DEPARTMENT OF THE INTERIOR

U.S. GEOLOGICAL SURVEY

Geologic map of the Belmont West 7 1/2-minute quadrangle, Nye County, Nevada

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DESCRIPTION OF MAP UNITS

Qmf **Manmade fill (Modern)**--Chiefly mine dumps and mill tailings; includes some bulldozed areas in northwest part of quadrangle

Qa3 **Alluvium (Holocene)**--Active alluvium in drainage courses. Characterized by braided veinlike strands of freshly deposited gravel, sand, and silt. Qa3b, alluvium with abundant strands of freshly deposited alluvium; Qa3a, slightly older alluvium with less abundant freshly deposited alluvium. Qa3a commonly stands higher than Qa3b along sides of drainage courses; the two may merge. Thickness 0-a few meters

Qf **Alluvial fans (Holocene)**--Alluvial fans commonly formed at the foot of short drainages that enter deeply incised courses in older alluvium, and fronting steep escarpments. Qf may merge with Qa3a or Qa3b. Thickness 0-several hundred meters

Qt **Talus (Holocene)**--Active talus on steep slopes. Thickness 0-a few tens of meters

Qsw **Slope wash (Holocene)**--Slope wash, more or less stabilized. Qsw may merge upslope with Qt and downslope with Qa3a. Thickness 0-several meters

Qls **Landslide deposits (Holocene and Pleistocene(?))**--Qls, undifferentiated landslide material. Qls2, younger landslide; Qls1, older landslide, possibly Pleistocene. Thickness 0-several tens of meters

Qa2 **Older alluvium (Holocene and Pleistocene(?))**--Stabilized alluvium that occurs in flats and terraces higher than Qa3, and is presently being eroded. Clasts generally are only slightly weathered. Qa2b is a lag deposit on only slightly eroded flat surfaces; Qa2a is extensively eroded and is laced with numerous incised strands of active alluvium too small to map; older parts may be as old as Pleistocene. Thickness 0-several tens of meters

Qa1 **Old alluvium (Pleistocene(?))**--Stabilized old alluvium, in part pediment gravel, that occurs in flats and terraces higher than Qa2; it also is presently being eroded. Locally contains boulders from a proximal source. Larger clasts, especially of volcanic rocks, may be significantly weathered. Thickness 0-several hundred meters

Tva **Volcanic ash (Miocene)**--Light-gray glass-shard tuff. Underlies two adjacent small knobs on the east side of Silver Creek near its mouth. Zircon fission-track age 12.0+2.6 Ma (Shawe and others, 1987). Thickness about 20 m

Tlt **Ash-flow tuff (Miocene?)**--Light-lavender-gray moderately crystal-rich biotite-bearing rhyodacitic ash-flow tuff. Caps the middle knob of five west-northwesterly aligned knobs underlain by Trt, Tg, and granite west of Belmont. Remnant thickness about 5 m

Trt **Ash-flow tuff (Miocene?)**--Light-gray crystal-rich rhyolitic ash-flow tuff. Caps five west-northwesterly aligned knobs underlain by Tg and granite west of Belmont. Remnant thickness 25-30 m

Tg **Boulder gravel (Miocene?)**--Granite-boulder gravel that contains abundant cobble and pebble clasts of Paleozoic rocks such as siliceous argillite, schist, chert, and limestone. Underlies Trt and overlies granite west of Belmont. Thickness 0-30 m

Tca **Crone Gulch Andesite (Miocene)**--Olive-brown, brown-weathering porphyritic andesite. Forms thick sills emplaced in Bald Mountain Formation at northwest edge of the quadrangle, and in Trls and between Tdks and Trus northeast of lower Bald Mountain Wash, and thin dikes near west edge of the quadrangle 1 km north of East Manhattan Wash. Plagioclase K-Ar age 22.6+1.4 Ma (Shawe and others, 1986)

Tld **Latite dike (Upper Oligocene)**--Gray biotite-bearing latite dike. Lithologically similar to a nearby dike in the Manhattan quadrangle that has a biotite K-Ar age of 24.2+0.8 Ma (Shawe and others, 1986)

Tbs **Ash-flow tuff (Upper Oligocene)**--Light-greenish-buff and buff quartz-latitic to rhyodacitic ash-flow tuff. Caps hills at northwest edge of the quadrangle. Biotite K-Ar age 24.6+0.8 and 24.8+0.8 Ma (Shawe and others, 1986). Remnant thickness 110 m

