





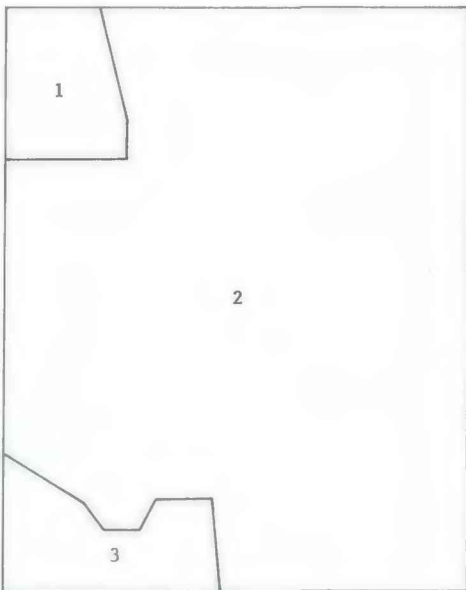


Tst	Welded tuff (Oligocene)—Ash-flow tuff interstratified with andesite flows. Pale-red, crystal-rich tuff containing small phenocrysts of K-feldspar, quartz, plagioclase, and biotite
Tev	Gray Volcanic Ash-flow tuff—White to pale-red, nonwelded to welded, rhyolite ash-flow tuff containing about 25-40 percent phenocrysts of plagioclase, quartz, K-feldspar, and biotite. K-Ar age of lowest unit in Royston Hills is 29,140.9 m.y. (Hickey and Johns, 1987)
Tha	Hornblende andesite (Oligocene)—Porphyritic andesite containing about 25-45 percent phenocrysts of plagioclase, hornblende, and clinopyroxene
Jd	Dunlap Formation (Lower and Middle Jurassic)—Conglomerate, sandstone, siltstone, dolomite, and dolomite limestone
Jlpa	Nonmonzonite porphyry (Late Jurassic)—Fine-grained to medium-grained quartz nonmonzonite porphyry. Phenocrysts of quartz, feldspar, biotite, and local hornblende in a fine-grained equigranular groundmass. Dikes in the Mina Formation in southeastern part of map area
TL	Luning Formation (Upper Triassic)—Limestone, dolomite, shale, sandstone, and conglomerate
Pa	Mina Formation (Permian)—Volcaniclastic sandstone, siltstone, and chert

 **Contact**
 **Fault**--Dashed where approximately located. Dotted where concealed. Bar and ball on downthrown side
 **Thrust fault**--Teeth on upper plate
 Low-angle extensional fault--Teeth on upper plate
 **Strike and dip of inclined compaction foliation**

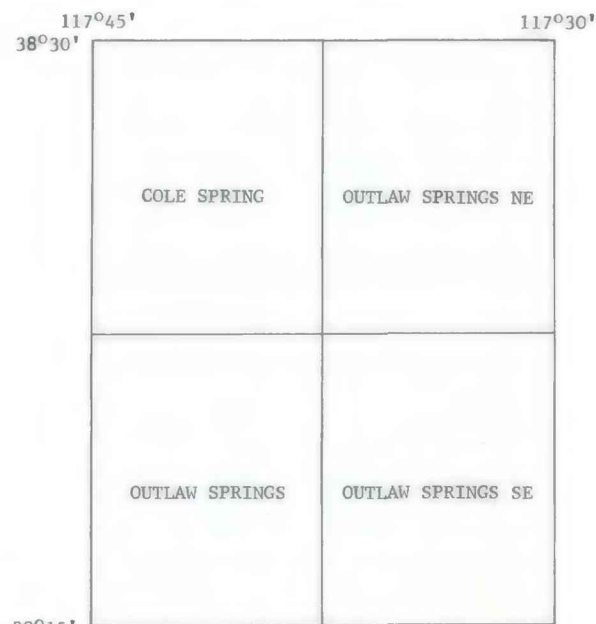
REFERENCES CITED

McKee, E.H., and John, D.A., 1987, Sample locality map and potassium-argon data for Cenozoic igneous rocks and minerals in the Tonopah 2^0 quadrangle, central Nevada: U.S. Geological Survey Miscellaneous Field Studies Map MF-1877-K, scale 1,250,000.



Index to geologic mapping

1. R. F. Hardyman and D. H. Whitebread
2. D. H. Whitebread
3. J. H. Stewart

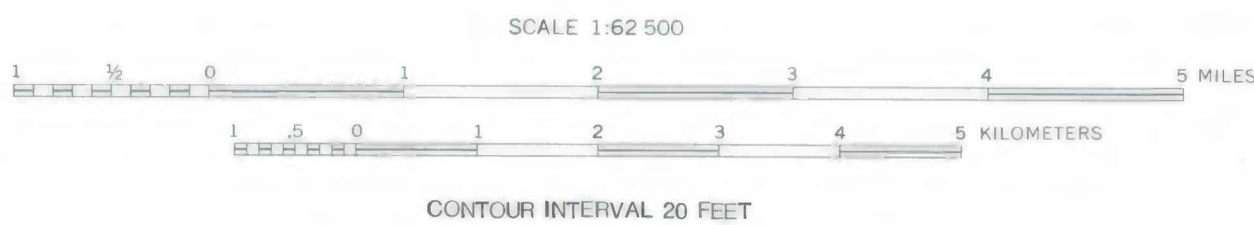
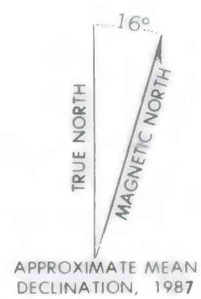


Index map showing the 7½-minute quadrangle included within the map area

This map is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature

Base from U.S. Geological Survey, 1:24,000,
Outlaw Springs, NE, and SE, 1980, and
Cole Spring, 1980

Geology mapped by D.H. Whitebread, 1982-84,
R.F. Hardyman, 1984, and J.H. Stewart, 1983



PRELIMINARY GEOLOGIC MAP OF PART OF THE CEDAR MOUNTAINS AND ROYSTON HILLS, ESMERALDA AND NYE COUNTIES, NEVADA

by

Donald H. Whitebread and Richard F. Hardyman