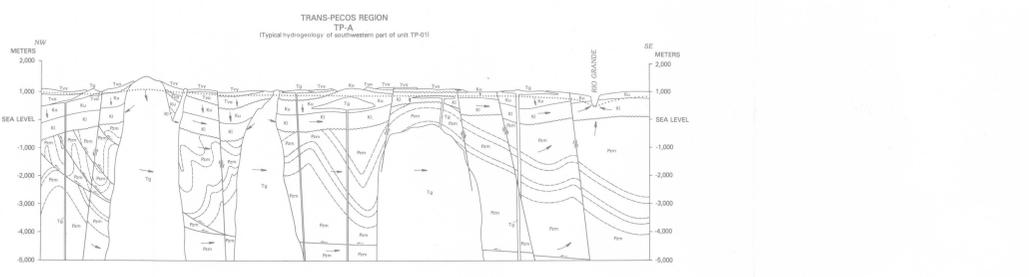


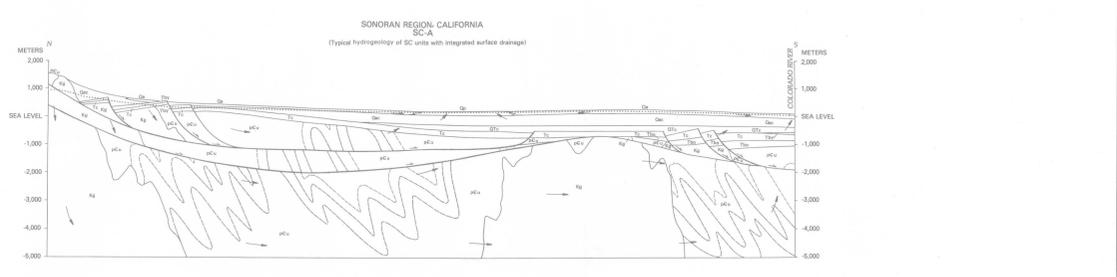
EXPLANATION

| | |
|------------|---|
| TP-A | |
| TERTIARY | Ta CRISTALLINE, PLUTONIC, AND LACCOLITHIC ROCKS |
| | Tv YOUNGER VOLCANIC ROCKS-Dominantly silicic ash-flow tuffs and lavas |
| | TO OLDER VOLCANIC ROCKS-Dominantly intermediate to silicic and mafic lavas, tuffs, and volcanoclastic sedimentary rocks |
| CRETACEOUS | Cc SHALE-With lesser amounts of sandstone and limestone |
| | CL LIMESTONE AND DOLOMITE-Miscellaneous |
| PALEOZOIC | Pm MIXED SEDIMENTARY ROCKS-Includes orthoquartzite, sandstone, limestone, and siltstone |



