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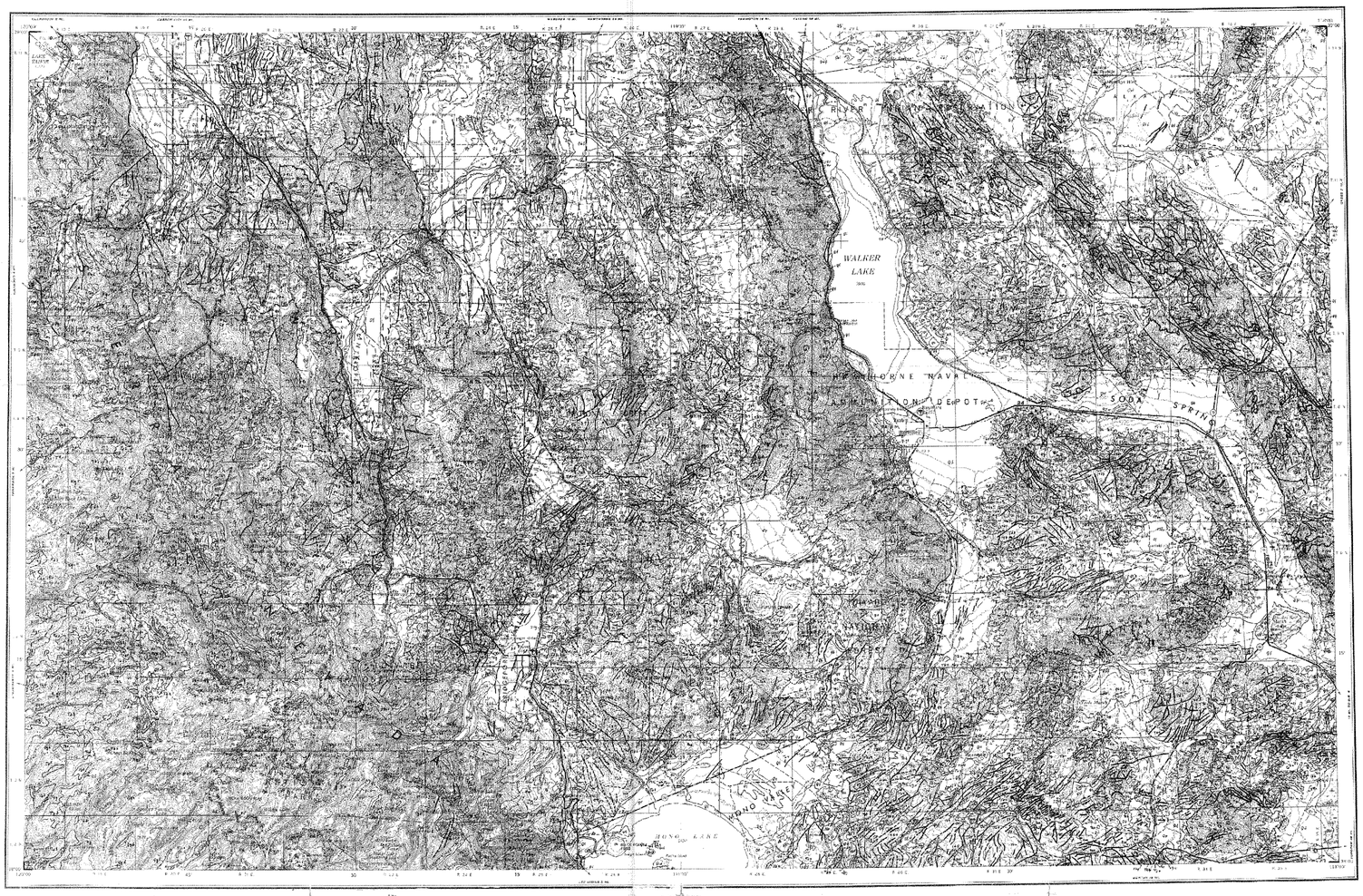
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

Prepared in cooperation with the
Nevada Bureau of Mines and Geology

MISCELLANEOUS FIELD STUDIES
MAP MF-1382-A

This map is part of a folio of maps of the Walker Lake 1° by 2° quadrangle, California and Nevada, prepared under the Conterminous United States Mineral Assessment Program.

