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Mines and prospects of the Dillon 1° x 2° quadrangle, Idaho and Montana

by

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Introduction

The Dillon quadrangle of southwest Montana and east-central Idaho occupies a part of the northern Rocky Mountains long known for its abundance and variety of mineral deposits. The accompanying maps show locations and deposit types of 814 mines, prospects, and mineral occurrences. The accompanying table gives, for each locality: latitude and longitude, commodities present, deposit type, status of production or development, host rock, associated igneous rocks, and sources of information. This information has been extracted from the USGS Mineral Resource Data System computer file (MRDS--formerly Computerized Resource Information Bank (CRIB)) begun in 1973 and modified at various times since. A reference list for sources of data used in compiling the map and table is included.

These maps are two of several maps constituting a folio prepared to furnish information on mineral resources and mineral resource potential of the Dillon quadrangle. These studies, made in large part under the Conterminous United States Mineral Assessment Program (CUSMAP), include results of investigations of geology, geochemistry, geophysics, and other aspects of mineral resources.

The Dillon quadrangle is located between 112 and 114 degrees west longitude and 45 and 46 degrees north latitude, in southwestern Montana and east-central Idaho (fig. 1). It includes parts of Beaverhead, Madison, Silver Bow, Granite, Deer Lodge, Jefferson, and Ravalli Counties, Montana, and part of Lemhi County, Idaho. Principal cities include Dillon, Montana, in the southeast part of the quadrangle, Salmon, Idaho, in the southwest part, and Butte, Montana, along the north boundary. The most productive part of the Butte mining district is about a mile north of the Dillon quadrangle in the adjacent Butte quadrangle.

Mining history

The following historical sketch has been extracted mainly from Winchell (1914), Umpleby (1913), and Sassman (1941):

The first mineral discovery in the Dillon quadrangle may have been made in 1855 along the Lemhi valley in Idaho by Mormon settlers who established Fort Lemhi about 15 km south of the Dillon quadrangle. Soon after this settlement was established, prospectors from the fort discovered copper in the northern part of the Lemhi Range, but no mining is known to have been done at that time. Prospectors were active in Lemhi County in 1862, but no discoveries are known to have been made at that time in the part of the county within the Dillon quadrangle.

The first mining in the Dillon quadrangle probably took place following the discovery of placer gold in July 1862. Prospectors who came over the Beaverhead Mountains from Idaho discovered placer gold along Pioneer and Nugget Creeks, tributaries of Ruby Creek (see plate 1), in what became known as the Pioneer district. Several miners, as many as 60 according to Sassman (1941), were making wages in the district that summer. Less than three weeks after the Pioneer discovery, a party searching for those diggings made a more significant find of placer gold in a stream they named Grasshopper Creek (plate 1). In the following months, as the importance of the Grasshopper Creek discovery became better known, most of the miners left the Pioneer district for the richer strike and established the camp of Bannack. The initial frenzy at Bannack was, however, short lived; an exodus took place there in 1863 as hundreds of miners headed for the Alder Gulch placers along

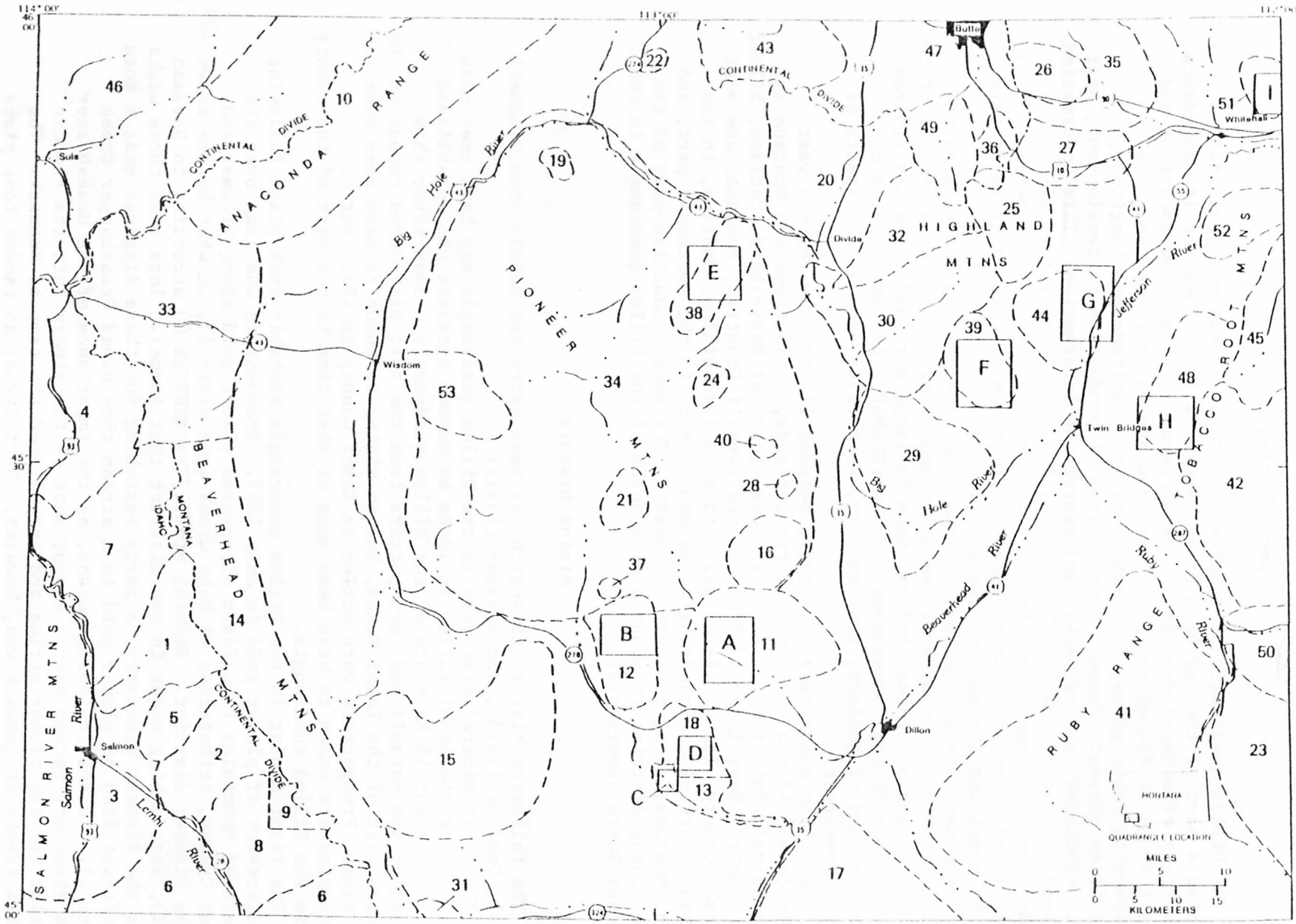

Figure 1.--Location of mining districts and mining areas, Dillon 1° x 2° quadrangle, Idaho and Montana. Dashed lines, boundary of mining district or area; lettered rectangles, inset maps, see Plate 2. See also, list of districts and areas, facing page.

IDAHO

AREA NUMBER	MINING DISTRICT OR AREA	SITE NUMBERS	TOTAL SITES
1	CARMEN CREEK DISTRICT	001-010	10
2	ELDORADO DISTRICT	015-025	11
3	EUREKA DISTRICT	029-076	48
4	GIBBONSVILLE DISTRICT	081-128	48
5	KIRTLEY CREEK DISTRICT	133-135	3
6	MCDEVITT DISTRICT	140-145	6
7	NORTH FORK AREA	150-165	16
8	PRATT CREEK DISTRICT	169-177	9
9	SANDY CREEK DISTRICT	182-186	5

MONTANA

AREA NUMBER	MINING DISTRICT OR AREA	SITE NUMBERS	TOTAL SITES
10	ANACONDA RANGE AREA	190-206	16
11	ARGENTA DISTRICT	210-261	52
12	BALDY MOUNTAIN DISTRICT	264-285	22
13	BANNACK DISTRICT	289-303	15
14	BEAVERHEAD MOUNTAINS AREA	308-315	8
15	BIG HOLE DIVIDE AREA	324-325	2
16	BIRCH CREEK DISTRICT	326-339	14
17	BLACKTAIL RANGE AREA	343-346	4
18	BLUE WING DISTRICT	350-367	18
19	CALVERT HILL DISTRICT	373-375	3
20	DIVIDE CREEK DISTRICT	387-396	10
21	ELKHORN DISTRICT	403-409	7
22	FRENCH GULCH DISTRICT	412	1
23	GREENHORN RANGE AREA	416-429	14
24	HECLA DISTRICT	435-440	6
25	HIGHLAND DISTRICT	446-459	14
26	HOMESTAKE DISTRICT	466-477	12
27	LITTLE PIPESTONE DISTRICT	483-486	4
28	LOST CREEK DISTRICT	492-493	2
29	MCCARTNEY MOUNTAIN DISTRICT	499-508	10
30	MELROSE DISTRICT	512-537	26
31	MONUMENT DISTRICT	540-542	3
32	MOOSE CREEK DISTRICT	544-556	13
33	PIONEER DISTRICT	557-564	8
34	PIONEER MOUNTAINS AREA	567-587	21
35	PIPESTONE DISTRICT	588-602	15
36	PIPESTONE PASS AREA	608-610	3
37	POLARIS DISTRICT	616-617	2
38	QUARTZ HILL-VIPOND DISTRICT	622-643	22
39	ROCHESTER DISTRICT	646-674	29
40	ROCK CREEK DISTRICT	680-681	2
41	RUBY RANGE AREA	685-746	62
42	SHERIDAN DISTRICT	752-796	45
43	SIBERIA DISTRICT	802-806	5
44	SILVER STAR DISTRICT	811-836	26
45	SOUTH BOULDER DISTRICT	837-857	21
46	SULA AREA	859-860	2
47	SUMMIT VALLEY DISTRICT	863-870	8
48	TIDAL WAVE DISTRICT	878-930	53
49	UPPER BASIN CREEK DISTRICT	934-936	3
50	VIRGINIA CITY DISTRICT	938-942	5
51	WHITEHALL (CARDWELL) DISTRICT	945-975	31
52	WHITEHALL (RENOVA) DISTRICT	980-986	7
53	WISDOM DISTRICT	991-1002	12

the east side of the quadrangle in what became the Virginia City district, which turned out to be the premier placer district in Montana. Important placer deposits were found in 1864 in French Gulch and German Gulch (plate 1), near the north edge of the quadrangle.

Placer mining on Grasshopper Creek languished but was revived within a few years when ditches were completed to provide additional water and again in 1895 when dredges were used.

Lode deposits valuable chiefly for gold were discovered at Bannack on the slopes above Grasshopper Creek within a few months after the discovery of the placer deposits. Other lode discoveries were made a few miles north of Bannack in the summer of 1864 and with them a silver mining boom in the southern Pioneer Mountains began. The Argenta, Blue Wing, and Birch Creek districts (fig. 1) were formed that summer. Elsewhere in the Dillon quadrangle lode deposits were found and mining districts established during the same general period as in the Pioneer Mountains. Prospectors spreading out from the Virginia City district discovered lode deposits in what became the Sheridan district as early as 1864, less than a year after the Alder Gulch placers were found. Other discoveries in the 1860's include the Silver Star, Rochester, Highland, and Tidal Wave districts (fig. 1). All the important base- and precious-metal districts had been found by 1890. In general, mining of these commodities declined after 1900, although important individual deposits have occasionally been discovered since 1900. Tungsten mining became important in the 1950's in the Pioneer Mountains, and talc has increasingly become a major product since the late 1940's. Molybdenum has generated the most prospecting interest since discovery of the Cannivan Gulch deposit in the Quartz Hill-Vipond district in 1968. It has not yet been mined. In the early 1980's, however, exploration interest has returned to where it started 120 years before--to gold and silver.

Mineral production

The dollar value of minerals produced from each district in the Dillon quadrangle has been estimated and is shown on table 1. The total production for the quadrangle has been about $190 million, not including phosphate and chlorite. Adding phosphate and chlorite production would probably increase the total for the quadrangle to over $200 million (all dollar values used in the report represent the value of the commodity at the time of production). Although ounces and pounds of metal would give much more meaningful information, early production data is generally not available. The U.S. Geological Survey began recording mine production in 1904, long after the greatest period of mining had ended. Most of the early estimates of production were reported in dollars and cannot be broken down without making assumptions about the composition, grade, and tonnage of the ore. An additional problem with the production estimates on table 1 is due to conflicting amounts of production appearing in various reports. We have chosen figures that seem reasonable and that probably provide a basis for determining relative production from the various districts.

The Virginia City district was undoubtedly the largest producer in the quadrangle, most of it accounted for by gold from the Alder Gulch placers. The value of placer gold produced in the entire Virginia City district has been estimated to range from about $80 to $200 million (Koschmann and Bergendahl, 1968). Kirk (1908) estimated the total by 1908 to be $125 million, but Lyden (1948) thought that figure was too high. Therefore, we have used a figure of $100 million for total placer gold production from the

Virginia City district. About 60 percent of the placer workings are in the Dillon quadrangle, therefore an estimate was made of $60 million from the Dillon portion. The Hecla district is the second largest metal producer and the largest lode producer with about $20 million total production (Geach, 1972). This figure is probably more reliable than figures for other districts, as the amount was derived largely from records of a single mining company. The third and fourth most productive metal districts in terms of dollars--Rock Creek and Calvert Hill--are both tungsten producers; this mining was accomplished during the 1940's, 1950's, and 1960's when government price supports permitted mining of low grade ore.

Prior to World War II emphasis was on metallic minerals, although some limestone, quartzite, and iron ore had been used locally in smelting operations. Since that time nonmetallic commodities have become more important, particularly phosphate, talc, and chlorite. The value of talc produced from mines in the Dillon quadrangle may total about $30 million. Phosphate and chlorite production figures are unknown.

Significant resources of molybdenum, iron, phosphate, tungsten, chlorite, talc and gold are known in the quadrangle. Lesser resources of coal, barite, manganese, chromite, asbestos, thorium, uranium, and rare earth elements are also known. Silver, copper, lead, and zinc resources are probably present.

Table 1.--Commodities and estimated production for mining districts and areas in the Dillon 1° x 2° quadrangle, Idaho and Montana

District or area	County	Main commodities[1/]	Estimated total production[2/]
Idaho			
Carmen Creek	Lemhi	Au	$ 50,000
Eldorado	---do	Au	400,000
Eureka	---do	Au, Cu	4,000,000
Gibbonsville	---do	Au	2,000,000
Kirtley Creek	---do	Au	600,000
McDevitt	---do	Cu, Au	80,000
North Fork	---do	Au	small
Pratt Creek	---do	Au	50,000
Sandy Creek	---do	Au	50,000
Montana			
Anaconda Range	Granite, Ravalli, Beaverhead, Deer Lodge	Ag, Cu, Pb	>100,000
Argenta	Beaverhead	Pb, Ag, Au	7,000,000
Baldy Mountain	---do	Au, Ag, Pb, Cu,	100,000
Bannack	---do	Au	5,000,000
Beaverhead Range	---do	Au, Ag, Cu, Pb, Zn	<100,000
Big Hole Divide	---do	Cu, Ag	>10,000
Birch Creek	---do	Cu, Ag	250,000
Blacktail Range	---do	Cu, Ag	<10,000
Blue Wing	---do	Ag, Pb	5,000,000
Calvert Hill	---do	W	8,000,000
Divide Creek	Silver Bow	Au	>50,000
Elkhorn	Beaverhead	Ag, Cu, Pb, Zn, Au	500,000
French Gulch	Deer Lodge	Au	2,000,000
Hecla	Beaverhead	Ag, Pb, Au, Cu, Zn	20,000,000
Highland	Silver Bow	Au	2,200,000
Homestake	Jefferson	Au	36,000
Little Pipestone	---do	Au	11,000
Lost Creek	Beaverhead	W	400,000
McCartney Mountain	Madison	Ag, Pb, Au	<100,000
Melrose	Madison, Silver Bow	Au, Ag, Cu, Pb	500,000[3/]
Monument	Beaverhead	Cu, Pb, Ag	40,000
Moose Creek	Silver Bow	Au, Ag, Cu, Pb	300,000
Pioneer	Beaverhead, Ravalli	Au	10,000
Pioneer Mountains	Beaverhead	Ag, Pb, Ba	small
Pipestone	Jefferson	Au	16,000
Pipestone Pass	Silver Bow	Au	small
Polaris	Beaverhead	Ag, Pb, Cu, Au	500,000
Quartz Hill-Vipond	---do	Ag	2,000,000
Rochester	Madison	Au, Ag, Pb	2,500,000
Rock Creek	Beaverhead	W	12,000,000
Ruby Range	Beaverhead, Madison	Talc, Graphite	30,000,000[4/]
Sheridan	Madison	Au, Ag, Cu, Pb	1,500,000
Siberia	Silver Bow	Au	8,000,000
Silver Star	Madison	Au, Ag, Pb, Zn, Cu	2,500,000
South Boulder	---do	Au, Ag, Pb, Cu	5,500,000
Sula	Ravalli	Be	small
Summit Valley (Butte)	Silver Bow	Cu, Mn	--------[5/]
Tidal Wave	Madison	Au, Ag, Cu, Pb, Zn	1,500,000
Upper Basin Creek	Silver Bow	Au	small
Virginia City	Madison	Au	60,000,000[6/]
Whitehall (Cardwell)	Jefferson	Au, Ag, Pb	3,100,000
Whitehall (Renova)	Madison	Au, Ag, Pb	3,000,000
Wisdom	Beaverhead	Au	60,000
Total			$191,123,000

1/ Listed in decreasing order of value.

2/ In dollars at time of production.

3/ An unknown amount of phosphate production is not included in this estimate. The Maiden Rock and Canyon Creek mines may have produced several million dollars in phosphate through the mid-1960's.

4/ Estimated value of talc produced during the interval 1948-1981 (data compiled from "Mineral Resources of the United States", published annually by the U.S. Bureau of Mines).

5/ No information is available for the few mines included in the Dillon quadrangle.

6/ Estimated amount from the Dillon quadrangle portion of Alder Gulch.

Data compilation

This compilation was prepared from a large number of sources, the most complete of which is MRDS, a 1973 computer data file, that includes data on mineral occurrences throughout the United States. MRDS data for the Dillon quadrangle was compiled from published reports and government files. Similar compilations have been made since 1973, some of which used new data as well as compiled older data. Bently and Mowatt (1967) compiled a map of selected mineral commodities of the State of Montana from files of the Conservation Division, U.S. Geological Survey. Krohn and Weist (1977) listed information summaries from MRDS for 233 properties in Montana. Lange (1977) used deposit types to show regional relationships in western Montana. Bateman, Allen, Dugwyler, and Colbert (1980) show public-land classifications for leasable minerals and waterpower, as well as mineral commodities, similar to but expanded from those shown by Bently and Mowatt (1967). McClernan (1981) describes metallic mineral deposits in the Montana portion of the Dillon quadrangle, based on a compilation of 259 individual sites. For the Idaho portion of the Dillon quadrangle, Strowd, Mitchell, Hustedde, and Bennett (1981) show mines and prospects on a map and also give a table of relevant data.

Other useful reports that are at least partly compilations of older information include Geach (1972), and Roby, Ackerman, Fulkerson, and Crowley (1960) on the mineral resources of Beaverhead and Jefferson Counties, respectively. A report by Tansley, Schafer, and Hart (1933) contains considerable information on the Tobacco Root Mountains.

The MRDS file has been revised and extensively updated by us during the last few years of the Dillon CUSMAP project. The most significant additions to the file are the result of recent reports on mines and mining districts, of reinterpretations of geology (some unpublished), and of geological fieldwork by U.S. Geological Survey personnel which included studies done under the Wilderness Program conducted jointly with the U.S. Bureau of Mines. Most of the information in the file has been rechecked against original sources. No confidential information has been used. Additional information on specific sites may be obtained by referring to references in the appended source list. Efforts were made to include only correct information, but no guarantee can be made of its accuracy. Inclusion of a property in this report or in MRDS is in no way an endorsement of the property by the U.S. Geological Survey. The MRDS file is accessible to the public through Geological Survey offices in Menlo Park, California, and Reston, Virginia.

Sites included in this compilation mainly document deposits of valuable commodities such as base and precious metals, strategic metals, talc, and phosphate. Other less valuable, but economic, substances occur in the quadrangle, and some have been included if the site had produced or if the commodity is expected to be of future interest. These miscellaneous commodities include coal, onyx, bentonite, gemstone, kyanite, mica and others. Sand and gravel is excluded, however. Information on occurrences of silliminite, garnet, quartz crystal, feldspar, and corundum may be obtained from the MRDS file.

Mines and prospects map

The locations of mines, prospects, and mining districts in the Dillon 1^{o} x 2^{o} quadrangle are plotted on plates 1 and 2. Plate 1 shows those occurrences that could be plotted without crowding at a scale of 1:250,000.

Plate 2 shows at 1:24,000 and 1:50,000 scales nine detailed maps of mining districts where occurrences are too close together to be legible at the smaller scale. Locations of the maps on plate 2 are shown on plate 1.

Most mines and prospects in the quadrangle are clustered within mining districts whose names and limits are uncertain. Districts were established originally by the miners in the absence of civil law to protect their rights, especially with regard to mining claims. The boundaries of these formal districts were well defined and were commonly drawn along drainage divides or basins. In time, as other legal entities became established in the territories, the term "mining district" came to be used in a looser sense, and the boundaries were not always strictly delimited. Thus the district designations shown on plates 1 and 2 are those having some historical justification though in most cases the precise location of the boundaries is vague. In many instances the boundaries shown are those that seemed to us to encompass the mines and prospects that are generally regarded as being in that district. Boundaries of the Idaho districts are largely taken from Umpleby (1913, pl. 1), and Ross (1941), but some were modified slightly for convenience to include more recent mines and prospects. In addition to uncertainties of boundaries, names of districts have changed through time. For example, the Hecla district was originally called Bryant and the Argenta district was originally called Montana. The most common currently used name is shown on plates 1 and 2 but synonyms are also listed in parentheses in table 2. A few districts have been considered by some to comprise two or more subdistricts which are also shown as synonyms, and no distinction is made between synonyms referring to the entire district and those referring only to a part of it.

Plate 1 also contains scattered mines and prospects outside the named mining districts. For convenience of locating these on the maps and in the table, they have been grouped into areas and given informal geographic names such as "Pioneer Mountains area" or "Ruby Range area". Forty-four districts and nine mining areas are shown.

The mines and prospects are classified into 13 categories that are shown on the map by symbols. Most of these categories are well known mineral deposit types, such as vein, skarn, and porphyry copper. In addition, two miscellaneous categories are listed and others, especially nonmetallic deposits, are named for their main commodity. The list of categories follows, accompanied by the numbers of mines and prospects of each type:

Deposit type	Number of sites
Bedded iron-formation	4
Manganese (various deposit types)	11
Placer gold	88
Podiform chromite	4
Porphyry and stockwork (Cu, Mo, Au)	20
Shale-hosted massive sulfide (Zn, Pb, Ag)	2
Skarn (Cu, Ag, W, Mo, Fe, Au)	39
Talc, pyrophyllite, and chlorite	46
Thorium and rare earth elements in veins	8
Uranium (various deposit types)	16
Vein and replacement deposits of base and precious metals	520
Miscellaneous metallic occurrences	13
Miscellaneous nonmetallic occurrences	43
Total	814

Table of data

Table 2 gives information selected from the MRDS file for each of the numbered sites shown on plates 1 and 2 and a brief description of the geology of each mining district and area. Additional details may be obtained from the references or the MRDS file.

