

UNCONSOLIDATED SURFICIAL DEPOSITS AND ROCKS OF QUATERNARY AGE Qa MODERN ALLUVIUM—Includes Piney Creek Alluvium and younger deposits Qg GRAVELS AND ALLUVIUMS (PINEDALE AND BULL LAKE AGE)—Includes Qgo OLDER GRAVELS AND ALLUVIUMS (PRE-BULL LAKE AGE)—Includes Slocum, Verdos, Rocky Flats, and Nussbaum Alluviums in east, and Florida, Bridgetimber, Qe EOLIAN DEPOSITS—Includes dune sand and silt and Peoria Loess Qeo OLDER EOLIAN DEPOSITS—Includes Loveland Loess Qd GLACIAL DRIFT OF PINEDALE AND BULL LAKE GLACIATIONS—Includes some QI LANDSLIDE DEPOSITS—Locally includes talus, rock-glacier, and thick colluvial de-SEDIMENTARY ROCKS OF TERTIARY AGE OGALLALA FORMATION—Loose to well-cemented sand and gravel Tgv BOULDERY GRAVEL ON OLD EROSION SURFACES IN FRONT RANGE AND Ta ARIKAREE FORMATION—Sandstone; contains abundant volcanically derived mate-Twr WHITE RIVER FORMATION OR GROUP—Ashy claystone and sandstone. Includes Castle Rock Conglomerate in region southeast of Denver Th HUERFANO FORMATION—Shale and sandstone. Includes Farisita Conglomerate in Tdu UPPER PART OF DAWSON ARKOSE—Arkosic sandstone, conglomerate, and shale. Includes Green Mountain Conglomerate south of Golden Tbp BROWNS PARK FORMATION—Sandstone and siltstone; west of Park Range TROUBLESOME FORMATION—Sandstone and siltstone; in Middle Park Tnp NORTH PARK FORMATION—Sandstone, siltstone, and conglomerate; in North Park Tos OLIGOCENE SEDIMENTARY ROCKS—Includes Duchesne River Formation (sandstone and shale; includes some rocks of Eocene age) and Bishop Conglomerate near Utah border
Twr WHITE RIVER FORMATION—Ashy claystone and sandstone; in North Park Tu UINTA FORMATION—Sandstone and siltstone; in Piceance basin. Formerly Evacua-BRIDGER FORMATION—Claystone and mudstone; in Sand Wash basin GREEN RIVER FORMATION—Marlstone, sandstone, and oil shale Parachute Creek Member—Oil shale, marlstone, and siltstone; in Piceance basin Lower part—Shale, sandstone, marlstone, and limestone in Anvil Points, Garden Gulch, and Douglas Creek Members; in Piceance basin Laney Member-Claystone, oil shale, and sandstone; in Sand Wash basin Luman Tongue—Carbonaceous shale and marlstone; in Sand Wash basin Tglw LOWER PART OF GREEN RIVER FORMATION AND WASATCH FORMATION— Tw WASATCH FORMATION—Claystone, shale, and sandstone Tbb BASALT FLOWS AND ASSOCIATED TUFF, BRECCIA, AND CONGLOMERATE TIGI INTRA-ASH-FLOW QUARTZ LATITIC LAVAS Hinsdale Formation in San Juan Mountains, Servilleta Formation in San Luis Tbbi BASALTIC INTRUSIVE ROCKS RELATED TO BASALT FLOWS (Tbb)—In dikes Tbr RHYOLITIC INTRUSIVE ROCKS AND FLOWS OF LATE-VOLCANIC BIMODAL Tbrt ASH-FLOW TUFF OF LATE-VOLCANIC BIMODAL SUITE (AGE 22–23 M.Y.) TAINS 26-30 M.Y.; IN SOUTH PARK 29-32 M.Y.)