U.S. GEOLOGICAL SURVEY
RESTON, VA.
JAN 21 1983
GEOLOGIC DIVISION



Base from U.S.Geological Survey, 1957, Revised 1969

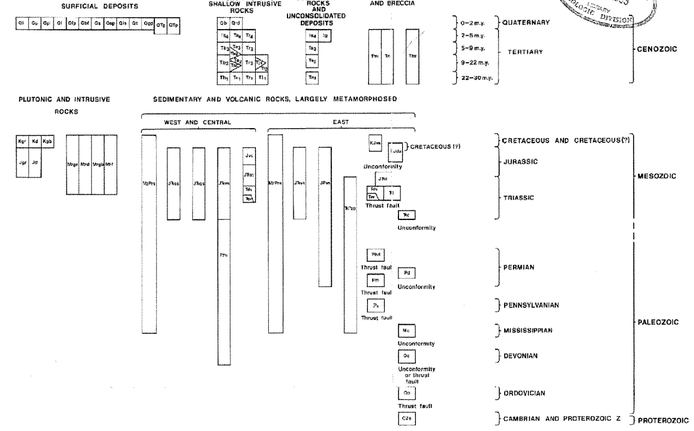
CONTOUR INTERVAL 200 FEET
WITH SUPPLEMENTARY CONTOURS AT 100 FOOT INTERVALS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

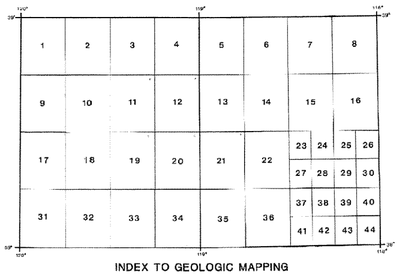
APPROXIMATE MEAN DECLINATION, 1981

QUADRANGLE LOCATION

Geology compiled in 1978-81

CORRELATION OF MAP UNITS





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GEOLOGIC MAP OF THE WALKER LAKE 1° BY 2° QUADRANGLE, CALIFORNIA AND NEVADA

By

John H. Stewart, John E. Carlson, and Dann C. Johannessen

1982

ANY ILLEGIBILITIES OR OBLITERATIONS WITHIN THIS RECORD DO NOT AFFECT THE TECHNICAL CONTENT OR MEANING OF THIS RECORD

DESCRIPTION OF MAP UNITS

SURFICIAL DEPOSITS

Qf ALLUVIAL FAN DEPOSITS—Poorly sorted deposits of boulders, cobbles, gravel, sand, and silt. Includes some time-graded beds. Fill deposits where distal fan limits are geomorphical and results declined. Also includes undivided alluvium underlying lowgradient floors of mountain valleys in the Sierra Nevada

Qp PEDIMENT DEPOSITS—Boulders, cobbles, gravel, sand, and silt lithologically, sedimentologically, and morphologically similar to alluvial fan deposits, except that pediment deposits occur as veneers on pediment bedrock and unconsolidated Tertiary and Quaternary alluvium

Qpl PLAYA DEPOSITS—Clay, silt, and very fine sand with associated evaporite salts. Deposited in ephemeral lakes and ponds along basin axes in lowland areas and in small structurally controlled depressions in upland areas

Qt FLUVIAL TAR DEPOSITS—Lake bottom deposits of clay, silt, and fine sand and associated tufaceous sand and gravel. Also includes tufa towers, mounds, and crusts, and tufa-cemented conglomerate and breccia probably related to pluvial Lake Lahontan, Russell, and Wellington