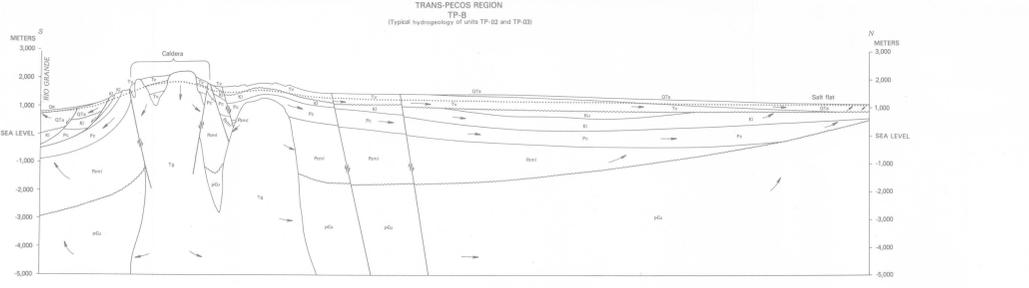
EXPLANATION

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|-------------------------|---|
| SC-A | |
| QUATERNARY | Qa FLAVA DEPOSITS-Very fine-grained sediments and evaporites |
| | Qm ALLUVIUM |
| QUATERNARY AND TERTIARY | Qm ALLUVIUM AND COLLUVIUM-Coarse-grained conglomerate occurs near mountain fronts |
| TERTIARY | Tv YOUNGER BASALTIC AND ANDESITIC LAVAS-Highly jointed |
| | TO CONTINENTAL AND MINOR MARINE SEDIMENTS-Rich in terrigenous clay, silt, sand, and gravel |
| | TO OLDER VOLCANIC ROCKS-Dominantly silicic ash-flow tuff and minor tuffaceous sedimentary rocks |
| CRETACEOUS | Cc CRYSTALLINE PLUTONIC ROCK |
| PRECAMBRIAN | Pm METAMORPHIC ROCKS-Includes mica schist, metagranite, and minor dolomite |



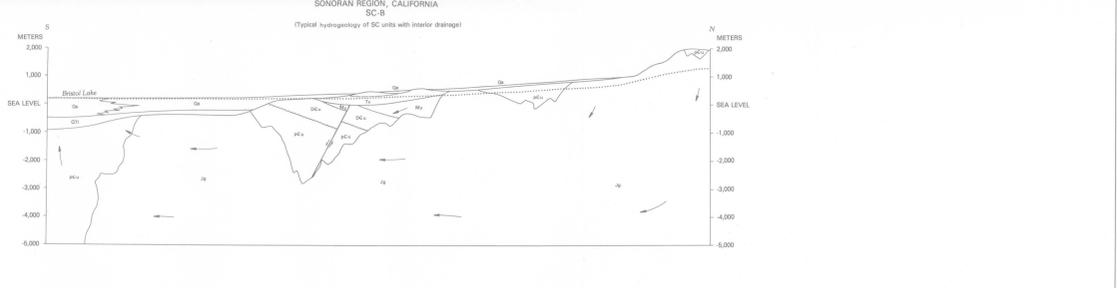
EXPLANATION

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|----------------------------|---|
| TP-B | |
| QUATERNARY AND TERTIARY | Qa BASINFILL ALLUVIUM |
| TERTIARY | Ta CRYSTALLINE PLUTONIC ROCKS |
| UPPER CRETACEOUS | Tv VOLCANIC ROCKS-Includes silicic ash-flow tuffs and lavas, basaltic lavas, and minor tuffaceous sedimentary rocks |
| LOWER CRETACEOUS | TO SHALE-With minor lenses of sandstone, siltstone, limestone, and lignite |
| PERMIAN | Pm LIMESTONE-With lesser sandstone, shale, and conglomerate |
| MIDDLE AND LOWER PALEOZOIC | Pm SANDSTONE, SHALE, LIMESTONE, NOVACULITE, AND GYPSUM |
| PRECAMBRIAN | Pm METAMORPHIC ROCK-Includes metagranite, amphibolite, phyllite, schist, and slate |



