

Sample name is the J.F. Barrett no. 1

GSA 570 - Carter Oil Company, Alice Holey Farm Well 1A. Picas-450.
Elevation 1025.5 feet. On French Creek Road, 369 feet
north of intersection with road east along Kings Ridge,
200 feet east of Dinmore Pumping Station. Washington
District, Pleasants County, West Virginia. St. Marys
Quadrangle. F-7.

Depth	Thickness	
Feet	Inches	
	0 - 10'	Cover
	10 - 15	<u>Shale</u> , grayish red variegated to greenish gray, and highly calcareous. <u>Sandstone</u> fine grained, light greenish gray, some chlorite and biotite.
		<u>Note:</u> Top Upper Marietta Sandstone at 13' \pm
	15 - 20	<u>Sandstone</u> , light gray to clear white, angular, medium to fine grained, considerable biotite some chlorite.
	20 - 25	<u>Sandstone</u> , light grayish tan, some medium to coarse grained, some fine grained, some clear quartz, some iron stained moderate amount of mica, some chlorite, cement strongly calcareous.
	25 - 30	<u>Sandstone</u> , medium to fine grained, same as 2nd unit above, with chlorite and mica and lime cement.
	30 - 35	<u>Sandstone</u> , same as next above, whiter, less iron stained, slightly finer grained.
	35 - 39	<u>Sandstone</u> , light gray to white, fine grained, highly calcareous, cement, slightly clayey, considerable chlorite, mica.
	39 - 42	<u>Sandstone</u> , same as next above, calcareous, less clayey
	42 - 47	<u>Sandstone</u> , light gray to white, medium grained. <u>Interbedded</u> with <u>siltstone</u> , light greenish gray, fairly micaceous grading to silty shale. Some yellowish green siltstone grading to fine grained sandstone.
	47 - 52	<u>Siltstone</u> , medium greenish gray to greenish tan, grading to <u>shale</u> , silty. Finely micaceous, considerable limonitic iron crust and some <u>limestone</u> , silty, or <u>Siltstone</u> , calcareous, grayish tan.

Depth
Feet Inches

Thickness

WASHINGTON "A" COAL HORIZON

52 - 57 Shale, grayish red, variegated somewhat calcareous, soft and some siltstone, greenish gray and greenish to grayish tan as above.

57 - 60 Shale, grayish red as above and twice as much intermix of siltstone, grayish yellow to greenish gray, grading to shale, silty

TOP OF MIDDLE (Upper Lower MARIETTA) MARIETTA

60 - 63 Siltstone, fine to coarse, highly micaceous, medium greenish gray to grayish yellow and grayish tan. Considerable iron spherulites (-500 μ) and calcareous siltstone or silty limestone, light greenish gray

63 - 67 Siltstone, grading to silty shale, medium to dark greenish gray, highly micaceous with calcareous cement. Some very coarse silt, almost fine sand.

67 - 71 Siltstone, medium greenish gray, grading to silty shale.
Shale clay, light gray to light greenish gray, weakly calcareous, fragments of dark clay shale - organic stained, possibly carbonaceous.

WASHINGTON RIDGE "B" HORIZON

71 - 75 Shale, grayish red, minor greenish gray to light gray, highly calcareous weathers to dust. Some siltstone, medium greenish gray.

75 - 79 Shale, grayish red, as next above. Siltstone, grayish yellow to tan, highly micaceous, and siltstone calcareous or silty limestone, light greenish gray to greenish yellow.

TOP OF LOWER (LOWER LOWER MARIETTA) MARIETTA
SANDSTONE

79 - 83 Siltstone, intermixed medium gray and greenish yellow to tan, micaceous, and some fine grained Sandstone, highly calcareous cement and shale grayish red, minor amount

Depth Feet Inches	Thickness	
83 - 88		<u>Siltstone</u> , intermixed as next above, <u>sandstone</u> , fine grained, light greenish gray, micaceous, calcareous, cement in siltstones, some calcareous siltstone or silty limestone, medium greenish gray.
88 - 93		<u>Siltstone</u> and <u>sandstone</u> , same as next above, fine to one proportion <u>Siltstone</u> , grades to silty shale with some grayish brown component in addition.
93 - 98		<u>Siltstone</u> , principally fine grained, grayish brown, some medium grained, medium gray, grading to <u>sandstone</u> , grayish yellow to tan, fine grained and <u>shale</u> , purplish to grayish red, some hematite fragments.
TOP OF WASHINGTON COAL HORIZON 98' ±		
98-103		<u>Shale</u> , green gray to tan and light gray, <u>shale</u> , dark gray to black, somewhat carbonaceous, some <u>coal</u> or fusin fragments. <u>Siltstone</u> , grayish yellow to tan and <u>sandstone</u> , greenish, from above
	*	
103-108		<u>Shale</u> , variegated grayish yellow to tan and light gray, same as above, soft, finely silty, non-calcareous. Some <u>shale</u> , <u>carbonaceous</u> , dark gray to grayish brown, <u>coal</u> , some fragments. Minor mixtures of <u>shale</u> , grayish red and <u>siltstone</u> , grayish tan.
108-114		<u>Siltstone</u> , or <u>silty limestone</u> , light greenish gray, about half the sample. Greater amounts <u>coal</u> and considerable pyrite. Minor amounts of grayish red shale and fine grained greenish <u>sandstone</u> . Coal falling down from Washington Horizon.
114-118		<u>Limestone</u> , grading to calcareous <u>siltstone</u> as above, greenish gray grading to <u>sandstone</u> , fine grained. <u>Coal</u> fragments, good some pyritic; numerous pyrite clusters. Probably falling down from Washington.
118-123		<u>Siltstone</u> , greenish gray, coarse, highly micaceous, and calcareous, considerable dark mica, minor amounts of <u>limestone</u> , grayish tan, <u>shale</u> , calcareous, grayish red, <u>Siltstone</u> , grayish yellow - yellowish tan
TOP OF MANNINGTON SANDSTONE ZONE		
123-128		<u>Siltstone</u> , to fine grained <u>sandstone</u> , light gray to gray, greenish, as above - coarser. Abundant light and dark mica - some chlorite, calcareous cement. <u>Limestone</u> , silty, grayish tan, minor amount.