Qfp FLOOD-PLAIN ALLUVIUM—Sandy gravel, gravelly sand, sand, and sandy silt deposited in channel and overbank deposits of low-gradient perennial streams

Qbf BASIN-FILL DEPOSITS—Indurated saline lacustrine, flood-plain, and distal alluvial fan deposits underlying low-gradient alluvial plains in tectonic basins

Qs SAND DUNE AND RELATED AEOLIAN SAND DEPOSITS—Active to fixed sand dunes and associated sand sheets overlying older surficial deposits. Generally form leeward of playas, lacustrine plains, and the distal fringes of large, young alluvial fans

Qsp SPRING DEPOSITS—Travertine, marble, and travertine of limestone, tufa, and alkali-rich silt and clay

Qls LANDSLIDE DEPOSITS—Chaotic masses of unsorted, angular, boulder- to clay-size debris. Occurs in generally steep terrains of variously textured materials on moderate to steep slopes and at the foot of steep scarps

Qt TALUS DEPOSITS—Angular blocks of locally derived rocks. Mapped only locally and primarily where it conceals bedrock contacts

Qcd GLACIAL DEPOSITS—Morainal deposits of unsorted bouldery to clayey morainal gravel and outwash deposits of poorly to moderately sorted silt, sand, and gravel

Qfg GRAVEL—Boulders, cobbles, sandy gravel, and gravelly sand. Locally to moderately indurated surfaces of sand and silt

Qfr PEDIMENT DEPOSITS—Gravel veneers on deeply dissected bedrock granitic surfaces

VOLCANIC AND SHALLOW INTRUSIVE ROCKS

Qb BASALT FLOWS—Locally includes basaltic cinder cones

Qvd RHYOLITE AND DACITE—Domes, plugs, and flows forming all or part of the islands in Mono Lake

Qba BASALT FLOWS—Locally includes basaltic cinder cones

Tai ANDESITE AND RELATED ROCKS OF INTERMEDIATE COMPOSITION—Flows and breccias

Trv RHYOLITIC FLOWS AND SHALLOW INTRUSIVE ROCKS

Tba BASALT AND BASALTIC ANDESITE FLOWS

Tai ANDESITE AND RELATED ROCKS OF INTERMEDIATE COMPOSITION—Volcanic breccia (mostly lahars) and minor lava flows. Includes the Dexter Peak Formation (Stevenson, 1966) in the Sierra Nevada region and widespread breccias and flows in the Bodie Hills region (Kleinhampl and others, 1975)

Trv RHYOLITIC FLOWS AND SHALLOW INTRUSIVE ROCKS

Tsc STANISLAUS GROUP—Latite flows and quartz latite ash-flow tuffs. Consists, in ascending order, of the following units: the Table Mountain Latite, the Sonora Water Tuff, and the Jacksonville Formation (Bohlke and others, 1976) about 8.8 to 10.2 m.y. old

Tba BASALT FLOWS

Tai ANDESITE AND RELATED ROCKS OF INTERMEDIATE COMPOSITION—Volcanic breccia (mostly lahars) and minor lava flows. Includes the Relief Peak Formation (Stevenson, 1966) in the Sierra Nevada region

Tsc SANDSTONE AND CONGLOMERATE—Local units of sedimentary rocks Mostly below or within thick sequences of andesite and related rocks of intermediate composition. In places includes sedimentary units of uncertain stratigraphic position

Trv RHYOLITIC FLOWS AND SHALLOW INTRUSIVE ROCKS

Tr WELDED AND NONWELDED SILICIC TO ANDESITIC ASH-FLOW TUFFS

Trt TUFF OF JACKS SPRING AND ASSOCIATED TUFFS—Welded ignimbrite tuffs, includes the tuff of Jacks Spring (Stewart, 1981), the Bates tuff of Truman Meadows (Gaynor and others, 1973), and an unnamed upper tuff in the Hawthorne Valley area (Gilbert and others, 1968). About 10 to 12 m.y. old

