WESTERN VOLCANIC UNITS (TERTIARY)

gray glass spherules

white glassy

older units

Rhyolite -- White, pink, and red, locally grayish white, glassy, flow layered, conterted, locally sheared; numerous irregular zones of red and

Intrusive rhyolitic dikes -- White and pinkish

Rhyolite tuff -- White crystal tuff and ash-flow

Rhyolite-quarte latite--Ash-flow tuff cooling

thin- to m dium-bodded water-laid tuff Latite--Light-gray, reddish weathering flows, ash-flow tuff and flow breccia; includes some

rhyodacite and quarta latite

ments of mafic scoria near base

water-laid tuff and breccia

weathered and propylitized

ash-flow tuff

Rhyolit -latite tur -- White, pink and light-gray,

Latitu-dacite tuff--Light- to dark-gray and brown, thin- to medium-bedded tuff and water-laid tuff Andesite--Dark brownish- and purplish-black flows, flow braceias, and tuff. Unconformably overlies

Latite crystal tuff -- White and pale purplish graywhite ash-flow tuff gooling unit; contains frag-

Latite tuff -- white, red, purple, thin- to mediumbedded, locally crossbedded, water-laid tuff with gravish-purple conglomerate and breecia of andonite clasts in suff matrix at base Latite-dacite tuff--Complex unit in areas not mapped in detail, includes ash-flow tuff, flows,

And it -- Dark brown, purple, greenish gray; breccia, agglomerate, tuff and water-laid tuff.

Rhyodacite--Dark gray-brown laminated flows and

Rhyolite tuff -- White to tan thinly I minuted, contorted, densely welded. Grades into water-laid tuff and into more mafic tuffs. Probably derived from a small local source, perhaps at the

Anderite -- Complex unit predominantly of anderite with pervasive propylitic alteration. Green water-laid tuff forms a thick sequence at the top of the unit in most localities; directly underlies the gravity slide blocks of Madera Limestone in the center of the quadrangle.

Some areas of dark-brown and purple andesite overlying the green tuff are included in this unit but may belong to unit b. Underlying are laterally and vertically alternating mono-

lithologic andesite breceis; breceis with clasts of dense purple, brown, or dark-gray andesitu in green chloritic groundmans; brec-

cias containing latite, dacite, and andesire clasts; welded ash-flow tuffs; purple and green coarse grained water-laid tuff; and green fine-

grained water-laid tuff. Basal part composed

of greenish and purple lahars and breccia con-

taining clasts of Paleozoic rocks that range in

size from a few contimeters to 2 or more meters,

predominantly Abo Sandstone, with leaser amounts

of limestone. Locally the sandstone or lime-

stone clasts are so sbundant they obscure the

gray Paleozoic lime tone surrounded by ande-

site. May represent either windows or covered

gravity slide blocks of Magdalena Group or of

stone, silt tone and shale; dark-red and tone

is very fine to coarse grained and locally

BURSUM FORMATION (LOWER PERMIAN) -- Int rb d for 11-

nodular limestone conglomerate at base

PENNSYLVANIAN) -- Thin- to massive-bedded,

MADERA LIMESTONE OF THE MAGDALENA GROUP (UPPER

greenish-gray calcareous shale

FAULT-Dashed where interred, dotted whered

GRAVITY SLIDE FAULT--Sawteeth on slide block

VEIN SHOWING DIP--Width of the line indicates

relative thickness of vein MINOR FOLD--Showing plunge of exem

CONTACT -- Dashed where inferred, dotted where

liferous gray calcareous shale and limestone

and gray, green, and red shale and anndatone;

sparsely fossiliferous marine limestone with

thin interbeds and partings of dark-gray and

concealed. U, upthrown side, D, dewnthrown wide; arrows indicate dip, diamonds show