Depth Feet	Thickness Inches	
	128-133	<u>Sandstone</u> , medium to fine grained, abundant coarse biotite, and muscovite, some chlorite, calcareous cement. <u>Limestone</u> , grayish tan, minor amount siltstone, greenish gray, minor amount.
	133-137	<u>Sandstone</u> , same as next above, and admixed <u>siltstone</u> , <u>limestone</u> and some <u>shale</u> , <u>coal</u> fragments, from above?
	137-141	<u>Sandstone</u> , light gray, fine grained, some medium, calcareous cement, light and dark mica, chlorite, <u>siltstone</u> , greenish gray, minor amount, <u>clay shale</u> , soft, grayish tan, possibly carbonaceous in thin streaks.
	141-146	<u>Sandstone</u> , as above, considerable mica, numerous pyrite clusters, minor amounts, <u>shale</u> , dark gray, carbonaceous and <u>limestone-siltstone</u> as above, from above?
<p>Note: Carbonaceous zone may be = to Wagnersburg "A" Coal Horizon.</p>		
	146-150	<u>Sandstone</u> , light gray, some mica and chlorite grains, rounded, some clear, poorly cemented, calcareous
	150-155	<u>Sandstone</u> , same as next above.
	155-160	<u>Sandstone</u> , same as next above. <u>Siltstone</u> light greenish gray, grading to <u>sandstone</u> , fine grained, medium greenish gray, some mica and chlorite, numerous pyrite clusters and hematite, iron fragments, and some <u>shale</u> , grayish red, weakly calcareous.
	160-165	<u>Sandstone</u> , same as above, <u>siltstone</u> , same as above, <u>shale</u> , <u>silty</u> grayish red, weakly calcareous.
	165-170	<u>Siltstone</u> to <u>sandstone</u> , fine grained, medium and light greenish gray, with equal amount of <u>silty shale</u> or <u>siltstone</u> , grayish brown. Some pyrite clusters and grayish red soft shale.
	170-175	<u>Siltstone</u> , greenish gray and <u>siltstone</u> , grayish brown - same as next above. Some grayish red shale.

Depth
Feet Inches

Thickness

BUENARO SERIES

MONONGAHELA SERIES

Note: Probably horizon of Waynesburg Coal -
About 177'.

- 175-180 Shale, slightly silty, dark grayish red, weakly calcareous, with some calcareous knots, minor amounts of shale, gray to greenish gray, siltstone to sandstone, grayish, and sandstone, fine to medium grained, grayish yellow.
- 180-185 Shale, grayish red, highly calcareous, considerable lime knots, etc. weathers soft, some drab grayish tan siltstone, calcareous. Some limestone, silty, grayish tan.
- 185-190 Shale, grayish red, highly calcareous, as above, some limestone as above and greenish silty shale, calcareous.
- Top UPPER BENCH OF GILBOY SANDSTONE 190'.
- 190-195 Siltstone and fine grained sandstone, light gray to greenish gray, some parts calcareous, almost silty limestone. Some grayish brown, medium gray siltstone or silty shale.
- 195-200 Siltstone, to fine grained sandstone, as above - considerable mica, some chlorite, some lime knots, in sandstone
- Note: Parting in GILBOY SANDSTONE 200-201'.
- 200-205 Shale, grayish red, soft, highly calcareous, some grayish silty lime fragments (nodules) some greenish calcareous siltstone, few light gray clay shale, calcareous?
- 205-210 Shale, grayish red, as above, intermixed sandstone, fine grained to siltstone, medium greenish gray, micaceous. Some lime knots, grayish tan.
- Top Main Bench GILBOY SANDSTONE - 210'
- 210-215 Sandstone, mostly fine grained, grading to siltstone, same as above, highly calcareous some large mica flakes, few black iron fragments and shale, grayish red, highly calcareous weathers to dust, a few lime knots.

Depth
Feet Inches

Thickness

215-220

Sandstone, same as above, greenish gray, fine grained, few lime fragments, some limonitic iron and pyrite clusters, varying abundance of mica.