Tr **Rhyolite plugs (Upper Oligocene)**--Gray flow-layered biotite-bearing rhyolite intruded as plugs into Trus in northwest corner of the quadrangle and into Trus, Trub, and Kbgp in west-central part of the quadrangle

Tql **Quartz-latite plugs (Upper Oligocene)**--Gray biotite-bearing quartz latite intruded as plugs into Tru3 and Kbgp in west-central part of the quadrangle

Tbm **Bald Mountain Formation (Upper Oligocene)**--Lacustrine laminated buff claystone and siltstone composed of volcanic materials. Underlies Tbs and is intruded by Tca on hills in northwest part of the quadrangle. Thickness 25-60 m

Diamond King Formation (Upper Oligocene)--Interlayered welded ash-flow tuffs and volcanic sandstone. Crops out widely in hills along northwest margin of the quadrangle. Maximum exposed thickness about 65 m

Tdku **Upper member**--Gray to buff moderately welded, moderately crystal-rich rhyolitic ash-flow tuff. Characterized by smoky quartz dipyramids. Maximum exposed thickness about 15 m

Tdks **Sandstone units**--Buff coarse-grained quartz-rich sandstone composed of volcanic materials. Water laid or base-surge origin. Present locally at base of Tdkl, and interlayered in Tdku and Tdkl. Thickness of individual units 0-30 m

Tdkl **Lower member**--Buff moderately to densely welded, crystal-rich rhyolitic ash-flow tuff. Characterized by smoky quartz dipyramids. Maximum exposed thickness about 30 m

Tdks **Sandstone units**--Described above

Round Rock Formation (Upper Oligocene)--Interlayered ash-flow and ash-fall tuffs, megabreccia, tuff-breccia, and sandstone, and intruded by thin tuff-breccia dikes. Widely distributed in western part of the quadrangle. Inferred thickness within the quadrangle about 600 m (Shawe and Snyder, 1988, plate 1)

Trtb **Tuff-breccia dikes**--Gray, brown-weathering, rhyolitic tuff that contains abundant small angular lithic fragments mostly less than 1 cm long; flow laminated adjacent to dike walls. Intruded only into the Round Rock Formation at the southeast margin of the Manhattan caldera near lower Bald Mountain Wash

Tru **Upper member undivided**--Poorly consolidated ash-flow and ash-fall tuff. Biotite K-Ar age 25.0+0.8 Ma (Shawe and others, 1986). Thickness about 200 m

Truc **Chert and sinter**--Gray to brown, bedded to thinly laminated, porous to massive chert and hotsprings sinter, locally with abundant plant remains, in places with thin interlayers of buff tuff. Unit caps hills on the east side of lower Bald Mountain Wash. Maximum remnant thickness about 20 m

Tru3 **Unit 3 of the upper member**--Greenish-buff partially welded crystal-poor rhyodacitic ash-flow tuff. Widely distributed in west-central and northwest parts of the quadrangle. Thickness 40-110 m

Trus **Megabreccia unit of Silver Creek**--Small to large (10 m) clasts of mostly Cretaceous granite of the Belmont lobe of the granite of Shoshone Mountain in an eruptive matrix of comminuted granite and dacitic to rhyodacitic volcanic ash. Widely exposed in the west-central and northwest parts of the quadrangle. Thickness 0-50 m where the unit is outflow interlayered between overlying Tdkl and underlying Tru3; incised to depths as great as 150 m where the unit is inferred to be vent facies

Trss **Sandstone units**--Buff volcanic sandstone, water laid or base-surge origin. Present in northwest part of the quadrangle, interlayered in Trus as thin lenses (thickness 0-10 m)

Trub **Tuff breccia**--Granite clasts (to several centimeters across) in a welded ash-flow tuff matrix; locally consists of megabreccia that contains granite boulders as large as 4 m in size. Present in northwest part of the quadrangle where it forms thin layers and lenses (thickness 0-10 m) near the top of Tru3, near the base of Trus, and between these units

Tru2 **Unit 2 of the upper member**--Pinkish-brown partially welded crystal-poor rhyodacitic and quartz-latitic ash-flow tuff. Caps knobs southwest of Bald Mountain Wash. Thickness 0-35 m; absent locally between Tru3 and Tru1

