

Operator: The California Company
 Farm: Kipps Anthracite Coal Company
 Well No.: 1
 Location: Montgomery County
 1190' N. of 37°11'
 3209' W. of 80°27'
 Elevation: 2470'
 Total Depth: 9340'
 Drilling Commenced: March 3, 1949
 Well Completed: December 2, 1949
 Result: Dry Hole

CORE DESCRIPTION

Core No. 5 5766-5791' Keefer Quartzite

<u>Thickness</u>	<u>Description</u>
13'	Quartzite, light to medium gray, fine-grained, non-calcareous; contains a very few minor green and gray shaly partings and a few vertical fractures filled with quartz and calcite. Interval has no visible porosity.

Core No. 6 5791-5797'

<u>Thickness</u>	<u>Description</u>
2.5'	Quartzite, light to dark gray, fine-grained, non-calcareous; quartzite shows irregular color layering of light and dark gray quartzite and some irregular layering with dark gray to black shaly material, some appears bituminous; one quartz-filled fracture inclined 20° to apparent vertical; interval has no visible porosity.

Core No. 7 5797-5806'

<u>Thickness</u>	<u>Description</u>
1.5'	Quartzite, finely layered alternately light to medium gray, fine-grained, non-calcareous, grading downward to quartzite, medium gray, fine-grained, with 1/2" quartz-filled fracture inclined up to 15° to apparent vertical; grading downward to quartzite, medium green-gray, fine-grained, grading downward to quartzite, light to medium gray, mottled, fine-grained, finely layered, with a 1/8" green-gray shaly layer.
3'	Quartzite, medium to dark gray, fine-grained, non-calcareous, uniform, no shaly partings.
2'	Quartzite, layered, white gray to dark gray, fine-to medium grained, non-calcareous, with some black shaly partings at top; becomes a more uniform, medium gray, fine-grained quartzite downward. Interval contains a few quartz-filled fractures near top and many nearly vertical, dark gray, hairline to fine fractures.

Core No. 8 5806-5816'

ThicknessDescription

3.5'

Quartzite, light to medium gray at top darkening to medium gray downward, fine-grained, non-calcareous; some irregular black shaly partings. At top of core is $\frac{1}{2}$ " quartz-filled fracture, inclined up to 15° with apparent vertical.

Core No. 17

5987-5998 $\frac{1}{2}$ '

Rose Hill Member

ThicknessDescription

4.5'

Shale, dark gray, smooth, interbedded with medium gray, fine-grained, non-calcareous, quartzite layers 8-10" thick. Core contains quartz-filled fractures inclined $10-20^{\circ}$ with apparent vertical and a $\frac{1}{2}$ " layer of dark reddish- gray quartzite.

Core No. 18

6131-6143'

Clinch Quartzite

ThicknessDescription

7.5'

Quartzite, alternating light to dark gray. Much of core shows 2 sets of inclined fractures

CORE #20
6144'-6149'

THICKNESS	DESCRIPTION
3.4'	Clinch Quartzite.- Quartzite, light gray to white, micaceous; texture varies from fine-grained to coarse in places.
1.6'	Missing from Core #20.

CORE #21
6149'-6150'

1.0'	Clinch Quartzite.- Quartzite, light to dark gray, fine- to medium-grained, micaceous, with some black argillaceous bands.
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CORE #23
6150'-6153'

0.4'	Clinch Quartzite.- Quartzite, light gray, fine-grained.
0.6'	Quartzite, conglomeratic, light gray to black, medium-grained.
0.1'	Quartzite, light to dark gray, fine-grained, micaceous, finely banded with argillaceous material.
2.9'	Missing from Core #23.