The table is arranged alphabetically by state, and alphabetically by site name within each district (or area). The sites are also arranged in consecutive numerical order within each district, but gaps have been left in the numerical sequence between districts, for later additions.

The name of each site is the most commonly used name that each locality is known by. For some, it is the name of a mine, and for others it is the name of a claim or claim group. Synonyms are also listed where known.

Locations are listed to the nearest second of latitude and longitude, although the precise location of some sites is not known. A few are known only to within a section or section fraction, in which case they are assumed to be in the center of that section or section fraction. The location of each site was determined from the sources shown in table 2 or from personal knowlege. Sites were first plotted on 1:24,000 or 1:62,500 topographic quadrangle maps, and latitude and longitude were measured to the nearest second from those maps. Next, each site was plotted by hand on the 1:250,000 topographic base, taking care to place them as closely as possible to their correct position relative to drainage, topography, and culture. This hand plot was then compared with a computer plot prepared from the latitude and longitude given in table 2. Where necessary, the hand plotted locations were then adjusted slightly to make them coincident or nearly so with the proper latitude and longitude. However, not all discrepancies could be reconciled in this manner and the location of some sites may not exactly match the given latitude and longitude.

Known economic commodities present are listed in approximate decreasing order of importance. Commodities were determined from several sources, including published production or grade figures, published sample assays or direct statements about what commodities are present, unpublished USGS sample assays, and mineralogy. One or more of these sources may have been used. Importance of commodities was often judged using the relative values of commodities present. For example, total ounces of gold produced from a mine rarely exceeded total ounces of silver produced, but the higher value of gold often makes gold the more important commodity. In many districts gold is also considered the most important commodity because it was the metal sought by the prospectors who established the district. Where production data allowed, dollar figures at time of production were calculated to determine relative importance. Metals are shown by chemical symbol, other commodities by abbreviations. For mines having recorded production, production is not restricted to the commodities shown, and some listed commodities may be minor occurrences. Although gold always occurs alloyed with silver, silver may not be included as a commodity in some gold deposits, particularly placers, unless silver was known to be of importance.

Host rock type is the kind of rock in which the economic commodities have been found, or in the case of phosphorite, silica or limestone, the substance mined for its own value. The host rock is shown by lithologic name, and by age and name of the formation or group the host rock belongs to (denoted by abbreviation, such as (Dj) for the Devonian Jefferson Formation). Associated igneous rocks are listed only where there is a close spatial relation or other reasons for suggesting a genetic relationship. Most of these rock unit names

are exerpted from text descriptions and geologic maps found in the literature used to compile the MRDS records. In several cases, however, the 1:250,000 scale geologic map of the Dillon quadrangle by Ruppel, O'Neill, and Lopez (1983) was used to assign host rock designations to sites. Generally, the rock type names used are the name of the rock species in its most simplified form. This was done for consistency, since some host rock types were known in great detail from the literature, while others were gleaned from small-scale geologic maps. Thus, most of the sites in Lemhi County are listed as being in quartzite, although more specific names, such as phyllite, quartzitic slate, or mica schist, are described in the references for some mines. Similarly, the designation of Paleozoic limestones and dolomites was found to be inconsistent in the literature, so rock types reported in table 2 were standardized to the dominant lithology of the host formation or group. Examples of this are the Jefferson Dolomite, Hasmark Limestone, and Meagher Limestone, each of which contains both limestone and dolomite. Exceptions occurred where the actual rock type was known to differ from the rock type denoted by the unit name. Igneous rocks are listed by whatever name was used in the original map or report, and may be either standard IUGS classifications based on petrographic study or more casual field names reported by previous workers.

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Table 2.--Mines and prospects, Dillon 1^{o} x 2^{o} quadrangle, Idaho and Montana

[Note: Sites are plotted by site numbers on plates 1 and 2. Commodities present are listed in approximate decreasing order of importance. Codes for commodities present, status, deposit type, host rock(s) and associated igneous rocks are explained at end of table and codes for sources of data are on pages 12 - 28.]

Carmen Creek (Freeman) District, Idaho

The rocks underlying the Carmen Creek district are quartzite, quartzitic slate, and schist of Proterozoic Y age intruded by the Cretaceous or Tertiary Carmen stock along the west slope of the Beaverhead Mountains. These rocks are covered in the valleys by tuffaceous Tertiary sediments and by Quaternary gravels. Lode deposits in the metasedimentary rocks are of two types: gold-quartz fissure fillings in quartzite (Oro Cache mine), and gold-copper replacement deposits along shear zones in schist (Carmen Creek Mine). Sulfide minerals in the ore are pyrite, chalcopyrite, galena, and sphalerite; gold occurs with the sulfides. The Oro Cache mine, opened about 1897, is the only property of significance. More than 5,000 ounces of gold were probably produced in the decade following its discovery (Umpleby, 1913).

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
001	Bell Prospect	45-16-07	113-43-54	Cu, Au	11	2	Quartzite, (Yy)	--------	141
002	Carmen Creek Mine	45-17-09	113-44-12	Au, Ag, Cu	11	3	Quartzite, (Yy)	--------	141, 232
003	Drilling Development Prospect	45-15-45	113-44-17	Zn, Pb, Ag, Cu	11	2	Quartzite, (Yy)	Quartz porphyry, (Yqp)	34
004	Freeman Gulch Placer (Bell Mine Placer)	45-16-12	113-44-48	Au	03	3	Alluvium, (Qal)	--------	141
005	Golway Gulch Mine (Halcomb Creek Mine)	45-16-34	113-45-37	Cu	11	2	Quartzite, (Yy)	--------	141
006	Iron Dike Prospect (Dike Mine)	45-15-48	113-45-37	Pb, Zn, Cu, Au, Ag	11	2	Quartzite, (Yy)	Quartz diorite, (Yqd)	5, 9, 141
007	Oro Cache Mine (Ore cash, Freeman)	45-17-05	113-41-32	Pb, Ag, Au, Cu, Zn	11	3	Quartzite, (Ym)	--------	141, 232, 26
008	Schumaker-Olson Mine	45-19-10	113-44-50	Au	11	3	Quartzite, (Ym)	--------	27
009	Twin Cabin Mine	45-19-43	113-44-32	Pb, Ag, Au	11	3	Quartzite, (Ym)	Diorite, (Kd)	141, 173
010	Unnamed Mine	45-16-56	113-44-05	Cu, Au	11	2	Quartzite, (Yy)	--------	173

Eldorado (Bohannon, Whimpey Creek) District, Idaho

The Eldorado district is underlain by Proterozoic Y quartzite and schists of the Yellowjacket Formation and Lemhi Group. Along the Lemhi River valley are tuffaceous Tertiary sandstones and shales. Lode deposits in quartzite are fissure filling quartz veins containing pyrite, chalcopyrite, galena, and rarely native gold. Placer mining along Bohannon Creek was more profitable than lode mining in the mountains, the three stream terrace levels along Bohannon Creek producing $350,000 in gold from 1895 to 1911 (Umpleby, 1913). The Ranger mine was probably the main lode mine. Development at the Ranger began about 1880, and production continued sporadically through the 1930's. Most of the 1,872 ounces of gold and 6,916 ounces of silver credited to lode mines from the district came from the Ranger (Umpleby, 1913).

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
015	Anderson Occurrence (Geertson Creek Claims)	45-12-13	113-42-44	Cu	11	1	Quartzite, (Yy)	--------	6, 148
016	Bohannon Creek Placer (Bohannon Bar)	45-08-57	113-42-44	Au	03	3	Alluvium, (TQal)	--------	6, 137, 232, 35
017	East Bohannon Prospect	45-11-37	113-38-05	Cu, Au, Pb	11	2	Quartzite, (Yl)	--------	173
018	Eldorado Mine	45-14-29	113-40-30	Au, Cu, Pb	11	3	Quartzite, (Yl)	--------	6, 141, 44, 232
019	Geertson Creek Placer	45-11-02	113-43-49	Au	03	3	Alluvium, (TQal)	--------	137, 35, 32
020	Hungry Hill Mine (Mountain View, Jerry Hurley Property)	45-12-20	113-40-30	Cu, Au, Ag	11	3	Quartzite, (Yl)	--------	6
021	Jackson Mine (Erikson, Geertson Creek Claims)	45-13-05	113-43-15	Cu	11	3	Quartzite, (Yy)	--------	6, 148
022	Ranger Mine	45-14-30	113-41-00	Au, Ag, Pb, Cu	11	3	Quartzite, (Yy)	--------	6, 44, 232
023	Sundog Prospect	45-13-02	113-38-42	Cu, Au, Pb	11	2	Quartzite, (Yl)	--------	173
024	Whimpey Creek Cu Prospect (Mendota Group)	45-11-25	113-37-00	Cu, Au	11	2	Quartzite, (Yl)	--------	173, 218
025	Whimpey Creek Pb-Ag Prospect	45-10-52	113-37-10	Pb, Ag	11	2	Quartzite, (Yl)	--------	173

Eureka District, Idaho

Bedrock in the Salmon River Mountains and Lemhi Range is mostly quartzite of the Yellowjacket Formation that has been intruded by granite of Proterozoic Y age and shallow intrusions of Eocene age. Adjacent valleys and lower mountain slopes are underlain by volcanic and sedimentary deposits of Eocene and younger age. Mineral deposits are mostly veins in quartzite, containing chiefly silver, lead, and gold, although the largest mine in the district, the Pope-Shenon, produced copper and silver. The Pope-Shenon produced at least 2.6 million pounds of copper, beginning in 1908 (Anderson, 1956). Numerous deposits of coal, sandstone, and bentonite near Salmon were mined for local use in the early 1900's. Placer gold production has been small. Several small secondary uranium deposits are known in rhyolite and in carbonaceous sediments of Tertiary age. A copper-molybdenum porphyry prospect in Bobcat Gulch, at the north end of the district, has been explored by drilling, which began in 1977.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
029	Andrews Mine	45-10-41	113-56-01	Ag, Pb, Au	11	3	Quartzite, (Yy)	--------	30
030	Armstrong Prospect (Donna No. 1)	45-04-52	113-55-38	U	10	2	Rhyolite, (Tc)	Rhyolite, (Kc)	16, 178, 243
031	Bob Moore Creek Placer (Moore Creek)	45-12-15	113-55-00	Au	03	3	Alluvium, (TQal)	--------	137
032	Bob Moore Creek Prospect	45-12-45	113-58-55	Au, Cu, Pb, W	11	2	Quartzite, (Yy)	--------	6
033	Bob Moore Creek U Prospect	45-12-30	113-55-48	U	10	2	Sandstone, (Tt)	Granite, (Ygr)	173
034	Bobcat Gulch Prospect (Napolean Ridge)	45-21-23	113-59-37	Cu, Mo	05	2	Quartz diorite, (Tqd)	Quartz diorite, (Tqd)	48, 173
035	Bromide Silver	45-14-12	113-56-05	Ag	11	2	Quartzite, (Yy)	Granite, (Ygr)	173
036	Contact Claim Group (Bell, Diamond Creek)	45-17-40	113-56-50	REE, Th, U, Au, Mon	10	2	Quartzite, (Yy)	Granite, (Ygr)	7, 9, 236, 211, 212, 1
037	Copper Mountain Mine	45-06-22	113-59-50	Cu	11	3	Quartzite, (Yy)	--------	94
038	Delmar Mine (Tendoy Mine)	45-15-43	113-57-40	Au, Cu, Pb	11	3	Quartzite, (Yy)	Granite, (Ygr)	9, 8, 232
039	Derlar Creek Placer	45-14-25	113-53-55	Au	03	3	Alluvium, (Qal)	--------	137
040	E-Dah-How Claim Group (Donna Lou, Leesburg Uranium Inc., Skyline)	45-03-57	113-54-10	U	10	3	Rhyolite, (Tc)	Rhyolite, (Tc)	7, 243
041	Eaglesnest Occurrence (Eagles Nest, Williams Creek)	45-05-10	113-56-07	U	10	2	Rhyolite, (Tc)	Rhyolite, (Tc)	213, 243
042	Edwards Coal Mine	45-10-29	113-57-09	Coal	13	3	Shale, (Tt)	--------	26
043	Fenster Creek Placer	45-13-52	113-53-53	Au	03	3	Alluvium, (Qal)	--------	137
044	Forget-Me-Not Prospect (Bird Creek)	45-18-40	113-56-23	Au	11	2	Quartzite, (Yy)	--------	9
045	G. W. Oliver Coal Mine	45-11-03	113-56-18	Coal	13	3	Shale, (Tt)	--------	232, 46
046	Lang Claim	45-20-55	113-59-56	Au	11	2	Quartzite, (Yy)	--------	9

047	Lemhi Group	45-06-35	113-59-58	Cu	11	2	Quartzite, (Yy)	--------	173
048	Lemhi River Placer	45-09-29	113-49-46	Au	03	3	Alluvium, (Qal)	--------	137
049	Lemhi Valley Bentonite	45-07-55	113-48-53	Ben	13	3	Shale, (Tt)	--------	5, 16
050	Lucky Prospect (Frank Burch Claim)	45-16-40	113-57-48	Au, Th	11	2	Granite, (Ygr)	Granite, (Ygr)	7, 9
051	McConnell-Sargent Claims	45-05-01	113-53-35	U, V	10	3	Rhyolite, (Tc)	Rhyolite, (Tc)	177, 107
052	McKinley Lode	45-16-46	113-56-18	Au	11	2	Quartzite, (Yy)	Granite, (Ygr)	173
053	Napolean Gulch Placer	45-21-23	113-57-10	Au	03	3	Alluvium, (Qal)	--------	173
054	Pollard Coal Mine (Chips Creek)	45-10-52	113-56-28	Coal	13	3	Shale, (Tt)	--------	4, 26
055	Pope-Shenon Mine (Grandview, Eureka)	45-04-31	113-51-20	Cu, Ag, Au, Zn	11	3	Quartzite, (Yy)	Vitrophere, (Tc)	4, 5, 191, 35, 47, 43
056	Queen of the Hills Mine (Amagosa, Queen and Crescent)	45-14-35	113-56-20	Au, Pb, Cu, W	11	3	Granite, (Ygr)	Granite, (Ygr)	5, 232, 214, 25
057	Red Bird Lodes	45-20-32	113-57-03	Au	11	2	Quartzite, (Yy)	--------	173
058	Rocket-Dolly Group (Rocket, Seloma, Little Maud)	45-18-42	113-56-02	Au	11	2	Quartzite, (Yy)	--------	9
059	Salmon Bentonite Mine	45-07-20	113-51-53	Ben	13	3	Silíceous Shale, Sandstone, (Tt)	--------	5, 16
060	Salmon City Coal Occurrence	45-10-15	113-55-24	Coal	13	1	Carbonaceous slate, Sandstone, (Tt)	--------	73
061	Salmon Sandstone Quarry	45-08-55	113-56-10	Stn	13	3	Silíceous shale, Sandstone, (Tt)	--------	5
062	Salmon Sandstone Quarry South	45-09-23	113-56-01	Stn	13	3	Silíceous shale, Sandstone, (Tt)	--------	5, 24
063	Salmon Sandstone Quarry East	45-11-27	113-52-05	Stn	13	3	Silíceous shale, Sandstone, (Tt)	--------	5
064	Shoo Fly Mine (Sims Mine)	45-18-20	113-59-17	Au	11	3	Quartzite, (Yy)	--------	9, 232
065	Silverton Prospect	45-12-50	113-57-48	Pb, Ag, Cu, Zn	11	3	Quartzite, (Yy)	Granite, (Ygr)	5, 191

066	Simer Prospect	45-17-13	113-56-10	Th, U, REE, F	09	2	Granite, (Ygr)	Granite, (Ygr)	7, 9
067	Sparkplug Kyanite Prospect	45-20-00	113-58-16	Kyn	13	2	Quartzite, (Yy)	--------	173
068	Starlight Prospect	45-15-05	113-56-22	Au	11	2	Quartzite, (Yy)	Granite, (Ygr)	173
069	Tendoy Mine	45-15-33	113-56-15	Au	11	3	Quartzite, (Yy)	Granite, (Ygr)	173
070	Tormey Mine (Greenhorn, Tormay, Tornay)	45-06-20	113-58-55	Cu, Au, Ag	11	3	Quartzite, (Yy)	--------	5, 232, 191
071	Unnamed Mine	45-12-35	113-58-30	Au	11	2	Quartzite, (Yy)	--------	173
072	Unnamed Mine	45-13-05	113-56-40	Au	11	3	Granite, (Ygr)	Granite, (Ygr)	173
073	Unnamed Prospect	45-12-01	113-55-55	Th, REE	09	2	Granite, (Ygr)	Granite, (Ygr)	173
074	Unnamed Prospect	45-16-27	113-55-37	Au	11	2	Quartzite, (Yy)	--------	173
075	Wallace Creek Placer (Gilt Edge Placer)	45-15-24	113-57-25	Au	03	3	Alluvium, (Qal)	--------	137, 9
076	Wickham Mine (Maverick, Liberty Bell No. 3)	45-17-50	113-55-46	Au	11	3	Quartzite, (Yy)	--------	9

Gibbonsville (Dahlonega) District, Idaho

Bedrock consists of thick bedded argillite and quartzite of the Lemhi and Missoula Groups, a few diorite sills and dikes, and minor Tertiary volcanic rocks. The Lemhi and Missoula Group rocks strike northwest and dip steeply northeast. Numerous steep faults trend north, northwest, and northeast. Ore deposits, chiefly gold lodes, occur in quartzite and argillite as narrow east-trending veins that are broken by numerous faults. The primary vein minerals are auriferous pyrite and chalcopyrite in a gangue of quartz and local calcite. Many gold placer deposits near Gibbonsville have been extensively developed. Since its discovery in 1877, the district has produced over $2 million in gold, most of which (an estimated 83,500 ounces) came from the A. D. & M. mine (Umpleby, 1913).

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
081	A. D. & M. Mine (Keystone, Huron, American Development)	45-33-30	113-55-07	Au, Cu	11	3	Quartzite, (Yy)	Diorite, (Td)	232, 29, 31
082	Anderson Creek Placer	45-33-23	113-55-25	Au	03	3	Alluvium, (TQal)	--------	137, 232
083	Belle Placer (Upper Dahlonega Cr.)	45-33-12	113-50-50	Au	03	3	Alluvium, (TQal)	--------	137
084	Big Eagle Prospect	45-30-15	113-50-02	Au	11	2	Quartzite, (Yl)	--------	173
085	Big Four Mine (Cyanide Gulch Mine)	45-32-28	113-55-18	Au	11	3	Quartzite, (Yy)	--------	45, 173

086	Cardiff Giant Group	45-33-12	113-55-09	Au	11	3	Quartzite, (Yy)	--------	173
087	Chamelion Lode (Bull of the Woods)	45-32-01	113-59-45	Au	11	2	Quartzite, (Yy)	--------	232
088	Chief Claim Mine	45-34-00	113-55-23	Au	11	3	Quartzite, (Yy)	Diorite, (Td)	232
089	Clara Morris Group	45-34-18	113-55-12	Au	11	3	Quartzite, (Yy)	Diorite, (Td)	141, 232
090	Corn Beef Group	45-33-10	113-55-48	Au	11	3	Quartzite, (Yy)	--------	237, 132
091	Dahlonega Copper	45-33-18	113-59-41	Cu	11	2	Quartzite, (Yl)	--------	173
092	Dahlonega Creek Placer (Lower Dahlonega Cr.)	45-33-10	113-50-57	Au	03	3	Alluvium, (TQal)	--------	137, 192
093	Diane Group	45-34-28	113-54-53	Au, Cu	11	2	Quartzite, (Yy)	Diorite, (Td)	173
094	Ditch Creek Placer	45-32-20	113-59-30	Au	03	3	Alluvium, (TQal)	--------	173
095	Dot Claims	45-33-38	113-58-13	U	10	1	Quartz latite, (Tql)	Quartz latite, (Tql)	7
096	Dunton Prospect	45-31-37	113-49-50	Au	11	2	Quartzite, (Yl)	--------	173
097	Gold Coin Prospect	45-31-38	113-52-25	Au	11	2	Quartzite, (Yl)	--------	173
098	Golden Reward Mine	45-32-08	113-53-13	Au	11	2	Quartzite, (Yy)	--------	141
099	Goldfield Prospect	45-30-23	113-55-55	Au	11	2	Quartzite, (Yl)	--------	173
100	Great Western Group	45-32-12	113-56-24	Au	11	2	Granodiorite, (Tgd)	Granodiorite, (Tgd)	173
101	Hammerean Creek Placer	45-34-25	113-59-35	Au	03	3	Alluvium, (Qal)	--------	137
102	Hardway Prospect	45-32-22	113-53-17	Au	11	2	Quartzite, (Yy)	--------	232, 230
103	Highland Placer (Trowbridge Bar)	45-31-03	113-55-55	Au	03	3	Alluvium, (TQal)	--------	137
104	Hughes Creek Placer (Idaho Warren Placer)	45-29-11	113-59-07	Au	03	3	Alluvium, (TQal)	--------	219, 76
105	Johnson Gulch Prospect	45-33-58	113-58-50	Cu	11	2	Quartzite, (Yl)	--------	173
106	Koper Kyute Group	45-39-50	113-56-15	Cu	11	2	Quartzite, (Ym)	--------	173
107	Little Sheep Creek Placer	45-30-15	113-53-11	Au	03	3	Alluvium, (Qal)	--------	137
108	Maybe Lode	45-30-44	113-57-45	Cu, Ag	11	2	Quartzite, (Yl)	--------	173

109	McGovern Placer (North Fork Placer)	45-32-30	113-55-55	Au	03	3	Alluvium, (TQal)	--------	137
110	Moon Prospect	45-33-12	113-57-40	Cu, U, Au	10	2	Quartzite, (Yl)	--------	7, 59, 225
111	Moose Creek Placer (Little Moose Creek)	45-39-30	113-58-00	Au	03	3	Alluvium, (Qal)	--------	137
112	North Fork Salmon River Placer at Pierce Creek	45-37-25	113-57-52	Au	03	3	Alluvium, (TQal)	--------	137
113	North Star Prospect	45-32-17	113-56-00	Cu, Ag	11	2	Granodiorite, (Tgd)	Granodiorite, (Tgd)	173
114	Paroc Claim	45-33-18	113-58-15	Cu	11	3	Quartzite, (Yl)	--------	173
115	Pierce Creek Placer	45-37-59	113-57-03	Au	03	3	Alluvium, (TQal)	--------	137
116	Powder Gulch Prospect	45-31-24	113-54-52	Au	11	2	Quartzite, (Yy)	--------	173
117	Ransack Creek Placer	45-30-24	113-59-44	Au	03	3	Alluvium, (TQal)	--------	137
118	Red Fox Placer (Gregg-Bently Claims)	45-36-20	113-57-52	Au	03	3	Alluvium, (TQal)	--------	232, 230
119	Red Star Mine	45-31-40	113-53-10	Au, Ag	11	3	Quartzite, (Yy)	--------	232
120	Roland and Taylor Group	45-34-10	113-55-30	Au, W, Cu	11	3	Quartzite, (Yl)	Diorite, (Yd)	232, 132, 134
121	Smith Placer	45-38-36	113-58-19	Au	03	3	Alluvium, (Qal)	--------	137
122	Surprise Group (Wilhite Uranium, Bitteroot Uranium)	45-33-24	113-57-55	U, Cu	10	2	Quartzite, (Yl)	Ignimbrite, (Tc)	60, 232, 73, 69
123	Three Mile Creek Placer	45-34-17	113-51-56	Au	03	3	Alluvium, (Qal)	--------	137
124	Twin Brothers Mine (Twin Sisters)	45-32-50	113-55-30	Au, Cu	11	3	Quartzite, (Yy)	--------	141, 232
125	Unnamed Cu Occurrence	45-32-12	113-59-45	Cu	11	1	Quartzite, (Yy)	--------	173
126	Unnamed Cu Occurrence	45-32-12	113-56-45	Cu	11	1	Quartzite, (Yy)	--------	173
127	Vine Creek Placer	45-36-50	113-58-15	Au	03	3	Alluvium, (Qal)	--------	137
128	4th of July Lode	45-29-13	113-55-53	Cu	11	2	Quartzite, (Yy)	--------	173

Kirtley Creek District, Idaho

Quartzite and argillite of the Yellowjacket Formation, broken by thrust faults and north- and northwest-trending steep faults, occupy the higher parts of the Beaverhead Mountains. Tertiary sediments occupy the lower mountain slopes. Quaternary alluvium and terraces cut in tuffaceous Tertiary sediments were hydraulicked and dredged at times between 1890 and 1918, when the district was the most productive placer area in Idaho. About 26,000 ounces of gold were produced. Veins in Proterozoic Y quartzites were worked near the head of Kirtley Creek. The veins contain pyrite, chalcopyrite, galena, and free gold in a quartz gangue (Koschmann and Bergendahl, 1968).