220-224

Sandstone, same as next above, with admixtures but more dark mica in large flat flakes. Minor grayish red purplish shale.

224-230

Siltstone, medium greenish gray to grayish brown, grading to fine grained, grayish sandstone, abundant fine light mica.

230-235

Siltstone and sandstone, same as above, and shale, grayish red, slightly silty, weakly calcareous, sandstone, grayish yellow to tan, fine grained.

235-240

Siltstone, grayish brown to medium gray, to silty shale. With grayish green sandstone fine grained and variegated shale, grayish red to yellow and some lime nodules.

LITTLE WAYNESBURG COAL HORIZON, 244' ±

240-245

Shale, grayish red, variegated to grayish yellow and light gray, weakly to non-calcareous, siltstone, mostly medium greenish gray, some grayish brown, calcareous, and coal fragments, one fairly large.

Position of Waynesburg Limestone Zone and "Little Waynesburg Soft Red Shale"

245-252

Shale, grayish red, soft, numerous lime knots, highly calcareous, some variegated zones and siltstone, highly micaceous, medium greenish gray, some greenish yellow to tan fragments.

252-257

Shale, grayish red, soft, highly calcareous lime knots and crack fillings, light gray grayish tan - minor admixed siltstone greenish, some gray dark shale fragments

257-260

Shale, grayish red, highly calcareous, as above.

260-261

Shale, grayish red, highly calcareous, clayey soft - no siltstone

Horizon of Uniontown Sandstone Zone

261-263

Siltstone, grayish brown to medium greenish gray, some sand, considerable clay, abundant fine mica, some shale, grayish red as above.

Depth
Feet Inches

Thickness

A few foreign coal fragments.

Upper Bench of Uniontown Coal (?)

- 263-267 Shale, grayish red, soft, calcareous, some lime knots, sandstone, grading to siltstone. Fine grained green to light greenish gray, abundant chlorite, calcareous-carbonaceous.
- 267-271 Shale, grayish red, clayey, some silt, and sand grains, lime knots, highly calcareous, weathers to dust.
- 271-275 Shale, same as next above, with less limestone.
- 275-279 Shale, same as next above, some shale, gray clayey and grayish green siltstone, minor amounts.
- 279-284 Shale, grayish red, admixture same as next above.
- 284-289 Shale, grayish red, somewhat silty, calcareous fragments (lime bed) shale, silty to siltstone, medium greenish gray to light greenish gray, shale, dark, organic stained, carbonaceous with some chert fragments.
- Top Uniontown Coal Horizon, 288' ±
- 289-293 Siltstone, light gray to medium greenish gray, highly micaceous. Shale, grayish green to light gray. Silty to clayey, greenish yellow fragments, coal, bony, pyritic, some silt, large pyrite clusters, some carbonaceous shale.
- 293-297 Shale, clayey, light gray, (70%) highly calcareous, siltstone, fine to coarse (75%) light gray. coal, minor amount shale, grayish red, calcareous

UNIONTOWN LIMESTONE ZONE

- 297-303 Shale, clayey, same as above (50%) siltstone same as above (50%) limestone, gray to grayish tan, thin bed. Some shale, grayish red, fragment.

Top of Lower Uniontown Sandstone Zone About
301'

Depth Feet	Inches	Thickness	
		303-308	<u>Sandstone</u> , grading to siltstone, fine grained, white to light gray. Some fragments of pyrite, carbonaceous shale or coal; principally light mica. Minor amounts of shale, clay, gray, from above.
		308-315	No sample in bag.
		315-320	<u>Sandstone</u> , medium gray, medium grained, abundant mica (light and dark) flakes of chlorite, poorly cemented, calcareous, some secondary cementation.
		320-325	<u>Sandstone</u> , same as next above, some coarse, some fine.
		325-330	<u>Sandstone</u> , fine grained, grading to siltstone, medium gray. Highly calcareous, finely micaceous, <u>carbonaceous shale</u> , possibly coaly in part (2%) <u>limestone</u> , medium, grayish brown, thin bed, <u>shale</u> , clayey, light gray, soft, calcareous.
LOWER UNIONTOWN COAL HORIZON			
		330-335	<u>Shale</u> , clayey, grayish red, variegated light gray to yellowish tan, some lime knots, highly calcareous <u>limestone</u> , grayish brown, minor amount, plus shale, gray and siltstone (all 3 less than 3%)
"ARHOLDSBURG LIMESTONE" ZONE			
		335-340	<u>Shale</u> , clayey, highly calcareous, weathers to dust, principally grayish red, minor grayish yellow to light gray, few lime knots Top of <u>BENWOOD LIMESTONE</u> and <u>RED SHALE</u> zone about 3/2'
		340-346	<u>Shale</u> , clayey, highly calcareous, weathers to dust, grayish red, minor amount (1-2%) <u>limestone</u> light gray (ostracods) some medium gray silty <u>limestone</u> , numerous small lime pellets.
		346-351	Same as above
		351-357	Same. <u>Shale</u> as above. slight <u>limestone</u> increase. <u>limestone</u> gray to purplish (10%)
		357-363	Same as above. About 35% limestone, light gray to purple and white. With calcareous siltstone or sandy limestone; minor amounts gray siltstone, some hematite knots

