

LITHOLOGY OF 18 SHALLOW THERMAL GRADIENT HOLES  
COLADO AREA, NEVADA

by

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In 1979, 18 thermal gradient holes were drilled by Getty Oil Company to evaluate the geothermal potential of the Colado area. The cuttings were subsequently released for study to the Earth Science Laboratory, UURI, through the DOE/DGE Industry Coupled Program. The locations, numbers and bottom hole temperatures for each hole are shown in Figure 1. Figures 2-5 illustrate the stratigraphic relationships between the drill holes across several log sections. All but one of the holes were 500 feet deep.

In general the Quaternary sediments consists of poorly consolidated gravel, sand and mudstone. The bedrock consist of slate, siltstone and sandstone of Triassic to Jurassic age (Johnson, 1977). Milky to clear quartz is widely scattered throughout the slate. Pyrite occurs separately within the slate. The pyrite and quartz may have formed from original constituents in the rock during metamorphism.

The Quarternary gravels consist of poorly sorted clasts of diverse lithologies. The sand and gravel are poorly cemented by clay and calcite. Mudstones contain subordinate amounts of coarse sand and gravel, which probably occur as thin lenses. No stratigraphy or marker beds could be found in the alluvium. The upper one-to-two hundred feet of mudstone in the western holes is probably Lake Lahontan sediments.

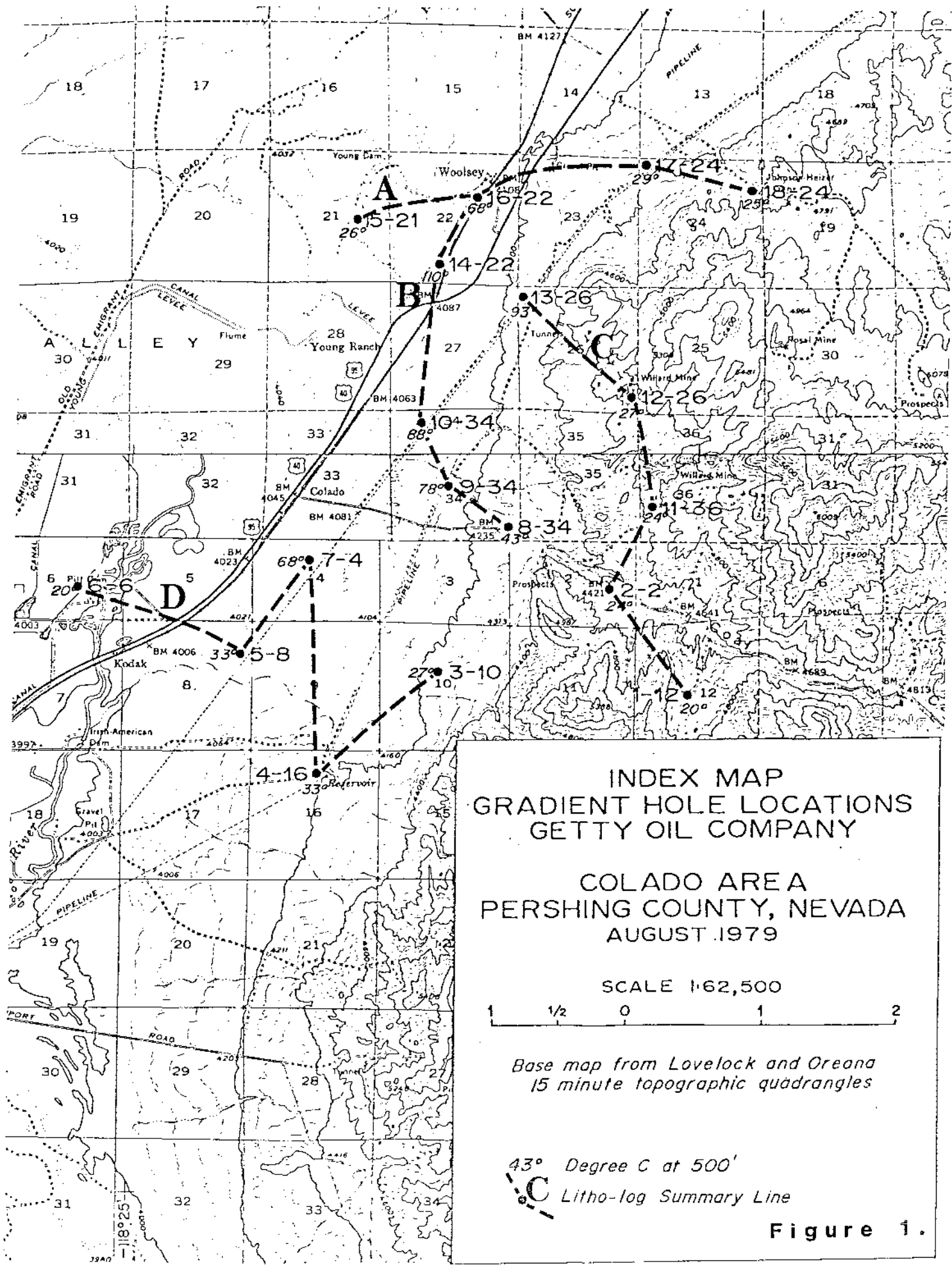
Only limited structural information could be determined from the cuttings. A range front fault probably occurs under alluvium between holes 16-22 and 17-24 (index map) and trends south-southeast to near the mouth of Coral Canyon, then turns south-southwest. The holes west of this line penetrated only alluvium, and the holes east of the line intercepted bedrock a hundred feet or less below the surface.