—Includes many named units conglomerate; Denver is characterized by andesitic materials sandstone, shale, mudstone, conglomerate, and local coal beds TKr RATON FORMATION—Arkosic sandstone, siltstone, and shale; contains major coal If LARAMIE FORMATION AND FOX HILLS SANDSTONE Kpl Lower unit—Sharon Springs Member (organic-rich shale and numerous bentonite Kn NIOBRARA FORMATION—Calcareous shale and limestone Kcg CARLILE SHALE, GREENHORN LIMESTONE, AND GRANEROS SHALE Kc COLORADO GROUP—Consists of Niobrara Formation (Kn) and either Benton Shale Kpg PIERRE SHALE (Kp), NIOBRARA (Kn), AND CARLILE, GREENHORN, AND Kdp DAKOTA SANDSTONE AND PURGATOIRE FORMATION—Sandstone and shale NORTHWEST AND WEST-CENTRAL KI LANCE FORMATION—Shale, sandstone, and minor coal beds; Fox Hills equivalent at Kmw WINDY GAP MEMBER (UPPER CRETACEOUS?) OF MIDDLE PARK FORMATION—Andesitic breccia and conglomerate Sandstone Member at base in Delta, Gunnison and Pitkin Counties sandstone and shale above coal-bearing sequence Kmvl Lower part—Sandstone, shale, and major coal beds KJdj DAKOTA, BURRO CANYON, MORRISON, AND JUNCTION CREEK KJdw DAKOTA, BURRO CANYON, MORRISON, AND WANAKAH FORMATION KJdr DAKOTA GROUP AND MORRISON AND RALSTON CREEK FORMATIONS AT MOUNTAIN FRONT BETWEEN BOULDER AND COLORADO SPRINGS SEDIMENTARY ROCKS OF JURASSIC AGE Jmj MORRISON FORMATION AND JUNCTION CREEK SANDSTONE—In Gunnison Jme MORRISON FORMATION AND ENTRADA SANDSTONE River area east of wedgeout of all units of Wanakah Formation (Jmw) except the Jmw MORRISON FORMATION AND WANAKAH FORMATION (SANDSTONE, SHALE, LIMESTONE, AND LOCAL GYPSUM; JUNCTION CREEK SANDSTONE MEMBER AT OR NEAR TOP; PONY EXPRESS LIMESTONE MEMBER AT JRgc GLEN CANYON GROUP AND CHINLE FORMATION—In southwest. Glen Canyon sandstone), and Wingate Sandstone; Chinle is red siltstone SEDIMENTARY ROCKS OF TRIASSIC AGE TRIC KAYENTA FORMATION (RED SILTSTONE, SHALE, AND SANDSTONE), WIN-TRIC CHINLE AND CHUGWATER FORMATIONS Two WINGATE SANDSTONE AND CHINLE FORMATION Rch CHUGWATER FORMATION—Red sandstone, siltstone, shale, and local limestone STATE BRIDGE FORMATION—Red and orange siltstone and sandstone RPjs JELM, LYKINS, LYONS, AND SATANKA FORMATIONS—Red siltstone, shale, and RPcs CHINLE AND STATE BRIDGE FOR MATIONS—Red siltstone and sandstone RPcp CHINLE, MOENKOPI, AND PARK CITY FOR MATIONS—Red and gray siltstone, shale and sandstone

UNCONSOLIDATED DEPOSITS OF QUATERNARY AND LATE TERTIARY AGE QTsa UNCLASSIFIED SURFICIAL DEPOSITS AND UNDERLYING ALAMOSA FORMA-TION (GRAVEL, SAND, AND SILT) IN SAN LUIS VALLEY QTa ANCIENT ALLUVIUM—In isolated patches that may not all be of the same age Twc Cathedral Bluffs Tongue—Claystone, mudstone, and sandstone; in Sand Wash Twn Niland Tongue—Mudstone, sandstone, and carbonaceous shale; in Sand Wash Two WASATCH FORMATION (INCLUDING FORT UNION EQUIVALENT AT BASE) AND OHIO CREEK