Tru1 **Unit 1 of the upper member**--Buff partially welded crystal-poor rhyodacitic ash-flow tuff. Exposed between Bald Mountain Wash and west edge of the quadrangle. Maximum thickness about 60 m

Trm **Middle member**--Megabreccia of autobrecciated small to large (10 m) clasts of reddish-brown rhyolite (both welded tuff and lava) and gray hornblende- or biotite-bearing andesite (and types intermediate between rhyolite and andesite) in an eruptive matrix of buff to gray poorly welded ash-flow tuff. In small exposures north of East Manhattan Wash near west edge of the quadrangle, and just northeast of Bald Mountain Wash. Thickness 15-20 m

Trl **Lower member**--Buff partially welded crystal-poor to crystal-rich quartz latitic to rhyodacitic ash-flow tuff. Present near East Manhattan Wash and lower Bald Mountain Wash. Inferred intracaldera thickness within the quadrangle 450 m (Shawe and Snyder, 1988, plate 1); thickness of two lenses interlayered with Trls as outflow each 30-35 m

Trls **Megabreccia unit of Sloppy Gulch**--Small to immense (as much as 600 m) clasts of granite and Paleozoic rocks including argillite, limestone, quartzite, chert, and schist in an eruptive matrix of buff rhyodacitic ash-flow tuff. Contains some mesobreccia and tuff-breccia layers. Present near East Manhattan Wash and lower Bald Mountain Wash. Inferred thickness of outflow 0-200 m (Shawe and Snyder, 1988, plate 1)

Trlc **Siltstone-claystone**--Buff lacustrine(?) volcanic siltstone and claystone layers and lenses interlayered in megabreccia of Trls east of lower Bald Mountain Wash. Thickness of individual units 0-10 m

Trp **Rhyolite plugs (Upper Oligocene)**--Buff porphyritic rhyolite. Small plugs near Monarch in the southeast corner of the quadrangle. Zircon fission-track age 25.1+2.3 Ma (Shawe and others, 1987)

Tos **Ash-flow tuff (Upper Oligocene)**--Light-gray moderately welded crystal-rich rhyolitic ash-flow tuff; characterized by small veinlet- and cavity-fillings of white opaline silica. Caps east-northeast-trending ridge in the southeast corner of the quadrangle as three small remnant patches a few meters thick overlying Trdu

Trdu **Ash-flow tuff, upper member (Upper Oligocene)**--Light-lavender-gray moderately to densely welded crystal-poor rhyodacitic ash-flow tuff. Characterized by clinopyroxene as the dominant mafic mineral. Constitutes the principal capping unit atop the east-northeast-trending ridge in the southeast corner of the quadrangle. Thickness about 50-85 m

Trdl **Ash-flow tuff, lower member (Upper Oligocene)**--Light-lavender-gray moderately to densely welded crystal-poor rhyodacitic ash-flow tuff. Characterized by clinopyroxene as the dominant mafic mineral; distinguished from overlying Trdu by fewer crystals and a lower proportion of plagioclase and mafic minerals. Underlies Trdu on the east-northeast-trending ridge in the southeast corner of the quadrangle. Thickness about 60-70 m

Tap **Andesite plugs and flows (Upper Oligocene)**--Gray to lavender-gray porphyritic, in part flow-layered, biotite and hornblende-biotite andesite; intruded into or overlying Tbql, Tls, and Tat. Exposed at the southeast edge of the quadrangle. Biotite K-Ar ages 26.8+1.0, 26.6+1.0, and 26.3+0.9 Ma (Shawe and others, 1987)

Tat **Ash-fall tuff (Upper Oligocene)**--White bedded biotite-bearing quartz latitic ash-fall tuff. Widespread in southeast corner of the quadrangle. Biotite K-Ar age 27.0+1.0 Ma (Shawe and others, 1987). Thickness about 110-130 m

Tatc **Conglomerate (Upper Oligocene)**--Light-gray pebble conglomerate with clasts of light-reddish-brown rhyolite, gray latite or andesite, coarse-grained biotite granite, and Paleozoic chert; local black-sand layers. Forms lenses 0-10 m thick at or near top of the white ash-fall tuff unit (Tat) on southeast slope of the east-northeast-trending ridge in the southeast corner of the quadrangle

Tls **Limestone (Upper Oligocene)**--Light-gray algal limestone that contains local lenses of hotsprings sinter and chert-rich conglomerate with some volcanic clasts. Underlies Tat and overlies Tbql in southeast corner of the quadrangle. Locally domed around small andesite plugs. Thickness about 10 m