The only mineralization of possible significance occurs in hole 14-22. Pyrite cubes occur interstitially within the gravel and sand at depths of 80 to 500 feet (Figure 3), and appear to have formed after deposition of these sediments. Pyrite is particularly abundant and also occurs within clasts between depths of 280 and 380 feet. The cuttings are angular, green and appear silicified in this zone. Some rounded silicified clasts are also present in this zone, and some of this mineralization may therefore predate deposition of the sediments. Colado 14-22 is also the hottest of the gradient holes having a temperature of 112.6°C at 200 feet. The bottom hole temperature is 110.3°C at 500 feet.

Minor pyrite is present in the lower half of hole 16-22, one-half mile north of 14-22.

#### REFERENCE

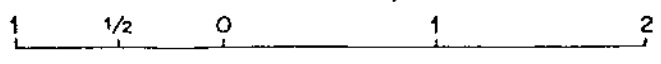
Johnson, M. G., 1977, Geology and mineral deposits of Pershing County, Nevada; Nev. Bur. Mines and Geol., Bull. 89, 115 p.



INDEX MAP  
 GRADIENT HOLE LOCATIONS  
 GETTY OIL COMPANY

COLORADO AREA  
 PERSHING COUNTY, NEVADA  
 AUGUST 1979

SCALE 1:62,500



Base map from Lovelock and Oreana  
 15 minute topographic quadrangles

43° Degree C at 500'  
 Litho-log Summary Line

Figure 1.

← West

East →

Colado 15-21

Colado 16-22

Colado 17-24

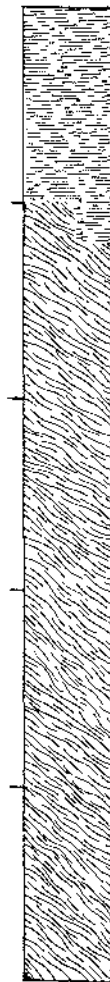
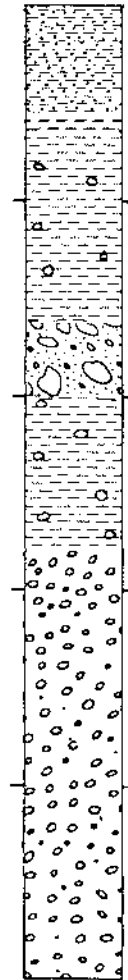
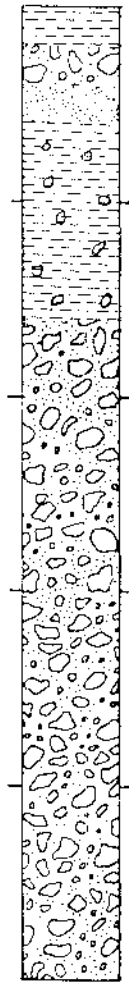
Colado 18-24