CORE #24
6389'-6431'

1.0'	Juniata Formation.- Siltstone, red-chocolate brown, fine-grained; at very top .5 cm vein of serpentine asbestos? with quartz.
*0.4'	Conglomerate, red siltstone pebbles with light gray calcareous cement.
0.6'	Siltstone, red and gray fine-grained, slightly calcareous with some pebbles 0.05' in diameter.
0.6'	Siltstone, red-chocolate brown, same as siltstone above, with limestone pebble 0.3' thick and extending across core. 0.2' below contact with above siltstone.
2.4'	Siltstone, siliceous in places, red-brown, fine-grained, red and white banding in places.

* sample

** top & bottom sample

*** top, bottom & middle sample

- *1.0' Quartzite, red-brown, fine- to medium-grained.
- 0.4' Quartzite, conglomeratic, red-brown pebbles sub-
rounded - 0.07 inch. Section to be sawed.
- 0.3' Quartzite, red-brown, fine- to med-grained.
- *0.6' Siltstone, red-brown, fine-grained.
- *0.2' Quartzite, red-brown, fine- to med-grained.
- 0.6' Siltstone, conglomerate, red-brown, siltstone
pebbles from 0.02'-0.15' - gradation small at
top to large at bottom, quartzose cement. Section
to be sawed.
- *0.3' Quartzite, red-brown, fine- to med-grained.
- *0.3' Quartzite, green and red, fine-grained, cut with
numerous quartz stringers.
- *0.7' Quartzite, red-brown, fine- to med-grained.
- 0.2' Conglomerate, greenish quartzite pebbles, pebbles
rounded, 0.03'-0.1'.
- 0.6' Quartzite, red-brown, fine- to med-grained. Section
to be sawed.
- *0.3' Quartzite, greenish, fine-grained, with few quartz
stringers.
- *1.0' Quartzite, red-brown, fine- to medium-grained, with
band of limy-siltstone 0.01' thick near top.
- 6400.5' Juniata-Martinsburg contact, arbitrarily set at
end of red zones and beginning of highly fossil-
iferous zones.
- **3.0' Martinsburg Formation.- Siltstone, light medium
gray, calcareous and highly fossiliferous,
fossils are composed of white crystalline calcite,
mostly cross-sections of brachiopods.
- **7.2' Siltstone, greenish-gray, fine-grained, calcareous,
moderately fossiliferous, highly fossiliferous
pockets.
- **8.7' Siltstone, greenish-gray, fine-grained, calcareous,
fossils becoming slightly more abundant, Lingula
and Orthorhynchula cross-sections progressing down
core section from 6410.7'. Color appears to be
more grayish or bluish.
- *4.2' Siltstone, calcareous, bluish-gray (appears slightly
more bluish-gray than above section), fine- to
medium-grained, moderately fossiliferous.

CORE #25
6431'-6441'

- *0.5' Mudrock, greenish, very fine-grained, non-calcareous, sparsely fossiliferous (few Lingula?)
- *3.0' Siltstone, greenish-gray, fine-grained to very fine-grained, calcareous.
- *2.3' Martinsburg Formation?- Quartzite, purple-red, fine-grained, micaceous?
- *0.2' Quartzite, greenish-gray, fine-grained, micaceous, slightly calcareous.
- *1.0' Siltstone, greenish-gray, fine-grained, slightly calcareous, abundantly fossiliferous, some zones more fossiliferous than others.
- *0.6' Siltstone, green, very fine-grained, not calcareous.
- *0.1' Siltstone, calcareous, green-gray, fine-grained, highly fossiliferous.
- *0.3' Siltstone, green, non-calcareous.
- *0.2' Quartzitic siltstone, greenish-gray, fine-grained.
- *0.6' Siltstone, greenish-gray, fine-grained, abundantly fossiliferous, calcareous.
- *1.3' Quartzite, greenish-gray, very fine-grained, micaceous, quartz veins, minute pyrite crystals.
- *0.6' Siltstone, greenish-gray, fine-grained, abundantly fossiliferous.
- *0.5' Quartzite, greenish-gray, fine-grained, micaceous.
- *0.2' Siltstone, greenish, very fine-grained, irregular parting, non-calcareous.

