

## **Dolores County**

### **Rico District (aka Pioneer District)**

The Rico District is the only major district in Dolores County, occurring on the southwest flank of the San Juan Mountains in the far eastern part of that county. Henderson (1926) used the term Pioneer District, which was also recognized by Vanderwilt (1947) and Dunn (2003). The most complete (and recent) report on the district - McKnight (1974) does not mention the term Pioneer District at all.

Early reports on the geology and some specific mines were produced by Farish (1892), Cross and Spencer (1900), Cross and Ransome (1905), and Ransome (1901).

Varnes (1947) provided a special section in Vanderwilt (Ibid). Summarizing Varnes and McKnight, the Rico Mountains are carved from a low, elliptical, structural dome comprised of a central igneous core draped with sedimentary rocks. The sedimentary sequence ranges from Precambrian to Jurassic. Successively, the units consist of Precambrian schist, quartzite and diorite, Devonian Ouray limestone and Mississippian Leadville limestone, Pennsylvanian Larsen quartzite and Heermosa formation (shale, sandstone and thin limestones), Permian Rico formation (sandstone and sandy shales) and Cutler formation (Varnes, Ibid; McKnight, Ibid).

Igneous rocks from the core of the uplift - primarily a monzonite stock and dikes and sills of a hornblende latite porphyry. Subsidiary alaskite porphyry and a single lamprophyre dike can be found. The igneous activity is Laramide in age (except for one small Pliocene body, Cunningham et al., 1994.)

McKnight (Ibid) described four main types of deposits in the district. First is massive sulfide replacement of limestones (primarily in the Hermosa Formation); second is contact-metamorphic deposits in limestone; third are veins on fracture and faults in the Hermosa Formation; and fourth are replacement deposits in residual debris where gypsum had dissolved from the Hermosa Formation. The Rico District exhibited a diverse mineralogy.

Engel (1968) relates a very readable history of the Rico area. According to his account, galena lodes were located as early as 1860. Exploration from Santa Fe pushed into the area and located the Pioneer lode in 1869, later to become the Shamrock and Potter Mines, and the district took on the name Pioneer District. A major rush of prospectors began in 1879 and the town of Rico was established as the second town in Ouray County. The boom was accelerated by the arrival of the railroad in 1891. In the succeeding years, 59 mines operated in the district, employing up to 2000 miners. Fourteen hotels graced the boomtown of Rico. Several periods of boom and bust have followed, although mines operated as late as the 1960s. Currently, at least one company is interested in pursuing development of a porphyry molybdenum deposit that has been known for quite some time ([www.outlookres.com](http://www.outlookres.com)).

Mines listed in the district ([mindat.org](http://mindat.org) and others) include:

- [Albion \(Victoria\)](#)
- [Alleghany \(San Juan National Forest\)](#)
- [Alma Mater Prospect \(San Juan National Forest\)](#)
- [Argentine \(San Juan National Forest\)](#)

- [Argonaut Mine](#)
- [Aztec Mine<sup>1</sup>](#)
- [Badger No. 7 claim](#)
- [Badger Tunnel](#)
- [Baer Tunnel](#)
- [Belzora](#)
- [Ben Group](#)
- [Black Wonder Prospect \(San Juan National Forest\)](#)
- [Blackhawk Mine \(Black Hawk Mine\)](#)
- [Blaine Tunnel \(Rico Argentine; San Juan National Forest\)](#)
- [Blue Bell](#)
- [Boyles Brothers Drilling Prospect \(San Juan National Forest\)](#)
- [Buckhorn Tunnel](#)
- [Burns Group](#)
- [Butler Group](#)
- [C. H. C. Group \(Princeton Mine; Ethlena; Princeton; Limestone; Crebec; Patented Claims: C. H. C.\)](#)
- [C.H.C. Hill](#)
  - [Lily D. Mine \(Carrie; Silver Belt\)](#)
  - [Mountain Springs Mine \(Rico Argentine\)](#)
  - [Pigeon Mine](#)
  - [Wellington Mine<sup>1</sup>](#)
- [Caledonia \(Rico\)](#)
- [California Mine \(Nevada; Unpatented Claims: California; Green Mountain; P. B. King; Burlesque Queen\)](#)
- [Calumet](#)
- [Christina Prospect \(Christine\)](#)
- [Clan Campbell](#)
- [Copper Claims](#)
- [Dolly \(Dolly Tunnel\)](#)
- [Dolores River Placers \(Gold Nugget Placer; Snyder Placer; B. & S. Placer\)](#)
- [Double Cross](#)
- [Eagle Prospect](#)
- [Eagle Tunnel](#)
- [Eighty-Eight Tunnel](#)
- [Eureka Occurrence](#)
- [Expectation Mine \(Edna; Babe; Thirteenth; Engel Mine; Mae No. 1; Rosemary; Aviator; Johnny Miller; Alf; Victor; Hornet; C. M. E.; Unpatented Claims: Expectation; V. J. K.\)](#)
- [Expectation Mountain](#)
  - [Aztec Mine](#)
  - [Bancroft Mine](#)
  - [Iron Clad Mine<sup>1</sup>](#)
  - [Jones Mine \(St. Louis claim\)<sup>1</sup>](#)
  - [Sambo Mine](#)
  - [Shamrock Mine](#)
- [Fickle Goddess Tunnel](#)
- [Flying Fish Prospect](#)
- [Forest Payroll Mine<sup>1</sup>](#)
- [Futura Prospect](#)
- [Futurity Tunnel](#)
- [Golden 1900 Prospect \(Sunnyside\)](#)
- [Golden Fleece Prospect \(New Year Mine\)](#)
- [Great Western Prospect](#)
- [Group Tunnel \(San Juan National Forest; Enterprize\)](#)
- [Hand-Out Occurrence \(Hand Out\)](#)
- [Hess and Garren](#)
- [Hicks Prospect](#)
- [Hope and Cross Prospect](#)
- [Horse Creek](#)
  - [Gold Anchor Mine](#)
  - [Iron Draw Mine](#)
  - [Johnney Bull Mine](#)
  - [Puzzle Mine \(Puzzler Mine\)](#)
- [Humboldt Tunnel \(Rico Argentine\)](#)
- [Iron Dollar Prospect](#)
- [Iron Giant Prospect \(San Juan National Forest\)](#)
- [Iron Mine \(Patented Claim: Iron Mine\)](#)
- [Iron Rod Mine](#)
- [Isabella Shaft Prospect \(Wakeman Tunnel\)](#)
- [Jack Wech Prospect](#)
- [Jumbo No. 3 \(Rico Argentine\)](#)
- [Key Group](#)
- [Kite Tunnel Occurrence](#)
- [Lackawanna Prospect](#)
- [Larson](#)