FORMATION—Claystone, mudstone, sandstone, and con-Tf FORT UNION FORMATION—Shale, sandstone, and local coal beds Tc COALMONT FORMATION—Arkosic sandstone, conglomerate, and shale; coal in POISON CANYON FORMATION—Arkosic conglomerate, sandstone, and shale Tm MIDDLE PARK FORMATION EXCLUSIVE OF WINDY GAP MEMBER—Arkosic sandstone and conglomerate containing abundant volcanic materials. Arbitrary line between Middle Park and Coalmont Formations is at Continental Divide Td DRY UNION FORMATION—Siltstone, sandstone, and conglomerate. Includes Wagontongue Formation (Miocene) in South Park Ts SANTA FE FORMATION—Siltstone, sandstone, and conglomerate OLIGOCENE SEDIMENTARY ROCKS—Includes Florissant Lake Beds (tuffaceous shale and tuff) and Antero Formation (limestone, tuff, tuffaceous sandstone, and Te EOCENE PREVOLCANIC SEDIMENTARY ROCKS—Arkosic sand and bouldery gravel of Echo Park Alluvium Tsp SOUTH PARK FORMATION—Arkosic sandstone and shale, volcaniclastic conglomerate, and andesite flows and breccia TIP LOS PINOS FORMATION—Volcaniclastic conglomerate interbedded with basalt flow of Hinsdale Formation (Tbb) on east flank of San Juan Mountains. Grades laterall into Santa Fe Formation of San Luis Valley Tos OLIGOCENE SEDIMENTARY ROCKS—Includes Creede Formation (tuffaceous siltstone, sandstone, conglomerate) and gravels interbedded with volcanic rocks SAN JOSE FORMATION—Siltstone, shale, and sandstone EOCENE PREVOLCANIC SEDIMENTARY ROCKS—Includes Telluride Conglomerate and Blanco Basin Formation (arkosic mudstone, sandstone, and conglomer-Tn NACIMIENTO FORMATION—Shale and sandstone ²Age of upper parts of uppermost Tertiary units is problematic. These parts have historically been assigned to the (Berggren, 1972) places a Pliocene age in question, though top beds of the formations have not been dated. OF LATE-VOLCANIC BIMODAL SUITE (AGE 3.5–26 M.Y.)—Includes basalts of PRE-ASH-FLOW ANDESITIC LAVAS, BRECCIAS, TUFFS, AND CONGLOMER-ATES (GENERAL AGE 30-35 M.Y.)-Includes several named units Twm WALL MOUNTAIN TUFF (OLDER THAN TUFFS OF SAN JUAN PROVENANCE; AGE 35-36 M.Y.)—Early ash-flow tuff of Sawatch Range provenance Tv VOLCANIC ROCKS IN NORTHWESTERN COLORADO (AGE <7-33 M.Y.)— Tui UPPER TERTIARY INTRUSIVE ROCKS (AGE <20 M.Y.)—Intermediate to felsic Taf ASH-FLOW TUFF OF MAIN VOLCANIC SEQUENCE (AGE IN SAN JUAN MOUN- Tmi MIDDLE TERTIARY INTRUSIVE ROCKS (AGE 20–40 M.Y.)—Intermediate to felsic SEDIMENTARY AND IGNEOUS ROCKS OF EARLY TERTIARY AND LATE CRETACEOUS AGE TKda DENVER AND ARAPAHOE FORMATIONS—Sandstone, mudstone, claystone, and TKa ANIMAS FORMATION—Arkosic sandstone, shale, and conglomerate; contains abundant volcanic materials; Upper Cretaceous volcaniclastic McDermott Member at TKdI DENVER FORMATION OR LOWER PART OF DAWSON ARKOSE—Arkosic TKec TELLURIDE CONGLOMERATE OF EOCENE PREVOLCANIC SEDIMENTARY ROCKS (Te) AND CIMARRON RIDGE FORMATION (UPPER CRETACEOUS, VOLCANIC BRECCIA AND CONGLOMERATE, AGE ABOUT 66 M.Y.)