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
133	Copper Bullion	45-14-01	113-44-25	Cu	11	2	Quartzite, (Yy)	--------	173
134	Kirtley Creek Placer (Washington Iron Works)	45-12-33	113-47-07	Au	03	3	Alluvium, (TQal)	--------	4, 137, 232, 31, 34, 219 15, 32
135	White Horse Mine (Confidence Group, Tin Day, Searchlight)	45-15-23	113-41-25	Au, Ag, Cu, Pb	11	3	Quartzite, (Yy)	--------	6, 27, 141, 232

McDevitt District, Idaho

The northern Lemhi Range and the west flank of the Beaverhead Mountains are composed of quartzitic rocks of the Yellowjacket Formation (Proterozoic Y). The intervening Lemhi valley is underlain by Tertiary volcanic and sedimentary rocks. Mineral deposits include auriferous copper vein and replacement deposits in shear zones cutting the quartzitic rocks, and northeast-striking thorite-bearing veins in quartzite on the northern outskirts of the Lemhi Pass thorium district (centered about 3 miles south of the Dillon quadrangle). The Harmony mine was the major copper producer.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
140	Apex Vein	45-00-36	113-30-10	Th, REE	09	2	Quartzite, (Yy)	--------	211
141	Harmony Mine (Contention, Leap Year, Anderson Group, Income Group, Continental)	45-00-52	113-49-36	Cu, Ag, Au	11	3	Quartzite, (Yy)	--------	5, 84, 190, 33
142	Idaho Thorium Showing No. 3	45-00-02	113-34-02	Th, REE	09	2	Quartzite, (Yy)	--------	7
143	Last Chance Occurrence	45-00-02	113-33-37	Th, Cu	09	1	Quartzite, (Yy)	--------	7, 203
144	Pattee Creek Workings	45-00-08	113-33-37	Cu	11	2	Quartzite, (Yy)	--------	204
145	Porterfield Prospect	45-02-02	113-49-50	Cu	11	2	Quartzite, (Yy)	Vitrophere, (Tc)	5, 191

North Fork (Fourth-of-July, Boyle Creek districts) Area, Idaho

The area is underlain by Proterozoic Y quartites, Tertiary sedimentary deposits, and part of the Carmen stock (Cretaceous-Tertiary granodiorite). Ore deposits are mainly veins in quartzite containing base and precious metals in the form of sulfides. Production has been small.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
150	Copper Queen (E-Z Copper)	45-25-55	113-59-45	Cu	11	2	Quartzite, (Yy)	--------	173
151	Fourth-of-July Creek Placer	45-24-10	113-51-48	Au	03	3	Alluvium, (Qal)	--------	137
152	Little Thompson Gulch Prospect	45-24-11	113-56-15	Au, Ag	11	2	Volcanics, (Tc)	Quartz monzonite (Tqm)	173
153	Nineteen-Hundred Lode	45-25-44	113-49-00	Au, Cu, Pb	11	2	Quartzite, (Yl)	--------	173
154	O'Neil Gulch Prospect (Rattlesnake Claim Group)	45-23-33	113-55-39	Au, Ag	11	3	Quartzite, (Yy)	Quartz monzonite, (Tqm)	173
155	Orofino Lode	45-29-54	113-49-21	Au	11	2	Quartzite, (Yu)	--------	173
156	Rathburn Gulch Prospect	45-27-05	113-59-17	Au	11	2	Quartzite, (Yl)	--------	173
157	Sheep Creek Mine	45-26-53	113-49-26	Au	11	3	Quartzite, (Yl)	--------	9
158	Sheep Creek Placer	45-29-45	113-49-33	Au	03	3	Alluvium, (TQal)	--------	137, 9
159	Silver Star Property	45-20-09	113-49-51	Pb, Zn, Cu, Au	11	3	Quartzite, (Yy)	--------	9
160	Smitty Prospect	45-27-05	113-49-50	Au	11	2	Quartzite, (Yl)	--------	9
161	Sunrise Prospect	45-27-19	113-50-54	Au	11	2	Quartzite, (Yl)	--------	173
162	Tower Creek Placer (Boyle Creek)	45-19-50	113-52-40	Au	03	3	Alluvium, (Qal)	--------	90
163	Wagonhammer Prospect	45-24-26	113-56-02	Au, Ag	11	2	Volcanics, (Tc)	Volcanics, (Tc)	173
164	White Azalea Claim	45-22-05	113-56-40	Au	11	2	Quartzite, (Yy)	--------	9
165	Wilcox Prospect	45-21-05	113-54-32	U	10	2	Tuff, (Tc)	Tuff, (Tc)	7, 173

Pratt Creek District, Idaho

Highly faulted quartzites of the Yellowjacket Formation form the higher mountain slopes and Tertiary and Quaternary deposits mantle the lower slopes. Mineral deposits consist mainly of scattered gold prospects on quartz veins in quartzite, containing pyrite, chalcopyrite, galena, and sphalerite. Production has been small.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
169	Baker Lignite Mine	45-05-12	113-42-10	Coal	13	3	Shale, sandstone, (Tt)	--------	6, 121
170	Clearwater Group	45-06-42	113-38-28	Au, Ag, Pb, Cu	11	3	Quartzite, (Yy)	--------	217
171	Kenny Nuclear Prospect	45-03-01	113-35-49	Pb, Cu, Zn	11	1	Quartzite, (Yy)	--------	45
172	Lucky Strike Prospect	45-04-46	113-34-08	Au, Pb, Cu	11	1	Quartzite, (Yy)	--------	6
173	Pratt Creek Placer	45-04-45	113-41-34	Au	03	3	Alluvium, (TQal)	--------	137
174	Sandy Creek Placer	45-06-00	113-37-00	Au	03	3	Alluvium, (Qal)	--------	137
175	Sun Flower Prospect	45-08-50	113-39-48	Au, Cu, Pb	11	2	Quartzite, (Yy)	--------	6
176	War Eagle Prospect	45-08-55	113-36-50	Au, Pb, Cu, Ag	11	2	Quartzite, (Yy)	--------	173
177	Whimpey Creek Placer	45-06-03	113-42-30	Au	03	3	Alluvium, (TQal)	--------	137

Sandy Creek District, Idaho

Quartzite of the Yellowjacket Formation is cut locally by diorite dikes and granitic intrusions. Lode deposits, found in the metasedimentary rocks, are fissure fillings of quartz with variable amounts of pyrite, chalcopyrite, and galena. Gold occurs with the sulfides. The Goldstone mine, located in the early 1890's, is the principal mine in the district. It produced most, if not all, of the 4,055 ounces of gold, 4,433 ounces of silver, 71,359 pounds of copper, and 166,179 pounds of lead credited to the district from 1901 through 1954 (Peters, 1980).

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
182	Climax Mine (IMJ Property, Bonanza Copper)	45-08-07	113-34-59	Au, Pb, Ag	11	3	Quartzite, (Yy)	--------	28
183	Goldstone Mine	45-08-37	113-34-55	Au, Ag, Cu, Pb	11	3	Quartzite, (Yy)	--------	6, 232
184	Grizzley Prospect	45-06-00	113-34-45	Cu, Ag, Pb	11	2	Quartzite, (Yy)	--------	173
185	Lone Star Prospect	45-06-52	113-35-18	Cu, Ag, Pb	11	2	Quartzite, (Yy)	--------	173
186	Virginia Mine	45-06-05	113-34-50	Au, Pb, Cu	11	3	Quartzite, (Yy)	Syenodiorite, (Ts)	6, 173

Anaconda Range (Moose Lake District (in part)) Area, Montana

Quartzite, limestone, and argillite mainly of the Missoula Group and Helena Formation of the Belt Supergroup (Proterozoic Y) are cut by numerous faults and are intruded by Cretaceous and/or Tertiary igneous rocks consisting mostly of granodiorite, and monzogranite in this area, located in the northwest part of the map. Mineral deposits consist of quartz fissure veins in granodiorite and in Belt quartzite. At the Senate Mine, chalcopyrite, pyrite, and galena are in quartz veins and sparsely disseminated in the wall rocks; production is reported to be small though the exact amount is unknown.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
190	Clipper Lode	45-56-55	113-34-10	Ag, Cu, Au	11	2	Quartzite, (Ym)	--------	75
191	Copper Mountain Lode	45-59-17	113-32-55	Ag, Cu, Pb, Zn	11	2	Quartzite, (Yms)	--------	75
192	East Fork Prospect	45-59-24	113-13-26	Au	11	2	Granodiorite, (Kgd)	Granodiorite, (Kgd)	75
193	Hauseman Mine	45-49-25	113-34-45	Au	11	2	Monzogranite, (Kmg)	Monzogranite, (Kmg)	75
194	Hidden Lake Prospect	45-56-03	113-31-15	W, Au, Cu	07	1	Calcareous quartzite, (Ym)	Granodiorite, (Kgd)	75, 234
195	Ivanhoe Lake Prospects	45-59-00	113-32-35	Ag, Pb	11	2	Quartzite, (Ym)	--------	75
196	Johnson Claim	45-57-17	113-32-53	Ag, Cu, Pb, Au	11	2	Quartzite, (Ym)	--------	75
197	Logger Claim Group (Loggers Camp)	45-51-48	113-46-08	Au, Ag, Cu, Pb, Mo, Be	11	2	Granodiorite, (Kgd)	Granodiorite, (Kgd)	75
198	Lower Seymour Lake	45-59-59	113-11-05	Mo, Ag, W	05	1	Granodiorite, (Kgd)	Granodiorite, (Kgd)	75
199	Luke Claims	45-59-56	113-27-57	Ag, Pb	11	2	Quartzite, (Yms)	Granodiorite, (Kgd)	75
200	Mayflower Lode	45-59-20	113-32-15	Ag, Cu, Pb, Zn	11	2	Quartzite, (Yms)	--------	75
201	Pine Squirrel Claim	45-58-12	113-33-25	Ag, Au	11	2	Quartzite, (Yms)	--------	75
202	Ripple Lake Prospect	45-56-00	113-33-32	Ag, Cu, Au	11	2	Quartzite, (Yms)	--------	75
203	Rock Rabbit and Sunbeam Claims	45-59-52	113-27-27	Au, Ag, Cu, Pb	11	2	Quartzite, (Yms)	--------	75
204	Senate Mine	45-59-32	113-33-00	Cu, Ag, Pb, Ba	11	3	Quartzite, (Yms)	--------	75, 164, 229
205	South Clipper Prospect	45-56-42	113-34-15	Ag, Cu, Au	11	2	Quartzite, (Ym)	--------	75
206	Warren Peak Prospect	45-59-25	113-27-50	Ag, Pb	11	2	Quartzite, (Ym)	--------	75, 229

Argenta (Montana) District, Montana

Located in the south-central part of the quadrangle. Folded and complexly faulted sedimentary strata of Proterozoic Y and Paleozoic age are intruded by a stock of monzogranite and by sills and dikes of andesite and dacite of late Cretaceous and Tertiary age. Mineral deposits include replacements and veins in carbonate rock, veins in siliceous sedimentary rocks, and disseminations in carbonate and intrusive rocks. The principal deposits, mainly lead and silver, are replacements and veins in carbonate rocks adjacent to the Argenta stock. The district was discovered in 1864 and production continued for over 100 years; the Hand Group of mines was the largest producer.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
210	Argenta Pyrophyllite Prospect	45-16-58	112-51-48	Pyp	08	2	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	171
211	Badger Gold Group (North Ermont)	45-16-42	112-54-30	Au, Ag, Cu	11	3	Dolomite, (Dj)	--------	88, 91
212	Bell Ranch Clay Prospect	45-16-07	112-48-13	Cly	13	2	Tuffaceous Sediments, (Tt)	Tuffaceous Sediments, (Tt)	210
213	Bella Mine (Whopper mine)	45-16-47	112-51-23	Ag, Pb, Cu	11	3	Quartz monzonite, (Kqm)	Quartz monzonite (Kqm)	205
214	Capital Mine (Cave Gulch)	45-20-53	112-51-06	Pb, Ag, Cu, Zn, Au	11	3	Quartzite, (Ym)	--------	88
215	Carbonate Mine	45-18-43	112-52-49	Au, Ag, Pb, Zn	11	3	Quartzite, (Cf)	--------	88, 125
216	Cave Creek Phosphate Prospect	45-20-00	112-59-11	P	13	2	Phosphorite, (Pp)	--------	66, 221
217	Comstock Lode	45-16-30	112-54-55	Sb, Pb, Zn, Ag	11	3	Limestone, (Mm)	--------	64
218	Coolidge Mine (St. Joseph Claim)	45-18-30	112-52-26	Ag, Au, Pb, Zn, Cu	11	3	Dolomite, (Dj)	--------	88, 205
219	Copper Bell Mine	45-17-08	112-51-38	Pb, Cu, Ag, Au	11	3	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	200, 88, 205
220	Dexter Mine	45-18-56	112-51-50	Ag, Pb	11	3	Shale, (Dt)	Quartz monzonite, (Kqm)	200, 88, 205, 152
221	Ermont Mine (Ermont No. 2, 19)	45-15-58	112-54-51	Au, Ag, Cu	11	3	Dolomite, (Dj)	Andesite, (Ta)	200, 88, 125, 12, 119
222	Ferdinand Mine	45-16-52	112-51-19	Ag, Cu, Pb, Zn, Au	11	3	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	241, 88, 205
223	Fisher Mine	45-18-49	112-51-09	Au, Ag, Pb	11	3	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	64

224	Flemings Halloysite Prospect	45-15-26	112-55-11	Cly	13	2	Volcanics, (Tv)	Volcanics, (Tv)	88
225	Fluorite No. 1 (Grand Deposit 17)	45-15-45	112-57-00	Ba, F	13	2	Shale, (PMa)	---------	88
226	French and Watson Gulch Placer	45-21-00	112-54-05	Au	03	3	Alluvium, (Qal)	---------	200, 139
227	Frying Pan Basin Placer	45-16-50	112-45-30	Au	03	3	Alluvium, (Qal)	---------	139
228	Galena Mine	45-18-45	112-51-22	Ag, Pb	11	2	Limestone, (Mm)	Quartz monzonite, (Kqm)	138
229	Gladstone-Argenta Mine (Gladstone Group)	45-18-35	112-53-15	Au, Ag, Pb	11	3	Shale, (Ym)	---------	205, 91, 88
230	Golden Era Mine	45-19-05	112-53-07	Au, Ag, Pb	11	3	Shale, (Ym)	---------	200, 205, 88, 115
231	Goldfinch Mine (Gold Finch)	45-18-28	112-53-59	Ag, Pb, Au, Cu, Zn	11	3	Shale, (Ow)	Andesite, (Ka)	200, 88, 115
232	Goldsmith Mine	45-17-13	112-52-28	Au, Ag, Pb, Zn, Cu	11	3	Limestone, (Mm)	Quartz monzonite, (Kqm)	200, 88
233	Goodview Mine	45-18-25	112-52-57	Ag, Au, Pb, Zn, Cu	11	3	Limestone, (Of)	---------	88
234	Graybird Mine	45-17-07	112-51-13	Pb	11	3	Limestone, (PMa)	Granodiorite, (Kgd)	88
235	Groundhog Mine	45-18-49	112-52-37	Au, Pb, Ag, Cu	11	3	Quartzite, (Of)	---------	205, 95
236	Hand Group (Mauldin Mine)	45-17-12	112-51-53	Ag, Au, Pb, Cu, Zn	11	3	Limestone, (Mm)	Monzogranite, (Kmg)	200, 205, 88, 245, 185
237	Jack Rabbit Mine	45-17-10	112-51-32	Ag, Cu, Pb, Au	11	3	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	200, 205, 88
238	Joker Mine	45-18-50	112-52-44	Pb, Ag, Au	11	2	Quartzite, (Of)	---------	205
239	Legal Tender Mine	45-17-42	112-53-28	Ag, Pb	11	3	Dolomite, (Dj)	---------	200, 88
240	May Day Mine	45-19-10	112-51-48	Au, Ag, Cu, Pb, Zn	11	3	Quartzite, (Ym)	---------	88, 65
241	McDonald Claim (Colin McDonald Claim)	45-17-30	112-53-25	Ag, Pb	11	3	Dolomite, (Dj)	---------	205, 88
242	Midnight Mine (Midnite Mine)	45-18-25	112-53-08	Au, Ag, Pb	11	3	Shale, (Ym)	---------	241, 205, 126

243	Nelson Prospect	45-14-22	112-53-37	Au, Ag, Pb	11	2	Andesite, (Ta)	Andesite, (Ta)	195
244	Payday Claim	45-19-15	112-52-27	Au, Ag, Pb, Cu, Zn	11	3	Shale, (Ym)	--------	88
245	Polar Bear Mine	45-18-48	112-52-10	Pb, Au, Ag	11	2	Dolomite, (Dj)	--------	205
246	Rattlesnake Creek Placer (Argenta placer)	45-16-50	112-51-30	Au	03	3	Alluvium, (Qal)	--------	200, 241, 139
247	Rena Mine	45-18-51	112-52-58	Au, Ag, Pb, Zn, Cu	11	3	Shale, (Ym)	--------	200, 88
248	Rosemont Mine	45-19-10	112-51-02	Ag, Au, Pb, Cu	11	3	Limestone, (Mm)	Quartz monzonite, (Kqm)	88
249	Silver Rule Mine	45-19-05	112-57-00	Ag, Pb	11	2	Limestone, (Mm)	--------	200, 88
250	Sir Walter Scott Group (Argenta Mining Co. Mine)	45-16-50	112-52-35	Au, Ag, Cu, Pb, Bi	11	3	Limestone, (Mm)	Quartz monzonite, (Kqm)	200, 205, 97
251	Spanish Mine	45-17-45	112-53-24	Ag, Pb	11	3	Dolomite, (Dj)	--------	200, 205, 88
252	Stapleton Mine	45-18-49	112-52-40	Au, Ag, Pb	11	2	Dolomite, (Dj)	--------	205
253	Starlight Claim	45-17-38	112-53-53	Ag, Pb, Au	11	3	Dolomite, (Dj)	--------	88
254	Storm King Mine (Lucky Strike)	45-18-29	112-53-35	Au, Ag, Pb	11	3	Quartzite, (Qf)	--------	88
255	Sylvia Mine	45-18-19	112-53-28	Ag, Au, Pb, Zn, Cu	11	3	Quartzite, (Qf)	--------	88
256	Tuscarora Group	45-18-47	112-52-19	Au, Ag, Cu, Pb, Zn	11	3	Dolomite, (Dj)	Andesite, (Ka)	200, 205, 88
257	Virginia Gulch Mine (Stinson, Stimson)	45-18-47	112-55-25	Au, Ag, Pb, Mn	11	3	Limestone, (PMa)	--------	88
258	Watson Gulch Mine	45-21-40	112-54-45	Au	11	2	Latite porphyry, (Tlp)	Latite porphyry, (Tlp)	169, 138
259	White Lime Group	45-18-49	112-51-09	Ist	13	2	Limestone, (Mm)	--------	65
260	Yellow Band Group	45-20-06	112-54-15	Au, Ag, Cu, Pb, Zn	11	3	Dolomite, (Dj)	--------	88
261	Yellow Bird Mine (West Ermont)	45-16-20	112-54-38	Ag, Pb, Cu, Au, Sb	11	3	Dolomite, (Dj)	Andesite, (Ka)	88

Baldy Mountain District, Montana

Proterozoic Y quartzite and Paleozoic limestone, shale and quartzite have been intruded by Cretaceous granodiorite of the Pioneer batholith in this district, located in the south-central part of the map. Gold, silver, and base metals occur in vein and replacement deposits in Cambrian and Devonian carbonate rocks. The amount of ore mined is not known, but it was probably small. Carbonate rocks also host scheelite deposits in skarn, though no production is known.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
264	Agnes Lode	45-19-19	113-02-16	W	07	2	Limestone, (Ch)	Granodiorite, (Kgd)	167
265	Bob Harrison Mine	45-20-09	113-06-13	Ag, Pb, Zn	11	2	Dolomite, (Dj)	--------	248
266	Dillon Mine	45-18-00	113-02-20	Au, Ag, Cu, Pb, Zn	11	3	Limestone, (Ch)	--------	200, 88
267	Durham Bull	45-17-55	113-01-00	Cu, Ag, Au, Zn	11	2	Limestone, (Pu)	--------	88
268	Dyce Creek Placer (Dyer Creek)	45-15-26	113-02-07	Au	03	3	Alluvium, (Qal)	--------	200, 139, 88
269	Echo Lode	45-19-20	113-02-12	W, Cu	07	2	Limestone, (Mm)	Granodiorite, (Kgd)	167
270	Else Claim	45-18-44	113-03-32	Au, Ag, Cu	11	2	Diorite, (Td)	Diorite, (Td)	88, 248
271	Fairy Queen	45-18-36	113-02-43	Au	11	2	Granodiorite, (Kgd)	Granodiorite, (Kgd)	248
272	Faithful Group (Old Favorite)	45-18-05	113-01-23	Pb, Zn, Cu, Ag, Au, V	11	3	Limestone, (Ch)	Andesite, (Ta)	200, 184, 88
273	Grizzley Bear	45-18-15	113-03-30	Ag, Cu, Au, Pb, Zn	11	2	Dolomite, (Dj)	--------	88
274	Hazel Prospect	45-20-00	113-02-23	W, Mo	07	2	Limestone, (Mm)	Granodiorite, (Kgd)	167
275	Hi Dakota	45-21-02	113-01-55	Ag	11	2	Quartzite, (Ym)	Granodiorite, (Kgd)	248
276	Jodie Claim	45-17-53	113-03-57	Cu, Pb	11	2	Dolomite, (Dj)	--------	248
277	Little Hawk Mine (Bartholdi)	45-19-10	113-03-12	W, Cu	07	2	Limestone, (Mm)	Granodiorite, (Kgd)	167
278	Mayflower Claim	45-17-45	113-03-30	Au, Ag, Pb, Zn, Cu	11	2	Limestone, (Ch)	--------	248
279	Miss Grundy	45-18-48	113-04-47	Au	11	2	Dolomite, (Dj)	--------	88