- [Last Chance Prospect](#)
- [Laxey Prospect](#)
- [Leila Davis](#)
- [Lexington Tunnel](#)
- [Logan Mine \(Logan Group; Goliath; General O. O. Howard; General Sherman; General Sheridan; Patented Claims: General Logan; Little Casper\)](#)
- [Lower Bridal Veil Canyon Prospect](#)
- [Lucky Boy](#)
- [Lucky Pine](#)
- [M.A.C. Prospect \(Hoosier Girl\)](#)
- [Magnet Prospect](#)
- [Marriage Stake](#)
- [Mediterranean \(Premier\)](#)
- [Mohawk](#)
- [Montezuma Mine](#)
- [Mountain Springs - Wellington Group<sup>1</sup>](#)
- [N. A. Cowdrey Mine \(Patented Claim: N.A. Cowdrey\)](#)
- [Nellie Bly \(San Juan National Forest\)](#)
- [New Dawn Group](#)
- [Newman Hill](#)
  - [Enterprise Mine](#)
  - [Forest Payrole Mine](#)
  - [Hibernia Mine](#)
  - [Newman Hill Prospect](#)
  - [Pro Patria Mine\(Scout's Tunnel; Rico Argentine\)<sup>1</sup>](#)
  - [Revenue Mine<sup>1</sup>](#)
  - [Rico Aspen Mine](#)
  - [Swansea Mine](#)
  - [Union Carbonate Mine](#)
- [Newman Mines \(Patented Claims: Swansea; Swansea; Klingender; and Chestnut Tunnels; Newman; Chestnut\)](#)
- [Nigger Baby](#)
- [Nutmeg Occurrence \(Nut Meg\)](#)
- [Onamo Tunnel](#)
- [Oro](#)
- [Palmetto Group](#)
- [Parson mine](#)
- [Pigeon tunnel<sup>1</sup>](#)
- [Potter Tunnel](#)
- [Princeton](#)
- [Ramco Claims](#)
- [Rancroft](#)
- [Rand](#)
- [Resolute Mine \(Unpatented Claims: Newman Group; Shehocton Group; New York Group\)](#)
- [Richmond](#)
- [Rico<sup>1</sup>](#)
  - [Atlantic Cable Mine](#)
  - [Rico Boy Mine](#)
  - [Uncle Remus Mine](#)
- [Rico Con Middle Tunnel \(Rico Argentine; San Juan National Forest\)](#)
- [Rico Townsite](#)
- [Roderick Dhu Prospect](#)
- [San Juan Prospect](#)
- [Sawyer Shaft](#)
- [Silver Clad Mine](#)
- [Silver Creek](#)
  - [Fortuna and Duncan Prospect](#)
  - [Little Maggie Mine](#)
  - [Rico Argentine Mine \(includes Argentine Tunnel, Log Cabin, Blacksmith Tunnel, Rico Consolidated Tunnels, James G. Blaine Tunnel\)<sup>1</sup>](#)
  - [Silver Creek Molybdenum deposit](#)
  - [Uncle Ned Mine](#)
- [Silver Gance \(San Juan National Forest\)](#)
- [Silver Gulch](#)
- [Silver Swan Mine \(Wamba; Tango; Frances; Panama\)](#)
- [Skeptical](#)
- [Song Bird Tunnel \(Rico Argentine\)](#)
- [South Park Mine \(Patented Claim: South Park\)](#)
- [St. Louis Tunnel \(Rico Argentine\)<sup>1</sup>](#)
- [Stephanite](#)
- [Sunflower](#)
- [Swickheimer Group](#)
- [Telegraph](#)
- [Telescope Mountain](#)
  - [Falcon Mine](#)