-In northwestern San Juan Mountains TKi LARAMIDE INTRUSIVE ROCKS (AGE 40–72? M.Y.)—Mainly intermediate to felsic compositions; some mafic SEDIMENTARY ROCKS OF CRETACEOUS AGE KI LARAMIE FORMATION—Shale, claystone, sandstone, and major coal beds Kw WILLIAMS FORK FORMATION—Sandstone, shale, and major coal beds Ki ILES FORMATION—Sandstone and shale. Trout Creek Sandstone Member at top; Kvt VERMEJO FORMATION (SHALE, SANDSTONE, AND MAJOR COAL BEDS) AND Ksc SEGO SANDSTONE, BUCK TONGUE OF MANCOS SHALE, AND CASTLEGAT HUNTER CANYON FORMATION—Sandstone and shale Kmgs MOUNT GARFIELD FORMATION AND SEGO SANDSTONE—Sandstone and Kpm Middle unit—In Boulder-Fort Collins area, contains Richard, Larimer, Rocky Ridge, shale; major coal beds in lower part of Mount Garfield Terry, and Hygiene Sandstone Members; elsewhere, shale between zones of Km MANCOS SHALE—Intertongues complexly with units of overlying Mesaverde Groundstands and Shale Delay in the Complex of the Compl Sandstone and Mowry Shale Members; in areas where the Frontier and Mowr Members (Kmfm), or these and the Dakota Sandstone (Kfd) are distinguished map unit (Km) consists of shale above Frontier Member Kmfm Frontier Sandstone and Mowry Shale Members and intervening shale zone FRONTIER SANDSTONE AND MOWRY SHALE MEMBERS OF MANCOS SHALL AND DAKOTA SANDSTONE—Locally includes, at base, Burro Canyon Formation (shale and sandstone) or, in western Moffat County, Cedar Mountain Forma-Kdb DAKOTA SANDSTONE AND BURRO CANYON FORMATION—Sandstone, shale, and conglomerate Ckf KIRTLAND SHALE AND FRUITLAND FORMATION—Shale, sandstone, and major PICTURED CLIFFS SANDSTONE AND LEWIS SHALE Kmv MESAVERDE FORMATION, UNDIVIDED—Major coal beds in lower part; Rollins Kmp MENEFEE FORMATION (SANDSTONE, SHALE, AND COAL) AND POINT LOOKmy MESAVERDE GROUP, UNDIVIDED—Sandstone and shale Kmvu Upper part—In Moffat and Rio Blanco Counties, sandstone, shale, and coal beds Km MANCOS SHALE—Lower part contains Juana Lopez Member (Kmj) above Sego Sandstone. Along Grand Hogback south of Colorado River, Kmj Juana Lopez Member—Calcareous sandstone; a thin but persistent unit distin-Kdb DAKOTA SANDSTONE AND BURRO CANYON FORMATION—Sandstone, shale, and conglomerate SEDIMENTARY ROCKS OF CRETACEOUS AND JURASSIC AGES See under headings immediately preceding and following for compositions and age designations of formations KJde DAKOTA, PURGATOIRE, MORRISON, RALSTON CREEK, AND ENTRADA FOR-MATIONS IN SOUTHEAST DAKOTA, MORRISON, AND ENTRADA FORMATIONS IN CENTRAL MOUNTAI DAKOTA, BURRO CANYON, MORRISON, WANAKAH, AND ENTRADA FORMA-TIONS IN GUNNISON RIVER AREA