GEOLOGICAL SURVEY OF WYOMING

REVISED* GEOLOGIC MAP OF THE SOUTH PASS CITY QUADRANGLE, FREMONT COUNTY, WYOMING

by
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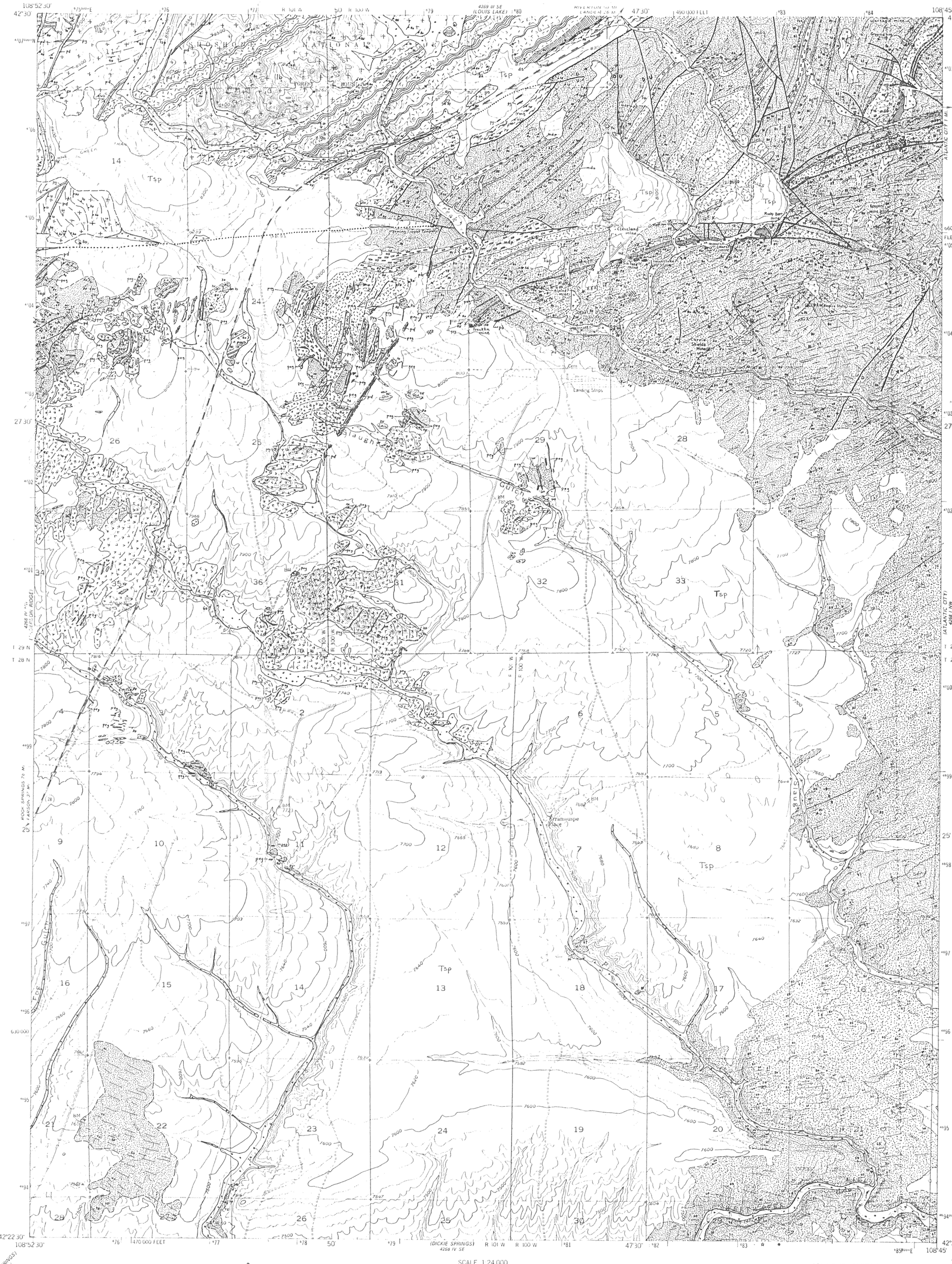

EXPLANATION

QUATERNARY

Qal — ALLUVIUM

Stream sediments and gravels.

UNCONFORMITY

TERTIARY

Tsp — SOUTH PASS FORMATION

Pliocene, Miocene, and possibly Eocene age conglomerates and pediments containing cobbles and boulders of metamorphic and granitic rock. Fission-track age about 27 millions years.[2]

UNCONFORMITY

PROTEROZOIC

pd — BASALT DIKES

Fine-grained tholeiitic dikes. Similar dikes in the Wind River Range have yielded whole-rock K-Ar ages of 1,270 to 2,010 Ma[3]*. K-Ar ages from pyroxenes are limited to 1,600 to 1,800 Ma*[4]*.*

pg — less than 50% pegmatite / greater than 50% pegmatite — SOUTH PASS GRANITE

Coarse-grained gray to white garnet-bearing pegmatitic granite. Pegmatites (pg) contain diverse mineralogy including quartz, albite, microcline, almandine, mica, ±beryl, ±schorl, and rare arsenopyrite and columbite--tantalite[2]*. One rare specimen of high-quality aquamarine was recovered from a pegmatite immediately west of Pine Creek just west of the South Pass City Quadrangle*[6]*.*

11b — LOUIS LAKE BATHOLITH

Gray, biotite-hornblende quartz diorite and granodiorite. Contains small, widely spaced disc-shaped clots of amphibolite. The batholith averages about 2,630 ± 20 Ma[1]*. Bull quartz and feldspar pegmatites (pg) are relatively uncommon in batholith.*

dt — TONALITE

Leucodacite porphyry tonalite plugs.