280	Nick Preen Mine	45-18-55	113-01-54	Ag, Pb, Cu, Zn, Au	11	2	Limestone, (Mm)	--------	88, 248
281	Osterly Prospect	45-18-55	113-02-11	Cu, Pb	11	2	Limestone, (Mm)	--------	88
282	Sunrise Claim	45-17-53	113-01-17	Au, Ag, Cu, Pb	11	2	Limestone, (Pu)	Diorite, (Kd)	88
283	Unnamed Prospect	45-18-34	113-04-57	Au	11	2	Dolomite, (Dj)	--------	248
284	Virginia Claim	45-19-00	113-02-30	Au	07	2	Granodiorite, (Kgd)	Granodiorite, (Kgd)	167
285	Wild Bat Prospect	45-18-40	113-02-25	Cu, Ag, Au	07	2	Limestone, (Mm)	Granodiorite, (Kgd)	88

Bannack (Bannock) District, Montana

The Bannack district, famous for gold placer deposits along Grasshopper Creek, is underlain by folded and faulted sedimentary rocks of Mississippian to Cretaceous age that follow a north-trending structural grain. They are intruded by several small masses of granodiorite, two of which are exposed in the valley of Grasshopper Creek. Limestones of the Madison Group are the most widespread sedimentary rocks and the most important hosts of ore. The eastern part of the district is covered by Cretaceous and Tertiary volcanic rocks. Lode ores are chiefly in carbonate rocks adjacent to granodiorite. Garnet-rich skarn is common at the contact, and the best ore occurs as replacement deposits on the limestone side of the skarn. Location of ore bodies was guided by fractures surrounding apophyses of granodiorite. Ores consisted of native gold in quartz veins, auriferous pyrite and minor amounts of chalcopyrite, galena, and sphalerite. The Grasshopper Creek placers were discovered in 1862 and the first significant mining in Montana ensued. Approximately 500,000 ounces of gold have been produced, about 80 percent from placers.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
289	Bea Ann Claim	45-09-44	112-58-28	Au	11	2	Limestone, (Mm)	Granodiorite, (Tgd)	88
290	Blue Grass Mine	45-09-35	112-58-26	Au, Ag	11	3	Limestone, (Mm)	Granodiorite, (Tgd)	88, 205
291	Excelsior Mine	45-08-58	112-58-42	Ag, Au, Cu, Bi, Mn	11	3	Limestone, (Mm)	Granodiorite, (Tgd)	88, 241, 138
292	Gold Bug Mine (Dakota Mine)	45-09-34	112-58-30	Au, Ag, Cu, Pb	11	3	Limestone, (Mm)	Granodiorite, (Tgd)	88, 205, 182
293	Golden Leaf Group (Sleeping Princess, Bannack Mine, New York-Montana)	45-09-19	112-59-05	Au, Ag, Cu, Pb Zn	11	3	Limestone, (Mm)	Granodiorite, (Tgd)	18, 206, 205, 88, 241
294	Grasshopper Creek Placers (Bannack Placers)	45-09-59	112-58-26	Au	03	3	Alluvium, (Qal)	--------	113, 139, 20, 193, 241, 47, 182

295	Grasshopper Prospect	45-09-20	112-55-00	Cu, Mo, Au, Ag, Zn	05	2	Dacite porphyry (Kdp)	Dacite porphyry (Kdp)	146
296	Hendricks-Graeter Mine (Bannack-Apex Mine)	45-09-20	112-59-45	Au, Ag, Cu, Pb	11	3	Limestone, (Mm)	Granodiorite, (Tgd)	88, 205
297	Hillside Placer Mine (Thompson Mine)	45-09-07	112-59-07	Au, Ag, Cu, Zn	11	3	Limestone, (Mm)	Granodiorite, (Tgd)	138
298	Hope Placer	45-09-50	112-59-50	Au	03	3	Alluvium, (TQal)	--------	231
299	Laurilene No. 1	45-09-45	112-58-41	Au	11	2	Limestone, (Mm)	Granodiorite, (Tgd)	88
300	Lookout Mine	45-09-38	112-58-35	Au, Ag, Cu	11	3	Limestone, (Mm)	Granodiorite, (Tgd)	241, 205
301	Missouri Prospect	45-08-53	112-57-20	Au	11	2	Tuff, (Kt)	Tuff, (Kt)	138
302	Pioneer Mine	45-09-28	112-58-43	Au, Ag, Cu, Zn	11	3	Limestone, (Mm)	Granodiorite, (Tgd)	88, 205, 184
303	Washington Mine	45-09-26	112-58-40	Au, Ag	11	3	Limestone, (Mm)	Granodiorite, (Tgd)	205, 184

Beaverhead Mountains Area, Montana

The east slope of the Beaverhead Mountains, in the southwest part of the map, is composed of Proterozoic Y quartzite and argillite of the Missoula and Lemhi Groups that are intruded by mafic sills and dikes, probably also Proterozoic. The mountains were deeply incised by glaciers. The Beaverhead Mountains are an uplifted block broken by thrust and steep faults. Lode ores are in vein and replacement deposits in quartzite and basic intrusives situated in zones of complex faulting and fracturing along the crest of the range. Galena-rich ores containing silver and gold are most common. Only small amounts of ore have been mined.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
308	Ajax Mine (Carrie Leonard)	45-19-25	113-43-26	Au, Ag, Pb, Cu	11	3	Quartzite, (Yl)	Diorite, (Yd)	200, 158
309	Copper Queen Claims	45-14-00	113-35-30	Cu, Pb	11	2	Quartzite, (Ym)	Diabase, (Yda)	154
310	Dark Horse Mine (Darkhorse)	45-10-02	113-35-18	Au, Ag, Cu, Pb, Zn	11	3	Quartzite, (Yl)	--------	232, 27, 88
311	Darkhorse Creek Placer (Mulchey Creek)	45-10-09	113-32-00	Au	03	3	Alluvium, (Qal)	--------	139
312	Jackson Mine	45-17-13	113-40-57	Au, Ag, Cu, Pb, Zn	11	3	Quartzite, (Ym)	Diorite, (Yd)	88
313	Jahnke Mine (Montana Oreway, Straight Tip)	45-11-21	113-35-13	Pb, Cu, Ag, Au, W	11	3	Quartzite, (Yl)	Diorite, (Yd)	200, 88

314	Miner Creek Placer	45-17-27	113-38-10	Au	03	3	Alluvium, (Qal)	--------	200
315	Ranger Mine (Slag-A-Melt)	45-22-18	113-40-21	Pb, Cu, Mo	11	3	Quartzite, (Ym)	Granodiorite, (Tgd)	88

Big Hole Divide Area, Montana

The area, in the southwest part of the map, is composed of quartzites of the Missoula and Lemhi Groups (Proterozoic Y) overlain locally by tuffaceous Tertiary sedimentary rocks. Two Cretaceous-Tertiary stocks intrude the Missoula Group quartzites in the center of the area, but neither of these are known to be associated with mineralization. The Saginaw mine is the only significant mine in the area. Small amounts of copper-silver ore have been shipped since its discovery in 1894.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
324	Buffalo Creek Barite Occurrence	45-10-10	113-11-35	Ba	13	1	Quartzite, (Ym)	--------	40
325	Saginaw Mine	45-13-48	113-26-50	Cu, Ag	11	3	Quartzite, (Ym)	Diorite, (Yd)	200, 88

Birch Creek (Utopia) District, Montana

The district, located in the central part of the map, is situated at the edge of a large southeastward protrusion of the Pioneer batholith, along its contact with Paleozoic carbonate rocks. Skarn, developed locally at the contact, contains varying quantities of scheelite, magnetite, chalcopyrite, and molybdenite. Scheelite and molybdenite are most common in the Amsden Formation, chalcopyrite in the Madison Group, and magnetite in the Hasmark Formation. The only mine with sizable production is the Indian Queen, which produced 1,729,204 lbs of copper and 42,219 oz of silver (Geach, 1972) from an ore body consisting of garnet-epidote skarn in Mission Canyon Limestone. Most of this was mined in 1903 and 1904. Magnetite ore from the Jumbo Group was probably mined for local smelter flux.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
326	Armstrong Gulch Placer	45-23-51	112-52-15	Au	03	3	Alluvium, (Qal)	--------	49
327	Birch Creek Placer	45-24-08	112-49-40	Au	03	3	Alluvium, (Qal)	--------	200
328	Buster Mine	45-23-04	112-53-03	Ag, Au, Pb, Cu Zn	11	2	Dolomite, (Ch)	--------	88
329	Copper Contact Claims	45-24-26	112-48-12	W	07	2	Limestone, (Mm)	Quartz monzonite, (Kqm)	88, 167
330	Florence and Lilly	45-22-40	112-50-00	Ag	11	2	Dolomite, (Dj)	--------	88
331	Glowworm and Greenhorn Claims	45-25-17	112-48-05	Cu, W, Mo	07	2	Limestone, (PMa)	Quartz monzonite, (Kqm)	88, 167
332	Gold Nugget	45-23-46	112-49-10	Mo, W	07	2	Limestone, (Mm)	Quartz monzonite, (Kqm)	167

333	Greenstone Mine	45-24-47	112-48-09	Cu, Ag, Au, W	07	3	Limestone, (PMa)	Quartz monzonite, (Kqm)	167, 88, 242
334	Haggerty Claim	45-23-34	112-49-20	W, Mo	07	2	Limestone, (Mm)	Quartz monzonite, (Kqm)	167
335	Indian Queen Mine	45-23-52	112-49-10	Ag, Cu, Au, Pb, W	07	3	Limestone, (Mm)	Quartz monzonite, (Kqm)	200, 216, 88, 241, 167, 120
336	Jumbo Group (Birch Cr. Iron Mine)	45-23-30	112-50-30	Fe, W	07	3	Dolomite, (Oh)	Quartz monzonite, (Kqm)	200, 70, 167, 88
337	Rocky Hueep Prospect	45-23-55	112-50-56	W	07	2	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	167
338	Sheep Creek Placer	45-23-12	112-52-32	Au	03	3	Alluvium, (Qal)	--------	49
339	Stanfield Prospect	45-23-20	112-49-36	W	07	2	Limestone, (Mm)	Quartz monzonite, (Kqm)	167

Blacktail Range Area, Montana

The range, along the southern edge of the map, is a block uplift composed of thrust faulted Paleozoic sedimentary rocks overlying Archean gneiss. These rocks are covered in the western half of the range by volcanic rocks. The only significant metallic ore deposit is an irregular mineralized silver-bearing zone at the Nevada mine. Production has been small.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
343	Dalys Spur	45-05-08	112-46-47	Sil	13	3	Quartzite, (Pq)	--------	56, 37
344	Nevada Mine	45-02-15	112-35-09	Ag, Au, Cu	11	3	Dolomite, (Dj)	--------	88, 91
345	Unnamed Ba Occurrence	45-03-10	112-37-00	Ba	13	1	Limestone, (Mm)	--------	40
346	Unnamed Mn Occurrence	45-02-04	112-40-45	Mn	02	2	Limestone, (Pp)	--------	88

Blue Wing District, Montana

Paleozoic strata are apparently thrust over volcanic rocks of Cretaceous age in this district, located in the south-central part of the map. Fine-grained Late Cretaceous granodiorite and andesite were intruded concordantly along the thrust and have bleached and recrystallized the limestone. The Mississippian Mission Canyon Limestone, the oldest of the sedimentary rocks explored, as shown by drilling, lies above the volcanic rocks. Ore bodies are veins and replacement deposits in the bleached Mission Canyon and veins in granodiorite.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
350	Artic Claim	45-12-24	112-58-01	Ag, Pb	11	3	Limestone, (Mm)	Granodiorite, (Kgd)	88

351	Charter Oak Mine	45-10-05	112-57-25	Ag, Pb, Cu, Au, Zn	11	3	Limestone, (Mm)	Granodiorite, (Kgd)	205, 88, 224
352	Cold Spring Creek Placer (Blue Wing Placer)	45-09-26	112-56-12	Au	03	3	Alluvium, (Qal)	--------	139
353	Cottontail Mine (Huron Mine)	45-11-25	112-57-08	Ag, Au, Pb, Zn, Cu	11	3	Limestone, (Mm)	Granodiorite, (Kgd)	205, 88, 224, 182
354	Del Monte Mine (Bonaparte Mine)	45-11-42	112-57-27	Ag, Au, Cu, Pb	11	3	Granodiorite, (Kgd)	Granodiorite, (Kgd)	200, 241, 88, 205, 183
355	Ingersoll Group (Bob Ingersol)	45-10-24	112-57-20	Ag, Pb, Cu, Au, Zn	11	3	Limestone, (Mm)	Granodiorite, (Kgd)	205, 88, 91
356	Iron Mask Mine	45-11-20	112-56-48	Ag, Pb, Cu, Zn	11	3	Granodiorite, (Kgd)	Granodiorite, (Kgd)	205, 88, 138
357	Jeanette Claim	45-10-48	112-57-25	Ag, Pb, Cu, Zn, Au	11	3	Limestone, (Mm)	--------	88
358	Kent Group (Blue Wing, Bannack Chief)	45-11-14	112-56-58	Ag, Au, Pb, Cu, Zn	11	3	Limestone, (Mm)	Granodiorite, (Kgd)	200, 205, 88, 241, 182
359	Leonie Tunnel Prospect	45-11-44	112-57-14	Ag	11	2	Granodiorite, (Kgd)	Granodiorite, (Kgd)	138
360	Logan Mine (Lone Star, Silver Star, Skeets)	45-10-37	112-57-07	Ag, Pb, Cu, Zn	11	3	Limestone, (Mm)	Granodiorite, (Kgd)	88, 205, 138
361	New Departure Mine (Blue Dot)	45-11-52	112-55-15	Ag, Au, Pb, Cu, Zn	11	3	Limestone, (Mm)	Granodiorite, (Kgd)	200, 205, 88, 241, 138, 183
362	Pomeroy Mine (Brick Pomeroy Silver Buckle)	45-11-56	112-57-58	Au, Ag, Pb, Cu, Zn	11	3	Limestone, (Mm)	Granodiorite, (Kgd)	200, 88, 138, 205, 182
363	Randall Mine	45-10-58	112-57-21	Ag, Au, Pb	11	3	Limestone, (Mm)	--------	205, 88
364	Stevenson Mine	45-11-42	112-55-57	Ag	11	3	Limestone, (Mm)	Granodiorite, (Kgd)	205
365	Taylor Mine	45-14-00	112-59-17	Au	11	2	Limestone, (Mm)	--------	138
366	Unnamed Prospect	45-13-10	112-56-45	Ag, Pb	11	2	Quartzite, (Pq)	--------	88
367	Wheal Rose Mine	45-11-39	112-56-05	Ag, Pb	11	3	Limestone, (Mm)	--------	88, 205

Calvert Hill District, Montana

At the northern end of the Pioneer batholith, in the north-central part of the map, Cretaceous or Tertiary quartz monzonite intrudes sedimentary rocks ranging in age from Proterozoic Y to late Cretaceous. Ore deposits are tungsten-bearing skarns or base and precious metal veins in late Paleozoic carbonates near quartz monzonite contacts. In 1956 and 1957 about 102,800 tons of ore averaging 1.13 percent WO3 were mined from the Calvert mine; at least 10,000 tons have been mined since (Geach, 1972).

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
373	Calvert Mine (Red Buttons)	45-50-54	113-09-05	W, Be	07	3	Limestone, (PMa)	Quartz monzonite, (Kqm)	88, 127
374	Fool Hen Prospect	45-49-08	113-07-45	W	07	2	Limestone, (PMa)	Quartz monzonite, (Kqm)	179, 88
375	White Cap Mine	45-50-55	113-10-00	Ag, Au, Cu, Pb, W	11	3	Dolomite, (Pp)	--------	88

Divide Creek (Fleecer) District, Montana

The district, in the north-central part of the map, is underlain by intrusive rocks of the Boulder batholith and by two satellitic bodies, the Humbug and Mt. Fleecer stocks. The batholith and the stocks intrude sedimentary rocks ranging in age from Mississippian to late Cretaceous. The district is bisected by a north-trending graben filled with Tertiary sedimentary deposits. Ore deposits include fissure fillings closely associated with quartz porphyry or aplite dikes cutting quartz monzonite, and vein and replacement deposits in Paleozoic rocks near contacts with the stocks or the batholith. Production of metals is believed to be small. Before 1900, travertine in Tertiary sediments and Madison limestone were mined for use as flux at the Glendale smelter (near the Hecla district).

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
387	Brown Claim Group	45-44-37	112-42-00	F	13	2	Dolomite, (Eh)	--------	209
388	Cayuga Claim	45-46-50	112-46-18	Cu	11	3	Quartzite, (Kk)	Quartz monzonite, (Kqm)	241
389	Climax Lode (Apex, Clipper)	45-51-50	112-38-04	Au, Ag	11	3	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	197, 184, 126
390	Gold Chief Lode	45-52-56	112-39-30	Cu	11	2	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	231
391	Lame Rabbit Lode	45-53-08	112-37-12	Au, Ag	11	2	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	231
392	Lime Rock Claim Group	45-46-12	112-41-50	Ist	13	3	Limestone, (Mm)	--------	209
393	Mary Francis Claim	45-48-11	112-39-38	Au	11	3	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	197

394	Star Group	45-49-40	112-49-55	Au, Ag, Cu	07	3	Limestone, (Mm)	Granodiorite, (Kgd)	169, 241, 151
395	Unnamed travertine	45-46-06	112-43-10	Tr	13	3	Sediments, (Tt)	--------	172
396	Warren Prospect	45-46-07	112-42-03	W	07	2	Limestone, (Mm)	Quartz monzonite, (Kqm)	234

Elkhorn District, Montana

Hornblende-biotite granodiorite of the Pioneer batholith is mineralized along the north-trending Comet fault in this district, located near the center of the map. The batholith in this vicinity is cut locally by small dikes and irregular masses of quartz porphyry and alaskite. The ores are in quartz fissure veins mostly west of the Comet fault. Veins are generally several feet thick and continuous, but ore shoots seem to be small and scattered. Sulfide minerals are pyrite, tennantite, galena, sphalerite, chalcopyrite, wolframite, and molybdenite. Although the initial discoveries were made and mining was done in the 1870's, the most active period was from 1913 to about 1930. Metals, chiefly silver, valued at about $500,000 have been produced from the district. Exploration in recent years has focused on tungsten and molybdenum.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
403	Comet Group	45-27-30	113-02-47	Ag, Au, Cu, Pb, Zn	11	3	Granodiorite, (Kgd)	Granodiorite, (Kgd)	241, 88
404	Eclipse and Oro Grande	45-27-45	113-04-10	Mo	11	2	Granodiorite, (Kgd)	Granodiorite, (Kgd)	88
405	Elkhorn Mine (Old Elkhorn, Boston and Montana Group)	45-29-24	113-02-20	Ag, Cu, Pb, Mo	11	3	Granodiorite, (Kgd)	Granodiorite, (Kgd)	200, 241, 88, 183
406	Guy Mine	45-27-33	113-04-15	Ag, Cu, Zn, Au, Pb, Mo	11	3	Granodiorite, (Kgd)	Granodiorite, (Kgd)	88
407	McConnell Group (Wellman)	45-26-50	113-04-50	Ag, Pb, Cu, Zn, Au	11	3	Granodiorite, (Kgd)	Granodiorite, (Kgd)	241, 88
408	Park Mine	45-29-00	113-02-51	Ag, Au, Cu, Zn, Pb, W	11	3	Granodiorite, (Kgd)	Granodiorite, (Kgd)	98, 241, 88, 167
409	Red Rock Mine	45-27-30	133-04-54	Ag, Cu, Au	11	3	Granodiorite, (Kgd)	Granodiorite, (Kgd)	88

French Gulch District, Montana

Bedrock in the district, in the center of the north part of the map, is Missoula group quartzite, a Tertiary or Cretaceous pluton, and Tertiary volcanic rock. Quaternary alluvium in the headwaters of French Gulch and its tributaries have been mined for placer gold intermittently from 1864 to the present. The lode source of the gold was probably narrow quartz veins in the pluton and quartzite. The total placer gold has not been ascertained, and estimates of early production vary considerably. Estimates for the period 1864-1870 range from $1 million to $5 million (Lyden, 1948).

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
412	French Gulch Placer	45-57-15	113-01-20	Au	03	3	Alluvium, (Qal)	--------	10, 139, 182

Greenhorn Range Area, Montana

Archean gneiss, schist, amphibolite, and marble form the bedrock in this area, along the southeast edge of the map. Mineral deposits include talc replacement bodies in marble, gold placers, and quartz veins bearing chiefly copper minerals. Since 1970, talc has been mined at the Willow Creek mine in significant quantities (Berg, 1976).

