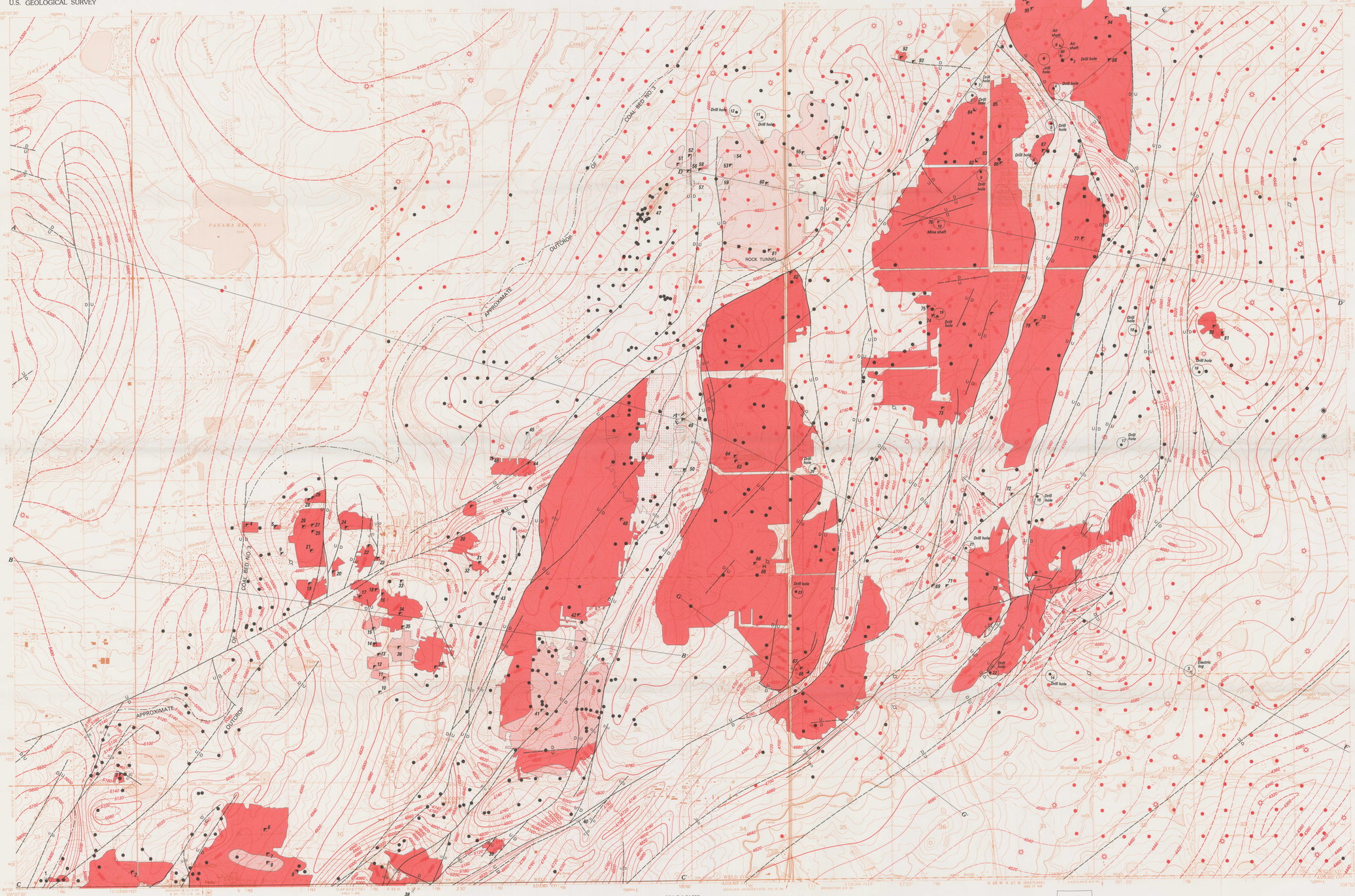


DESCRIPTION OF MAP UNITS
(Shown in sections only)