Tbql **Ash-flow tuff (Upper Oligocene)**--Greenish-gray moderately crystal-rich biotite quartz latitic partially welded ash-flow tuff. Small area of outcrop in southeast corner of the quadrangle. Exposed thickness about 130 m

Tcs **Claystone, siltstone, and sandstone (Upper Oligocene)**--Buff platy volcanic claystone, siltstone, and sandstone, quartz-latitic to rhyolitic in composition; probably mostly lacustrine; minor pebble conglomerate lenses. Underlies white ash-fall tuff in southeast corner of the quadrangle. Exposed thickness about 40 m

Tcsb **Tuff-breccia and megabreccia (Upper Oligocene)**--Buff-gray ash-flow tuff with abundant clasts (to 5 cm), mostly Paleozoic shale and chert, and megabreccia that contains clasts as large as 2 m in size mostly of ash-flow tuff, some flow-layered rhyolite, and black phenocrystic vitrophyre. Thin (to a few meters) lenses and layers in Tcs

Granite of Pipe Spring (Upper Cretaceous)--Coarse-grained two-mica granite pluton intruded by thin aplite dikes; fine-grained granodiorite forms irregular dikes near the east contact. Crops out in southwest corner of the quadrangle

Kpgd **Granodiorite**--Light-gray fine-grained biotite granodiorite, and hornblende granodiorite characterized by abundant sphene. Locally tourmalinized. Forms irregular dikes as thick as 10 m just east of the east contact of the Pipe Spring pluton. Biotite K-Ar age 76.1+2.7 Ma; K-feldspar K-Ar age 76.5+2.8 Ma (Shawe and others, 1987)

Kpa **Aplite**--Pale-gray to pale-buff biotite-bearing aplite; locally grades into pegmatite. Forms thin (to 10 m wide) dikes emplaced widely in the Pipe Spring pluton, and thin dikes and larger masses as apophyses penetrating wallrocks of Paleozoic age. Biotite K-Ar age 76.1+2.7 Ma (Shawe and others, 1987)

Kpg **Granite**--Pale-gray to pale-buff coarse-grained two-mica granite. Granite exposed in the southwest corner of the quadrangle is part of a large pluton extending about 12 km farther southwest. Whole-rock isochron Rb-Sr age 80.2+2.4 Ma (John and Robinson, 1989), and whole-rock-biotite isochron Rb-Sr age 80.1+1.0 Ma (Shawe and others, 1986)

Belmont lobe of the granite of Shoshone Mountain (Upper Cretaceous)--Coarse-grained two-mica granite grading up into sparsely porphyritic granite grading up into porphyritic granite, in an oval-shaped, domed pluton whose long axis trends northwestward and that occupies much of the north half of the quadrangle. The porphyritic upper shell of the pluton is widely intruded by fine-grained granite masses and aplite dikes, some of which penetrate into adjoining wallrocks

Kba **Aplite**--Pale-gray to pale-buff biotite-bearing aplite; locally grades into pegmatite. Forms thin (to 10 m wide) dikes emplaced widely in Kbgp, and thin dikes and larger masses as apophyses penetrating wallrocks of Paleozoic age. Biotite K-Ar age of pegmatite 80.2+1.6 Ma (M.L. Silberman, written commun., 1968; corrected to new decay constants, Dalrymple, 1979)

Kbgf **Fine-grained granite**--Pale-gray to pale-buff fine-grained granite. Forms small to large (several hundred meters across) irregular masses, dikes, and sills intruded into Kbgp and Paleozoic wallrocks near the pluton margin in northeast part of the quadrangle

Kbgp **Porphyritic granite**--Pale-gray to pale-buff coarse-grained two-mica granite that contains abundant (about 15 percent or more) large phenocrysts (1 to 8 cm long) of orthoclase. Forms an annular shell 1-2 km wide around the Belmont pluton. Contacts against intruded Paleozoic rocks dip gently to steeply outward. Pedimented surface with discontinuous thin gravel veneer in east-central part of the quadrangle shown as Kbgp (ped)

Kbgs **Sparsely porphyritic granite**--Pale-gray to pale-buff coarse-grained two-mica granite that contains 0-about 15 percent large phenocrysts of orthoclase. Forms an annular shell 1-2 km wide within the peripheral porphyritic shell that surrounds the core of the pluton