- [Grand View Mine](#)
- [Nora Lily Mine](#)<sup>1</sup>
- [Phoenix Mine](#)<sup>1</sup>
- [Yellow Jacket Mine](#)<sup>1</sup>
- [Tomale](#)
- [Union-Carbonate](#)
- [Utah Claim](#)
- [Van Winkle \(San Juan National Forest\)](#)
- [What Cheer mine](#)
- [Whim](#)
- [World's Fair \(San Juan National Forest\)](#)
- [Zulu Chief Occurrence](#)

Note: <sup>1</sup> Details can be found in McKnight (1974).

Minerals listed in the district (mindat.org) include:

<a href="#">Acanthite</a>	<a href="#">Dolomite</a>	<a href="#">Prehnite</a>
<a href="#">Actinolite</a>	var: <a href="#">Ferroan Dolomite</a>	<a href="#">Proustite</a>
<a href="#">Alabandite</a>	<a href="#">Enargite</a>	<a href="#">Pyrargyrite</a>
<a href="#">Albite</a>	<a href="#">Epidote</a> var: <a href="#">Withamite</a>	<a href="#">Pyrite</a>
<a href="#">Allanite Group</a>	<a href="#">Fluorite</a>	<a href="#">Pyrolusite</a>
<a href="#">Allophane</a>	<a href="#">Freibergite</a>	' <a href="#">Pyroxene Group</a> '
<a href="#">Andalusite</a>	<a href="#">Galena</a>	<a href="#">Pyrrhotite</a>
<a href="#">Andradite</a>	var: <a href="#">Argentiferous Galena</a>	<a href="#">Quartz</a>
<a href="#">Anglesite</a>	' <a href="#">Garnet</a> '	<a href="#">Rhodochrosite</a>
<a href="#">Argyrodite</a>	<a href="#">Gold</a>	<a href="#">Rhodonite</a>
<a href="#">Aurichalcite</a>	<a href="#">Grossular</a>	<a href="#">Roscoelite</a>
<a href="#">Baryte</a>	<a href="#">Gypsum</a>	<a href="#">Rutile</a>
<a href="#">Bismuthinite</a>	' <a href="#">Halloysite</a> '	<a href="#">Sellaite</a>
<a href="#">Bornite</a>	<a href="#">Helvine</a>	' <a href="#">Serpentine Subgroup</a> '
<a href="#">Bromargyrite</a>	<a href="#">Hematite</a>	<a href="#">Serpierite</a>
<a href="#">Calcite</a>	' <a href="#">Hornblende</a> '	<a href="#">Siderite</a>
var: <a href="#">Manganoan Calcite</a>	<a href="#">Hübnerite</a>	<a href="#">Silver</a>
<a href="#">Carnotite</a>	<a href="#">Hydrozincite</a>	<a href="#">Smithsonite</a>
<a href="#">Celestine</a>	<a href="#">Jarosite</a>	<a href="#">Sphalerite</a>
<a href="#">Cerussite</a>	<a href="#">Kaolinite</a>	<a href="#">Stephanite</a>
<a href="#">Chalcanthite</a>	' <a href="#">K Feldspar</a> var: <a href="#">Adularia</a> '	<a href="#">Sulphur</a>
<a href="#">Chalcocite</a>	' <a href="#">Limonite</a> '	<a href="#">Tennantite</a>
<a href="#">Chalcopyrite</a>	<a href="#">Linarite</a>	<a href="#">Tetradymite</a>
' <a href="#">Chert</a> '	<a href="#">Magnetite</a>	<a href="#">Tetrahedrite</a>
<a href="#">Chlorargyrite</a>	<a href="#">Malachite</a>	<a href="#">Topaz</a>
var: <a href="#">Bromian Chlorargyrite</a>	<a href="#">Massicot</a>	<a href="#">Tremolite</a>
' <a href="#">Chlorite Group</a> '	<a href="#">Melanterite</a>	<a href="#">Uranophane-β</a>
<a href="#">Clinzoisite</a>	var: <a href="#">Cuprian Melanterite</a>	<a href="#">Vesuvianite</a>
<a href="#">Copper</a>	<a href="#">Molybdenite</a>	' <a href="#">Wad</a> '
<a href="#">Cordierite</a>	<a href="#">Muscovite</a>	<a href="#">Wilcoxite</a>
<a href="#">Cosalite</a>	var: <a href="#">Illite</a>	<a href="#">Wollastonite</a>
<a href="#">Covellite</a>	var: <a href="#">Sericite</a>	<a href="#">Wulfenite</a>
<a href="#">Diaspore</a>	<a href="#">Pearceite</a>	
<a href="#">Diopside</a>	<a href="#">Polybasite</a>	

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[www.outlookres.com](http://www.outlookres.com), accessed January 2016.