STRIKE AND DIP OF SLIP CLEAVAGE AND SHEAR ZONES

bearing and plunge of grooves and slickensides

ABO SANDSTONE (LOWER PERMIAN) -- Interbedded and-

volcanie nature of the rock

LIMESTONE (PALEOZOIC) -- Blocks of

conglomeratic

concealed

STRIKE AND DIP OF BEDS

Known

F- Vertical

Shaft

A Adit

X Prospect

Approximate

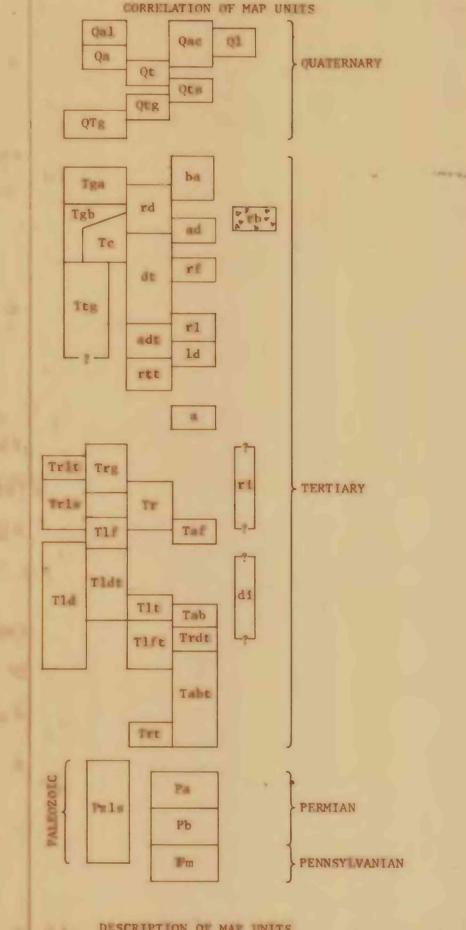
MINES AND PROSPECTS

San Andres Limetone

(abt) and the lime tone slide blocks And site dikes--Light greenish brown, deeply

SE corner of suc. 8, R. 8 W., T. 12 S.

Unconformably overlies the propylitized andesite



FROHED ALLUVIUM (QUATERNARY) -- Composed predominantly of silt and loam LIUVIAL FANS, ALLUVIUM, SLOPE WASH, LOW CRAVEL

LANDSLIDE DEPOSITS (QUATERNARY) -- Large 1 v 1 ump blocks, miner mudflows; includes some talus LLUVIAL TERRACES (QUATERNARY) -- Generally less

TERRACE DIPOSITS (QUATERNARY) -- Mature soil development on fine- to coarse-grained sediments; soil profile thickness I+ m, generally with well-developed caliche, about 30 m above

BERRACE AND GRAVEL DEPOSITS (QUATERNARY) -- Coarse sand and gravel with well-rounded cobbles and boulders; some exotic rock types. Terraces on Cuchillo Creek about 40 m above present

stream level; other deposits at various levels SAND, SILT, AND GRAVEL (QUATERNARY AND TERTLARY) --Lenticular, generally unconsolidated CONCLOMERATE AND SANDSTONE (TERTIARY) -- Light gray

lies Tgb with angular unconformity CONGLOMERATE, SANDSTONE, AND SILTSTONE (TERTIARY) --

Tuffaceous, with calcitic and zeolitic(!)

Equivalent to part of Tgb. Numerous tuff beds completely altered to zeolite, interbedded with sandy or silty altered tuff beds, sandstone, and conglomerate; chalk white to light

reddish-gray and brown flows, ash-flow tuffs

Anderite-dacite agglomerate and breccia--Dark reddish brown and black; minor glassy flow

Breecia pipe--Reddish-brown glass and red-coated black glass in small to very large rounded blocks surrounded by vertically sheeted and banded rhyoda it

Rhyolite--White, light-gray thinly layered densely welded ash-flow tuff

Rhyolite-latite--Reddish-brown and brownish-gray laminated and conterted flow rocks Latite-decite--Dark-gray, brown, and purple ash-

Rhyolite-quarta latite--Pink to pinkish white. Densely welded crystal tuff, ash-flow tuff,

Anderit -- Dark purplish-brown breecis and thinly layered flow rocks. Relative age uncertain, may correlate with unit Taf

DESCRIPTION OF MAP UNITS

SAND AND CRAVEL (QUATERNARY) -- Lens interbedded with silt. Silt and loam predominant in Poverty Creek. Includes some low terraces

TERRACES, AND TALUS SLIDES (QUATERNARY)

than 1 m of alluvium and soil; 10-20 m above present stream level

present stream level

to pinkish white, poorly indurated, tuffaceous; contains scattered lenses of siltatone. Over-

CLINOPTILOJITE TUFF AND CONCLOMERATE (TERTIARY) --

TUFF AND CONCLOMERATE (TERTIARY) -- Red, purple, and gray water-laid tuff and mudflow tuff breecis interhedded with lenticular sandstone, tuffacoous sandstone, and conglomerate A. TERN VOICANIC UNITS (TERTI RY)

Basaltic andesite -- Dark-brown, red, purple, and black vesicular scoriaceous flows Rhyalite, rhyadacite, and latite--Dull-red,

and breedin, air-fall and water-laid tuffs Dacite, minor rhyodacite, and and aite--Lightto dark-gray, red and black, thinly laminated ash-flow tuffs, flow breecis, and water-laid

Andonite, dacite--Brown, dark gray, purple, greenish gray and black; labars, flow bruccia, agglomerate; minor reddish-brown rhyodocite agglemerate, and dark-gray glassy vesicular flow rock

flow tulf

and water-laid tuif

Geology sapped in 1974-75

PRELIMINARY GEOLOGIC MAP OF THE WINSTON QUADRANGLE, SIERRA COUNTY, NEW MEXICO

LONIOUR INTERVAL SO FEET

DEPARTMENT OF THE INTERIOR

@Tris

Base from U.S. Geological Survey, 1965

nomenclature.

U.S. Geological Survey OPEN FILE REPORT This map is preliminary and has not

been edited or reviewed for conformity with Geological Survey standards or

UNITED STATES GEOLOGICAL SURVEY

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