Kbg **Granite**--Pale-gray to pale-buff coarse-grained two-mica granite that forms the core of the Belmont pluton in north part of the quadrangle. Rb-Sr whole-rock isochron age 84.2+2.3 Ma; 84.8+4.4 Ma (John and Robinson, 1989)

Pzg **Greenstone (Paleozoic, undivided)**--Greenish-gray to olive-brown fine- to medium-grained diabase-textured to schistose amphibolitic greenstone, probably a mafic intrusion. Intruded as several oval-irregular masses into Ordovician argillite and limestone on southwest side of the mouth of Bald Mountain Wash

Osa **Siliceous argillite (Ordovician, undivided)**--Dark-gray locally brown-weathering argillite with minor interlayered limestone. In thrust contact with Pzmg and Pzmm northeast of Monarch near east boundary of the quadrangle

Toquima Formation (Middle Ordovician)--Generally thin-bedded interlayerd argillite, siliceous argillite, limy argillite, argillaceous limestone, limestone, siltstone, and quartzite. Near granitic plutons limestone is metamorphosed to marble and calc-silicate mineral-bearing rock, and argillite is metamorphosed to schist. Locally elsewhere limestone commonly has been jasperized and argillite has been silicified. Exposed on either side of East Manhattan Wash in southwest corner of the quadrangle, in northeast corner of the quadrangle, and along margin of the Belmont pluton north of Monarch. Forms a thrust plate overlying the Zanzibar Formation. Thickness unknown because of repetition of section by thrust faults, thickening that resulted from isoclinal folding, and thinning that resulted from laminar shearing; original thickness probably several hundred meters

Otl **Limestone**--Light-gray to dark-gray, thin-bedded to laminated (laminae due mostly to tectonic shearing related to deformation that resulted in thrust faulting). Metamorphosed in places near granite plutons to pale-gray and white marble

Otlj **Jasperized limestone**--Dark gray, commonly showing reddish- or yellowish-brown iron stain. Most abundant either as beds laterally continuous for several hundred meters, or as irregular masses that grade along bedding from unaltered limestone. Present on both sides of East Manhattan Wash in southwest corner of the quadrangle

Otlc **Calc-silicated limestone**--Pale-buff to pale-greenish-gray calc-silicate mineral assemblages that resulted from metasomatic replacement of limestone near or adjacent to plutons; typical minerals are diopside, tremolite, wollastonite, idocrase, and (or) garnet

Otq **Quartzite**--Medium-gray fine-grained quartzite, locally bleached white in patches or interstitially in breccia zones. Forms a thin (1-20 m) layer medially in the formation; a few thin lenses are present that may represent remnants of boudinaged layers. Dark-gray argillite both above and below quartzite commonly contains graptolites. Quartzite is correlative with the Eureka Quartzite of eastern and southern Nevada

Otla **Limestone** with interbedded **argillite**

Otal **Argillite** and **limestone**, interlayered

Ota **Argillite**--Medium- to dark-gray somewhat phyllitic or fissile laminated to massive and faintly bedded argillite or shale; locally silty. Adjacent to principal quartzite layer in the Toquima Formation, argillite contains abundant graptolites of Mohawkian age

Ots **Schist**--Medium- to dark-gray, brown weathering in places, micaceous schist; locally has wavy foliation. Locally contains siltite interlayers; locally is, in part, hornfels. Most abundant north of Monarch adjacent to Belmont pluton, near east edge of quadrangle

Zanzibar Formation (Ordovician)--Generally thin- to medium-bedded interlayerd argillite, siliceous argillite, limy argillite, argillaceous limestone, limestone, and siltstone. Near granitic plutons limestone is metamorphosed to marble and calc-silicate mineral-bearing rock, and argillite is metamorphosed to schist. Locally elsewhere limestone commonly has been jasperized and argillite has been silicified. Exposed southwest of East Manhattan Wash in southwest corner of the quadrangle and in northeast corner of the quadrangle. Forms a thrust plate overlying the Gold Hill and Mayflower Formations and underlying the Toquima Formation. Thickness unknown because of repetition of section by thrust faults, thickening that resulted from isoclinal folding, and thinning that resulted from tectonic shearing; original thickness probably several hundred meters

Ozl **Limestone**--Light-gray to dark-gray, medium-bedded to laminated limestone (laminae due mostly to tectonic shearing related to deformation that resulted in thrust faulting). Locally contains dark-gray nodular to layered chert. Metamorphosed in places near granite plutons to pale-gray and white marble