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
416	Barton Creek Placer	45-12-50	112-04-21	Au	03	3	Alluvium, (Qal)	--------	139, 183
417	Braunzell and Elby Prospect	45-11-10	112-03-49	U	10	1	Gneiss, (Aqf)	--------	243, 74
418	Bull Frog Mine	45-12-50	112-00-53	Cu	11	2	Amphibolite, (Aam)	--------	38
419	Doubtful Claim	45-08-08	112-03-52	Tlc, Chl	08	2	Marble, (Am)	--------	38
420	Gardner Mine	45-13-35	112-02-55	Au, Ag, Pb	11	3	Gneiss, (Aqf)	--------	222
421	Greenhorn Claim	45-06-40	112-01-17	Tlc	08	2	Marble, (Am)	--------	38
422	Greenhorn Creek Placer	45-07-41	112-01-25	Au	03	3	Alluvium, (Qal)	--------	139
423	Idaho Creek Placer	45-11-04	112-04-55	Au	03	3	Alluvium, (Qal)	--------	139, 183
424	Lost Lode Mine (Davy Creek, Davy Gulch Mine)	45-14-53	112-04-05	Mn	02	3	Marble, (Am)	--------	140, 220
425	Pettus Claims	45-05-45	112-00-53	Tlc	08	2	Marble, (Am)	--------	57
426	Ruby Claim	45-08-30	112-03-30	Tlc, Chl	08	2	Marble, (Am)	Diabase, (Ada)	38
427	Silver Bell Claim	45-08-45	112-02-20	Cu	11	2	Gneiss, (Aqf)	--------	38
428	Unnamed Prospect	45-07-10	112-02-12	Cu	11	2	Gneiss, (Aqf)	--------	38
429	Willow Creek Mine (Ruby Ridge, Talc Ridge)	45-06-41	112-00-45	Tlc	08	3	Marble, (Am)	--------	38

Hecla (Bryant, Trapper) District, Montana

Paleozoic sedimentary rocks form the flanks of a dome that lies less than 1 mile north of the Pioneer batholith in this district, located near the center of the map. Paleozoic units are thinned on the flanks of the dome and are folded disharmonically and cut by thrust, tear and normal faults. Ore deposits are chiefly replacement bodies localized by fractures and minor fold crests. The deposits are in favorable stratigraphic zones near the middle of the Hasmark Formation, at the top of the Hasmark directly beneath the Red Lion Formation, and near the middle of the Jefferson Dolomite, as interpreted by E-an Zen (U.S. Geological Survey unpub. mapping). Since its discovery in 1872, about $20 million in ore has been produced from the district (Geach, 1972).

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
435	Big Four Mine	45-36-10	112-55-06	Au, Ag, Pb, Cu, Zn	11	3	Dolomite, (Ōh)	--------	117
436	Cleve-Avon Group	45-36-18	112-54-46	Au, Ag, Pb	11	3	Dolomite, (Ōh), (Dj)	--------	242, 117, 88, 241, 183
437	Hecla-Silver King Group	45-35-14	112-55-51	Au, Ag, Pb, Zn, Cu	11	3	Dolomite, (Ōh)	--------	242, 241, 88, 117
438	Keokirk-Elm Orlu Group (Keokuk, Elm or Lu)	45-35-30	112-56-10	Ag, Cu, Au	11	3	Dolomite, (Ōh)	--------	117, 88, 183
439	Lion Mountain Group	45-36-16	112-55-52	Ag, Au, Pb, Zn, Cu	11	3	Dolomite, (Ōh), (Dj)	--------	200, 88, 117
440	Trapper Mine	45-35-46	112-54-50	Pb, Ag, Au, Cu, Zn	11	3	Dolomite, (Ōh)	--------	117, 88, 183

Highland (Fish Creek, Red Mountain) District, Montana

Bedrock of the district, in the northeast part of the map, consists of slate and quartzite of the Belt Supergroup and Paleozoic limestone, sandstone, and shale along the southeast border of the Boulder batholith. Ore deposits include veins, chimneys, and irregular contact deposits in marbleized Paleozoic limestone and irregular veins in quartz monzonite near the limestone contact. Sulfide ore consists of chalcopyrite, bornite, galena, pyrite, pyrrhotite, arsenopyrite, tetradymite, argentite, and pyrargyrite. Much of the ore was oxidized and contained native gold and silver and oxidized copper and iron minerals. Fish Creek placers were important producers of gold, and the Butte Highlands mine was a major producer, mainly of gold.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
446	Ballarat Mine	45-47-26	112-29-03	Au	11	3	Limestone, (Ōm)	--------	197
447	Bear Cat Prospect	45-48-04	112-27-30	Au, Ag, Cu	07	3	Limestone, (Ōm)	Diorite, (Kd)	197
448	Brooks Prospect	45-48-15	112-29-36	Au	07	3	Dolomite, (Dj)	Diorite, (Kd)	197
449	Butte Highlands Mine (Only Chance, Nevin Mine, Murphy Mine)	45-47-50	112-30-56	Au, Ag, Cu, Pb, Zn	11	3	Dolomite, (Ōp)	Diorite, (Kd)	156, 197

450	E. X. L. Claim	45-47-55	112-26-11	Au	07	3	Limestone, (Cm)	Diorite, (Kd)	197
451	Fish Creek Placers (Highland Placers)	45-47-30	112-27-05	Au	03	3	Alluvium, (Qal)	-------	2, 14, 139, 197
452	Highland View Claim	45-48-30	112-28-25	Au, Ag, Pb, Zn	07	3	Limestone, (Mm)	Diorite, (Kd)	197, 156
453	Overlook	45-49-28	112-27-20	Au, Ag, Cu, W	07	2	Limestone, (Mm)	Quartz monzonite, (Kqm)	197
454	Ozark Prospect	45-47-43	112-29-05	Au, Ag	11	3	Limestone, (Cm)	--------	197
455	Ready Cash (Paymaster, U.S. Gold)	45-48-55	112-27-20	Au, Ag, Cu, Pb, Zn	07	3	Limestone, (Mm)	Quartz monzonite, (Kqm)	197
456	Red Wing Mine	45-48-27	112-28-47	Au	11	3	Diorite, (Kd)	Diorite, (Kd)	197
457	Scenic Lode	45-48-40	112-23-26	Au, Ag	11	2	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	231
458	Templeman Claim	45-47-20	112-28-31	Au, Ag, Pb, Zn	11	3	Limestone, (Cm)	--------	197
459	Upper Hells Canyon Placer	45-43-18	112-27-30	Au	03	3	Alluvium, (TQal)	--------	139

Homestake District, Montana

Quartz monzonite of the Boulder batholith, intruded by numerous aplite, pegmatite, and diabase dikes underlies the district, in the northeast part of the map. Ore deposits include gold placers and quartz veins containing gold, silver and base metals. Veins containing gold and silver are short and irregular but locally contain high values. Production from these mines has probably been small.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
466	Blackwell Mine (Kendall, Homestake)	45-57-48	112-24-44	Au	11	3	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	188
467	Evening Star Mine	45-58-02	112-24-48	Ag, Au	11	3	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	188
468	Flagg Placer (Flag)	45-57-12	112-24-48	Sil, Au, Cs, Zn	03	3	Alluvium, (Qal)	--------	188
469	Gold Bug Mine	45-57-12	112-23-42	Ag, Au, Cu	11	3	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	188
470	Harriet Mine	45-57-31	112-24-28	Au, Ag	11	2	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	188
471	Homestake Creek Placer	45-56-40	112-24-20	Au	03	3	Alluvium, (Qal)	--------	188

472	Montana Mine	45-57-34	112-23-45	Au, Ag, Pb	11	3	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	188, 220, 91
473	Mountain Chief Mine	45-57-39	112-25-01	Ag, Au, Cu	11	3	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	188
474	Nannie Brown Mine	45-57-47	112-25-23	Au, Ag	11	3	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	188
475	Nellie-Mascot Group	45-57-20	112-23-05	Au, Ag, Pb	11	3	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	188, 91
476	Pay Rock Mine	45-57-37	112-24-01	Au, Ag, Pb, Cu	11	3	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	188
477	Welch Quarry	45-56-14	112-19-55	Stn	13	3	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	188

Little Pipestone District, Montana

Bedrock in this district, located in the northeast part of the map, consists of Paleozoic sedimentary rocks that were intruded by monzogranite and granodiorite of the Boulder batholith. Little is known about the ore deposits, and the only minerals known to have been produced from the district are placer gold and gem quality amethyst. Production has been small.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
483	Little Pipestone Creek Placer	45-51-06	112-15-24	Au	03	3	Alluvium, (Qal)	--------	188
484	Moscow Prospect	45-49-50	112-21-00	Ag, Pb, Zn	11	2	Lamprophyre, (Kl)	Lamprophyre, (Kl)	169
485	Pohndorf Mine	45-52-09	112-21-10	Gem	13	3	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	102
486	Toll Mountain Lode	45-49-45	112-24-00	Mo	05	2	Granodiorite, (Kgd)	Quartz monzonite, (Kqm)	231

Lost Creek District, Montana

Metamorphism of rock along the contact between the Pioneer batholith and the Amsden Formation (Mississippian(?) and Pennsylvanian) has produced a garnet-epidote skarn that locally contains scheelite in this district, located near the center of the map. Scheelite is commonly disseminated in the garnet, especially where it is andradite rich (Collins, 1975). Tungsten was discovered at Lost Creek in 1907. During the 1950's, 21,150 tons of 0.18 percent WO_3 ore were produced (Pattee, 1960).

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
492	Adams Peak Claims (Twin Adams Mountain Claims)	45-28-34	112-48-06	W	07	2	Limestone, (PMa)	Granodiorite, (Kgd)	167
493	Lost Creek Mine	45-29-14	112-48-13	W, Mo	07	3	Limestone, (PMa)	Quartz monzonite, (Kqm)	58, 167, 127 130

McCartney Mountain (McCarthy) District, Montana

A Late Cretaceous or Tertiary quartz monzonite stock has intruded folded and thrust-faulted Cretaceous sedimentary rocks in this district, located in the center of the east part of the map. This complex is surrounded by a veneer of Tertiary volcanic and younger sedimentary rocks. Ore deposits include silver-bearing galena in quartz veins in hornfels and in the quartz monzonite stock. Oxidized ores rich in silver were exploited in the late 1800's. Small shipments of silver-lead ore were shipped to smelters up until the 1940's. Recent drilling at molybdenum occurrences was on claims originally staked as part of the Silver King mine.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
499	Ira White Prospect	45-30-58	112-35-51	Ag, Pb, Au	11	3	Hornfels, (Ku)	Quartz monzonite, (Kqm)	186
500	McCartney Creek Placer (McCarthy Creek)	45-34-20	112-36-10	Au	03	3	Alluvium, (Qal)	--------	139
501	McCartney Mountain Mo Prospect	45-31-10	112-35-35	Mo	05	2	Sandstone, (Ku)	--------	169
502	Monte Clark Mine	45-30-56	112-33-35	Ag, Pb	11	3	Sandstone, (Trd)	Andesite, (Ta)	186
503	Mueller Mine (Muellor)	45-31-15	112-35-08	Ag, Au, Pb	11	3	Sandstone, (Ku)	Quartz monzonite, (Kqm)	186, 126
504	Polly Jane Group	45-30-50	112-38-30	Ag, Pb, Mo	11	3	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	184
505	Silver King Mine	45-31-15	112-35-27	Ag, Mo	11	3	Sandstone, (Ku)	Quartz monzonite, (Kqm)	186
506	Sodak Mine (Hogback Group, GOB Mine)	45-24-06	112-35-57	Mn	02	3	Quartzite, (Pq)	Andesite, (Ta)	88
507	Vermont Mine	45-30-30	112-35-50	Ag, Pb, Au	11	3	Sandstone, (Ku)	Quartz monzonite, (Kqm)	186
508	Victory Group	45-24-38	112-35-10	Mn	02	3	Shale, (Pp)	---------	228

Melrose (Camp Creek, Soap Gulch, Wicklup Creek, Galena) District, Montana

East of the broad Big Hole River valley, in the northeast part of the map, Paleozoic strata dip west and southwest and are in depositional contact with Archean crystalline rocks. Farther north the Archean rocks are faulted against conglomerate, quartzite, and argillite of Proterozoic Y age. The Hell Canyon pluton of the Boulder batholith intrudes the Archean and Proterozoic rocks at the east end of the district. West of the Big Hole River valley, Paleozoic and Mesozoic strata are folded around northwest axes, and Cretaceous sediments have been intruded by a granodiorite pluton. The valley is underlain by Tertiary and Quaternary deposits. Gold placers in Soap and Camp Gulches were unproductive, due in part to water shortages. The most productive lode deposits have been quartz veins containing pyrite, chalcopyrite, and argentiferous galena, such as the Clipper-Columbia, and replacement silver-lead deposits in the Meagher Limestone, such as the Jackrabbit. Lode mining was well established by the 1880's, when many of the mines provided ores to the Glendale smelter. The smelter closed in 1900, but several of these mines continued making small ore shipments to other smelters until the late 1940's. Production has been small. Gossan, mined as smelter flux prior to 1900, at the King and Queen claims, formed by weathering of massive sulfide deposits in lower Belt strata. Since 1913 substantial amounts of phosphate have been produced from the Phosphoria Formation at the Maiden Rock and Canyon Creek mines.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
512	Apex No. 2 Claim	45-43-20	112-35-36	Cu, Ag	11	2	Shale, (Yg)	--------	157
513	Berlin Mine	45-40-23	112-42-06	Au, Ag, Pb	07	3	Shale, (Kk)	Quartz monzonite, (Kqm)	49, 241, 88
514	Calvin Mine (Commonwealth Lead Mining Co. Mine)	45-38-11	112-35-40	Ag, Au, Pb, Zn, Cu	11	3	Dolomite, (Ɛm)	--------	11, 142, 196, 241, 129
515	Camp Creek Placer	45-42-00	112-31-54	Au	03	3	Alluvium, (Qal)	--------	139
516	Canyon Creek Phosphate Mine	45-41-30	112-45-25	P	13	3	Phosphorite, (Pp)	--------	67, 65, 174
517	Canyon Creek Quarry	45-42-06	112-44-16	Sil	13	3	Quartzite, (Pq)	--------	126
518	Carnotite Claim	45-40-14	112-37-43	U	10	2	Limestone, (Ɛp)	--------	51, 225
519	Christainsen Group	45-41-32	112-39-33	Ag, Cu	11	3	Schist, (Yc)	--------	196, 241
520	Clipper-Columbia Group	45-43-27	112-33-19	Cu	11	3	Argillite, (Yg)	--------	197, 241
521	Emma Nevada Mine	45-41-51	112-38-42	Ag	11	3	Argillite, (Yc)	--------	196, 241
522	Gold King Mine	45-41-16	112-38-57	Au, Ag, Cu, Pb	11	3	Limestone, (Ɛp)	--------	196
523	Jackrabbit Mine (Jack Rabbit)	45-38-47	112-35-59	Pb, Zn, Ag	11	3	Limestone, (Ɛm)	--------	142
524	King and Queen Claims	45-42-30	112-34-34	Fe	06	3	Argillite, (Yc)	--------	241
525	Little Group	45-41-17	112-38-45	Cu	11	3	Schist, (As)	--------	196
526	Maiden Rock Mine	45-41-43	112-44-03	P	13	3	Phosphorite, (Pp)	--------	220, 174
527	Maiden Rock Quarry	45-42-27	112-44-34	Ist	13	3	Limestone, (Mm)	--------	172
528	Old Glory Mine	45-42-43	112-38-40	Ag	11	3	Argillite, (Yg)	--------	197
529	Pandora Mine	45-42-04	112-36-35	Ag, Pb	11	3	Quartzite, (Ylh)	--------	197
530	Peabody Mine (George Peabody)	45-39-15	112-37-09	Ag, Pb, Au	11	3	Dolomite, (Ɛm)	--------	196, 11
531	R and M Claim	45-37-58	112-37-08	U	10	2	Mudstone, (Du)	--------	51, 225
532	Richard Mullens Property	45-38-48	112-37-20	Ag, Pb, Au	11	2	Dolomite, (Dj)	--------	81

533	Rochester-Camp Creek Divide Placer	45-41-35	112-30-10	Au	03	3	Alluvium, (TQal)	--------	139
534	Short Shift Mine	45-41-12	112-30-22	Au	11	2	Gneiss, (Aqf)	--------	169
535	Soap Gulch Ba Occurrence	45-40-35	112-39-04	Ba	13	1	Dolomite, (Dj)	--------	40
536	Soap Gulch Placer	45-42-25	112-37-00	Au	03	3	Alluvium, (Qal)	--------	139
537	Uranium Claims	45-36-13	112-36-13	U	10	2	Mudstone, (Du)	--------	51, 225, 243

Monument (Bloody Dick, Beaverhead) District, Montana

A fault slice of highly sheared Proterozoic X crystalline rock between allochthonous Lemhi Group quartzites is host to masses of vein quartz that contain secondary copper minerals in this district, located along the south edge of the map. Lodes were discovered in the 1870's or 1880's and they produced about 500 tons of shipping ore before the mines closed in 1929 (Geach, 1972).

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
540	Jung Frau Mine	45-00-15	113-20-35	Cu, Ag, Ba	11	3	Gneiss, (Xg)	--------	88
541	Monument Mine	45-00-01	113-19-18	Cu, Ag, Au	11	3	Schist, (Xg)	--------	200, 88
542	Sunshine Claim	45-00-05	113-20-24	Cu, Ag, Pb, Au	11	3	Gneiss, (Xg)	--------	88

Moose Creek (Moosetown, Humbug) District, Montana

Belt strata and Paleozoic strata, intruded by the monzongranite Humbug stock, underlie the district, located in the northeast part of the map. Ore deposits include gold placers, and veins and replacements in Paleozoic carbonates near the quartz monzonite contact. The placers have been intermittantly worked, with production estimated at several hundred thousand dollars in gold since 1866 (Dingman, 1932). Lode mines were located by 1868, and small shipments of ore were produced until the 1930's.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
544	Copper Hill Mine	45-43-15	112-40-12	Cu, Ag	11	3	Argillite, (Yc)	--------	42
545	Day and Harvey Mine	45-44-59	112-34-25	Au, Ag, Cu	11	3	Limestone, (Cm)	--------	197, 241
546	Elkhorn-Buckhorn Claim	45-49-26	112-36-03	Ag, Pb, Zn	11	2	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	197
547	Gold Dust Claim	45-43-36	112-41-13	Ag	11	3	Quartzite, (Yg)	--------	197, 89
548	Gold Hill Group (Montreal Group, Free gold)	45-45-48	112-32-12	Au, Ag, Cu	11	3	Argillite, (Yh)	Quartz monzonite, (Kqm)	241, 197
549	Lower Moose Creek Placer	45-43-13	112-41-18	Au	03	3	Alluvium, (Qal)	--------	139, 71

550	Mary Ann Property	45-46-54	112-34-15	Au, Ag	11	3	Dolomite, (Dj)	Quartz monzonite, (Kqm)	197
551	Silver Glance	45-45-55	112-31-45	Ag	11	3	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	197
552	Sunset Claim	45-45-50	112-35-10	Au, Ag	11	3	Limestone, (Cm)	----------	197
553	Tucker Creek	45-47-45	112-37-00	P	13	3	Phosphorite, (Pp)	----------	67
554	Upper Moose Creek Placer	45-46-15	112-34-40	Au	03	3	Alluvium, (Qal)	----------	139, 71
555	Van Dorstan Claims (Buckhorn, Mohawk)	45-46-10	112-32-40	Ag, Au, Cu	11	3	Limestone, (Ch)	----------	197
556	Wildcat Claim	45-47-03	112-34-17	Au, Ag	11	3	Dolomite, (Dj)	----------	197

Pioneer District (Rescue), Montana

This district, situated along the Montana/Idaho border, is underlain by Lemhi Group and Missoula Group quartzite that have been intruded by Cretaceous or Tertiary two-mica granite of the Idaho batholith. Erosional remnants of Tertiary gravel remain along Ruby Creek and north of North Fork Big Hole River. Ore deposits are chiefly gold placers derived, at least in part, from the Tertiary deposits. Gold placers, discovered on Pioneer Creek in 1862 and on most other creeks by the 1880's, have been intermittently worked since, but production has been small.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
557	Cow Creek Placer	45-32-40	113-46-12	Au	03	3	Alluvium, (Qal)	----------	244
558	Jumper No. 1 Claim	45-33-40	113-44-04	Fe	12	3	Quartzite, (Ym)	----------	88
559	May Creek Placer	45-38-53	113-47-45	Au	03	3	Alluvium, (Qal)	----------	139
560	Moosehorn Mine	45-33-35	113-43-54	Ag, Cu, Fe	11	3	Quartzite, (Ym)	----------	88
561	Nugget Creek Placer (Ruby Creek)	45-33-08	113-48-05	Au	03	3	Alluvium, (Qal)	----------	169
562	Pioneer Creek Placer (Ruby Creek)	45-32-54	113-47-34	Au	03	3	Alluvium, (Qal)	----------	200, 139
563	Placer Creek Placer	45-39-26	113-29-47	Au	03	3	Alluvium, (Qal)	----------	139
564	Trail Creek Placer	45-40-03	113-49-10	Au	03	3	Alluvium, (Qal)	----------	139

Pioneer Mountains Area

The Pioneer Mountains area, located in the center of the map, contains scattered mines and prospects which are not included in identified mining districts. The area is largely underlain by Proterozoic quartzite (probably allochthonous), Paleozoic sedimentary rocks, and Cretaceous plutons related to the Pioneer batholith. Deposits include base- and precious-metal veins discovered and developed during the late 1800's, stockwork molybdenum deposits discovered since 1967, a stratabound copper occurrence, and barite veins.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
567	Amaden Lode	45-25-12	112-59-30	Mo, Cu	05	2	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	153
568	Armor Creek Mo (Odell Claim Group)	45-32-18	113-10-27	Mo, Ag	05	2	Quartzite, (Ym)	Granodiorite, (Kgd)	41
569	Atlas Mine	45-40-06	113-01-24	Cu	11	2	Dolomite, (Ym)	--------	88
570	Baldy Lake Breccia	45-35-56	113-16-00	Cu, Mo, Ag, Pb, Zn	05	1	Quartzite, (Ym)	Granodiorite, (Kgd)	41
571	Bear Paw Claim (Ibex Mine)	45-35-10	113-14-32	Ag, Cu, Pb, Mo	11	2	Tonalite, (TKt)	Tonalite, (TKt)	88, 41
572	Black Lion Mo	45-37-52	113-00-41	Mo	05	1	Granite, (TKg)	Granite, (TKg)	169, 145
573	Blackmore Prospect	45-25-40	112-59-38	Mo	05	2	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	167
574	Bobsled and OCJ Claim	45-31-17	113-03-24	Mo	11	2	Alaskite, (Kal)	Alaskite, (Kal)	88
575	Crystal Park Mo (Hot Springs Creek, Price Creek)	45-28-35	113-05-50	Mo	05	1	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	170
576	Dickie Hills Ba Occurrence	45-51-55	113-04-35	Ba	13	1	Quartzite, (Ym)	--------	40
577	Indian Girl Claim	45-38-50	113-12-00	Ag, Cu	11	2	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	41
578	Jacobson Meadows	45-31-30	113-02-40	Cu, Ag, Mo	05	1	Granodiorite, (Kgd)	Granodiorite, (Kgd)	170
579	Joe Maurice Mine	45-36-20	113-01-20	Cu	07	2	Dolomite, (Oh)	--------	41
580	Lively Mine	45-32-56	113-00-02	Pb, Ag, Zn, Cu	11	3	Granodiorite, (Kgd)	Granodiorite, (Kgd)	88, 169
581	Lucky Jim Beam Group (Shoestring lode Claims)	45-27-06	113-16-42	Ba	13	3	Quartzite, (Ym)	--------	40
582	Monaghan Prospect	45-26-10	112-59-38	Mo	05	2	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	122, 88
583	North Star Mine	45-51-10	113-05-06	Au, Ag, Cu	11	3	Quartzite, (Ym)	--------	88
584	Old Tim Creek Mo	45-25-00	113-12-36	Mo	05	2	Quartzite, (Ym)	--------	170