Ki — Laramie Formation—Lower 100 feet of the formation is light- to medium-gray quartzose sandstone and arkosic sandstone divisible into benches separated by clay, fire clay, shale, or coal seams. Upper 600 feet predominantly claystone, shale, sandy shale, and lenticular beds of sandstone and lignite. In this area includes rocks previously called Arapahoe Formation. (Maldet 1955 p. 22)

Kfh — Fox Hills Sandstone—Greenish-buff, fine to coarse, crossbedded quartzose sandstone in lower part grading upward to light-yellow and white fine- to medium-grained sandstone containing polygonal weathering patterns. Includes A and B sandstone units of Emmons et al (1896) of the Laramie Formation

Kp — Pierre Shale—Predominantly lead-gray to brown clayey shale containing some siltstone, silty sandstone, limestone and concretions

EXPLANATION OF MAP SYMBOLS

U/D — High-angle fault—Drawn on coal bed No. 3. Dashed where approximately located. U, upthrown side; D, downthrown side. Arrows indicate relative movement

4660 — Structure contour—Drawn on the base of coal bed No. 3 locally called the lower main seam and in the Marshall-Louisville District called the Graham coal; solid where well controlled by subsurface information, dashed where information is sparse. Short dashed where structure contours are drawn above land surface. Hachures indicate a structural depression. Contour interval 20 feet and 100 feet where projected above land surface

Approximate limit of coal bed No. 3

Drill hole for coal

Water well

Water injection well

Oil well (producing in 1979). N, not in production; S, shut in (1979)

Natural gas well (producing in 1979). N, not in production, S, shut in (1979)

Measured stratigraphic sections

39 — Air shaft

20 — Drill hole

10 — Mine shaft

13 — Electric log

Mine shaft

Active (1952–54)

Inactive (1952–54)

Inactive air shaft (1952–54)

Slope

Active (1952–54)

Inactive (1952–54)

