MAP UNITS

SURFICIAL DEPOSITS

HUMAN-MADE DEPOSITS

af **Artificial fill (latest Holocene)** – Fill and waste rock deposited by humans during construction and mining projects. Contains unsorted silt, sand, rock fragments, or waste coal.

ALLUVIAL DEPOSITS

Qa **Stream channel, flood-plain, and low terrace deposits (Holocene and late Pleistocene)** – Poorly sorted, clast-supported, gravel in a sandy or silty matrix.

Qg **Terrace alluvium (Pleistocene)** – Mostly poorly sorted, clast-supported, occasionally bouldery, pebble and cobble gravel with a sand and silt matrix. May include fine-grained overbank deposits.

COLLUVIAL DEPOSITS

Qc **Colluvium (Holocene and late Pleistocene)** – Rock debris and fines derived from deposits above and adjacent to accumulation areas. Contains matrix-supported and clast-supported, gravelly, clayey, sandy silt.

Qls **Landslide deposits (Holocene and Pleistocene)** – Heterogeneous unit consisting of unsorted, unstratified rock debris, sand, silt, and clay. Some landslides may be partially active.

ALLUVIAL AND COLLUVIAL DEPOSITS

Qac **Alluvium and colluvium, undivided (Holocene and late Pleistocene)** – Moderately well to well sorted, stratified, interbedded sand, pebbly sand, and sandy gravel to poorly sorted, unstratified or poorly stratified clayey, silty sand, bouldery sand, and sandy silt.

BEDROCK

K_K **Kirtland Shale, undivided (Upper Cretaceous)** – Includes upper member, a light-yellow to white and whitish-tan sandstone interbedded with olive-green and olive-gray shale; the Farmington Sandstone Member, an olive-brown to yellow, and tan to light-orange sandstone and greenish-gray shale; and the lower member, a gray-green to dark-olive-gray shale. Only basal contact of unit is shown on map.

Kf **Fruitland Formation (Upper Cretaceous)** – Light-gray, light to olive brown, fine- to medium-grained sandstone beds interbedded with medium- to dark-gray shale and coal. Shales are commonly carbonaceous. Coal beds range in thickness from 40 ft to less than 0.5 ft. Unit contains up to 5 coal intervals – labeled Intervals 1 to 5 (I-1 to I-5). Interval 1 (I-1) coal occurs in Fruitland Formation strata, often referred to as the Fruitland Tongue, located stratigraphically beneath and intertonguing with a transgressive beach sand mapped as Pictured Cliffs Sandstone Tongue (Kpct).

Kpct **Pictured Cliffs Sandstone Tongue (Upper Cretaceous)** – Light-gray to white and tan, fine- to medium-grained sandstone, generally medium bedded to massive, in places thin bedded to laminated, locally well sorted. Contains scattered *Ophiomorpha* burrows. Occurs in a large exposure from the Animas River to just east of the Florid River and also in a smaller isolated tongue just east of Basin Creek on Carbon peak.

Kpc **Pictured Cliffs Sandstone (Upper Cretaceous)** – Light-gray to white and tan sandstone interbedded with dark-gray shale in lower part. Lower contact is placed at base of the lowest 1-ft-thick sandstone at point where shale content reaches 50 percent of strata over a 6-foot stratigraphic interval. Unit is medium bedded to massive but can be thinly bedded to laminated. Contains locally abundant *Ophiomorpha* burrows and occasional plant casts. Unit is well sorted and has rounded grains.

Kl **Lewis Shale (Upper Cretaceous)** – Thick sequence of dark-gray fissile shale containing thin sandstone beds in upper part. Only the upper contact at base of Pictured Cliffs Sandstone is shown on the maps.

MAP SYMBOLS

Formation Contact – Dashed where approximately located

I-2 **Coal Interval** – Dashed where approximately located; shown as a polygon where outcrop of interval is broad

Formation Contact/Coal Interval – Based on prior mapping and interpretation of aerial photography due to access restrictions

Fault – Dashed where concealed; bar and ball on down-thrown side; includes normal faults related to subsidence due to coal combustion

25 **Strike and dip of beds** – Angle of dip shown in degrees

25 **Measured Section** – Shows approximate location and identification number of measured section

Gravel pit

Seep **Seep -** Area of visible and/or audible venting of coal bed gases.

Clinker – Areas of burned coal and baked sedimentary rocks caused by coal outcrop fires and/or mine fires

Stressed Vegetation – Areas with pronounced vegetative stress.

SV **Stressed Vegetation** – Areas with localized vegetative stress

Groundwater spring – Approximate location

CM **Coal Mine adit/portal** (identified from Stonebrooke report, 1996, Figs. 1-6)

Seep (identified from Stonebrooke report, 1996, p. 11)

X **> 1,000,000 ppm methane in air by weight (> 100% LEL in air by volume)** – (identified from Stonebrooke report, 1996, p. 17 and Fig. 9)

X **> 50,000 ppm methane in air by weight (> 100% LEL in air by volume)** – (identified from Stonebrooke report, 1996, p. 17 and Fig. 9)

SG **Significant Soil Gas probe reading for Methane** (BLM, May, 1995)

H_2S **H_2S detected in soil gas probe** (BLM, May, 1995)