BORDER ZONE GNEISS COMPLEX

GNEISS

Border zone of the Louis Lake Batholith consisting of interlayered migmatite, gray gneiss, amphibolite, granite, and Louis Lake granodiorite.

ARCHEAN

SUPRACRUSTAL METASEDIMENTARY AND METAIGNEOUS ROCKS

MINERS DELIGHT FORMATION

mdg, metagreywacke; *feldspathic and micaceous metagreywacke (turbidites) and mica schist. Porphyroblastic (peanut) schist common. A Rb-Sr whole rock isochron yielded a 2.8 Ga date.*[7]

mdp, metadacite; *dense, black, to gray metadacite porphyry flows and dikes containing white plagioclase phenocrysts (porphyroblasts) aligned in trachitic texture.*

mdo, orthoamphibolite; *black hornblendic amphibolite with fine-, medium-, and coarse-grained textures. This unit represents metamorphosed tholeiite and calc-alkaline basalt flows and dikes.*[5]

mds, graphitic schist; *black, commonly iron-stained, sheared schist.*

mdm, mixed member; *black, mafic, metabasalt and metagreywacke with interbeds of metaconglomerate. The base is often marked by sheared, green, chlorite and actinolite-talc-chlorite schists (mk) that have similar chemistries to komatiite.*[8]

FAULT

rmg — ROUNDTOP MOUNTAIN GREENSTONES

rmg; amphibolites; *black metabasalt and amphibolite of tholeiitic affinity.*

gmi — GOLDMAN MEADOWS FORMATION

gmi; iron formation member; *banded iron-formation composed chiefly of quartz and magnetite with minor amphibole.*

dg — DIAMOND SPRINGS FORMATION

Black to gray amphibolite and metabasalt of tholeiitic affinity.

MAP SYMBOLS

Contact — Dashed where approximately located.

FAULTS — Fault. Dashed where approximately located and dotted where inferred. Arrows and letters indicate direction of relative movement. Perpendicular arrow with number is the dip of fault plane.

Shear zone. Perpendicular arrow with number indicates dip of shear plane. gold-bearing.

MAJOR FOLDS — Antiform; Synform

MINOR FOLDS — Direction of plunge of minor fold axis

Plunge of axis and dip of axial plane for minor fold.

FOLIATION TRENDS — Inclined; Vertical; Foliation — bedding trend

STRIKE AND DIP OF JOINTS — Inclined; Vertical

BEDDING SYMBOLS — Inclined; Vertical; Horizontal beds; Strike and plunge of crenulated beds; Graded beds(?)

MINE, PROSPECT, AND VEIN SYMBOLS — Shaft; Adit; Prospect pit; Mill site; Dredge cuttings; Inclined quartz vein; Area of abundant (predominately conformable) quartz veins and veinlets

MISCELLANEOUS — Breccia; Cabin; Conglomerate beds

REFERENCES

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Love, J.D., and Christiansen, A.C., 1985, Geologic map of Wyoming: U.S. Geological Survey, scale 1:500,000.

[3]Condie, K.C., Leech, A.P., and Baadsgaard, H., 1969, Potassium-argon dates of Precambrian mafic dikes in Wyoming: Geological Society of America Bulletin, v. 80, p. 899-906.

[4]Spall, H., 1971, Paleomagnetism and K-Ar age of mafic dikes from the Wind River Range, Wyoming: Geological Society of America Bulletin, v. 82, p. 2457-2472.

[5]Proctor, P.D., and El-Etr, H.A., 1968, Layered pegmatites, southern Wind River Mountains, Fremont County, Wyoming: Economic Geology, v. 63, p. 595-611.

[6]Winters, Elmer C., 1983, personal communication.

[7]Stuckless, J.S., Hedge, C.E., Worl, R.G., Simmons, K.R., Nkomo, I.T., and Wenner, D.B., 1985, Isotopic studies of the late Archean plutonic rocks of the Wind River Range, Wyoming: Geological Society of America Bulletin, v. 96, p. 850-860.

[8]Bow, C.S., 1986, Structural and lithologic controls on Archean greywacke-hosted gold mineralization within the Sweetwater district, Wyoming, USA, *in* Turbidite-hosted gold deposits: Geological Society of Canada Special Paper 32, p. 107-118.

Acknowledgment

The author thanks Hank Hudspeth, Jr., for reviewing this map. This map is dedicated to the memory of Elmer C. Winters, a good friend and prospector.

Base by U.S. Geological Survey.

SCALE 1:24 000

1 MILE; 1000 0 1000 2000 3000 4000 5000 6000 7000 FEET; 1 KILOMETER

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

GN 1° 29' 26 MILS; MN 15° 267 MILS

UTM GRID AND 1978 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

ROAD CLASSIFICATION

Heavy duty — 4 LANE | 2 LANE — Light duty
Medium duty — 4 LANE | 2 LANE — Unimproved dirt
U. S. Route; State Route

WYOMING — QUADRANGLE LOCATION

*Revised from: Bayley, R.W., 1965, Geologic map of the South Pass City Quadrangle, Fremont County, Wyoming: U.S. Geological Survey GQ-458, scale 1:24,000.

PREPARED IN COOPERATION WITH THE U.S. GEOLOGICAL SURVEY