Depth
Feet Inches

Thickness

TOP OF SEWICKLEY SANDSTONE ZONE, 363'

- 363-367 Limestone, same as next above, minor amounts calcareous shale, Ca 50%, sandstone, medium to fine, highly micaceous, brown and white
- 367-372 Sandstone, same as next above, slightly coarser, some shale and limestone from above
- 372-378 Sandstone, same as next above, medium grained, mostly white, some coarse, some fine, considerable chlorite in finer sizes. Some pyrite clusters. Calcareous cement, poorly cemented
- 378-384 White quartz sand, some *fracting*, medium and fine grained, some mica, more chlorite
- 384-390 Sandstone, white, medium to fine grained, few fragments of pyrite, chlorite and mica
- 390-395 Sandstone, same as next above, poorly cemented
- 395-400 Sandstone, white, medium to fine grained, some some chlorite, abundant white mica, some blocky, some ~~brassy~~ and ~~gray~~ shale-like fragments.
- 400-~~404~~ Same as next above, some fragments of gray shale
- 404-410 Sandstone, same as next above, and shale, silty, light gray, with some dark carbonaceous(?) streaks. Some large mica flakes and some concretions-aggregates of milky quartz (?)

TOP OF SEWICKLEY COAL HORIZON, about 412'

- 410-414 Sandstone and siltstone, fine grained, impure, with some black carbonaceous debris, and shale gray, silty and shale, carbonaceous, coal a few fragments, may be interbedded in shale; some pyrite, mica and chlorite, some sideritic iron, purplish, some concretions, same as above
- 414-419 Coal, SEWICKLEY, bright banded, pyritic, sandstone, clear white, medium grained, micaceous shale, carbonaceous and grayish red to tan limestone, few fragments fresh H₂O
- 419-423 Siltstone, and sandstone, fine grained, coal fragments, shale, minor amounts of reddish and some gray impure silty shale

Depth Feet Inches	Thickness	
423-429		<u>Siltstone</u> , gray, to greenish gray, micaceous (light and dark), considerable amount of pyritic, few grains of medium <u>sandstone</u> , few coal and grayish red <u>shale</u>
429-435		<u>Sandstone</u> , fine grained, and <u>siltstone</u> . Zones of considerable black mica in <u>sandstone</u> . <u>Limestone</u> , a few fragments, probably a thin layer, fresh H ₂ O, gray to yellow gray, some ostracods.
435-440		<u>Sandstone</u> , fine grained, gray to greenish gray, abundant finely divided black mica, some large flakes. Few fragments of yellow <u>siltstone</u> and possibly foreign red-gray shale. <u>Limestone</u> , fresh H ₂ O, abundant ostracods, gray to grayish brown (thin layer?)
440-445		<u>Sandstone</u> , fine grained to greenish gray zones of <u>siltstone</u> , greenish gray to yellow. Abundant light and dark mica. Some chlorite grains, with <u>shale</u> , grayish brown (purplish) to grayish red, few fragments. Thin layer (?) <u>Lime</u> fragments, fresh H ₂ O, Thin layer, Ostracods.
FISHPOE (LOWER SEWICKLEY) COAL HORIZON, (?) 448'		
445-451		<u>Siltstone</u> and fine grained <u>sandstone</u> , gray, abundant light and dark mica, few pyrite fragments and <u>shale</u> , gray, silty, micaceous carbonaceous fragments, grayish red (foreign) shale fragments.
451-456		<u>Siltstone</u> , medium gray to greenish gray, somewhat micaceous, and greenish gray micaceous <u>shale</u> , silty, a few fragments of shale and lime pebbles, grayish red (foreign ?)
FISHPOE LIMESTONE ZONE (SEWICKLEY LIMESTONE of some)		
456-460		<u>Shale</u> and <u>siltstone</u> , gray, greenish gray, grayish brown, some fine mica and some <u>shale</u> , grayish red and few lime fragments.
460-465		<u>Shale</u> , clayey, grayish red to purplish and plus equal amount of <u>shale</u> , gray, silty. Some greenish <u>siltstone</u> .
465-470		<u>Shale</u> , clayey, grayish red, with some greenish shale, some purplish zones, weathers to dust, some limy streaks and <u>siltstone</u> , few fragments
470-475		<u>Shale</u> , grayish red, weathers to dust, silty and

Depth
Feet Inches

Thickness

greenish gray to grayish green, siltstone,
purplish streaks of shale

TOP OF REDSTONE SANDSTONE ZONE, 475'

475-479 Siltstone, greenish gray, abundantly micaceous,
shale, grayish red, chippy, (equal silt and shale)
few large quartz sand grains. Some limestone
fragments (thin layer ?)

479-485 Siltstone, greenish gray, abundantly micaceous,
sandstone, fine grained (some), shale,
grayish red, some, shale, gray, silty, clayey,
of. underlay.