Area where coal has been mined out or lost in mining

Coal bed No. 3

Coal bed No. 4

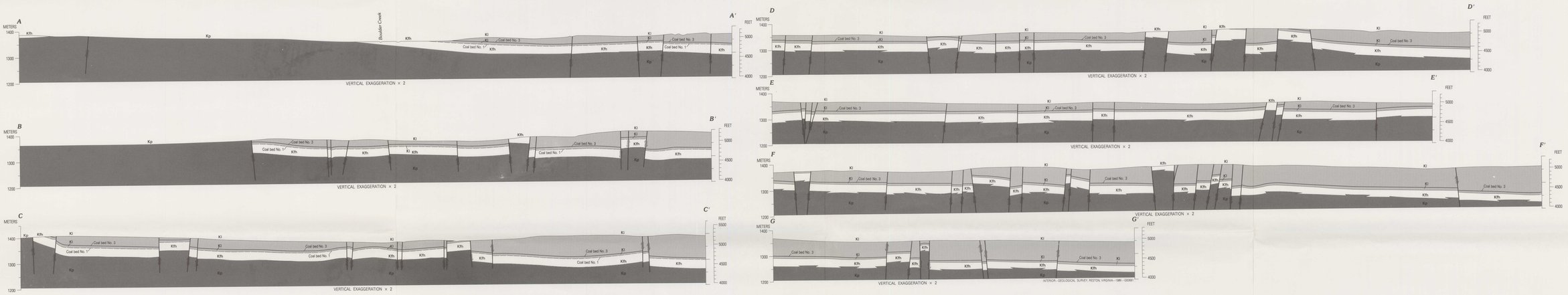
Coal beds No. 3 and 4

Coal bed No. 5

Coal bed No. 6

COAL MINES IN THE ERIE AND FREDERICK QUADRANGLES

1. PARAMOUNT SLOPE
2. BLACK DIAMOND NO. 2 SHAFT
3. MILE HIGH SHAFT
4. STANDARD SHAFT
5. SHAFT (NAME UNKNOWN)
6. MITCHELL SHAFT
7. GLADSTONE SHAFT
8. EXCELSIOR SHAFT
9. BANNER SHAFT
10. SHAFT (NAME UNKNOWN)
11. CLEVELAND SHAFT
12. MCGREGOR SHAFT
13. PINNACLE SHAFT
14. MARFELL SHAFT
15. GARFIELD NO. 1
16. LISTER SHAFT
17. SHAFT (NAME UNKNOWN)
18. STEWART SHAFT
19. TYNAN SHAFT
20. CHASE SHAFT
21. JACKSON SHAFT
22. NORTHROP NO 1. SHAFT
23. NORTHROP NO. 2 SHAFT
24. LONGS PEAK SHAFT
25. CANFIELD SHAFT
26. OLD STAR SHAFT
27. SHAFT (NAME UNKNOWN)
28. ARROW, NEW (CRESCENT) STAR SHAFT
29. BRENNAN (CRESCENT)
30. OLD BOULDER VALLEY SHAFT
31. NORTHWESTERN SHAFT
32. SHAFT (NAME UNKNOWN)
33. BRIGGS SHAFT
34. GARFIELD NO. 2 SHAFT
35. LLOYD SHAFT
36. MITCHELL NO. 2 SHAFT
37. LEHIGH SHAFT
38. PARKDALE SLOPE
39. MONROE SLOPE
40. UNNOWN SLOPE
41. COLUMBINE SHAFT
42. STATE (ANDREW) SHAFT
43. STATE NO. 2 SHAFT
44. MCKISSICK SHAFT
45. BELIANCE SHAFT
46. SHAFT (NAME UNKNOWN)
47. ERIE STRIP MINE
48. CLAYTON MINE SHAFT
49. MORRISON MINE SHAFT
50. MORRISON MINE SHAFT
51. EUREKA MINE #1 SHAFT
52. EUREKA MINE #2 SHAFT
53. EUREKA MINE #3 SHAFT
54. EUREKA MINE #3 SLOPE
55. SHAMROCK MINE NEW AIR SHAFT
56. WHITEHOUSE MINE #1 SHAFT
57. WHITEHOUSE MINE #2 SLOPE
58. EUREKA MINE AIR SHAFT
59. IDEAL MINE SLOPE
60. SHAMROCK MINE SHAFT
61. PURITAN MINE SHAFT (COAL 5)
62. PURITAN MINE SHAFT (COAL 3)
63. IMPERIAL MINE AIR SHAFT
64. IMPERIAL MINE SHAFT
65. EAGLE MINE SHAFT
66. EAGLE MINE AIR SHAFT
67. WASHINGTON MINE SHAFT
68. WASHINGTON MINE AIR SHAFT
69. WASHINGTON MINE (OLD) SHAFT
70. LINCOLN MINE SLOPE
71. OLD LINCOLN SHAFT
72. HINGLEY-MORGAN MINE SHAFT
73. GRADEN MINE SHAFT
74. BOULDER VALLEY MINE #3 SHAFT
75. BOULDER VALLEY MINE #3 AIR SHAFT
76. BAUM MINE SHAFT
77. STERLING MINE AIR SHAFT
78. STERLING MINE AIR SHAFT
79. STERLING MINE SHAFT
80. WITHERBEE (SILVER STATE) MINE SHAFT
81. PEERLESS MINE SHAFT
82. FREDERICK MINE OLD SHAFT
83. FREDERICK MINE OLD SLOPE
84. FREDERICK MINE AIR SHAFT
85. FIRESTONE MINE NEW SLOPE
86. EVANS MINE SHAFT
87. WARWICK MINE SHAFT
88. RUSSELL MINE SHAFT
89. GRANT AIR SHAFT
90. GRANT AIR SHAFT
91. McKISSIC MINE SHAFT
92. DAVIES-MAXWELL MINE SHAFT
93. EVAN JONES MINE SHAFT
94. EMERSON MINE SHAFT
95. McKISSIC MINE SHAFT
96. McKISSIC AIR SHAFT



MAP AND SECTIONS SHOWING STRUCTURAL GEOLOGY OF ERIE AND FREDERICK QUADRANGLES, COLORADO