585	Pacman Claims	45-26-40	113-22-00	Cu, Ag	06	2	Quartzite, (Ym)	--------	169, 226
586	Star and Star Extension Mine (Moonlight)	45-47-22	113-01-38	Au, Ag, Cu, Pb, Zn	11	3	Quartzite, (Ym)	--------	88, 41
587	Stone Creek Mo (Stone horse, COB Claims)	45-41-20	113-12-10	Mo	05	2	Quartzite, (Ym)	--------	41

Pipestone (Big Pipestone Creek) District, Montana

Bedrock of the district, located in the northeast corner of the map, consists of quartz monzonite of the Boulder batholith intruded by numerous alaskite stocks. Mineral deposit types present are quartz fissure veins containing free gold, mineralized zones in brecciated and recemented quartz monzonite, and a gold placer. Quartz veins have produced some ore but the brecciated zones have not been successfully worked. Lode mining was conducted mainly between 1921 and 1942, when 241 ounces of gold and 4,657 ounces of silver were produced (Roby, Ackerman, Fulkerson, and Crowley, 1960). Placer mining activity has been minor.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
588	Aluise Lode	45-58-17	112-19-02	Au	11	2	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	231
589	Big Chief Mine	45-58-55	112-22-05	Au	11	3	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	188
590	Big Pipestone Creek Placer	45-54-20	112-15-45	Au	03	3	Alluvium, (Qal)	--------	188
591	Blue Rock Lode	45-59-01	112-18-19	Au, Ag	11	2	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	231
592	Bluebell Mine (Marsh Mine)	45-57-57	112-19-08	Au	11	3	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	188
593	Easter Lillie Mine (Ogle Mine)	45-56-12	112-14-25	Pb, Ag, Au, Cu, Zn	11	2	Diorite, (Kd)	Diorite, (Kd)	180
594	Grubstake Lode	45-58-55	112-18-23	Au, Ag, Cu, Pb	11	2	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	231
595	Jupiter Mine	45-53-03	112-18-07	Ag, Au, Cu	11	3	Diorite, (Kd)	Diorite, (Kd)	188
596	King Mine	45-58-52	112-16-28	Ag, Pb	11	2	Alaskite, (Kal)	Alaskite, (Kal)	169
597	Lucky Irishman Lode (Jefferson)	45-58-23	112-15-35	Ag, Au	11	2	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	231
598	Mascot Lode	45-58-58	112-18-19	Au, Ag	11	2	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	231
599	Silver Queen Mine	45-57-31	112-16-39	Ag	11	2	Granodiorite, (Kgd)	Granodiorite, (Kgd)	231

600	Sixteen-to-one Mine (High Grade)	45-53-03	112-18-40	Au	11	3	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	188
601	Spire Rock Mine	45-57-13	112-17-17	Au	11	2	Alaskite, (Kal)	Alaskite, (Kal)	169
602	Unnamed Mine	45-55-15	112-15-57	Au, Ag	11	3	Diorite, (Kd)	Andesite, (Ka)	169

Pipestone Pass (Donald) Area, Montana

The area, along the continental divide in the northeast part of the map, is underlain by igneous rocks of the Boulder batholith, including the Butte Quartz Monzonite and younger, more leucocratic igneous bodies intruding it. Molybdenite, pyrite, and minor chalcopyrite occur as disseminated flakes, crystals along fractures, and crystals in miarolitic cavities in alaskite, leucogranite, and pegmatite at several sites near Pipestone Pass. Minor gold placering occurred in the 1870's. Molybdenum prospects date from the 1950's.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
608	Blacktail Creek Placer	45-52-51	112-27-33	Au	03	3	Alluvium, (Qal)	--------	188
609	Clark Prospect	45-51-37	112-27-55	Mo	05	2	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	208
610	Ogle Claims	45-51-30	112-26-45	Mo	05	2	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	231

Polaris (Lost Cloud, Beaverhead) District, Montana

The Polaris district is located in the south-central map area. The known ore deposit is associated with a N 60 E mineralized fault zone which separates Proterozoic Y quartzite on the northwest side from bleached, recrystallized dolomite of Cambrian or Devonian age on the southeast side. Ore occurs in veins adjacent to the main fault. Most of the ore was oxidized, but tetrahedrite and minor galena and sphalerite are probable primary sulfides. The district was an important silver producer between 1883 and 1900 when it produced $250,000 (Geach, 1972). Production since 1900 has been small and sporadic.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
616	Polaris Mine (Silver Fissure)	45-22-01	113-05-06	Ag, Cu, Au, Pb, Zn	11	3	Limestone, (Mm)	--------	68, 88, 241, 126
617	Silver King Mine	45-21-48	113-05-00	Ag, Cu, Au, Pb, Zn	11	3	Limestone, (Mm)	--------	68, 88

Quartz Hill-Vipond District, Montana

Paleozoic strata that underlie the district, in the center of the northern part of the map, have been folded about northwest-trending axes and broken by northwest- and north- northeast- to northeast-trending faults. Ore deposits are veins and replacement bodies mainly in the Cambrian Hasmark Formation. The veins trend north-northeast and northeast. Production from the district between 1867 and 1962 has totalled an estimated $2 million, of which the bulk has come from silver-rich replacement deposits in the Lone Pine mine. Deposits there were localized by fractures in the Hasmark and near a fold crest beneath the less permeable Red Lion Formation (Cambrian). The Cannivan stock, a multi-phase late Cretaceous-Early Tertiary intrusion ranging from granodiorite to quartz monzonite, forms skarn at its contact with Paleozoic carbonates and hosts the Cannivan gulch stockwork molybdenum deposit discovered in 1968 (Hammitt and Schmidt, 1982).

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
622	Aurora Mine	45-43-24	112-54-10	Ag, Cu, Au	11	3	Dolomite, (€h)	--------	88, 93
623	Blue Bell Mine (Blue Belt)	45-40-12	112-59-20	Au, Ag, Pb, Cu, V	11	2	Dolomite, (Dj)	--------	88
624	Bonanza Mine	45-43-22	112-53-59	Ag	11	3	Dolomite, (Dj)	--------	93
625	Burgierosa Group (G-W Mine)	45-42-20	112-56-51	Ag, Au, Cu, Pb Zn	11	3	Dolomite, (€h)	--------	246, 93, 88
626	Cannivan Gulch Deposit	45-39-17	112-57-20	W, Ag, Au, Mo	05	2	Quartz monzonite, (Kqm), Skarn, (Dj, €h)	Quartz monzonite, (Kqm)	96, 202, 88, 167
627	Churchill Mine	45-46-41	112-52-26	Ag, Pb, Au	11	2	Limestone, (Mm)	Granodiorite, (Kgd)	88
628	East Aurora Mine	45-46-24	112-54-04	Ag	11	2	Dolomite, (€h)	--------	93, 88
629	Faithful Mine (Old Faithful, Julian Wegener)	45-41-32	112-56-50	Ag, Pb, Au, Cu	11	3	Quartzite, (Ym)	--------	17, 88
630	Gold Coin Mine	45-41-10	112-58-35	Au	11	3	Argillite, (€sh)	--------	88
631	Gray Jockey Mine	45-41-42	112-55-55	Ag, Au, Cu, Pb	11	3	Limestone, (€h)	--------	88, 182
632	Great Western Mine	45-43-08	112-54-08	Ag	11	3	Dolomite, (€h)	--------	93, 88
633	Keystone Mine	45-45-03	112-54-46	Au, Ag	11	3	Dolomite, (Dj)	--------	88, 64
634	Limekiln Gulch Quarry	45-45-52	112-52-10	lst	13	3	Limestone, (Mm)	--------	95
635	Log Cabin Lode	45-41-44	112-56-50	Ag, Pb, Cu, Zn	11	3	Limestone, (€h)	--------	88, 64
636	Lone Pine Mine (Quartz Hill, Jay Hawk, Argyle)	45-42-56	112-53-48	Ag, Au, Cu, Pb, Zn	11	3	Dolomite, (€h)	--------	200, 223, 88, 93, 95, 91, 136, 184
637	Monte Cristo Mine	45-43-52	112-54-09	Ag, Cu, Pb, Au	11	3	Dolomite, (€h)	--------	93, 88
638	Pettingale Mine (Pettingill, Rushwhite Tunnel)	45-43-18	112-53-57	Ag	11	3	Dolomite, (€h)	--------	88
639	Queen of the Hills Mine	45-40-26	112-57-12	Au, Ag, Cu, Pb, Zn	11	3	Granite gneiss, (Xg)	Granodiorite, (Kgd)	200, 155, 88, 241, 124, 160

640	Sheep Mountain Prospect	45-40-50	112-58-30	Ag, Pb, Au, Cu, Zn	11	3	Limestone, (Ch)	--------	88
641	Titanus Mine	45-43-35	112-54-10	Ag	11	3	Limestone, (Ch)	--------	93, 88
642	Tuxedo Mine	45-42-50	112-56-15	Ag, Au, Pb, Zn	11	2	Limestone, (Ch)	--------	93, 88
643	Twin Fir Prospect	45-42-58	112-54-06	Ag	11	2	Limestone, (Ch)	--------	93

Rochester (Rabbit) District, Montana

Rocks in this district, near the center of the eastern part of the map, are dominantly schist and gneiss of Archean age which are locally intruded by small plutons of quartz monzonite, diorite, and aplite related to the Boulder batholith. Ore deposits are mostly northeast-trending veins in gneiss and schist; they contain gold, silver, arsenopyrite, pyrite, and lesser amounts of lead, zinc, and copper minerals in a quartz gangue. Much of the ore has been oxidized to a depth of 600 feet and consists of quartz, limonite, and oxidized copper and lead minerals. Discovered during the 1860's, the district reached its peak between 1935 and 1942. Gold production has totalled about 100,000 ounces, from at least 40 mines (Sahinen, 1939). The Watseca mine was the largest.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATE
646	Ajax Mine	45-36-41	112-32-28	Pb	11	3	Schist, (As)	--------	196
647	Anything Mine	45-36-50	112-28-55	Au, Ag, Pb, Cu	11	3	Gneiss, (Aqf)	Granite, (Kg)	196
648	April Claims	45-35-58	112-28-25	Mo	05	2	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	169
649	Beacon Light Mine	45-36-45	112-30-38	Cu	11	3	Schist, (As)	--------	196
650	Big Bonanza	45-38-10	112-29-21	Au	11	3	Gneiss, (Aqf)	--------	196, 184
651	Brazill Claim	45-37-50	112-29-17	Au, Ag	11	2	Schist, (As)	--------	196
652	Buffalo Mine	45-37-13	112-28-50	Au	11	3	Gneiss, (Aqf)	--------	196
653	Carpenter Mine (Nellie Gray, Abbie Alice)	45-37-25	112-29-07	Au	11	3	Gneiss, (Aqf)	--------	196
654	Champion Mine	45-37-00	112-30-30	Au, Ag, Cu, Pb	11	3	Schist, (As)	Granite, (Kg)	196
655	Cooper Mine	45-35-45	112-30-18	Pb, Ag	11	3	Schist, (As)	Aplite, (Kap)	196, 241
656	Eclipse Mine	45-35-35	112-29-40	Pb, Ag	11	3	Schist, (As)	Granite, (Kg)	196
657	Elgin Mine	45-37-29	112-29-39	Au, Ag	11	3	Gneiss, (Aqf)	Granite, (Kg)	196
658	Emma Mine	45-35-54	112-30-58	Ag, Pb, Au, Cu, Zn	11	3	Granite, (Ag)	Granite, (Kg)	196, 245, 184
659	Germania Mine	45-36-10	112-27-29	Au, Ag	11	3	Schist, (As)	Granite, (Kg)	196, 241
660	Gold Nugget Claim	45-37-30	112-29-30	Au, Ag	11	3	Schist, (As)	Lamprophyre, (Kl)	196

661	Independence Claim	45-37-00	112-30-05	Au, Ag	11	3	Schist, (As)	Granite, (Kg)	196
662	Index Mine	45-36-47	112-30-57	Au, Ag	11	3	Schist, (As)	--------	196
663	Longfellow Mine	45-36-10	112-30-25	Au, Ag, Pb, Cu	11	3	Gneiss, (Aqf)	Aplite, (Kap)	196, 241
664	Mutch Mine	45-35-48	112-28-51	Au, Ag, Pb, Cu, V	11	2	Gneiss, (Aqf)	Granite, (Kg)	196
665	New Mine	45-36-23	112-30-52	Au, Ag	11	3	Schist, (As)	Granite, (Kg)	196, 241
666	Picard Mine	45-37-50	112-29-41	Au	11	3	Schist, (As)	--------	196
667	Rochester Creek Placer	45-35-00	112-28-10	Au	03	3	Alluvium, (Qal)	--------	139
668	Shoemaker Mine	45-35-31	112-30-05	Au, Ag	11	3	Schist, (As)	Granite, (Kg)	196
669	Shortfellow Mine	45-36-05	112-30-48	Au, Ag, Pb, Cu, Zn	11	3	Schist, (As)	--------	169
670	Silver Note Claim	45-37-05	112-29-42	Au, Ag	11	3	Schist, (As)	Granite, (Kg)	196
671	Sugar Bowl Claim	45-37-45	112-29-10	Au, Ag	11	2	Gneiss, (Aqf)	Lamprophyre, (Kl)	196
672	Sunrise Mine	45-35-52	112-30-14	Pb, Ag	11	3	Schist, (As)	Granite, (Kg)	196
673	Upper Rochester Creek Placer (Klondike Creek)	45-39-40	112-31-05	Au	03	3	Alluvium, (Qal)	--------	139
674	Watseca Mine	45-37-12	112-30-19	Au, Pb, Cu, Zn	11	3	Schist, (As)	Granite, (Kg)	196, 241, 184

Rock Creek (Browns Lake) District, Montana

The Rock Creek district, located near the center of the map, is at the east margin of the Pioneer batholith, where Cretaceous monzogranite has been intruded into Mississippian and Pennsylvanian Amsden Formation. Calc-silicate skarn locally contains scheelite. The Browns Lake mine, discovered in 1942, was the leading tungsten producer of Montana from 1954 through 1956. The property produced 625,107 tons, averaging 0.35 percent WO_3, through 1957 (Pattee, 1960).

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
680	Browns Lake Mine (Ivanhoe Mine)	45-31-19	112-50-10	Cu, W, Mo	07	3	Limestone, (PMa)	Quartz monzonite, (Kqm)	104, 105, 88, 167, 235, 131, 13
681	Fluorescent Claims (Star Claims, Mammoth Adit)	45-31-48	112-51-18	W	07	3	Limestone, (PMa)	Quartz monzonite, (Kqm)	167, 105

Ruby Range Area

Complexly folded Archean metamorphic rocks strike mainly northeast and are cut by northwest-trending normal faults in this area, occupying the southeast part of the map. The metamorphic rocks consist of gneiss, schist, phyllite, marble, and quartzite and are intruded by younger Precambrian rocks including the Dillon granite gneiss, aplite, pegmatite, quartz veins, peridotite, and diabase. In the northeast these older rocks are unconformably overlain by Cambrian, Devonian, and Mississippian sedimentary rocks that are cut by major northwest-trending faults. The entire range is flanked by thick alluvial fans and fluvial terraces of Tertiary or early Quaternary age. The most important mineral deposits are talc bodies that formed by replacement of Archean marble and magnetite bodies in Archean bedded iron formation. Copper, manganese, asbestos, nickel, chromite, and uranium all occur in sub-economic quantities. Graphite was discovered in 1899, and between 1902 and 1920 about 2,250 tons were produced (Geach, 1972). Talc production began in 1942 and has continued to the present.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
685	Amazon Mine	45-12-41	112-21-46	Cu	11	3	Gneiss, (Aqf)	--------	64
686	American Chemet Mine (Rebbish and Ike)	45-09-25	112-24-13	Tlc	08	3	Marble, (Am)	--------	39
687	Apex Mine	45-09-39	112-24-13	Tlc	08	2	Marble, (Am)	--------	64
688	Banning-Jones Mine (Banjo Mine)	45-08-05	112-31-49	Tlc	08	3	Marble, (Am)	--------	39, 88
689	Beaverhead Mine (Sierra Strip Mine)	45-13-31	112-18-09	Tlc	08	3	Marble, (Am)	--------	163, 85, 39
690	Bennett-Owen Claims	45-14-35	112-17-15	Tlc	08	1	Marble, (Am)	--------	163
691	Birds Nest Graphite	45-06-27	112-28-37	Grp	13	3	Gneiss, (Aqf)	--------	88
692	Black Magic Mine	45-15-31	112-08-40	Mn, Cu, Pb	02	2	Marble, (Am)	--------	144
693	Bozo-Zobo Mine	45-07-42	112-30-05	Tlc	08	3	Marble, (Am)	--------	39
694	Carter Creek Iron	45-09-12	112-27-35	Fe	01	2	Iron formation, (Af)	--------	22, 54, 70 110, 103, 88
695	Crescent Prospect	45-04-48	112-31-39	Tlc, Grp	08	2	Marble, (Am)	--------	103, 118
696	Crystal Graphite Mine	45-06-10	112-30-18	Grp	13	3	Gneiss, (Aqf)	Pegmatite, (Ap)	21, 53, 77, 240, 103
697	Dillon Ni Prospect (Wolf Creek Deposit)	45-05-01	112-24-14	Ni, Cr	12	2	Peridotite, (Apr)	--------	207, 103, 88
698	Gem Claim	45-15-55	112-19-10	Tlc	08	2	Marble, (Am)	--------	163
699	Gopher Claims	45-09-50	112-25-45	Tlc	08	2	Marble, (Am)	--------	163
700	Hanson Spring Prospect	45-09-55	112-27-14	Tlc	08	2	Marble, (Am)	--------	163

701	Kelly Iron Mine	45-17-17	112-09-30	Fe	01	3	Iron formation, (Ai)	--------	22, 54, 111
702	Lausche Mine	45-15-15	112-20-32	Tlc	08	2	Marble, (Am)	--------	57
703	Montana Onyx Quarry	45-04-51	112-12-55	On	13	3	Volcanics, (Tv)	Volcanics, (Tv)	91
704	Owen-Mcgovern Prospect	45-07-05	112-25-20	Tlc	08	2	Marble, (Am)	--------	163
705	Regal Mine (Keystone Mine)	45-10-18	112-25-31	Tlc	08	3	Marble, (Am)	Diabase, (Ada)	163
706	Ruby Peak Talc Occurrence	45-18-45	112-13-38	Tlc	08	1	Marble, (Am)	--------	163
707	Ruby View Mine	45-13-30	112-17-20	Tlc	08	2	Marble, (Am)	--------	57, 65
708	Sauberbier Mine	45-06-45	112-24-35	Tlc	08	3	Marble, (Am)	--------	163
709	Smith-Dillon Mine	45-07-23	112-32-32	Tlc	08	3	Marble, (Am)	--------	163, 88, 171, 161
710	Snow White Mine	45-15-15	112-19-18	Tlc	08	2	Marble, (Am)	--------	65
711	Spring Creek Prospect	45-15-50	112-21-10	Tlc	08	2	Marble, (Am)	--------	163
712	Sweetwater Creek U Occ	45-03-17	112-14-48	U	10	1	Volcanics, (Tv)	Volcanics, (Tv)	243
713	Sweetwater Mine (Estelle Mine)	45-08-25	112-23-53	Tlc	08	3	Marble, (Am)	--------	39
714	Treasure Mine (Treasure Chest, Treasure State)	45-13-41	112-18-34	Tlc	08	3	Marble, (Am)	--------	39, 85, 163
715	Unnamed Asb Occ	45-11-12	112-25-00	Asb	13	1	Marble, (Am)	--------	103
716	Unnamed Asb Occ	45-11-34	112-26-33	Asb	13	1	Marble, (Am)	--------	103
717	Unnamed Cu Occ	45-02-30	112-23-30	Cu	12	1	Gneiss, (Aqf)	--------	103
718	Unnamed Cu Occ	45-02-35	112-25-15	Cu	12	1	Gneiss, (Aqf)	--------	103
719	Unnamed Cu Occ	45-03-03	112-24-57	Cu	12	1	Gneiss, (Aqf)	--------	103
720	Unnamed Cu Occ	45-03-41	112-24-40	Cu	12	1	Gneiss, (Aqf)	--------	103
721	Unnamed Cu Occ	45-04-02	112-25-04	Cu	12	1	Gneiss, (Aqf)	--------	103
722	Unnamed Cu Occ	45-08-45	112-31-22	Cu	12	1	Gneiss, (Aqf)	--------	103
723	Unnamed Cu Occ	45-10-15	112-25-00	Cu	12	1	Gneiss, (Aqf)	--------	103
724	Unnamed Cu Occ	45-10-41	112-24-55	Cu	12	1	Gneiss, (Aqf)	--------	103

725	Unnamed Cu Occ	45-11-47	112-24-35	Cu	12	1	Gneiss, (Aqf)	--------	103
726	Unnamed Cu Occ	45-12-03	112-24-58	Cu	12	1	Gneiss, (Aqf)	--------	103
727	Unnamed Cu Prospect	45-15-08	112-06-48	Cu	11	2	Gneiss, (Aqf)	--------	38
728	Unnamed Grp Occ	45-06-23	112-29-30	Grp	13	1	Gneiss, (Aqf)	--------	103
729	Unnamed Mn Occ	45-06-39	112-32-42	Mn	02	1	Marble, (Am)	--------	103
730	Unnamed Mn Occ	45-07-31	112-30-54	Mn	02	1	Marble, (Am)	--------	103
731	Unnamed Mn Occ	45-12-40	112-20-50	Mn	02	1	Marble, (Am)	--------	103
732	Unnamed Mn Prospect	45-07-25	112-32-53	Mn	02	2	Marble, (Am)	--------	88
733	Unnamed Mn Prospect	45-07-49	112-32-12	Mn	02	2	Marble, (Am)	--------	88
734	Unnamed Talc Occ	45-04-45	112-32-31	Tlc	08	1	Marble, (Am)	--------	103
735	Unnamed Talc Occ	45-05-19	112-32-23	Tlc	08	1	Marble, (Am)	--------	103
736	Unnamed Talc Occ	45-05-58	112-32-30	Tlc	08	1	Marble, (Am)	--------	103
737	Unnamed Talc Occ	45-06-02	112-32-05	Tlc	08	1	Marble, (Am)	--------	103
738	Unnamed Talc Occ	45-06-37	112-32-24	Tlc	08	1	Marble, (Am)	--------	103
739	Unnamed Talc Occ	45-06-50	112-33-08	Tlc	08	1	Marble, (Am)	--------	103
740	Unnamed Talc Occ	45-07-48	112-27-26	Tlc	08	1	Marble, (Am)	--------	103
741	Unnamed Talc Occ	45-08-55	112-26-05	Tlc	08	1	Marble, (Am)	--------	103
742	Unnamed Talc Occ	45-09-22	112-29-18	Tlc	08	1	Marble, (Am)	--------	103
743	Unnamed Talc Occ	45-09-46	112-29-03	Tlc	08	1	Marble, (Am)	--------	103
744	Unnamed Talc Occ	45-14-00	112-17-49	Tlc	08	1	Marble, (Am)	--------	103
745	Valley View Prospect	45-06-20	112-32-03	Tlc	08	2	Marble, (Am)	--------	163
746	Whitney Claim	45-14-53	112-18-30	Tlc	08	2	Marble, (Am)	--------	57

Sheridan (Brandon, Ramshorn, Horse Creek, Wisconsin Creek, Mill Creek, Indian Creek, Quartz Hill, Bivin) District, Montana

This district, located along the eastern map edge, is underlain by Archean schist, gneiss, quartzite, marble, and iron formation which are intruded by small quartz monzonite stocks and porphyry dikes and sills of Late Cretaceous or Tertiary age. Base- and precious-metal deposits consist of veins and replacement bodies in Archean rocks, chiefly marble. The chief sulfide minerals are pyrite, arsenopyrite, chalcopyrite, galena, and tetrahedrite in a gangue of quartz and small amounts of siderite. Iron, talc, chromite, thorite, and manganese are also present in the Archean rocks, but have not yet been exploited. Lode mines, discovered as early as 1864, produced gold ore steadily until about 1952. From 1905 to 1952 about 33,500 ounces of gold were produced. Of this, about 2,100 ounces came from placers (Koschmann and Bergendahl, 1968).