REDSTONE COAL HORIZON, 499'

TOP UPPER PITTSBURGH SANDSTONE ZONE 488'

485-490 Sandstone, fine grained, greenish gray to white
siltstone, greenish gray, minor. Some shale,
grayish red and purplish, some lime fragments.

490-495 Sandstone, fine grained, gray to white,
some chlorite and mica. Siltstone, greenish
gray, in minor amounts. Shale, grayish red
fragments (foreign ?)

495-502 Sandstone, fine grained, white, abundant white
and green mica, some chlorite, shale, grayish red
fragments, (foreign ?)

502-508 Sandstone, same as next above

508-514 Shale, grayish red, hard, silty, not clayey,
limestone, gray to purplish, and white,
ostracods. Sandstone, medium to fine grained,
sandstone - white (layer above)

TOP REDSTONE LIMESTONE (UPPER PITTSBURGH of
some)

514-517 Limestone, gray to white, some fragments, with
abundant ostracods. Larger amount shale, silty
with ostracods, grayish red to purplish. Not
clayey. Sandstone, fine grained, and siltstone
equal to lime, gray to white, green chlorite,
brown, black, white, green, mica.

PITTSBURGH COAL HORIZON, 519' ±

Monongahela Series

Depth
Feet Inches

Thickness

Conemaugh Series

- 517-522 Sandstone, fine grained, gray to white, some chlorite, limestone, fragments, few green, brown, black, white, mica, some grayish red and purplish clay shale, fragments, foreign? Thin layer?
- TOP BELLAIRE (LOWER PITTSBURGH) SANDSTONE, 521' ±
- 522-527 Same as above, no limestone, white mica more abundant
- 527-532 Same as just above, abundant white mica, some of other. Sparse shale and limestone cave fragments.
- 532-537 Sandstone, same as next above, with some siltstone greenish gray, and some shale, grayish red and light gray, may be thin layer -- grayish shale appears to be in place
- 532-542 Siltstone, greenish gray, micaceous, some sandstone, fine grained (minor amount) few pyrite crystals few fragments of shale, gray, silty occasional dark sand grains, some foreign and red chippy shale
- 542-547 Siltstone, greenish gray, micaceous, abundant dark mica. Admixture of clay shale, grayish red, clayey and gray shale and limestone fragments. Some pyrite.
- 547-552 Shale, greenish gray to brown, silty, some siltstone, size material and shale, clayey, gray, soft, and limestone, dark gray, gray to grayish tan, fresh H₂O, ostracods, some shale, silty, very dark and very purplish, probably 2-3 variable beds of limestone.
- 552-559 Shale, principally gray, clayey, but one-half some variegated grayish red and purplish (clayey) some yellow green silty shale, some limestone, dark to grayish tan, ostracods, some carbonaceous shale to dark shale, coal fragments in minor amounts.

LITTLE PITTSBURGH COAL ZONE, (probably) 556'

Depth Feet Inches	Thickness	
559-565		<u>Shale</u> , principally grayish red, soft, somewhat clayey, considerable <u>lins</u> , (probably calcareous) numerous <u>lime knots</u> , gray to yellow gray to grayish tan, some ostracods. TOP OF LOWER PITTSBURGH (SUMMERFIELD) LIMESTONE, ZONE 567' ±
565-570		<u>Shale</u> , grayish red to purplish, soft, with gray to dark gray zones. Considerable <u>lime knots</u> fragments. Some <u>limestone</u> , gray to yellowish gray. With ostracods. Some siltstone fragments (foreign or impure streaks)
570-575		<u>Shale</u> , grayish red to purplish, clayey, and $\frac{1}{2}$ as much <u>siltstone</u> , greenish gray to grayish green, highly micaceous, <u>shale</u> , gray, in minor amount (foreign ?)
575-580		<u>Shale</u> , grayish red, clayey, with some <u>shale</u> , purplish, silty, not clayey, and <u>siltstone</u> or <u>sandstone</u> , fine grained, greenish gray, in minor amounts, and <u>limestone</u> , gray to grayish tan to grayish yellow. Principally non-fossiliferous TOP CONNELLSVILLE SANDSTONE ZONE, 580' ±
580-587		<u>Siltstone</u> and <u>sandstone</u> , fine grained; (considerable dark and white mica), greenish gray and gray, <u>shale</u> , grayish red variegated. Some <u>lime knots</u> and silty <u>shale</u> fragments (foreign)
587-593		<u>Sandstone</u> , fine grained, and <u>siltstone</u> , same as next above. Similar amount of grayish red impure <u>shale</u> .
593-598		<u>Sandstone</u> , fine to medium grained, white to gray, considerable finely dispersed chlorite. Large and small flakes mica. A coarser sandstone than units above - same admixture of grayish red impure <u>shale</u> .
598-604		<u>Sandstone</u> , same as next above, medium to fine grained. Minor amounts of mica, some chlorite, a coarser zone than above. Reduced amount of the impure <u>shale</u> .
604-610		<u>Sandstone</u> , same as next above. More reduced amount of impure <u>shale</u> .
610-615		<u>Sandstone</u> , same as next above, minor constituent <u>siltstone</u> , greenish gray, micaceous and <u>shale</u> grayish red, some grayish yellow clayey - about $\frac{1}{2}$ the sample LITTLE CLARKSBURG COAL HORIZON 615' ±