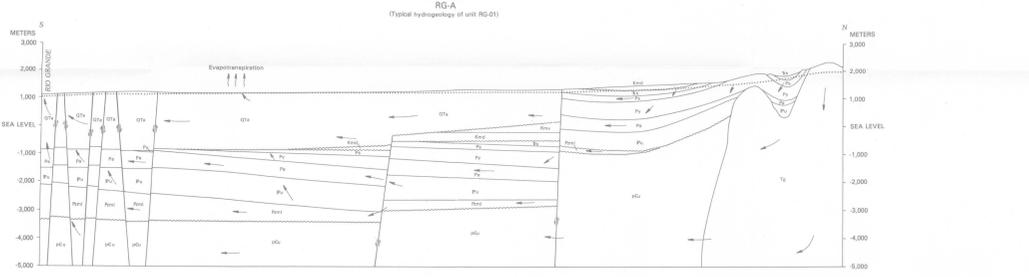
EXPLANATION

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|----------------------------|--|
| SC-B | |
| QUATERNARY | Qa ALLUVIUM |
| QUATERNARY AND TERTIARY | Qm LAKE DEPOSITS-Fine-grained sediments, mainly clay, evaporites, and silt |
| TERTIARY | Tv VOLCANIC ROCKS-Includes basaltic lavas and silicic ash-flow tuff and minor tuffaceous sedimentary rocks |
| JURASSIC | Jc CRYSTALLINE PLUTONIC ROCKS |
| MISSISSIPPIAN | Mm LIMESTONE AND BASAL SANDSTONE |
| DEVONIAN AND CARBONIFEROUS | Dc LIMESTONE AND DOLOMITE |
| PRECAMBRIAN | Pm GRANITE, GYPSUM, AND DIORITE-Locally labeled gneiss |



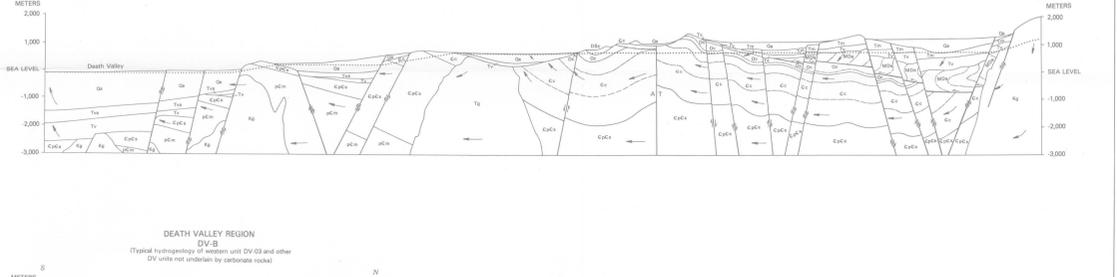
EXPLANATION

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|----------------------------|--|
| RG-A | |
| QUATERNARY AND TERTIARY | Qa BASINFILL ALLUVIUM |
| TERTIARY | Ta CRYSTALLINE PLUTONIC ROCK |
| CRETACEOUS | Cc SANDSTONE, SILTSTONE, AND SHALE |
| | SHALE AND MINOR SANDSTONE |
| TRIASSIC | Ta SILTY CLAYSTONE IN UPPER HALF, SILTY SANDSTONE IN LOWER HALF |
| PERMIAN | Pm LIMESTONE AND MINOR SANDSTONE LENSES |
| | TO LIMESTONE, RED CLASTIC SEDIMENTARY BEDS, AND GYPSUM |
| PENNSYLVANIAN | Pv LIMESTONE WITH LESS ABUNDANT ARBORESC SANDSTONE, SHALE, AND GYPSUM |
| MIDDLE AND LOWER PALEOZOIC | Pm LIMESTONE, DOLOMITE, LESS ABUNDANT SANDSTONE, SHALE, SILTSTONE, AND QUARTZITE |
| PRECAMBRIAN | Pm GRANITE, SCHIST, GNEISS, QUARTZITE, AND AMPHIBOLITE |