Elev. 4040

Elev. 4080

Elev. 4320

Elev. 4520



Depth  
feet

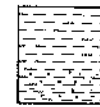
- 100

- 200

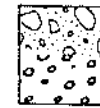
- 300

- 400

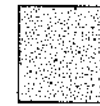
- 500



Clay or mudstone  
Quat. lake sed., sandy



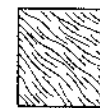
Gravel, alluvium  
Fine gravel



Sandstone



Siltstone, pale red  
to gray



Slate, dark gray

Figure 2. Lithology log summary line A

← North

Southeast →

Colado 16-22

Colado 14-22

Colado 10-34

Colado 9-34

Colado 8-34

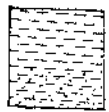
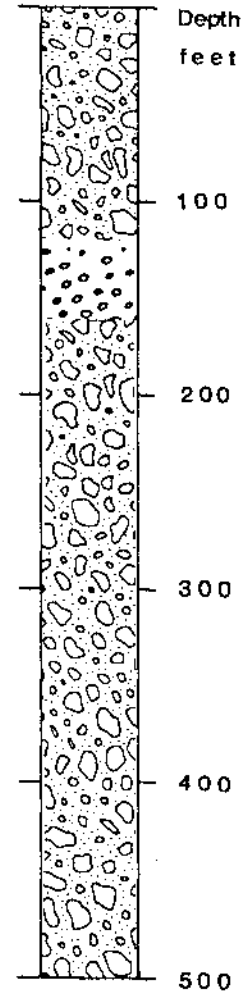
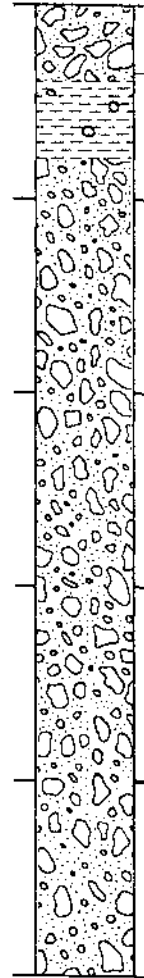
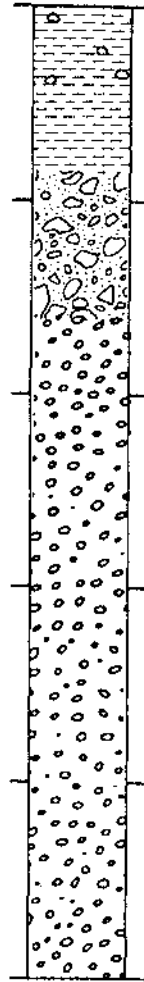
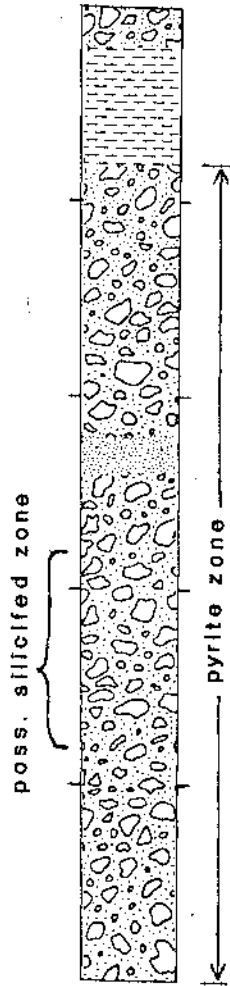
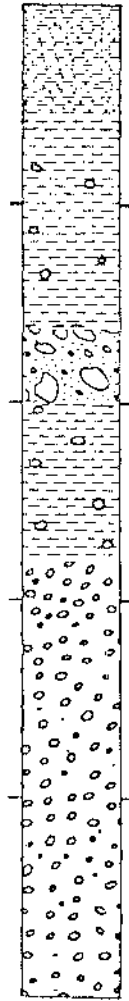
Elev. 4080