Depth Feet Inches	Thickness	
615-617		<p>Shale, grayish red, soft, clayey, some grayish yellow streaks, and <u>siltstone</u>, greenish gray (equal amounts) some <u>shale</u>, dark, silty</p> <p>TOP CLARKSBURG RED SHALE, 616'</p>
617-623		<p>Shale, grayish red to purplish, clayey, and <u>siltstone</u>, greenish gray, so finely ground to make distinguishing difficult, appears more clay.</p>
623-628		<p>Shale, grayish brown, silty, and <u>siltstone</u>, fine grained, dark to greenish gray, considerable clay. <u>Shale</u>, 2 types, grayish red and gray</p> <p>TOP LOWER CERRILLSVILLE SANDSTONE 628' ±</p>
628-633		<p>Sandstone, gray to white, fine grained, some c lorite, abundant mica, some <u>siltstone</u>, and some foreign (?) reddish <u>shale</u></p>
633-640		<p>Sandstone, white, fine grained. Some <u>siltstone</u>, abundant fine mica, <u>sandstone</u>, yellow-orange stained, some foreign (?) red shale fragments.</p> <p>LOWER CLARKSBURG LIMESTONE 640'</p>
640-646		<p>Limestone, medium gray, fresh H₂O, ostracods, and <u>spirorbis</u>. Some <u>siltstone</u> and <u>limestone</u>, light gray, silty. A few <u>shale</u>, gray brown fragments. <u>Limestone</u>, white, rare fragments, numerous pyrite clusters</p> <p>KURNANTOWN COAL (?) 646'</p>
646-651		<p>Coal and <u>coaly shale</u>, with gray to tan silty <u>shale</u>, some fresh H₂O <u>limestone</u> fragments, some foreign (?) red shale fragments</p>
651-658		<p><u>Siltstone</u> and <u>sandstone</u>, fine grained, gray to white, some <u>limestone</u> fragments, fresh H₂O A few <u>coal</u> and <u>coaly shale</u> fragments. Some mica and red shale</p>
658-664		<p><u>Siltstone</u>, greenish gray, <u>shale</u>, gray to grayish brown, silty, slightly clayey. <u>Coal</u> fragments or <u>carbonaceous shale</u> (silty), few <u>limestone</u> fragments, fresh H₂O</p> <p>ELK LICK LIMESTONE 664'</p>

Depth Feet Inches	Thickness	
	664-668	<u>Limestone</u> , gray, grayish tan, white, probably several beds. Abundant <u>ostracods</u> , <u>spirorbis</u> , and some <u>limestone</u> , silty, larger shell and fragments, - possibly <u>pelecypods</u> . <u>Siltstone</u> , gray to greenish gray, in minor amount.
	668-673	<u>Limestone</u> , same as next above, mostly grayish tan, probably in several beds. <u>Ostracods</u> and <u>spirorbis</u> and some <u>shale</u> , gray to yellowish gray silty <u>shale</u> , purplish, variegated clayey.
	673-676	<u>Limestone</u> , same as next limestone above, <u>ostracods</u> , some <u>pyrite</u> included. Equal amount of <u>shale</u> , silty, brown, tan and yellow gray. With zones of light gray clay, <u>shale</u> , <u>carbonaceous</u> or <u>coaly</u> fragments (foreign ?)
	676-681	<u>Limestone</u> , same as above, equal amount of <u>shale</u> gray to grayish yellow. Considerable iron stain, some silt. <u>Ostracods</u> fairly abundant in limestone. Some <u>brecciated limestone</u> .
	681-684	<u>Limestone</u> - grayish tan, as next above. a few <u>ostracods</u> , equal amount <u>shale</u> , gray, silty calcareous <u>shale</u> , clayey, variegated grayish red grayish yellow and greenish gray, finely silty. Calcareous. <u>Limestone</u> and <u>shales</u> in equal amounts. Few fragments of greenish gray <u>limestone</u>
	684-687	Same as next above; intermixed <u>limestone</u> , gray <u>shale</u> , variegated <u>shale</u> , clayey, few fragments <u>siltstone</u> , dark gray to grayish brown
		TOP OF MORGANTOWN SANDSTONE ZONE (?) 686' ±
	687-692	<u>Siltstone</u> , grading to <u>silty shale</u> , variegated gray, greenish, greenish gray and purplish with some grayish yellow and (1/2 sample) <u>limestone</u> , grayish tan, with <u>ostracods</u> (fresh H ₂ O)
	692-697	<u>Limestone</u> , light creamy tan to grayish tan, abundant <u>ostracods</u> , (fresh H ₂ O), <u>shales</u> , silty and <u>siltstone</u> , as next above, variegated, various colors, with coarse <u>siltstone</u> , dark greenish gray, micaceous <u>sandstone</u> , medium to fine grained, minor amounts. Highly chloritic. Abundant <u>pyrite</u> clusters.