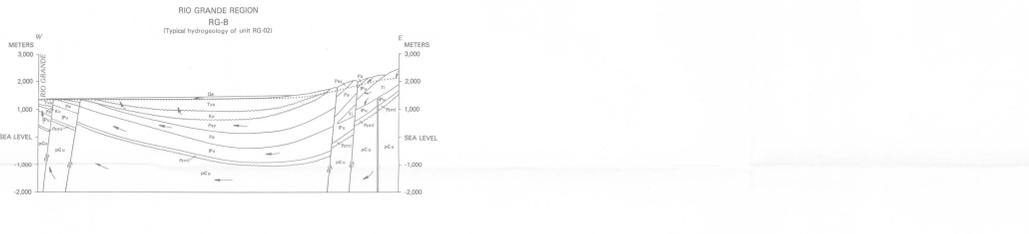
EXPLANATION

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|----------------------------|--|
| DV-A | |
| QUATERNARY | Qa ALLUVIUM-Includes playa deposits and minor evaporites |
| TERTIARY | Tv TURFACEOUS SEDIMENTARY ROCKS-Contains minor basalt and ash-flow tuffs, locally contains clay beds |
| | TO VOLCANIC ROCKS-Primarily densely welded silicic ash-flow tuff |
| | TO VOLCANIC ROCKS-Includes bedded tuffaceous sedimentary rocks, silicic ash-flow tuff, lava, and breccia and sand tuff |
| CRETACEOUS | Cc CRYSTALLINE PLUTONIC ROCK |
| MISSISSIPPIAN AND DEVONIAN | Md ARGILLITE, QUARTZITE, CONGLOMERATE, AND CARBONATE ROCKS-Mainly dolomite |
| DEVONIAN AND SILURIAN | Dc CARBONATE ROCKS-Mainly limestone upper half contains quartzite and dolomite |
| ORDOVICIAN | Ov CARBONATE ROCKS-Mainly limestone upper half contains quartzite and dolomite |
| CAMBRIAN | Cc LIMESTONE AND DOLOMITE |
| CAMBRIAN AND PRECAMBRIAN | Cc ORTHOQUARTZITE, ARGILLITE, CONGLOMERATE, SHALE, SILTSTONE, AND SILTY LIMESTONE |
| PRECAMBRIAN | Pm GNEISS AND SCHISTOSE ROCK |



EXPLANATION

| | |
|----------------------------|--|
| RG-B | |
| QUATERNARY | Qa ALLUVIUM |
| TERTIARY | Ta FINE-GRAINED INTRUSIVE ROCK |
| | TO TURFACEOUS SEDIMENTARY ROCKS-LASSANIC BRECCIA FLOWS, AND CONGLOMERATE |
| CRETACEOUS | Cc SHALE-With minor sandstone, siltstone, and conglomerate |
| PERMIAN | Pm LIMESTONE, SANDSTONE, SILTSTONE, CLAYSTONE, AND GYPSUM |
| | TO LIMESTONE AND SANDSTONE-With minor shale and siltstone |
| PENNSYLVANIAN | Pv LIMESTONE AND LESS ABUNDANT SHALE |
| MIDDLE AND LOWER PALEOZOIC | Pm LIMESTONE, DOLOMITE, LESS ABUNDANT SANDSTONE, SHALE, AND QUARTZITE |
| PRECAMBRIAN | Pm GRANITE, SCHIST, QUARTZITE, AND AMPHIBOLITE |



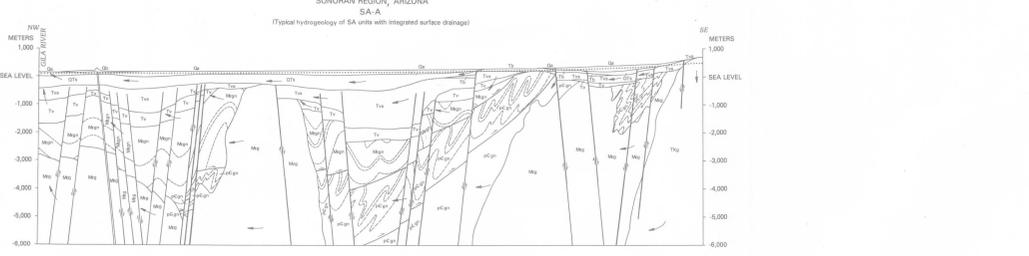
EXPLANATION

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|-------------|--|
| DV-B | |
| QUATERNARY | Qa FLAVA DEPOSITS-Very fine-grained; may contain minor evaporites |
| | TO ALLUVIUM |
| TERTIARY | Tv YOUNGER VOLCANIC ROCKS-Dominantly silicic ash-flow tuff |
| | TO CRYSTALLINE PLUTONIC ROCKS |
| | TO RHYOLITIC LAVA FLOW-Emplaced at caldera ring fracture zone, highly jointed and fractured |
| | TO VOLCANIC DEBRIS-Coarse-grained material shed from caldera wall and from phylite lens after caldera collapse |
| PALEOZOIC | Pm LOWER PALEOZOIC SILTSTONE, SANDSTONE, AND SHALE-Contains minor limestone lenses |
| | TO LOWER PALEOZOIC ORTHOQUARTZITE, MICACEOUS SILTSTONE, AND PHYLITE |
| PRECAMBRIAN | Pm METAMORPHIC AND PLUTONIC CRYSTALLINE ROCKS-Includes gneiss, schist, and gneiss-quartz monzonite |