Tba BASALT FLOWS

Tai ANDESITE AND RELATED ROCKS OF INTERMEDIATE COMPOSITION—Mostly lava flows

Trv RHYOLITIC FLOWS AND SHALLOW INTRUSIVE ROCKS

Trt WELDED AND NONWELDED SILICIC ASH-FLOW TUFFS—Includes the Valley Springs Formation (Huxmann, 1983) in the Sierra Nevada, and several widespread ash-flow tuffs in Nevada, such as the Mickey Pass tuff, Kinsley Wash, and Blackrock Spring tuff of Proffett and Proffett (1976), Proffett and Proffett (1979), the Nelson Range unit of Stewart and Carlson (1978), correlative of rocks formerly included in the Fish Creek Mountains Formation of Hardyman and Walker (1969). Also includes rocks correlated with the Leeds Formation by Hardyman (1980) and Green and Hayes (1978a, b, c) in the northeast part of the quadrangle

Tb v VOLCANIC ROCKS—Lava flows and breccias of intermediate composition with phenocrysts of plagioclase and altered mafic minerals. Minor volcaniclastic sandstone and conglomerate. Includes porphyritic and aphanitic intrusive rocks mapped by Hardyman (1980) in the Gillis Range and considered by him to be Jurassic

TR l LUNING FORMATION—Limestone and dolomite, and lesser amounts of slate, argillite, and chert-pebble conglomerate

TR c CONDITLANTA FORMATION—Mudstone and siltstone, fine-grained sandstone, minor limestone and chert grain sandstone in lower part grading upward into thick succession of pebbly volcanogenic sandstone and turbidite. Lower Triassic

Ptbd BLACK DYKE FORMATION OF SPEED (1977)—Consists of soft volcanic breccia (70 percent), interstratified volcanogenic sedimentary rocks (15 percent), and lava, dikes, and plugs (15 percent). Dated by K-Ar methods on hornblende in volcanic rocks (Speed, 1977)

Pd DIABLO FORMATION—Chert-quartz sandstone, chert-pebble conglomerate, and sedimentary breccia

Pn NEVA FORMATION OF SPEED (1977)—Volcanogenic turbidite, both fine and coarse grained, and lesser amounts of chert, pelitic rocks, and quartz sandstone (Speed, 1977)

Pc SANDSTONE, PELITE, AND CHERT—Sandstone: volcanogenic, fine to very coarse grained, locally pebbly. Pelite: locally slaty, commonly homogeneous but also includes thin sandstone beds. Chert: thin bedded, siliceous radiolarians dated as Middle Pennsylvanian by O. T. Jones (written commun., 1980)

Mc CARBONATE ROCKS—Dolomite and minor limestone. Originally assigned to Mable Formation by Ferguson and others (1954) but now known to be Mississippian in age (Poole and Sandberg, 1977; Speed and others, 1977) and no longer assigned to the Mable

Jc CARBONATE AND SILICEOUS ROCKS—Lime quartz sandstone and sandy limestone, pelletoid limestone, fine-textured limestone, siliceous shale, chert and siliceous hornfels (Stanley and others, 1977; Stewart, 1979). Stratigraphically interbedded with the Ordovician Palmetto Formation

Op PALMETTO FORMATION—Phyllitic to hornfelsic shale. Limestone, chert, and lesser amounts of siliceous calc-hornfels. Locally contains graywackes (Stanley and others, 1977; Stewart, 1979). Radiolaria locally occur in chert. Common trace fossils. Structurally interbedded with Devonian rocks

SDu SILICEOUS HORNFELS, MARBLE, AND CALC-SILICATE HORNFELS—Includes the Roaring Creek Formation and lower Cambrian Campito Formation and the lower Cambrian Poleta and Harkless Formations

CONTACT—Queried where location uncertain

HIGH-ANGLE FAULT—Dashed where approximately located, dotted where concealed. Ball and bar on downthrown side

LOW-ANGLE FAULT—Dashed where approximately located. Sawteeth on upper plate

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