DAKOTA, MORRISON, CURTIS, AND ENTRADA FORMATIONS IN NORTHWEST DAKOTA, PURGATOIRE, MORRISON, AND RALSTON CREEK FORMATIONS IN KJds DAKOTA, MORRISON, AND SUNDANCE FORMATIONS Upper Jm Jmj Jmc Jmw Jmr Jme Jms Jmse Jmce Jmre Jmwe JURASSIC Jm MORRISON FORMATION—Variegated claystone, mudstone, sandstone, and local Jmr MORRISON FORMATION AND RALSTON CREEK FORMATION (CLAYSTONE SANDSTONE, LIMESTONE, AND GYPSUM) Jms MORRISON FORMATION AND SUNDANCE FORMATION (SANDSTONE, SHALE CLAYSTONE, AND LIMESTONE) Jmc MORRISON FORMATION AND CURTIS FORMATION (GLAUCONITIC Jmse MORRISON FORMATION, SUMMERVILLE FORMATION (SHALE AND SILTSTONE), AND ENTRADA SANDSTONE Jmce MORRISON, CURTIS, AND ENTRADA FORMATIONS—In extreme southwestern Moffat County, includes thin wedge of Carmel Formation (red siltstone and sandstone) beneath Entrada

Jmre MORRISON, RALSTON CREEK, AND ENTRADA (OR EXETER) FORMATIONS Jmwe MORRISON, WANAKAH, AND ENTRADA FORMATIONS SEDIMENTARY ROCKS OF JURASSIC AND TRIASSIC AGE JRmg MORRISON, CURTIS, ENTRADA, AND GLEN CANYON FORMATIONS—Curtis is Group consists of Navajo Sandstone, Kayenta Formation (red siltstone, shale, and Hogback, Chinle is represented only by basal Gartra Sandstone Member GATE SANDSTONE, AND CHINLE FORMATION (RED SILTSTONE AND RC CHINLE FORMATION—Red siltstone, sandstone, and limestone-pellet conglomerate Rd DOLORES FORMATION—Red siltstone, shale, sandstone, and limestone-pellet con-Rm MOENKOPI FORMATION—Red siltstone, mudstone, sandstone and local gypsum Rdg DOCKUM GROUP—Red sandstone, siltstone, and local limestone SEDIMENTARY ROCKS OF TRIASSIC, PERMIAN, AND PENNSYLVANIAN AGES RPr TRIASSIC AND PERMIAN ROCKS—Red siltstone, shale, and sandstone. Includes various combinations of Nugget, Jelm, Popo Agie, Chugwater, Red Peak, Forelle, Satanka, and Goose Egg Formations near Wyoming border RPdc DOLORES FORMATION (UPPER TRIASSIC) AND CUTLER FORMATION (LOWER PERMIAN)—Red siltstone, sandstone, and conglomerate RPmc MOENKOPI FORMATION (LOWER TRIASSIC) AND CUTLER FORMATION (LOWER PERMIAN)—Red siltstone and sandstone RPIF LYKINS, LYONS, AND FOUNTAIN FORMATIONS—Red siltstone, sandstone, and conglomerate

EXPLANATION SEDIMENTARY ROCKS BROADLY CLASSIFIED SEDIMENTARY ROCKS OF PERMIAN AGE Shown in small areas of complex structure PARK CITY FORMATION—Calcareous siltstone and sandstone Pu UPPER PERMIAN ROCKS, UNDIVIDED—Siltstone, dolomite, and sandstone; in MESOZOIC ROCKS—Mainly Lower Cretaceous, Jurassic, and Triassic formations MESOZOIC AND PALEOZOIC ROCKS—Mainly as in Mesozoic unit (Mz) plus Per-Pc CUTLER FORMATION—Arkosic sandstone, siltstone, and conglomerate mian and Pennsylvanian formations PPf FOUNTAIN FORMATION—Arkosic sandstone and conglomerate CASPER FORMATION (SANDSTONE) AND LOWER PART OF FOUNTAIN FOR-PPs SANGRE DE CRISTO FORMATION—Arkosic