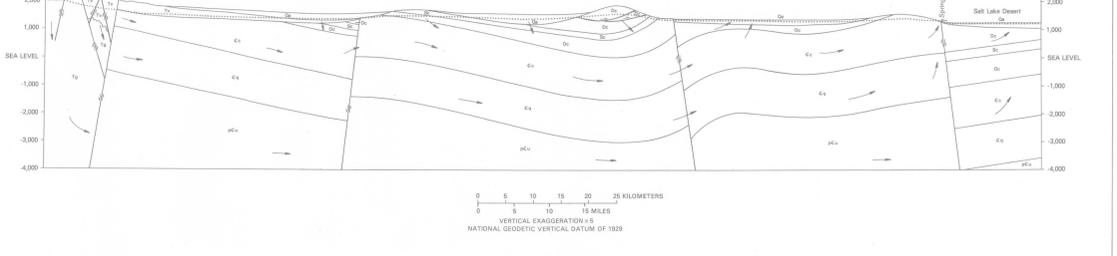
EXPLANATION

| | |
|-------------------------|---|
| SA-A | |
| QUATERNARY | Qa BASALTIC LAVA FLOWS AND CINDER CONE |
| QUATERNARY AND TERTIARY | Qa ALLUVIUM |
| QUATERNARY AND TERTIARY | Qm BASINFILL ALLUVIUM-Fine-grained except adjacent to hills |
| TERTIARY | Tv BASALTIC LAVA FLOW-Highly jointed and fractured |
| | TO TURFACEOUS SEDIMENTARY ROCKS-Contains minor basalt and andesitic lava flows and minor ash-flow tuffs |
| | TO VOLCANIC ROCKS-Mainly basaltic to andesitic lava flows and silicic ash-flow tuffs and lava with minor volcanoclastic rocks |
| TERTIARY AND CRETACEOUS | Tc CRYSTALLINE PLUTONIC ROCKS |
| MESOZOIC | Mp CRYSTALLINE PLUTONIC ROCKS |
| | TO METAMORPHIC ROCKS-Mainly crystalline gneiss and schist but may contain some phyllite rocks |
| PRECAMBRIAN | Pm METAMORPHIC ROCKS-Mainly gneiss and schist |



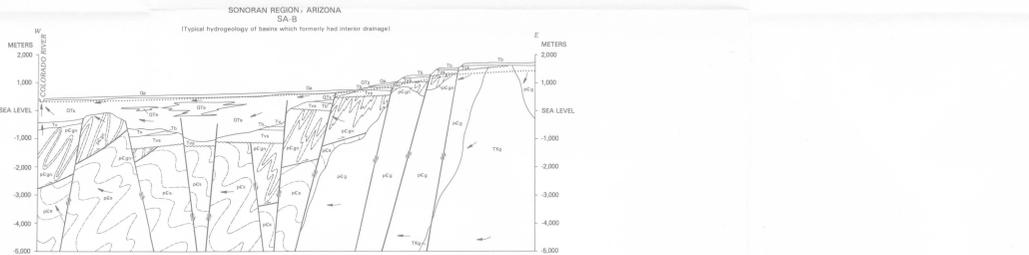
EXPLANATION

| | |
|-------------|---|
| BV | |
| QUATERNARY | Qa ALLUVIUM |
| TERTIARY | Ta CRYSTALLINE PLUTONIC ROCKS |
| | TO VOLCANIC ROCKS-Mainly silicic ash-flow tuff |
| DEVONIAN | Dc LIMESTONE AND DOLOMITE |
| SILURIAN | Ss LIMESTONE AND DOLOMITE |
| ORDOVICIAN | Ov LIMESTONE AND DOLOMITE |
| CAMBRIAN | Cc LIMESTONE AND DOLOMITE |
| | TO LIMESTONE AND DOLOMITE |
| | TO ORTHOQUARTZITE AND SHALE |
| PRECAMBRIAN | Pm ORTHOQUARTZITE, ARGILLITE, AND MINOR CARBONATE ROCKS |