CORE #27
7356'-7374'

- *1.3' Martinsburg Formation.- Limestone, argillaceous, dark-gray, fine-grained, entire core fractured, calcite veins and stringers with random directions.
- *1.0' Shale, calcareous, black, dense, very fine-grained, has partings, calcite veins, fractured, very small bands of granular fossiliferous limestone.
- **5.3' Limestone, argillaceous, dark-gray, fine-grained, shaley partings in section. Make a 45° angle with core, calcite veins numerous and wide up to 0.2', distinct sulfur odor on fresh surface.

*0.7' Limestone, medium-gray, crystalline; limestone, fine- to medium-grained calcite veins. Appear porous in places, small amounts of shale.
 9.7' Missing from Core #27.

CORE #28
 7374'-7398'

*0.3' Martinsburg Formation.- Limestone, medium dark gray, dense with some grains, fossils, sulfur odor.
 **5.0' Limestone, with shale partings, interbedded calcareous shale and limestones medium gray limestone to dark gray shale (partings seem to be parallel to core length) distinct sporadic alternation between argillaceous limestone and calcareous shale. Distinct sulfur odor at 5.0', contact with next unit - fine-grained limestone.
 ***5.1' Limestone, medium dark gray, fine- to medium-grained in places, abundant shale partings, distinct sulfur odor, brachiopod cross-sections. Shale partings down center of core. Calcite veins, medium-grained clastic areas.
 *1.0' Limestone, argillaceous or calcareous shale, dark gray-black, dense, pyrite crystals.
 **5.0' Limestone, medium dark gray, fine- to medium-grained, massive, some calcite veins, brachiopods - coarse and fine ribbed specimens fairly abundant. Some coarsely crystalline zones noted.
 **7.6' Limestone, argillaceous, with shale partings down center, medium dark gray, fine-grained to dense.

CORE #29
 7398'-7412'

*0.1' Martinsburg Formation.- Limestone, medium gray, fine- to medium-grained, without shale.
 *2.2' Limestone and interbedded calcareous shales, medium dark gray, fine-grained, dip of interbedding is approximately 20-30° from core axis and random. Some calcite veins and crystalline areas. Some abundant fossil areas in limestone, fine ribbed brachiopods becoming more abundant, some Lingula, cross-sections; in the more calcareous shale brachiopods become most abundant.
 *0.8' Limestone, medium-gray, fine- to medium-grained crystalline areas; absence of shale and fossils. Calcite vein present.

CORE #30
7412'-7448'

- ***8.5' Limestone with interbedded shale. Limestone, medium dark gray, fine-grained, interbedding appears more mottled, fossil zones in limestone, cross-sections noted, some crystalline areas. Grades into argillaceous limestone.
- *2.2' Limestone, argillaceous, dark-gray, fine-grained, disseminated pyrite, brachiopod cross-sections, some small calcite veins.
- *0.8' Limestone, medium gray, fine-grained to crystalline, with shale, fine ribbed brachiopods abundant.
- *2.4' Limestone, argillaceous, dark gray, fine-grained to dense, shale partings prominent, calcite veins.
- *0.3' Limestone, medium gray, fine- to medium-grained, crystalline, brachiopod cross-sections.
- *9.0' Limestone with shale partings, argillaceous, dark gray, fine-grained to dense, shale partings at approximately 10° angle with core axis, mottled appearance.
- * Some fossil zones, fine ribbed brachiopods fairly abundant plus secondary calcite.
- * Limestone vs shale in varying proportions. Few small brachiopods.
- **9.0' Limestone, with shale approximately 50%, argillaceous, dark gray, fine-grained to dense, shale partings prominent, dark gray, shale black, dense. Progressing down core, shale increased, few fossils noted.
- *9.0' Limestone, with shale (same as above)
- 3.3' Missing from Core #30.