conglomerate, sandstone, and PPm MAROON FORMATION—Arkosic sandstone, siltstone, conglomerate, and local lime-PIPIF INGLESIDE FOR MATION (LIMESTONE AND CALCAREOUS SANDSTONE) AND FOUNTAIN FORMATION PPW WEBER SANDSTONE PPwm WEBER SANDSTONE AND MAROON FORMATION SEDIMENTARY ROCKS OF PENNSYLVANIAN AGE Pm MINTURN FOR MATION IN WEST-CENTRAL AND SOUTH-CENTRAL AND OTHER Pmbe EVAPORITIC FACIES OF MINTURN AND BELDEN FOR MATIONS IN SOUTH PARK UNITS OF MIDDLE PENNSYLVANIAN AGE—Arkosic sandstone, conglomer-AND SOUTHWARD—Gypsum, siltstone, and shale ate, shale, and limestone. Includes Madera Formation and Sharpsdale Formation of Chronic (1958) in Sangre de Cristo Range and Gothic Formation of tone; gypsum and salt in Paradox Member present in salt anticlines near Utah Langenheim (1952) in Elk Mountains Pb BELDEN FORMATION—Shale, limestone, and sandstone. Includes Kerber Forma-Prh RICO AND HERMOSA FORMATIONS—Arkosic sandstone, conglomerate, shale, and limestone. Includes at base in some areas siltstone and shale of Molas Pmb MINTURN AND BELDEN FORMATIONS EAGLE VALLEY FORMATION—Siltstone, shale, and local gypsum Pmr MORGAN FORMATION (LIMESTONE, SANDSTONE, AND SHALE) AND ROUND Pee EVAPORITIC FACIES—Gypsum, siltstone, and shale; salt present in deep borings. VALLEY LIMESTONE—In far northwest Intertongues with Minturn and Lower Maroon Formations. Diapiric structure in SOUTHERN FRONT RANGE AND WET MOUNTAINS M€ LEADVILLE LIMESTONE (MISSISSIPPIAN), WILLIAMS CANYON LIMESTONE M€ LEADVILLE, GILMAN, DYER, PARTING, FREMONT, HARDING, MANITOU, (DEVONIAN), MANITOU LIMESTONE (ORDOVICIAN), AND SAWATCH DOTSERO, PEERLESS, AND SAWATCH FORMATIONS; SOME FORMA-MDO LEADVILLE LIMESTONE, WILLIAMS CANYON LIMESTONE, AND ONE OR MD€ LEADVILLE, GILMAN, DYER, PARTING, AND SAWATCH FORMATIONS MORE ORDOVICIAN FORMATIONS: FREMONT LIMESTONE, HARDING MDO LEADVILLE, GILMAN, DYER, PARTING, FREMONT, HARDING, AND MANITOU DO€ WILLIAMS CANYON LIMESTONE, MANITOU LIMESTONE, AND SAWATCH DO PARTING, FREMONT, AND HARDING FORMATIONS €s SAWATCH QUARTZITE—Locally includes Peerless Formation O € MANITOU LIMESTONE AND SAWATCH QUARTZITE Or ONE OR MORE ORDOVICIAN FORMATIONS—Fremont Limestone, Harding Mm MADISON LIMESTONE (MISSISSIPPIAN)—Upper part includes equivalents of Sandstone, and Manitou Limestone Upper Mississippian Doughnut and Humbug Formations (shale, limestone, and WEST-CENTRAL AND SOUTH-CENTRAL MD LEADVILLE LIMESTONE (MISSISSIPPIAN), GILMAN SANDSTONE (MISSISSIP- CI LODORE FORMATION (CAMBRIAN)—Sandstone, shale, and conglomerate PIAN OR DEVONIAN), DYER DOLOMITE (MISSISSIPPIAN? AND DEVO- M€mI MADISON LIMESTONE AND LODORE FORMATION NIAN), AND PARTING FORMATION (DEVONIAN, QUARTZITE AND SHALE) SANDSTONE, AND MANITOU DOLOMITE), DOTSERO FORMATION MD€ LEADVILLE LIMESTONE (MISSISSIPPIAN), OURAY