Elev. 4080

Elev. 4120

Elev. 4160

Elev. 4240

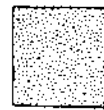


Mudstone

sandy zone



Gravel  
coarse  
granule



Sand

Figure 3. Lithology log summary line B

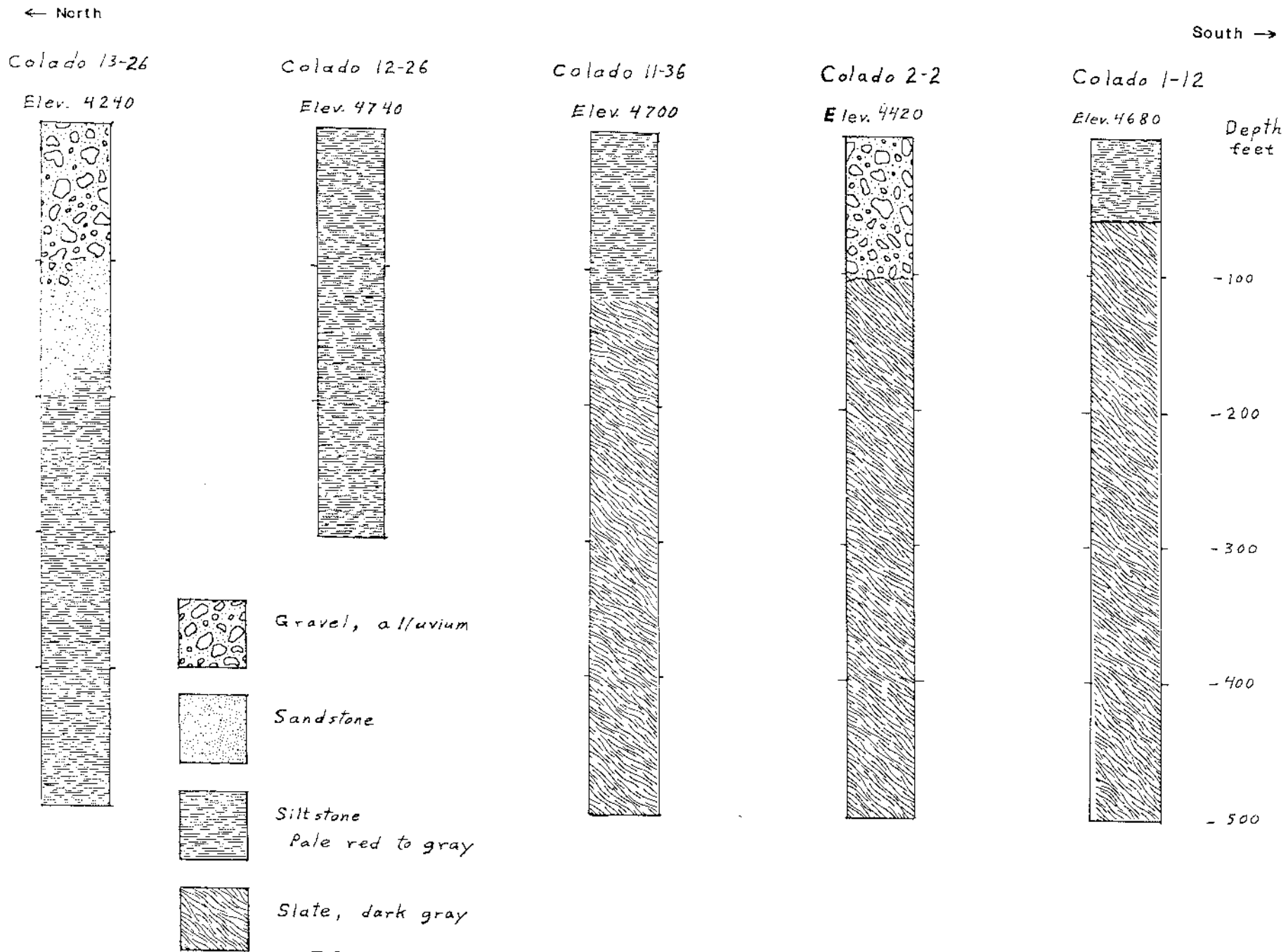