Depth Feet Inches	Thickness	
697-702		<u>Shales</u> , variegated, grayish red to grayish yellow, somewhat clayey, with abundant ostracods, and some larger shells, (possibly pelocypod) and <u>shale</u> , grayish red, silty, to greenish-gray and <u>limestones</u> , creamy tan to grayish tan, strongly pyritic, (finely disseminated and clusters) numerous ostracods.
702-707		<u>Shales</u> , variegated, same as above, more clayey, soft, calcareous. <u>Limestones</u> , same as next above, few <u>coal</u> fragments, with small iron knots.
707-713		Same as several units above, except slightly less <u>limestones</u> . Some greenish gray <u>siltstone</u> and medium grained chloritic <u>sandstone</u> and more clayey
713-718		Same as above, except less clayey. Few fragments of <u>coal</u> , may be foreign.
TOP BIRMINGHAM RED BEDS		
718-724		<u>Shales</u> , variegated; same as variegated <u>shales</u> above, equal amounts of <u>siltstone</u> , light greenish gray, pyritic and very reduced amount of <u>limestone</u> , grayish tan, cream yellow to white
724-730		<u>Shales</u> , variegated, light, same as above, and <u>shale</u> , grayish red, silty, fairly hard, <u>siltstone</u> , light-greenish gray as above. All calcareous, some limestone
730-735		<u>Shales</u> , variegated, bright and some <u>siltstone</u> same as next above, increased amount of white <u>limestone</u> , and some grayish tan to creamy tan; <u>coal</u> , a few fragments (foreign?) numerous ostracods
735-741		<u>Shale</u> , very clayey, highly calcareous, weathers to dust, variegated, grayish red, yellow, purplish, greenish-yellow, with minor admixed <u>limestone</u> , white-light gray to tan, and very minor <u>siltstone</u> , light greenish gray
741-746		Same as next above.
746-752		Same as above, grayish red, <u>shales</u> , predominate, grayish yellow

Depth Feet Inches	Thickness	
752-758		<u>Shale, variegated, same as above. Siltstone, grading to fine grained sandstone. Light greenish gray, abundant chlorite, and minor limestone fragments</u>
		TOP UPPER CLAYTON SANDSTONE
758-762		Sandstone, fine grained, light-greenish gray, disseminated, and in clusters, minor admixed material as above.
762-768		Sandstone, medium grained, fine to coarse, white grading to light-greenish gray, rounded, frosted grains, considerable pyrite, large mica flakes. More shales from above.
768-772		<u>Sandstone, same as next above, and siltstone, light to medium greenish gray, micaceous and chloritic and minor shales from above</u>
772-777		<u>Siltstone, light greenish gray as in next above. Some fine grained sandstone, abundant pyrite, chlorite, minor variegated shales and limestone from above</u>
		INQUIRING COAL ? HORIZON, 779' ±
777-784		<u>Siltstone, same as next above, and shale, light gray to greenish gray, clayey, to grayish tan, abundant ostracods, a minor amount of coal fragments, carbonaceous shales. Grayish tan limestone and variegated shale as in all samples above.</u>
		CLAYTON SANDSTONE ZONE, Top, 787' ±
784-789		Shale, fine grayish red, variegated to grayish yellow and light greenish gray, somewhat silty, highly calcareous, siltstone, fine to coarse, light greenish gray to medium greenish gray. Some lime pellets, or knots, grayish brown to purple, ostracods.
789-794		<u>Siltstone to silty limestone, light gray and green. Some shale, grayish red, variegated, highly calcareous, small lime spherules. Some shale, light gray, calcareous. Some carbonaceous shale, from above?</u>
794-799		<u>Siltstone, grading to fine grained sandstone, light greenish gray to grayish green, calcareous cement, minor amounts of shale, grayish red, with ostracods and grayish red variegated clay shale, lime knots, pellets and spherules</u>

Depth Feet Inches	Thickness	
	799-800	<u>Sandstone</u> , medium to fine grained, grading to coarse grained, siltstone, gray to light greenish-gray
	800-804	Siltstone (50%) gray to greenish-gray, <u>shale</u> (50%) grayish red, variegated to light gray and grayish-yellow, highly calcareous, some lime pellets.
	804-807	Shale (60%) variegated, grayish-red to yellowish siltstone (30%) gray to greenish-gray. <u>Limestone</u> (10%) white, to tan, some ostracods
	807-812	<u>Siltstone</u> , medium gray to medium greenish gray (80%), shale, grayish red, highly calcareous, variegated (20%) some lime fragments as above
	812-815	Siltstone (40%), as above, shale (40%) grayish-red, variegated as above. Some dark coal (?) fragments, minor light-gray, clayey-shale
	815-821	Siltstone (90%) light to medium-gray. Considerable dark mica and pyrite, and brown grains (?), limonite, spherules; some lime fragments (minor amount)
		TOP AREA LIMESTONE 822' ±
	821-823	Shale, silty, grading to <u>siltstone</u> , medium-gray micaceous shale, grayish-red purplish, greenish gray, and grayish-yellow, clayey, highly calcareous, <u>limestone</u> , grayish tan, abundant marine fossils. brachiopods, crinoids, etc. (ACROSS SHALE of some authors)
	823-825	<u>Shale</u> , variegated, and <u>siltstone</u> , medium-gray, as above, <u>limestone</u> , more abundant fossils, marine as above, shale, silty, very dark gray, micaceous, pyritic, considerable fine pyrite clusters; marine fossils; gastropods
	825-826	<u>Shales</u> , intermixed as above; <u>limestone</u> , marine fossils, slightly less than above, brachiopods, gastropods.
	826-827	<u>Shale</u> , dark gray to medium, micaceous, calcareous, fossiliferous, containing marine fossil fragments and abundant carbonaceous matter (cuticles, etc.) <u>Shale</u> , variegated, grayish yellow, purplish as above, clayey. <u>limestone</u> , fragments, foreign.
	827-831	<u>Shale</u> , dark gray, same as next above, considerable pyrite, abundant <u>cuticular</u> remains. Some foreign? <u>Shale</u> , variegated, as above, and <u>limestone</u> , same as above