Ozlc **Calc-silicated limestone**--Pale-buff to pale-greenish-gray calc-silicate mineral assemblages that resulted from metasomatic replacement of limestone near or adjacent to the Belmont pluton in northeast corner of the quadrangle; typical minerals are diopside, tremolite, wollastonite, idocrase, and (or) garnet

Ozal **Argillite** and **limestone**, interlayered

Oza **Argillite**--Gray to dark-gray, noncalcareous to limy, locally faintly laminated or phyllitic argillite or shale

Ozs **Schist**--Medium- to dark-gray, brown-weathering schist. Locally contains thin siliceous argillite and (or) siltite layers. Occurs close to the Belmont pluton contact in northeast corner of the quadrangle

Gold Hill Formation (Cambrian)--Phyllitic schist and quartzite and minor interlayered limestone. Exposed southwest of East Manhattan Wash in southwest corner of the quadrangle. Forms a thrust plate overlying the Mayflower Schist and underlying the Zanzibar and Toquima Formations. Thickness unknown because of tectonic deformation. Original thickness probably several hundred meters

Cgs **Schist**--Light-olive-brown to buff phyllitic argillite and mica schist. Contains minor interlayered quartzite and limestone. The dominant lithology in the Gold Hill Formation

Cgq **Quartzite**--Buff to light-olive-gray mostly fine-grained thin- to medium-bedded quartzite. Interlayered in schist as lenses and layers a few centimeters thick to several tens of meters thick

Cgl **Limestone**--Buff and light-brownish-gray to gray, massive and thin-bedded to laminated limestone. Locally consists of white marble near pluton contacts. Forms layers a few meters to 40 meters thick interlayered between and within schist (Cgs) and schist-quartzite (Cgqs) units

Cglc **Calc-silicated limestone**--Pinkish-buff, pale-greenish-gray, and nearly white calc-silicate mineral assemblages that resulted from metasomatic replacement of limestone; characterized by minerals such as diopside, tremolite, wollastonite, idocrase, and garnet. Present near margin of the granite of Pipe Spring

Cgqs **Quartzite and schist**--Interlayered quartzite and schist that constitute most of the unit adjacent to the granite of Pipe Spring

Rocks of the Monarch area (Paleozoic, undivided)--Greenstone, chert, metasomatite, argillite-schist, dolomite, and serpentinite, in part interlayered and (or) tectonically intermixed, that make up a unit, probably a thrust plate, near Monarch in southeast part of the quadrangle. Partial lithologic similarity to Cambrian units in the region suggest a possible Cambrian age

Pzmg **Greenstone**--Dark-greenish-gray to brownish-gray, brown-weathering, aphanitic to porphyritic greenstone. Locally vesicular. Fragmental (brecciated to agglomeratic) layers a few meters thick interlayerd with massive greenstone layers several tens of meters thick. Extensive outcrops northeast and southeast of Monarch

Pzmc **Chert**--Greenish-gray to brownish-gray chert lenses a few meters thick interlayered in greenstones

Pzma **Argillite and chert**--Gray to light-brown thin-bedded and interlayered siliceous argillite and chert. Interlayered with or intruded by lenses and irregular masses of greenstone. Exposed on a low hill south of Monarch. Aggregate thickness of argillite and chert about 400-500 m

Pzmm **Metasomatite**--Yellowish-brown carbonate rock, mostly calcite, locally dolomitic and locally brecciated. Contains gray jasperoid in places. Probably formed by metasomatic replacement of an unknown protolith. Crops out north of Monarch near east-central edge of the quadrangle, and at southeast end of a low hill southwest of Monarch

Pzmd **Dolostone**--Light-brown, reddish-brown, and pinkish-brown sugary dolostone. Associated with metasomatite and serpentinite at the southeast end of a low hill southwest of Monarch. Thickness about 30-150 m

Pzms **Serpentinite**--Grayish-green and greenish-gray dense, massive, locally schistose or brecciated serpentinite. Studied and placed in a regional context by Poole and Desborough (1973). In places silicified and iron mineralized. Underlies most of low hill southwest of Monarch

Ꞓms **Mayflower Schist (Cambrian)**--Gray to olive-gray phyllitic to knotted schist. In thrust contact with overlying Gold Hill, Zanzibar, and Toquima Formations

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