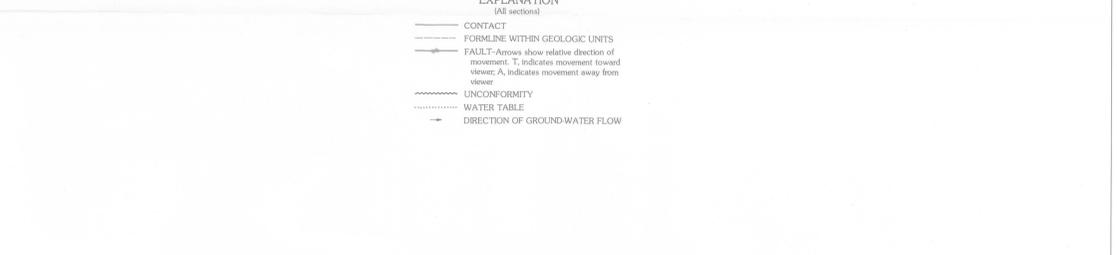
EXPLANATION

| | |
|-------------------------|---|
| SA-B | |
| QUATERNARY | Qa ALLUVIUM |
| QUATERNARY AND TERTIARY | Qm EVAPORITE DEPOSITS-Includes clay and silt |
| QUATERNARY AND TERTIARY | Qm BASINFILL ALLUVIUM-Fine-grained except adjacent to hills |
| TERTIARY | Tv VOLCANIC ROCKS-Mainly silicic ash-flow tuff and tuffaceous sedimentary rock |
| | TO BASALTIC AND ANDESITIC LAVA FLOWS-Generally highly jointed and fractured |
| | TO TURFACEOUS SEDIMENTARY ROCKS-Contains minor basalt, andesite, and silicic ash-flow tuff locally coarse grained, generally zeolitic |
| TERTIARY AND CRETACEOUS | Tc CRYSTALLINE PLUTONIC ROCKS |
| MESOZOIC | Mp CRYSTALLINE PLUTONIC ROCKS |
| | TO CRYSTALLINE GNEISSIC ROCKS-Locally contains coarse-grained mafic gneiss |
| PRECAMBRIAN | Pm CRYSTALLINE GNEISSIC ROCKS-Contains mica schist, chlorite schist, phyllite, slate, and amphibolite |



EXPLANATION

| | |
|-------------|---|
| BV | |
| QUATERNARY | Qa ALLUVIUM |
| TERTIARY | Ta CRYSTALLINE PLUTONIC ROCKS |
| | TO VOLCANIC ROCKS-Mainly silicic ash-flow tuff |
| DEVONIAN | Dc LIMESTONE AND DOLOMITE |
| SILURIAN | Ss LIMESTONE AND DOLOMITE |
| ORDOVICIAN | Ov LIMESTONE AND DOLOMITE |
| CAMBRIAN | Cc LIMESTONE AND DOLOMITE |
| | TO LIMESTONE AND DOLOMITE |
| | TO ORTHOQUARTZITE AND SHALE |
| PRECAMBRIAN | Pm ORTHOQUARTZITE, ARGILLITE, AND MINOR CARBONATE ROCKS |



EXPLANATION

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|---|--|
| — | CONTACT (All sections) |
| — | FORMLINE WITHIN GEOLOGIC UNITS |
| — | FAULT- Arrows show relative direction of movement. T, indicates movement toward viewer; A, indicates movement away from viewer |
| — | UNCONFORMITY |
| — | WATER TABLE |
| — | DIRECTION OF GROUND-WATER FLOW |