TOP HARLEM COAL, 832'

Depth
Feet Inches

Thickness

831-832 Shale, dark gray to possibly carbonaceous, same as next above. Considerable cuticular material. Some shale, variegated, as above and a minor amount coal or carbonaceous shale, Impure, few limestone fragments

832-837 Coal, bright, micro banded to thin banded. Impure, pyritic, probably fairly thick layer. Shale, dark gray, silty, calcareous, same as next above. (Foreign!) Limestone, fragments and shale, variegated

837-841 Shale, light gray, finely silty, and equal coal and coaly shale, some grayish red-brown shale, fragments, Some lime fragments

TOP JANE LNW SANDSTONE ZONE

841-843 Siltstone, light gray, fine grained, highly calcareous, some lime and coal fragments. Some red shale

843-847 Shale, silty and siltstone, light-gray, very clayey, and some grayish red shale

TOP ROUND KNOB (PITTSBURGH) RED BEDS
("Big Cave" of some drillers")

847-848 Shale, grayish red, variegated, siltstone, light greenish gray to medium gray, highly calcareous

848-854 Shale, as above, variegated, grayish red to yellow, highly calcareous, some lime fragments white to light greenish-gray and some grayish brown pellets (fresh H₂O)!

854-856 Shale, grayish red to gray, variegated, lime pellets, and fragments. All highly calcareous, numerous silt and lime granules, shale (minor amounts light greenish-gray, silty

Note: Measurements below based on core chips every foot or examination of whole core. 2' discrepancy here due to measurement of strata above.

856-858 Interval to be divided over units above due to remeasurement of well depth.

Depth
Feet Inches

Thickness

TOP OF SALTSBURG - COW RUN SANDSTONE-ZONE
(Probably both sandstones are represented here)

- 858-863 Siltstone, greenish gray, numerous dark and light mica, minor chlorite, well-cemented, principally non-calcareous
- 863-868 Sandstone, fine-grained, or coarse siltstone, light to medium-gray, black and white mica, increased chlorite, poorly cemented, more calcareous, slight petroliferous odor and especially 863, 865, 867

(Note: top of "pay" sand)

- 868-895 Sandstone, medium to fine grained, RAY ZONE, petroliferous, fairly porous, white quartz grains, somewhat rounded, biotite, chlorite, muscovite, some calcareous cement, some white powdery material, may be altered feldspar or mica, kaolinitic, gradually increasing in coarseness, some coarse grains beginning at 873', decreasing in cement. Some brown flecks of ironstone beginning at 877', medium grained and porous beginning at 880'. Coarse-grained with some medium, from 886' to 892'8", fairly porous, definitely only poorly cemented. 892'8" begins base of pay - better cemented, principally medium grained, but some large grains, almost pebbles, large grains of chlorite - less porous

TOP OF "LOWER" PITTSBURGH AND BEDS

- 895-898 Shale, medium to dark greenish gray, some carbon flecks, somewhat silty, with minute iron (sideritic?) spherules, weathers calcareous
- 898-900 Shale, grayish brown to purplish, variegated, crumbly, slickensided, principally non-calcareous, silty in part, clayey, grading up from some below.
- 900-907 Shale, medium-gray, highly calcareous, somewhat variegated, crumbly, slightly clayey, slickensided, some grayish-yellow iron-stain, some irregular pellets
- 907-916 Shale, medium to light greenish gray. Finely silty, non-calcareous, fairly dense, somewhat clayey, few carbonaceous shreds; increase in silt at 913' toward base.

Depth		Thickness	
Feet	Inches		
		916-917	Shale, grayish brown to purplish, chippy, to crumbly,
		917-931	<u>Shale</u> , medium to light gray, same as gray shale next above. Much more silty, almost a siltstone, in zones, some glauconite and dark mica and sand grains at 921-923' interbedded silty, sandy, and clayey zones near base
		931-932	<u>Shale</u> , variegated, greenish, gray, and grayish brown to purplish, soft, crumbly, small lime pellets, slickensided.
		932-933	Shale, gray, crumbly, clayey.