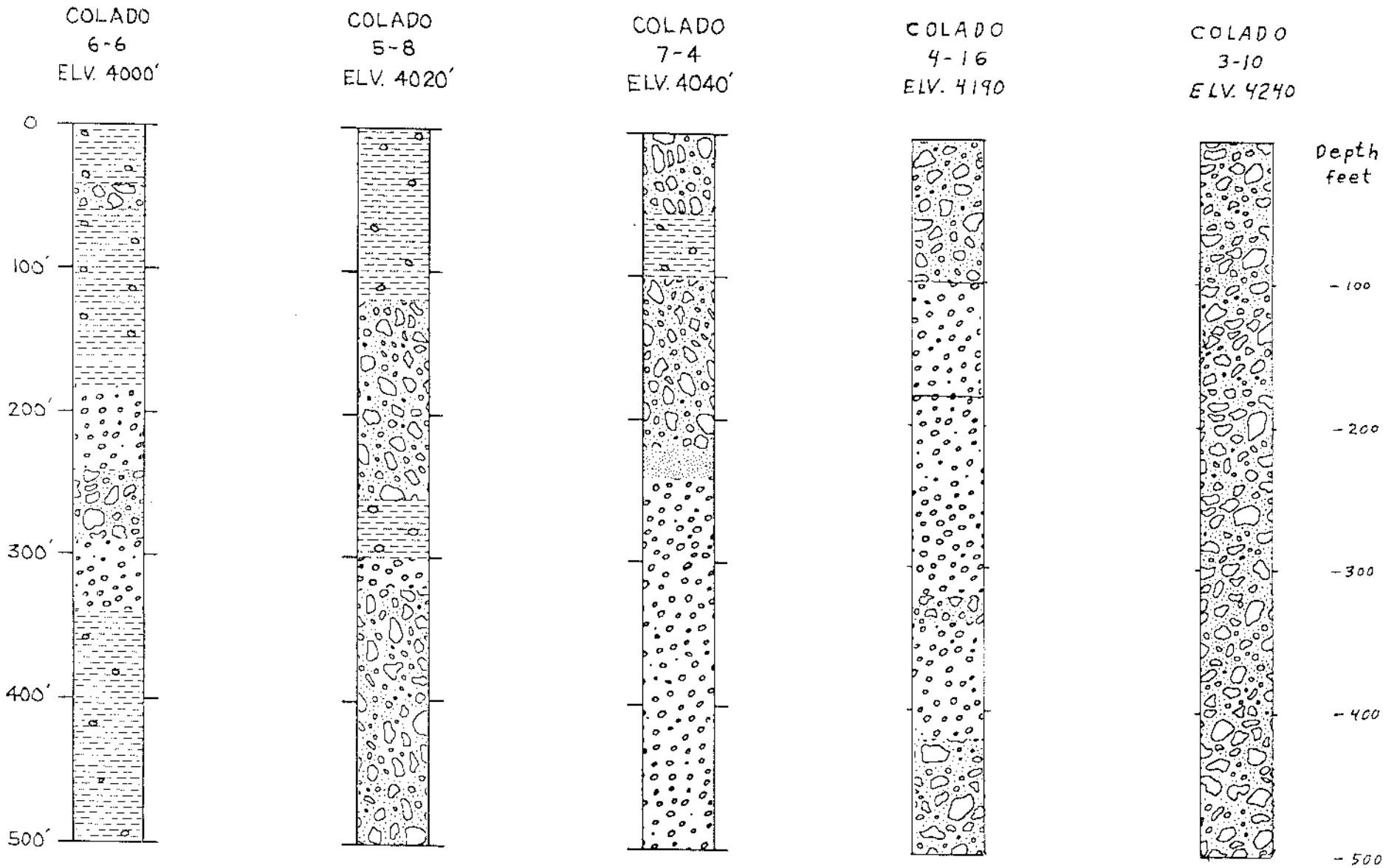



Figure 4. Lithology log summary line C


← West


East →



 Clay or mudstone  
 Quat. Lake sed.

 Sandstone

Coarse  
 Fine  
 Gravel, alluvium

 Siltstone, pale red to gray

**Figure 5.**  
Lithology log summary line D