CORE #33
7476'-7506'

- *2.1' Martinsburg Formation.- Shale, calcareous with argillaceous limestone. Shale carbonaceous. Limestone, medium to dark gray, fine-grained, shale, predominates approximately 70-80%.
- *0.6' Limestone, medium gray, fine- to medium-grained, disseminated pyrite, some fossil cross-sections (brachiopods)

- *0.6' Shale, black, carbonaceous, calcareous, non-fissile.
- *0.5' Limestone, medium gray, fine- to medium-grained, disseminated pyrite fossils, brachiopods.
- *0.2' Calcite vein, fairly large cleavage faces noted, approximately 0.04', largest calcite vein noted.
- *2.4' Limestone (argillaceous) with calcareous shale interfingering, limestone dark gray, fine-grained.
- *2.7' Limestone, fossiliferous interbedded with shale limestone, medium gray, fine- to medium-grained, brachiopod cross-sections (cephalopod & gastropod sections?)
- **3.5' Shale with some limestone (10%), black, carbonaceous, calcareous.
- *0.2' Limestone, fossiliferous, medium gray, fine- to medium-grained, brachiopod cross-sections, sulfur odor.
- *1.0' Limestone, (with shale) dark gray, dense.
- *1.0' Limestone, medium gray, fine- to medium-grained, calcite veins throughout (up to 0.02'), brachiopods, sulfur odor.
- *0.4' Shale, black, carbonaceous, calcareous.
- *0.2' Limestone, medium gray, fine- to medium-grained, fossils noted, pyrite, sulfur odor.
- *0.4' Shale, black, carbonaceous, calcareous.
- *1.1' Limestone and shale, dark gray to black, fine-grained.
- *0.9' Limestone, medium gray, fine- to medium-grained, fossil cross-sections, calcite veins, 0.01', sheared shale areas.
- *1.9' Shale with limestone interbedded, limestone on outside, shale on inside of core, limestone dark gray-black, large calcite vein 0.05'.
- *0.5' Limestone, dark black, dense, argillaceous.
- *0.2' Limestone, medium gray, crystalline, fine- to medium-grained, fossils noted, sulfur odor.
- *0.9' Limestone, shale partings, limestone dark black, dense, calcite vein at base of segment 0.1'.

- *0.5' Limestone, medium gray, fine- to medium-grained crystalline fossils, cross-sections brachiopod.
- *1.6' Limestone, black; calcareous, shale interbedded. Limestone, dark, fine-grained, Small layers of medium gray crystalline limestone at base of segment approximately 0.2'.
- *1.8' Limestone, argillaceous, dark gray, fine-grained, dense, minor shale.
- *1.0' Limestone, dark and medium gray, fine- to medium-grained, somewhat fossiliferous.
- **3.5' Limestone and shale interbedded. Limestone dark gray, fine-grained, calcite vein, 0.01', varying proportions of shale and limestone.
- *2.0' Limestone, medium gray, fine- to medium-grained, fossiliferous, brachiopods. Minor shale partings. Calcite veins up to 0.02'.
- 2.7' Missing from Core #33.

CORE #34
7506'-7522'

- **3.9' Martinsburg Formation.- Limestone, argillaceous, medium gray, fine- to medium-grained, pyrite, shale sections at various intervals. Large calcite vein 0.2', 1.5' from top (large calcite veins throughout core) 2nd vein 0.2', 1' below 1st vein. 3rd vein 0.3', 0.3' below 2nd vein.
- **4.2' Limestone, medium gray, fine-grained, fossiliferous, brachiopods and mollusks (?), minor amounts of shale present. Calcite vein 0.01' and other smaller veins and stringers, sulfur odor, pyrite crystals.
- ***7.5' Limestone and calcareous shale, limestone, dark gray, dense. Calcite vein 0.05' and smaller veins approximately 2' from top. Calcite vein 0.01', 1' below 1st vein; between 2 veins is fossil zone (0.1') brachiopods. Calcite veins 0.03', 4.0' below 2nd vein. Pyrite in fossil zone, sulfur odor.
- 0.4' Missing from Core #34.