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
752	Agitator-Concentrator Mine	45-26-10	112-03-28	Au, Ag	11	3	Marble, (Am)	--------	91, 135, 222
753	Betsy Baker Mine	45-27-22	112-01-07	Au, Ag, Pb	11	3	Gneiss, (Aqf)	--------	241, 222
754	Big Chief Prospect	45-31-04	112-06-45	Mic, Be	13	3	Pegmatite, (Ap)	Pegmatite, (Ap)	102
755	Bivens Gulch Placer (Bevin, Bivin)	45-24-00	112-03-33	Au	03	3	Alluvium, (Qal)	--------	139
756	Bivens Gulch Talc Prospect	45-24-26	112-03-15	Tlc	08	2	Marble, (Am)	--------	163
757	Broadgauge-Tamarack Mine	45-28-52	112-07-49	Au, Ag	11	3	Gneiss, (Aqf)	Quartz monzonite, (Kqm)	222, 135, 124
758	Buckeye Mine (Victoria Mines)	45-28-18	112-08-00	Pb, Zn, Au, Ag, Cu	11	3	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	222, 91, 184, 245
759	California Creek Placer	45-23-05	112-02-39	Au, Ta	03	3	Alluvium, (Qal)	--------	139, 82, 183 61
760	Copper Mountain Iron	45-25-42	112-02-35	Fe	01	2	Iron formation, (Af)	--------	109, 22, 54
761	Currant Creek Iron	45-28-22	112-01-45	Fe	01	2	Iron formation, (Af)	--------	109
762	Dictator and Belle Union Prospect (Copper Mountain Mine)	45-25-32	112-02-19	Cu	11	3	Marble, (Am)	--------	65
763	Fairview Mine	45-31-30	112-08-09	Au, Ag, Pb, Zn, Mn	11	3	Marble, (Am)	Quartz monzonite, (Kqm)	241, 222, 91, 135
764	Goldschmidt Group (Steiner)	45-27-00	112-02-45	Au, Ag, Mn	11	3	Marble, (Am)	--------	135
765	Grandview Prospect	45-23-39	112-02-26	Tlc	08	2	Marble, (Am)	--------	163
766	Harris Creek Placer	45-23-40	112-02-50	Au	03	3	Alluvium, (Qal)	--------	139, 183
767	Harris Creek Talc Prospect	45-23-40	112-02-50	Tlc	08	2	Marble, (Am)	--------	163
768	Horse Creek Talc	45-25-50	112-07-36	Tlc, Cu	08	2	Marble, (Am)	--------	163
769	Hunt's Claim	45-23-45	112-01-45	Ag, Au, Pb, Zn	11	2	Schist, (As)	--------	128
770	Indian Creek Placer	45-31-25	112-04-42	Au	03	3	Alluvium, (Qal)	--------	139
771	Jonquil Mine	45-31-55	112-06-35	Au, Cu, Pb	11	3	Marble, (Am)	--------	222

772	Lakeshore Mine (Gladstone)	45-35-04	112-07-05	Au, Ag, Pb, Cu	11	3	Gneiss, (Aqf)	Diorite, (Kd)	241, 222, 135
773	Latest Out Mine	45-26-35	112-06-50	Au	11	3	Gneiss, (Aqf)	Quartz diorite, (Tqd)	128
774	Leiter Mine	45-33-02	112-06-50	Au, Ag	11	3	Gneiss, (Aqf)	--------	241, 222
775	Lucky Strike Mine	45-31-54	112-04-44	Au, Ag	11	3	Gneiss, (Aqf)	--------	222, 50
776	Mill Creek Placer	45-28-48	112-02-45	Au	03	3	Alluvium, (Qal)	--------	139, 183
777	Montana Mine (Montana Mining Co. Mine)	45-34-32	112-07-20	Au	11	2	Schist, (As)	--------	241
778	Nash Group	45-26-40	112-05-58	Cr	04	1	Amphibolite, (Aa)	--------	128, 215, 55 116, 201
779	Noble Mine (Company Mine)	45-32-12	112-06-30	Au, Ag, Cu, Zn	11	3	Marble, (Am)	Quartz porphyry, (Tqp)	241, 222
780	Occidental Mine (High Up, Oxidental)	45-31-22	112-02-40	Au, Ag, Cu, Pb, Zn	11	3	Marble, (Am)	--------	245, 220, 184, 50
781	Paymaster Mine	45-26-54	112-01-10	Ag, Pb, Zn	11	2	Marble, (Am)	--------	169
782	Quartz Hill Mine	45-29-52	112-03-06	Au	11	3	Marble, (Am)	Quartz monzonite, (Kqm)	222
783	Ramshorn Creek Placer	45-27-55	112-00-30	Au	03	3	Alluvium, (Qal)	--------	139, 183, 101
784	Red Pine Mine	45-31-18	112-05-01	Au, Ag, Cu, Pb	11	3	Gneiss, (Aqf)	--------	222, 91, 135
785	Sage Hen Mine	45-26-34	112-07-27	Au, Ag, Zn	11	3	Marble, (Am)	Quartz diorite, (Tqd)	128
786	Sandstrom Mine	45-27-08	112-05-11	Ag	11	3	Marble, (Am)	--------	128
787	Silver Bullion Mine	45-27-30	112-05-23	Ag, Au	11	3	Marble, (Am)	Amphibolite, (Aam)	128, 184
788	Smuggler Mine (Emma B. Mine)	45-28-57	112-02-18	Au, Ag, Cu	11	3	Gneiss, (Aqf)	Quartz monzonite, (Kqm)	97, 222, 91
789	Spuhler Gulch Deposit	45-33-45	112-05-38	Tlc, Grp	13	2	Marble, (Am)	--------	228
790	Spuhler Mine	45-33-34	112-05-58	Au, Ag	11	3	Marble, (Am)	--------	169
791	Sunbeam Mine	45-31-41	112-03-10	Au	11	3	Marble, (Am)	--------	147
792	Sunnyside Mine	45-30-20	112-05-25	Au, Ag, Pb	11	3	Gneiss, (Aqf)	--------	222
793	Toledo Mine	45-29-09	112-07-27	Au, Ag, Pb, Cu, Zn	11	3	Marble, (Am)	Aplite, (Kap)	241, 222

794	Wisconsin Creek Placer	45-30-10	112-10-10	Au	03	3	Alluvium, (Qal)	--------	139, 83, 91, 183
795	Wright's Claim	45-26-28	112-06-23	Ag, Pb	11	2	Marble, (Am)	--------	128
796	Wy-Mont Claims	45-23-50	112-04-35	Th	09	2	Gneiss, (Aqf)	--------	80

Siberia (German Gulch) District, Montana

Plutons of intermediate composition have intruded Proterozoic Y, Paleozoic, and Mesozoic strata in this area, on the north edge of the map. Tertiary volcanic rocks occur in part of the district. German Gulch was a major placer gold producer. The silicified and pyritized Cretaceous argillite was probably the source of the placer gold and the altered area is currently being developed as a lode mine at the Beal Lode.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
802	Beal Lode	45-57-15	112-52-50	Au	11	3	Argillite, (Kc)	--------	169
803	German Gulch Placer (Siberia Placers)	45-58-04	112-50-26	Au	03	3	Alluvium, (Qal)	--------	139, 182
804	Hungry Hill Mine	45-55-50	112-55-40	Pb Cu	11	2	Limestone, (Mh)	--------	151
805	Mooney Claims	45-58-01	112-44-17	U	10	2	Quartz monzonite, (Kqm)	Quartz monzonite (Kqm)	23, 149, 74, 233
806	Unnamed Rare Earth Occurrence	45-56-57	112-42-52	REE	09	1	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	228

Silver Star (Iron Rod) District, Montana

Bedrock in this district, in the northeast part of the map, consists dominantly of schist and gneiss of Proterozoic X age which are locally overlain by metamorphic and sedimentary rocks that range in age from Proterozoic Y to Pennsylvanian. All older rocks are intruded by monzogranite and granodiorite of the Boulder batholith, by smaller bodies of diorite and aplite, and by dikes and sills of silicic rocks, all of Cretaceous or Tertiary age. The most important ore deposits occur in northeast-trending veins in gneiss and schist (Sahinen, 1939). These veins were mined for gold and silver, also present is arsenopyrite, pyrite, and subordinate amounts of lead, zinc, and copper minerals in a quartz gangue. Contact deposits at the Broadway and Hudson mines form irregular shoots in Paleozoic limestone along the granodiorite contact. The Green Campbell and the Broadway, both discovered in the 1860's, were the major mines.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
811	Aurora Mine (Aurora and Borealis)	45-40-55	112-20-40	Au, Ag, Pb, Cu, Mn	11	3	Gneiss, (Aqf)	--------	128, 196, 184
812	Aurora Chromite Occurrence	45-40-53	112-20-05	Cr	04	1	Gneiss, (Aqf)	--------	128, 55
813	Baccharat Mine	45-39-32	112-19-57	Au, Pb, Cu	11	3	Gneiss, (Aqf)	--------	196
814	Bedford Mine	45-40-50	112-19-18	Au	11	3	Gneiss, (Aqf)	--------	128, 182

815	Broadway Mine (Victoria Mine)	45-41-47	112-18-50	Au, Ag, Cu, Pb, Zn	07	3	Limestone, (€h)	Granodiorite, (Kgd)	241, 196, 91, 78, 184, 143
816	Clancy Mine	45-42-45	112-20-35	Cu	07	2	Limestone, (€h)	Granodiorite, (Kgd)	64
817	Clipper Mine	45-39-33	112-19-42	Au, Ag, Pb	11	3	Gneiss, (Aqf)	--------	128
818	Cricket Mine	45-40-19	112-19-40	Au, Ag	11	3	Gneiss, (Aqf)	--------	128, 239
819	Edgerton Mine	45-41-45	112-19-37	Au, Ag, Cu, Pb	11	3	Gneiss, (Aqf)	--------	196, 224
820	Galena Mine	45-41-06	112-19-36	Pb, Ag	11	2	Gneiss, (Aqf)	--------	128
821	Golden Antler Mine	45-39-35	112-19-00	Chl	08	3	Gneiss, (Aqf)	--------	39
822	Green Campbell Mine	45-41-45	112-19-55	Au, Ag, Cu	11	3	Gneiss, (Aqf)	--------	78, 196
823	Hells Canyon Placer	45-38-50	112-22-08	Au	03	3	Alluvium, (Qal)	--------	139
824	Hudson Group	45-41-40	112-18-37	Au, Ag, Cu, Pb, Zn	07	3	Limestone, (€h)	Granodiorite, (Kgd)	241, 196, 78
825	Iron Rod Group (Golden Rod)	45-39-17	112-19-10	Au, Ag, Cu, Pb	11	3	Gneiss, (Aqf)	Lamprophyre, (Kl)	78, 196, 241, 91, 182
826	Julia Lee Mine (Cannon Ball Mine)	45-40-38	112-23-16	Ag, Au	11	3	Monzogranite, (Kmg)	Monzogranite, (Kmg)	224
827	Keystone Mine	45-41-57	112-19-06	Au, Ag, Cu	07	3	Gneiss, (Aqf)	Granodiorite, (Kgd)	99, 100
828	Mammoth Mine	45-37-12	112-19-52	Au, Ag, Pb, Cu	11	2	Gneiss, (Aqf)	--------	196
829	Mohawk Mine (Chromite Mine)	45-40-42	112-19-39	Cr	04	3	Gneiss, (Aqf)	--------	184
830	Moonlight Mine	45-40-19	112-19-55	Au, Ag	11	3	Gneiss, (Aqf)	--------	196, 238
831	Moonlight Chromite Occurrence	45-40-18	112-19-43	Cr	04	1	Gneiss, (Aqf)	--------	128, 55
832	Rhyolite Mine	45-41-36	112-19-39	Au, Pb, Cu	11	2	Gneiss, (Aqf)	--------	196
833	Shamrock Mine	45-42-38	112-19-45	Au, Ag, Cu	07	3	Gneiss, (Aqf)	Granodiorite, (Kgd)	220
834	Silver King Mine	45-37-01	112-20-56	Au, Ag, Pb, Cu	11	3	Gneiss, (Aqf)	--------	196, 101
835	Silver Star Mine (Morning Star, Star Mine)	45-41-00	112-19-20	Au, Ag	11	3	Gneiss, (Aqf)	--------	128, 196
836	Stella Mine	45-40-38	112-20-35	Au, Ag	11	3	Gneiss, (Aqf)	--------	196, 91, 128

South Boulder District (Mammoth), Montana

Bedrock in this district, located along the east edge of the map, consists of Archean quartzofeldspathic gneiss intruded by the Cretaceous Tobacco Root batholith. Most mineral deposits are gold or copper in quartz veins or ore shoots in gneiss, or in quartz monzonite of the batholith near gneiss contacts. Ore minerals include chalcopyrite, bornite, argentiferous galena, pyrite, sphalerite, and molybdenite. Gold mines operating during the late 1800's, such as the Mammoth, profitably mined oxidized ores but when these ores were exhausted, efforts to treat sulfide ores were unsuccessful and the district became unproductive (Winchell, 1914). Subsequent development concentrated on properties exploiting copper veins, such as the Bismark mine.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
837	Bismark Mine	45-36-45	112-02-46	Ag, Pb, Cu, Au, Zn, Mo	11	3	Gneiss, (Aqf)	Granodiorite, (Kgd)	241, 222, 159
838	Bonanza Mine	45-39-46	112-01-58	Au	11	2	Gneiss, (Aqf)	----------	159
839	Castle Rock Prospect	45-35-35	112-05-57	Au, Ag, Pb	11	2	Gneiss, (Aqf)	----------	159
840	Craig Prospect	45-36-29	112-06-13	Au, Ag, Cu, Pb, Zn	11	2	Gneiss, (Aqf)	----------	159
841	Curly Bill-Curly Bill No. 2	45-35-04	112-04-42	Au	11	2	Gneiss, (Aqf)	----------	159
842	Curly Bill No. 3	45-35-36	112-04-56	Au, Ag, Cu	11	2	Gneiss, (Aqf)	----------	159
843	General Jackson Mine	45-35-17	112-05-53	Au, Ag, Pb	11	2	Gneiss, (Aqf)	----------	159
844	Granite Mountain Prospect	45-34-10	112-02-10	Cu, Mo	05	2	Granodiorite, (Kgd)	Granodiorite, (Kgd)	159
845	Highland Mary Prospect	45-40-05	112-02-38	Au, Ag	11	2	Gneiss, (Aqf)	----------	159
846	Inha Prospect	45-35-23	112-00-34	Ag, Pb, Cu, Zn	11	2	Gneiss, (Aqf)	----------	159
847	Lester Baker and Billie Prospects, Mogollan (Mogullian) Mine	45-35-50	112-00-55	Au, Ag, Pb	11	2	Granodiorite, (Kgd)	Granodiorite, (Kgd)	159, 241
848	Mammoth Mine (Leviathon Mine)	45-40-02	112-00-47	Au, Ag, Cu	11	3	Gneiss, (Aqf)	----------	241, 135, 91, 222, 159
849	Midnight Prospect	45-35-40	112-05-40	Au, Ag	11	2	Gneiss, (Aqf)	----------	159
850	Mountain Boy Mine	45-40-04	112-01-30	Au, Ag	11	2	Gneiss, (Aqf)	----------	159
851	Old Cabin Prospect	45-36-08	112-05-20	Au, Ag	11	2	Gneiss, (Aqf)	----------	159, 226
852	Quartz City Prospect	45-37-00	112-03-00	Ag, Cu, Pb, Mo	11	2	Gneiss, (Aqf)	----------	159

853	Ridge Way Mine and Bangus-Hughes No. 1 Prospect (Nicholson Mine, Ridgeway)	45-35-43	112-00-48	Au, Ag, Cu, Pb	11	3	Granodiorite, (Kgd)	Granodiorite, (Kgd)	159, 184, 224
854	Snyder Mine (Old Cabin Extension)	45-35-55	112-05-40	Au, Cu, Ag	11	3	Gneiss, (Aqf)	--------	159, 226
855	South Boulder River Placer	45-41-30	112-00-40	Au	03	3	Alluvium, (Qal)	--------	139
856	Sultana Mine	45-37-20	112-01-55	Au, Ag	11	2	Gneiss, (Aqf)	--------	159, 241
857	White Chief Prospect	45-37-17	112-02-18	Au, Ag, Cu, Pb, W	11	2	Gneiss, (Aqf)	--------	159

Sula Area, Montana

This area, located in the northwest corner of the map, is mostly within the Idaho batholith. Only a few mineral occurrences are known. Those listed are occurrences of beryl about which little is known. Locations are probably accurate only to within a mile.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
859	Lucky Strike Prospect	45-54-27	113-52-33	Be	13	3	Diorite, (TKd)	Diorite, (TKd)	168
860	Unnamed Be Occurrence	45-52-26	113-58-58	Be	13	1	Granodiorite, (Kgd)	Granodiorite, (Kgd)	198

Summit Valley (Butte) District, Montana

Only the southern fringe of the district, south of Butte, is within the Dillon quadrangle. Butte Quartz Monzonite forms the principal bedrock. It is intruded by dikes and sheets of aplite, quartz porphyry, dacite, and rhyolite and overlain by tuffaceous deposits of Tertiary age. The concentric alteration zoning of the Butte district extends slightly into the Dillon quadrangle, and is probably responsible for the base and precious metal mines containing manganese listed here. These mines date from the late 1800's, but are not well known, and locations are probably accurate only to within a mile.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
863	Anna Mine	45-58-55	112-33-30	Au, Ag	11	3	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	184
864	Best Hope Mine	45-58-30	112-36-10	Au, Ag, Pb, Zn, Mn	11	3	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	91
865	Blue Vein Mine	45-58-33	112-35-20	Au, Cu	11	3	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	91
866	Despatch Mine	45-59-50	112-32-42	Mn	02	3	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	228
867	Good Luck Mine	45-58-57	112-32-10	Au, Ag	11	2	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	64

868	Janney Pegmatites	45-54-38	112-28-34	REE	09	1	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	162
869	Rising Sun Claims	45-59-47	112-28-37	Au, Ag, Pb, Cu, Mn	11	2	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	229
870	Shorty Mine (Addition)	45-55-29	112-26-03	Au, Ag, Cu	11	3	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	184

Tidal Wave (Twin Bridges, Bear Gulch, Goodrich Gulch, Dry and Wet Georgia Gulches) District, Montana

Small bodies of Cretaceous quartz monzonite and monzonite have intruded Archean gneiss and schist and Paleozoic limestone, sandstone, and shale that had been faulted and tilted in this district, in the east-central map area. These rocks are also cut locally by sills of porphyritic granite, syenite, and andesite and by dikes of aplite. The ore deposits in the district are vein and replacement deposits in limestone and veins in gneiss and schist. Sparse deposits occur in the quartz monzonite near its contact with the country rocks. Most of the veins contain gold and lesser amounts of lead, silver, copper, and zinc. Contact metasomatic deposits mainly produced copper and lead, but contain silver and gold as minor constituents.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
878	Argenta Mine	45-33-00	112-10-35	Au, Ag, Pb, Cu, Zn	11	3	Gneiss, (Aqf)	Aplite, (Kap)	241, 114
879	Bear Gulch Adit	45-35-35	112-12-18	Au, Ag, Cu, Pb, Zn	11	2	Limestone, (Mm)	----------	114
880	Bear Gulch Placer	45-35-50	112-09-40	Au	03	3	Alluvium, (Qal)	----------	139
881	Bielenberg and Higgins Mine (Pete and Joe, B & H Mine, U.S. Gold Corp. Mine)	45-35-38	112-07-50	Au	11	3	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	247, 135, 114, 222
882	Bismark-Nugget Group	45-32-25	112-11-12	Au, Ag, Pb, Cu, Zn	11	2	Gneiss, (Aqf)	----------	114
883	Bismuth Prospect	45-33-36	112-12-17	Au, Ag, Pb, Cu, Zn	11	2	Gneiss, (Aqf)	----------	114
884	Black Ace Mine	45-32-05	112-11-45	Au, Ag, Cu, Pb, Zn	11	3	Gneiss, (Aqf)	----------	114
885	Boulder Cobalt Mine	45-35-53	112-07-16	Au, Ag, Cu	11	3	Gneiss, (Aqf)	----------	159
886	Bryzant Mine (Deutschland Mine)	45-32-21	112-13-02	Ag, Pb, Cu, Au, Zn	11	3	Gneiss, (Aqf)	----------	114, 222
887	Bullidick Prospect	45-32-52	112-12-09	Au, Ag, Zn, Cu, Pb	11	2	Gneiss, (Aqf)	----------	114
888	Carolina Mine	45-33-17	112-11-15	Au, Ag, Cu, Pb, Zn	11	3	Quartzite, (Qf)	----------	114, 241

