Silt stone, medium dark gray (with greenish cast), some medium-gray; a large amount of dark-gray shale, some medium to medium dark gray, very fine sandstone at the bottom
2176	21,97	21:	Sandstone (very fine) to siltstone, medium- to medium dark gray, a large amount of brownish-gray to dark-gray; a large amount of dark-gray shale
2197	2242	45	Siltatone and shale, medium-dark to dark-gray; some medium to medium dark gray, very fine sandstone at the top
22 <b>42</b>	2307	65	Siltstone to sandstone (very fine), medium- to medium dark gray, some brownish-gray to grayishblack, calcareous in part; a large amount of dark-gray shale
2307	2335	28	Siltstone to sandstone (very fine), medium to medium dark gray; a large amount of dark-gray shale
2335	2380	45	Siltatone, medium dark gray, some medium-gray to medium dark gray; some dark-gray shale, calcareous and fessiliferous in part
2380	2405	25	Siltatone to sandstone (very fine), medium dark gray, a large amount of medium- to medium dark gray in the upper part, a large amount of dark-gray to grayish; black, highly calcaree eous in part; some dark-gray shale
2405	2656	251.	Siltatone and shale, medium dark gray to dark-gray, mostly dark-gray in the upper part, small amount is highly calcareous to calcite, small smount of dark-gray to grayish-black from 2470 to 2510, mostly medium dark gray siltatone from 2544 to 2594, mostly dark-gray shale from 2605 to 2625, some grayish-black to black carbonaceous streams at the bottom
2 <b>656</b>	2672	16	Siltatene and shale, medium dark to dark-gray, some brown- ish-gray to grayish-black, sandy siltatone
26 <b>72</b>	27 00	28	Siltstone and shale, medium dark to dark-gray, some medium- gray (highly calcareous) spots
2700	2738	38	Siltstone and some shale, medium dark to dark-gray, a large amount of brownish-gray to grayish-black
2738	2775	37	Siltstone, mostly a medium dark gray, some dark-gray to grayish-black, small amount is highly calcareous; some dark-gray shale
2775	2891	116	Siltstone and shale, medium dark to dark-gray, many grayish-black to black streaks in the lower part
2891	2959	68	Siltstone, medium to medium dark gray; some dark-gray to grayish-black shale
2959	3178	219	Siltstone, medium to medium dark gray; a moderate amount of dark-gray shale, some dark-gray to grayish-black at 3088 to 3104; a moderate amount of dark-gray to grayish-black at 3132 to 3149
31 78	3230	52	Siltstone, medium to medium dark gray; a moderate to large amount of dark-gray to grayish-black shale and some siltstone
3230	5249	19	Siltstone, medium to medium dark grayl shale, grayish-black, some dark-gray to grayish-black

2 <del>49</del> در	3358	109	Siltstone, medium to medium dark gray; a moderate amount of dark-gray to grayish-black shale, a large amount of grayish-black at 3306 to 3320
3358	3375	17	Shale, dark-gray to grayish-black; siltstone, medium- to medium dark gray
3375	36 <b>08</b>	301	Siltstone, medium to medium dark gray; a moderate to very large amount of dark-gray to grayish-black shale; some brownish-gray siltstone from 3615 to 3622
36 <b>96</b>	3711	35	Siltstone and shale, medium dark to dark-gray, some grayish-black
3711	3732	21	Siltatone and shale, medium dark to dark-gray, some dark- gray to brownish-black
<b>37 32</b>	3750	18	Siltatone and shale, medium- to dark-gray, some grayish- black to black
3750	3810	60	Siltatone and some shale, medium- to medium dark gray, some dark-gray, some brownish-gray to grayish-black at 3779 to 3787
	3856		TOTAL DEPTH

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