LIMESTONE (DEVONIAN). (CAMBRIAN, DOLOMITE: IN WHITE RIVER PLATEAU ONLY), PEERLESS ELBERT FORMATION (DEVONIAN, SHALE AND SANDSTONE), AND IG-FORMATION (CAMBRIAN, SANDSTONE AND DOLOMITE), AND SAWATCH NACIO QUARTZITE (CAMBRIAN) MD LEADVILLE, OURAY, AND ELBERT FORMATIONS IGNEOUS ROCKS OF CAMBRIAN AGE €am Alkalic and mafic intrusive rocks in small plutons, and diabase dikes (age 510-570 m.y.) SEDIMENTARY, METAMORPHIC, AND IGNEOUS ROCKS OF PRECAMBRIAN AGE Yu UINTA MOUNTAIN GROUP (AGE 950–1,400 M.Y.)—Quartzite, conglomerate, and Yp ROCKS OF PIKES PEAK BATHOLITH (1,000–M.Y. AGE GROUP)—Includes Pikes YXu UNCOMPAHGRE FORMATION (OLDER THAN GRANITES OF 1,400-M.Y. AGE Yg GRANITIC ROCKS OF 1,400-M.Y. AGE GROUP (AGE 1,350-1,480 M.Y.)— GROUP AND YOUNGER THAN GRANITES OF 1,700-M.Y. AGE GROUP)-Includes Silver Plume, Sherman, Cripple Creek, St. Kevin, Vernal Mesa, Curecanti, Eolus, and Trimble Granites or Quartz Monzonites; also, San Isabel Quartzite, slate, and phyllite Granite of Boyer (1962) and unnamed granitic rocks METAMORPHIC ROCKS (Age 1,700-1,800 m.y.) Yam ALKALIC AND MAFIC ROCKS IN SMALL PLUTONS, AND DIABASE AND GAB-Xb BIOTITIC GNEISS, SCHIST, AND MIGMATITE—Locally contains minor hornblende gneiss, calc-silicate rock, quartzite, and marble. Derived principally from sedimen-Xg GRANITIC ROCKS OF 1,700-M.Y. AGE GROUP (AGE 1,650-1,730 M.Y.) Includes Boulder Creek, Cross Creek, Denny Creek, Kroenke, Browns Pass, Xfh FELSIC AND HORNBLENDIC GNEISSES, EITHER SEPARATE OR Powderhorn, Pitts Meadow, Bakers Bridge, and Tenmile Granites, Quartz Monzo-INTERLAYERED—Includes metabasalt, metatuff, and interbedded metanites, or Granodiorites; also, unnamed granitic rocks

Xm MAFIC ROCKS OF 1,700–M.Y. AGE GROUP—Gabbro and mafic diorite and mongraywacke; locally contains interlayered biotite gneiss. Derived principally from Xq QUARTZITE, CONGLOMERATE, AND INTERLAYERED MICA SCHIST YXg GRANITIC ROCKS OF 1,400– AND 1,700–M.Y. AGE GROUPS, UNDIVIDED, OR. IN TAYLOR RIVER REGION, ROCKS WITH CHARACTERISTICS OF Xg BUT Wr RED CREEK QUARTZITE—Metaquartzite, amphibolite, and mica schist. Present only in small area at Utah border in Uinta Mountains FOLD LINES—General locations of major folds shown where space ----- CONTACT allows. Dotted where concealed FAULT—Dotted where concealed. Bar and ball on downthrown ANTICLINE OVERTURNED SYNCLINE SYNCLINE — MONOCLINE LOW-ANGLE THRUST FAULT—Dotted where concealed. Saw-teeth on upper plate Costilla and Eagle Counties * VOLCANIC NECK (AGE 7–10 M.Y.)