UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF COLORADO
DEPARTMENT OF NATURAL RESOURCES

CATTLE CREEK QUADRANGLE
COLORADO-GARFIELD CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

(GLENWOOD SPRINGS) 1:125,000

(SHOSHONE)

## DESCRIPTION OF MAP UNITS

(Divisions of Williams Fork and Iles Formations follow those used by Collins (1976))

**Qa** ALLUVIUM (HOLOCENE)--Unconsolidated gravel, sand, and silt in stream valleys and alluvial fans

**QTa** HIGH-LEVEL ALLUVIUM (PLEISTOCENE AND/OR PLIOCENE)--Gravels preserved on ridge tops and in interstream areas; in places mapped previously as basalt of tertiary age

**Tb** BASALT (PLIOCENE AND MIOCENE)--Alkali basalt in lava-flow layers, and interbedded tuffs and volcanic conglomerates

**Tw** WASATCH FORMATION (EOCENE AND PALEOCENE)--Variegated claystone, siltstone, sandstone and conglomerate; at least 4,000 feet thick along Fourmile Creek

**Kwu / Kwb** WILLIAMS FORK FORMATION (UPPER CRETACEOUS)--Sandstone, locally conglomeratic; siltstone, mudstone, shale, and coal. Undifferentiated upper part (Kwu), about 3,000 feet thick, contains "upper coal zone" of this report, near base of map unit. Underlying Bowie Shale Member (Kwb), about 1,000 feet thick, characterized by upper sandstone unit (U) at top of member, and middle sandstone unit (M). Lowermost part of Bowie Shale Member contains "lower coal zone" of this report; coal bed A (A) forms base of map unit

**Kir / Ki** ILES FORMATION (UPPER CRETACEOUS)--Sandstone, siltstone, mudstone and shale; intertongues with Mancos Shale. Rollins Sandstone Member (Kir), at top of Iles Formation, is directly overlain by lower coal zone.

**Km** MANCOS SHALE (UPPER CRETACEOUS)--Chiefly dark-gray marine shale; minor amounts of limestone in lower part of Formation

**Kd** DAKOTA SANDSTONE (LOWER CRETACEOUS)--Light-gray and tan sandstone or quartzite; interbedded dark shale and shaly sandstone

CONTACT--Dashed where indefinite

FAULT--U, upthrown side; D, downthrown side. Arrows show direction of relative movement

STRIKE AND DIP OF BED

Base from U.S. Geological Survey 1961

(Geologic map of northern part continues on Figure 6)

SCALE 1:24000

1 MILE

Geologic map compiled 1977 from geology mapped by J.R. Donnell, W.E. Hallgarth, and E.R. Landis, USGS (1952-53), and modified from Donnell (1962) and Collins (1976, pl. 1)

APPROXIMATE MEAN DECLINATION, 1961

QUADRANGLE LOCATION

CATTLE CREEK, COLO.
N3922.5-W10715/7.5
1961

FIGURE 5.--GEOLOGIC MAP OF PART OF THE NORTHERN PART OF THE CARBONDALE COAL MINING AREA, GARFIELD COUNTY, COLORADO