889	Cop Prospect	45-32-25	112-12-40	Au, Ag, Cu, Pb, Zn	11	3	Gneiss, (Aqf)	--------	114
890	Corncracker Mine	45-32-20	112-12-22	Au, Ag, Cu	11	3	Gneiss, (Aqf)	--------	114, 222, 135
891	Crystal Lake Mining Co. Property (Goldie, Elenora)	45-33-10	112-10-40	Au, Ag, Pb	11	3	Gneiss, (Aqf)	--------	241, 222, 114
892	Diamond Hitch Mine	45-32-05	112-09-49	Au, Ag, Pb	11	2	Gneiss, (Aqf)	--------	220
893	Dry Georgia Gulch Placer	45-32-05	112-13-00	Au	03	3	Alluvium, (Qal)	--------	139
894	Dullea Prospect	45-32-17	112-10-51	Au, Ag, Cu, Pb, Zn	11	3	Gneiss, (Aqf)	--------	114
895	Ella Mine	45-32-33	112-11-13	Au, Ag, Pb, Cu, Zn	11	3	Gneiss, (Aqf)	Andesite, (Ka)	114, 91, 241
896	Empire State Prospect	45-32-38	112-12-20	Au, Ag, Pb, Cu, Zn	11	2	Gneiss, (Aqf)	--------	114
897	Falcon Prospect	45-31-45	112-12-18	Au, Ag, Zn, Cu, Pb	11	2	Gneiss, (Aqf)	--------	114
898	Fork Prospect	45-32-02	112-12-49	Au, Ag, Pb, Zn, Cu	11	2	Gneiss, (Aqf)	--------	114
899	Goodrich Gulch Placer	45-33-23	112-11-20	Au	03	3	Alluvium, (Qal)	--------	139
900	Hamilton Prospects (Hamilton No. 1 & 2)	45-36-10	112-09-27	Pb, Zn	11	2	Gneiss, (Aqf)	Syenite porphyry, (Ksp)	114
901	Hawkeye Mine	45-32-54	112-02-00	Ag, Pb, Zn	11	3	Limestone, (Cm)	--------	135, 220
902	Heller Prospect	45-31-35	112-12-20	Au, Ag, Cu, Pb, Zn	11	3	Gneiss, (Aqf)	--------	114
903	High Ridge Mine (Hi-Ridge, Highridge)	45-32-32	112-11-53	Au, Ag, Cu, Pb, Zn	11	3	Shale, (Cw)	--------	114, 222, 241, 135
904	Johnston-Moffet Mine (Mountain View)	45-36-14	112-11-15	Cu, Ag, Au,	07	3	Limestone, (Mm)	Quartz monzonite, (Kqm)	79, 187
905	Kathleen Prospect	45-39-10	112-07-42	Au, Ag	11	2	Limestone, (Cm)	Quartz monzonite, (Kqm)	159
906	Kreuger Property (Edwin Forest)	45-34-35	112-13-02	Au, Ag, Cu, Pb, Zn	11	3	Gneiss, (Aqf)	--------	114

907	Little Bear Gulch Properties (Little Bear, Grouse, Copper King)	45-35-37	112-09-45	Au, Ag, Pb	11	3	Dolomite, (Ɛm)	Syenite porphyry, (Ksp)	114, 222
908	Lone Star Prospect	45-32-42	112-10-56	Au, Ag, Cu, Pb, Zn	11	3	Gneiss, (Aqf)	--------	114
909	Lottie Mine	45-33-45	112-11-30	Au, Ag, Cu, Pb, Zn	11	3	Gneiss, (Aqf)	Quartz monzonite, (Kqm)	91, 114
910	Main Street Prospect	45-32-19	112-11-20	Au, Ag, Cu, Pb, Zn	11	3	Limestone, (Ɛm)	--------	114
911	Mountain View Mine	45-32-54	112-02-10	Au, Ag	11	3	Limestone, (Ɛm)	--------	114
912	New York Prospect	45-32-31	112-12-23	Au, Ag, Cu, Pb, Zn	11	2	Gneiss, (Aqf)	--------	114
913	Ohio Mine (Ohio Lode Mine)	45-38-05	112-09-20	Au, Ag	11	3	Limestone, (Ɛm)	--------	159, 226, 147
914	Pearson Prospect	45-31-55	112-12-25	Au, Ag, Cu, Pb, Zn	11	2	Gneiss, (Aqf)	--------	114
915	Plainview Prospect	45-33-08	112-13-55	Au, Ag, Cu	11	2	Limestone, (Ɛh)	--------	114
916	Red Bell Mine	45-33-43	112-10-00	Au, Ag, Pb, Zn	11	3	Gneiss, (Aqf)	--------	241
917	Rex Prospect	45-32-10	112-12-47	Ag, Au, Cu, Pb, Zn	11	2	Gneiss, (Aqf)	--------	114
918	Richmond Group (Eagle, Hummingbird)	45-34-55	112-11-42	Au, Ag, Cu, Pb, Zn	11	3	Shale, (Ɛw)	--------	114
919	Schmidt Prospect	45-34-00	112-08-50	Au, Ag, Pb, Cu, Zn, Mo	11	3	Gneiss, (Aqf)	--------	114, 241, 135
920	Smith Prospect	45-33-25	112-13-25	Ag, Pb	11	3	Limestone, (Ɛh)	--------	114
921	Strawn Mine	45-40-00	112-07-53	Au, Ag	11	3	Limestone, (Ɛm)	--------	222, 114, 135, 159
922	Sunflower Mine	45-32-32	112-12-00	Ag, Au, Pb, Zn	11	3	Limestone, (Ɛm)	--------	114, 135
923	Tidal Wave Mine	45-32-58	112-13-25	Ag, Pb, Cu, Zn, Au	11	3	Limestone, (Ɛh)	--------	114
924	Tipperary	45-33-20	112-09-30	Au, Ag	11	2	Limestone, (Dj)	--------	114
925	Topeka Mine	45-33-10	112-11-00	Au	11	3	Gneiss, (Aqf)	--------	241, 99
926	Union Mine	45-31-08	112-11-50	Au	11	3	Gneiss, (Aqf)	--------	226

927	Unnamed Prospect	45-39-32	112-08-35	Sb, Au, Ag	11	2	Limestone, (Dj)	--------	114
928	Urbane Prospect (Adits No. 2 and 3)	45-33-57	112-11-55	Au, Ag, Cu, Pb, Zn	11	2	Gneiss, (Aqf)	--------	114
929	Walker Prospect	45-31-50	112-12-38	Ag, Au, Cu, Pb, Zn	11	2	Gneiss, (Aqf)	--------	114
930	White Angel Quarry	45-32-44	112-12-19	Ist	13	3	Limestone, (Mh)	--------	86

Upper Basin Creek District, Montana

This district, south of Butte, is within the Burton Park and Climax Gulch plutons of the Boulder batholith and it contains one vein deposit and placer deposits first worked during the 1860's.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
934	Basin Creek Placer	45-50-30	112-31-40	Au	03	3	Alluvium, (Qal)	--------	139, 197, 182
935	Bear Creek Placer	45-50-53	112-33-43	Au	03	3	Alluvium, (Qal)	--------	197
936	Golden Surprise Mine	45-49-50	112-31-10	Au	11	3	Quartz monzonite, (Kqm)	Quartz monzonite, (Kqm)	197

Virginia City (Alder Gulch, Williams Gulch) District, Montana

The Alder Gulch placers, part of which are included along the southeast edge of the map, extend for about 20 miles, and were the longest and most productive ever discovered in Montana. The gold-bearing gravel in Alder Gulch is 30 to 50 feet deep and is most valuable about 6 feet above the soft, plastic bedrock (Koschmann and Bergendahl, 1968). The gravels are of Quaternary age, and the gold was derived directly from the thousands of veins in the district (Lyden, 1948), some of which were also productive. They occur in Archean gneiss and schist, but may also be associated with Cretaceous or Tertiary aplite. The lodes are quartz veins and stringers that contain auriferous pyrite, galena, sphalerite, chalcopyrite, and lesser amounts of gold telluride, tetrahedrite, argentite, and stibnite. The lode mines located in the Dillon quadrangle portion of the district are small producers and are little known.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
938	Alder Gulch Placer	45-19-26	112-00-06	Au	03	3	Alluvium, (Qal)	--------	200, 19, 108, 113, 139, 165, 193, 47
939	Blue Bell Group Mine	45-16-15	112-00-46	Ag, Au	11	3	Gneiss, (Aqf)	--------	97
940	Cook Mine (Fortuna)	45-15-42	112-00-05	Au, Ag	11	3	Gneiss, (Aqf)	--------	222
941	Saint Lawrence Consolidated Mine	45-16-32	112-00-03	Au, Ag	11	3	Gneiss, (Aqf)	--------	126
942	Williams Creek Placer	45-15-48	112-00-52	Au	03	3	Alluvium, (Qal)	--------	183

Whitehall (Cardwell) District, Montana

The rocks in this district, in the northeast corner of the map, are shales, sandstones, and sandy limestones of Proterozoic Y age conformably overlain by a thick sequence of Paleozoic rocks, mainly limestone. The sedimentary rocks are intruded by latite porphyry, andesite, and lamprophyre dikes. Ore occurs in a large breccia body and in veins in the sedimentary rocks and in the latite porphyry. The ore contains auriferous pyrite, galena, and sphalerite in a quartz gangue. The chief mine, the Golden Sunlight, has accounted for roughly three-quarters of the total recorded gold production of the district through 1959 (100,000 oz) (Koschmann and Bergendahl, 1968).

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
945	Black Butte Claim	45-56-30	112-04-13	Au, Ag, Cu	11	3	Limestone, (Gm)	--------	133
946	Burgoyne's Claim	45-54-15	112-01-28	Au, Ag	11	2	Shale, (Yg)	Latite porphyry, (Tlp)	133
947	Camp Owen Claim	45-55-02	112-02-08	Pb	11	2	Shale, (Yg)	--------	133
948	Carbonate Mine	45-55-05	112-02-23	Au, Ag, Pb, Cu, Zn	11	3	Shale, (Yg)	--------	133, 188
949	Columbia Claim	45-55-02	112-01-42	Au, Ag, Cu	11	3	Shale, (Yg)	--------	133
950	Examiner Mine	45-55-36	112-02-45	Au, Ag, Cu, Pb, Zn, Mn	11	3	Shale, (Yg)	--------	133, 188
951	Florence Group	45-55-18	112-01-55	Au, Ag, Cu, Pb, Zn	11	3	Shale, (Yg)	--------	133, 188, 184
952	Gem Mine	45-55-24	112-02-23	Au, Ag, Cu, Pb, Zn	11	3	Shale, (Yg)	--------	133, 188
953	Golden Sunlight Mine (Ohio Adit)	45-54-22	112-00-51	Au, Ag, Cu	11	3	Latite porphyry, (Tlp)	Lamprophyre, (Tl)	62, 175, 176 72, 189, 133, 188, 3
954	Inspiration Mine	45-54-57	112-01-31	Au, Ag, Cu, Pb, Zn	11	3	Shale, (Yg)	--------	133, 188
955	Ironside Mine (Ironsides)	45-55-20	112-02-50	Ag, Pb, Cu, Zn, Au	11	3	Shale, (Yg)	--------	133
956	Leah Mine (Apex and Leah)	45-54-37	112-00-57	Ag, Au, Cu, Pb	11	3	Shale, (Yg)	--------	133
957	Limerock Claim (Long Walk)	45-55-52	112-02-27	Au, Ag, Mn	11	2	Shale, (Yg)	--------	133
958	Lucky Hit Mine	45-54-50	112-01-54	Au, Ag, Cu, Pb	11	3	Shale, (Yg)	Andesite, (Ta)	92, 133, 188, 245

959	Midnight Mine	45-55-48	112-01-52	Au, Ag, Pb, Cu, Zn	11	3	Quartzite, (Ef)	--------	133, 188
960	Minerva Mine	45-55-18	112-02-24	Au, Ag, Cu, Pb, Zn	11	3	Shale, (Yg)	--------	133, 188
961	Parrot Mine (Paroll Chief)	45-55-40	112-02-15	Au, Ag, Pb, Cu, Zn, Mn	11	3	Shale, (Yg)	--------	133, 188
962	Payday Claim	45-55-18	112-01-35	Au, Ag, Pb	11	3	Shale, (Yg)	--------	133
963	Perhaps Mine	45-55-37	112-02-07	Au, Ag, Pb, Cu, Zn, Mn	11	3	Shale, (Yg)	--------	133, 188
964	Pine Tree Claim	45-55-44	112-02-15	Au, Ag, Pb, Cu	11	3	Shale, (Yg)	--------	133
965	Saddle Horse Mine	45-55-15	112-01-35	Ag, Au	11	3	Shale, (Yg)	--------	133
966	Silver Dollar Claim	45-55-35	112-01-34	Au, Ag, Pb	11	2	Limestone, (Em)	Lamprophyre, (Kl)	133
967	South View Mine	45-54-35	112-02-10	Au, Ag, Pb, Cu, Zn	11	3	Sandstone, (Ylh)	Latite porphyry, (Tlp)	133, 188, 87
968	Statler's St. Paul Gulch Claim	45-54-08	112-02-21	Pb	11	2	Sandstone, (Ylh)	--------	133
969	Streak-of-luck Claim	45-55-29	112-01-58	Au, Ag	11	3	Shale, (Yg)	--------	133
970	Sunny Corner Mine (Sunny, Milburn)	45-54-48	112-02-07	Au, Ag, Cu, Pb, Zn	11	3	Shale, (Yg)	Latite porphyry, (Tlp)	133, 188
971	Sunnyside Mine	45-55-27	112-01-44	Au, Ag, Pb, Cu, Zn	11	3	Shale, (Yg)	--------	133, 188, 91, 64
972	Sunset Claim	45-55-12	112-01-28	Au, Ag, Pb, Cu	11	3	Shale, (Yg)	--------	133
973	Surprise Mine	45-55-05	112-02-00	Au, Ag, Cu, Pb, Zn	11	3	Shale, (Yg)	--------	133, 188
974	Unnamed Mine	45-54-05	112-01-46	Au, Ag	11	2	Sandstone, (Ylh)	Latite porphyry, (Tlp)	133
975	Whitehall Mine	45-56-00	112-02-50	Ag, Cu, Pb, Zn, Au, Mn	11	3	Shale, (Yg)	--------	133, 188

Whitehall (Renova, Cedar Hollow, Bone Basin) District, Montana

Rocks in this district, near the northeast corner of the map, are Proterozoic Y arkosic sandstone and argillite overlain by Paleozoic sandstone, shale, and limestone. Cretaceous volcanic rocks are also present. Dikes of andesite and quartz porphyry cut the sedimentary rock. Veins cutting Proterozoic rock form most mineral deposits, however, the Mayflower mine, operating from 1896 to 1905, and the most productive in the district, contained chiefly telluride ore along a bedding fault in Paleozoic limestone. It produced about $1,250,000, mainly gold (Winchell, 1914).

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
980	Birsch's Mine (Perry Mine)	45-44-22	112-05-02	Ag, Pb	11	2	Limestone, (Dj)	--------	159
981	Florence Mine (Cook Mine)	45-45-52	112-05-40	Au, Ag, Cu, Pb, Zn, Fe, Cr	11	3	Limestone, (Ɛm)	--------	86
982	Iron King Claim (Lepp, Sunbeam)	45-46-25	112-07-15	Fe, Mn	12	3	Shale, (Ɛw)	--------	181, 166
983	Gold Hill Group	45-47-06	112-05-55	Au, Ag, Cu	11	3	Sandstone, (Ylh)	--------	241, 184
984	Mayflower Mine	45-47-38	112-00-05	Au, Te, Ag	11	3	Limestone, (Ɛm)	Andesite, (Ka)	241, 135, 52, 222, 184
985	Perry Canyon Tungsten Prospect	45-45-05	112-07-45	W, Mo	07	2	Limestone, (Dj)	Quartz monzonite, (Kqm)	234
986	Surprise Mine	45-47-40	112-05-35	Au	11	3	Sandstone, (Ylh)	Quartz porphyry, (Kqp)	241, 36

Wisdom District, Montana

Granodiorite and tonalite of Cretaceous and Tertiary age intruded quartzite of the Missoula Group in this district, located in the west-central map area. Aplite and pegmatite occur throughout the granodiorite and tonalite. Numerous small and narrow quartz-pyrite veins cut the plutonic rocks, many of them associated with aplite. Gold and silver are found in some of these veins but the values are irregularly distributed and individual ore shoots are small. Mining began in 1869 and has continued to the present, but production has been small.

SITE NO.	SITE NAME (SYNONYMS)	LATITUDE NORTH	LONGITUDE WEST	COMMODITIES PRESENT	DEPOSIT TYPE	STATUS	HOST ROCK(S)	ASSOCIATED IGNEOUS ROCKS	SOURCES OF DATA
991	Black Bear Claim	45-34-25	113-15-05	Ag, Pb, Mo, Cu, Zn	11	2	Quartzite, (Ym)	--------	41
992	Clara Mine (Monty Clinton)	45-34-43	113-22-38	Ag, Au	11	3	Tonalite, (TKt)	Tonalite, (TKt)	88
993	Coeur d'Alene Mine	45-34-50	113-19-30	Ag, Au, Pb, Cu, Zn	11	2	Quartzite, (Ym)	--------	41
994	Diadem Group (Arnold Mine)	45-35-06	113-22-15	Au, Ag, Cu, Pb, Zn	11	3	Tonalite, (TKt)	Tonalite, (TKt)	97
995	Franklin Claims	45-36-20	113-18-50	Au, Ag	11	2	Granodiorite, (Kgd)	Granodiorite, (Kgd)	41
996	Jenney Mine (Jennie, Golden Jenny, Michelle Linda)	45-36-05	113-19-50	Au, Ag, Pb, Cu, Zn	11	2	Granodiorite, (Kgd)	Granodiorite, (Kgd)	41

997	Martin Mine	45-33-32	113-15-23	Au, Ag, Cu, Pb, Zn, Mo	11	3	Granodiorite, (Kgd)	Granodiorite, (Kgd)	200, 88, 41
998	Maynard Mine (Shady Rest Lode)	45-36-20	113-17-59	Au, Ag, Cu, Pb, Zn	11	3	Granodiorite, (Kgd)	Granodiorite, (Kgd)	88, 41
999	Shelley	45-36-20	113-19-34	Au	11	2	Granodiorite, (Kgd)	Granodiorite, (Kgd)	41
1000	Steel Creek Bench Placer	45-37-20	113-24-30	Au	03	3	Alluvium, (TQal)	--------	139, 88
1001	Steel Creek Placer (Steele Creek)	45-36-00	113-20-27	Au	03	3	Alluvium, (Qal)	--------	200, 88
1002	Sugar Lode Claim (Sugarplum, Last Chance, Steel Creek Prospect)	45-36-18	113-19-56	Au, Ag, Zn	11	2	Granodiorite, (Kgd)	Granodiorite, (Kgd)	88, 41

COMMODITIES PRESENT

Au	Gold	Coal	Coal (Lignite)	Mn	Manganese	Sil	Silica
Ag	Silver	Cr	Chromium	Mo	Molybdenum	Stn	Building stone
Asb	Asbestos	Cu	Copper	Mon	Monazite	Ta	Tantalum
Ba	Barium	F	Fluorite	Ni	Nickel	Te	Tellurium
Be	Beryllium	Fe	Iron	On	Onyx	Tlc	Talc
Ben	Bentonite	Gem	Gemstone	P	Phosphate	Th	Thorium
Bi	Bismuth	Grp	Graphite	Pb	Lead	Tr	Travertine
Cs	Cesium	Kyn	Kyanite	Pyp	Pyrophyllite	U	Uranium
Chl	Chlorite	Lst	Limestone	REE	Rare Earth Elements	V	Vanadium
Cly	Clay	Mic	Mica	Sb	Antimony	W	Tungsten
						Zn	Zinc

DEPOSIT TYPE

01	Bedded iron formation	08	Talc, pyrophyllite, chlorite
02	Manganese veins	09	Thorium, rare earth elements, in veins
03	Placer Au	10	Uranium, various types
04	Podiform chromite	11	Vein and replacement deposits of base and precious metals
05	Porphyry and stockwork (Cu, Mo, Au)	12	Miscellaneous metallic occurrences
06	Shale-hosted massive sulfide (Zn, Pb, Ag, Fe)	13	Miscellaneous non-metallic occurrences
07	Skarn (Cu, Ag, W, Mo, Fe, Au)		

DEVELOPMENT STATUS

1	Occurrence
2	Mine or prospect, no production or production unknown
3	Mine with recorded production

HOST ROCK(S) AND ASSOCIATED IGNEOUS ROCKS

Aa	Andesite (Archean)
Aam	Amphibolite gneiss (Archean)
Ada	Diabase (Archean)
Af	Iron Formation (Archean)
Am	Marble (Archean)
Ap	Pegmatite (Archean)
Apr	Peridotite (Archean)
Aqf	Quartz-feldspar gneiss (Archean)
As	Schist (Archean)
Ef	Flathead Sandstone (Cambrian)
Eh	Hasmark Formation (Cambrian)
Em	Meagher Limestone (Cambrian)
Ep	Park Shale (Cambrian)
Ew	Wolsey Shale (Cambrian)
Dj	Jefferson Formation (Devonian)
Dt	Three Forks Formation (Devonian)
Du	Devonian sedimentary rocks undivided
Ka	Andesite (Cretaceous)
Kal	Alaskite (Cretaceous)
Kap	Aplite (Cretaceous)
Kc	Colorado Group (Cretaceous)
Kd	Diorite (Cretaceous)
Kdp	Dacite porphyry (Cretaceous)
Kg	Granite (Cretaceous)
Kgd	Granodiorite (Cretaceous)
Kk	Kootenai Formation (Cretaceous)
Kl	Lamprophyre (Cretaceous)
Kmg	Monzogranite (Cretaceous)
Kqm	Quartz monzonite (Cretaceous)
Kqp	Quartz porphyry (Cretaceous)
Ksp	Syenite porphyry (Cretaceous)
Kt	Tuff (Cretaceous)
Ku	Cretaceous sedimentary rocks undivided
Mm	Madison Group (Mississippian)
PMa	Amsden Formation (Pennsylvanian and Mississippian (?))
Pp	Phosphoria Formation (Permian)
Pq	Quadrant Formation (Pennsylvanian)
Pu	Paleozoic rocks undivided
Qal	Alluvium (Quaternary)
Ta	Andesite (Tertiary)
Tc	Challis Volcanics (Tertiary)
Td	Diorite (Tertiary)
Tg	Granite (Tertiary)
Tgd	Granodiorite (Tertiary)
TKd	Diorite (Tertiary and Cretaceous)
TKg	Granite (Tertiary and Cretaceous)
TKgd	Granodiorite (Tertiary and Cretaceous)
TKt	Tonalite (Tertiary and Cretaceous)
Tlp	Latite porphyry (Tertiary)
TQal	Alluvium (Tertiary and Quaternary)
Tqd	Quartz diorite (Tertiary)
Tql	Quartz latite (Tertiary)
Tqp	Quartz porphyry (Tertiary)
Trd	Dinwoody Formation (Triassic)
Ts	Syenodiorite (Tertiary)
Tt	Tuffaceous rocks (Tertiary)
Tv	Tertiary volcanic rocks undivided
Xg	Granite gneiss (Proterozoic X)
Yc	Chamberlain Formation (Proterozoic Y)
Yd	Diorite (Proterozoic Y)
Yda	Diabase (Proterozoic Y)
Yg	Greyson Formation (Proterozoic Y)
Ygd	Granodiorite (Proterozoic Y)
Ygr	Granite (Proterozoic Y)
Yh	Helena Formation (Proterozoic Y)
Yl	Lemhi Group (Proterozoic Y)
Ylh	Lahood Formation (Proterozoic Y)
Ym	Missoula Group (Proterozoic Y)
Yms	Mount Shields Formation (Proterozoic Y)
Yqd	Quartz diorite (Proterozoic Y)
Yqm	Quartz monzonite (Proterozoic Y)
Yqp	Quartz porphyry (Proterozoic Y)
Yy	Yellowjacket Formation (Proterozoic Y)

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KEY TO SITE NUMBERS

Note: District or Area names are given in parentheses for sites having identical names.

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