—In southern Routt County POSITS—Bar and ball on downthrown side ⊕ DIATREME (PRE-UPPER DEVONIAN, POST-MIDDLE SIL-本語なるなか PRECAMBRIAN SHEAR ZONE URIAN)—In northern Larimer County REFERENCES Berggren, W. A., 1972, A Cenozoic time-scale—some implications for regional geology Lambert, R. S. J., 1971, The pre-Pleistocene Phanerozoic time-scale—A review, in Part and paleobiogeography: Lethia, v. 5, no. 2, p. 195–215. Boyer, R. E., 1962, Petrology and structure of the southern Wet Mountains, Colorado: of the Phanerozoic time-scale—A supplement: Geol. Soc. London Spec. Pub. no. 5, Langenheim, R. L., Jr., 1952, Pennsylvanian and Permian stratigraphy in Crested Butte Geol. Soc. America Bull., v. 73, no. 9, p. 1047-1070. Chronic, B. J., Jr., 1958, Pennsylvanian rocks in central Colorado, in Rocky Mt. Assoc. quadrangle, Gunnison County, Colorado: Am. Assoc. Petroleum Geologists Bull., v. 36, no. 4, p. 543–574. Geologists, Symposium on Pennsylvanian rocks of Colorado and adjacent areas, p. 0 25 50 75 100 MILES 0 50 100 150 KILOMETERS INDEX MAP OF COLORADO SHOWING PRINCIPAL SOURCES OF GEOLOGIC DATA PRINCIPAL SOURCES OF GEOLOGIC DATA Geologic data for the Colorado map were derived principally from compilations of $1^{\circ}\times2^{\circ}$ quadrangles, references to which are given below. The individual $1^{\circ} \times 2^{\circ}$ quadrangle maps in turn incorporate many other maps, references to which may be found on the $1^{\circ} \times 2^{\circ}$ quadrangle maps. All quadrangle maps have been generalized as necessary to fit requirements of scale, and some have been modified or amplified from sources indicated under the quadrangle headings. 1. Vernal quadrangle Tweto, Ogden, 1975, Preliminary geologic map of east half of Vernal 1°×2° quadrangle, Colorado: U.S. Geol. Survey Open-file Rept. 75-588. Rowley, P. D., and Hansen, W. R., U.S. Geological Survey unpub. maps of parts of Craig quadrangle Tweto, Ogden, 1976, Geologic map of the Craig 1°×2° quadrangle, northwestern Colorado: U.S. Geol. Survey Misc. Inv. Series Map I-972. Snyder, G. L., U.S. Geol. Survey unpub. map of Steamboat Springs-Oak Creek-Rabbit Ears 3. Greeley quadrangle Interim compilation by Ogden Tweto from: Abbott, J. T., 1976, Geologic map of the Big Narrows quadrangle, Larimer County, Colorado: U.S. Geol. Survey Geol. Quad Map GQ-1323. Beckwith, R. H., 1942, Structure of the upper Laramie River valley, Colorado-Wyoming: Geol. Soc. America Bull., v. 53, no. 10, p. 1491–1532. Birch, Alvin, Colorado State Univ., unpublished map of parts of Deadman and South Bald Mountain quadrangles, Larimer County, Colorado. Bjorklund, L. J., and Brown, R. F., 1957, Geology and ground-water resources of the lower South Platte River Valley between Hardin, Colorado, and Paxton, Nebraska, with a section on Chemical quality of the ground water, by H. A. Swenson: U.S. Geol. Survey Misc. Field Studies Map MF-761. Water-Supply Paper 1378, 431 p. Braddock, W. A., Calvert, R. H., Gawarecki, S. J., and Nutalaya, Prinya, 1970, Geologic

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