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UNITED STATES DEPARTMENT OF THE INTERIOR
(BUREAU OF MINES)

SUMMARY REPORT

MINES AND PROSPECTS IN THE SEAFOAM MINING DISTRICT,
CUSTER COUNTY, IDAHO

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This open file report partially summarizes Bureau of Mines data which will be incorporated in a joint report with the U.S. Geological Survey. The report is preliminary and has not been edited or reviewed for conformity with the U.S. Bureau of Mines standards and nomenclature. Work on this study was conducted by personnel from Western Field Operations Center, East 360 Third Avenue, Spokane, Washington 99202

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SUMMARY

This report updates an accounting of mines and prospects in the Seafoam mining district, Custer County, Idaho, begun during mineral appraisal of the Idaho Primitive Area. Thirty-two mine and prospect locations have been added to the Bureau's Mineral Industry Location Subsystem (MILS) data base as a result of initial phases of mineral appraisal of the River of No Return Wilderness; most previously known locations were field checked and the updated information added to the data base.

The district's major deposits include polymetallic fissure veins of gold-silver-lead-zinc-copper hosted by granodiorite and quartz monzonite which have been intruded by dikes ranging in composition from rhyolite to dacite, and vein type replacements of silver-lead-zinc-copper hosted by calcareous xenoliths imbedded in major intrusives. These deposits may be related to the intrusion of the Rapid River pluton or the Casto pluton. The dominant northwest structural trend is parallel to an aeromagnetic high, a weak gravity salient, and the Blue Bunch Mountain dike swarm.

INTRODUCTION

Under provisions of the Wilderness Act of 1964 (Public Law 88-577), and the Central Idaho Wilderness Act of 1980 (Public Law 96-312), personnel from the Western Field Operations Center, U.S. Bureau of Mines, began a survey of mines and prospects in the River of No Return Wilderness during the summer of 1982. A major effort was directed toward locating, identifying, sampling, and describing mines and prospects within and near the Wilderness, exclusive of properties described during previous Bureau investigations of mineral potential of the Idaho Primitive Area and its additions which are now part of the River of No Return Wilderness. This report describes the setting, history, and mines and prospects within and near the southern part of the Seafoam mining district, Custer County, Idaho. A formal assessment of the mineral potential of the River of No Return Wilderness will be published jointly by the U.S. Bureau of Mines and U.S. Geological Survey following completion of field investigations.

The purpose of this open-file report is twofold. First, our investigations to date have revealed far more prospects than previously reported and thus represent the only systematic and complete accounting of these locations. Second, most of the mines and prospects summarized here are outside the River of No Return Wilderness and will not be described in the report addressing its mineral potential. This report encompasses only lode mines and prospects of the Seafoam mining district outside of the former Idaho Primitive Area boundary. Because the boundary of the mining district is an informal one, properties outside of the boundary, particularly to the south, are included in this report. The Greyhound and Seafoam Mines were not studied; these mines have been the most productive or developed in the district and thus the most well-known and documented. Another large producer, the Mountain King Mine, was described by Cater and others (1973, p. 180-185).

SETTING

The Seafoam mining district is in the northwest part of Custer County (fig. 1) and includes the upper reaches of Rapid River and its tributaries, principally Sulphur, Float, Seafoam, and Baldwin Creeks. The district is accessible by State Highway 21 from either Boise or Stanley, Idaho, to the Cape Horn area, and then by gravel Forest Service Road 008 up Beaver Creek, and then up Bear Creek to Vanity Summit and down Vanity Creek (fig. 2). Idaho State Highway 75 links Challis to the east with Stanley and Ketchum to the west and south, respectively. The nearest railheads are Ketchum and Mackay.

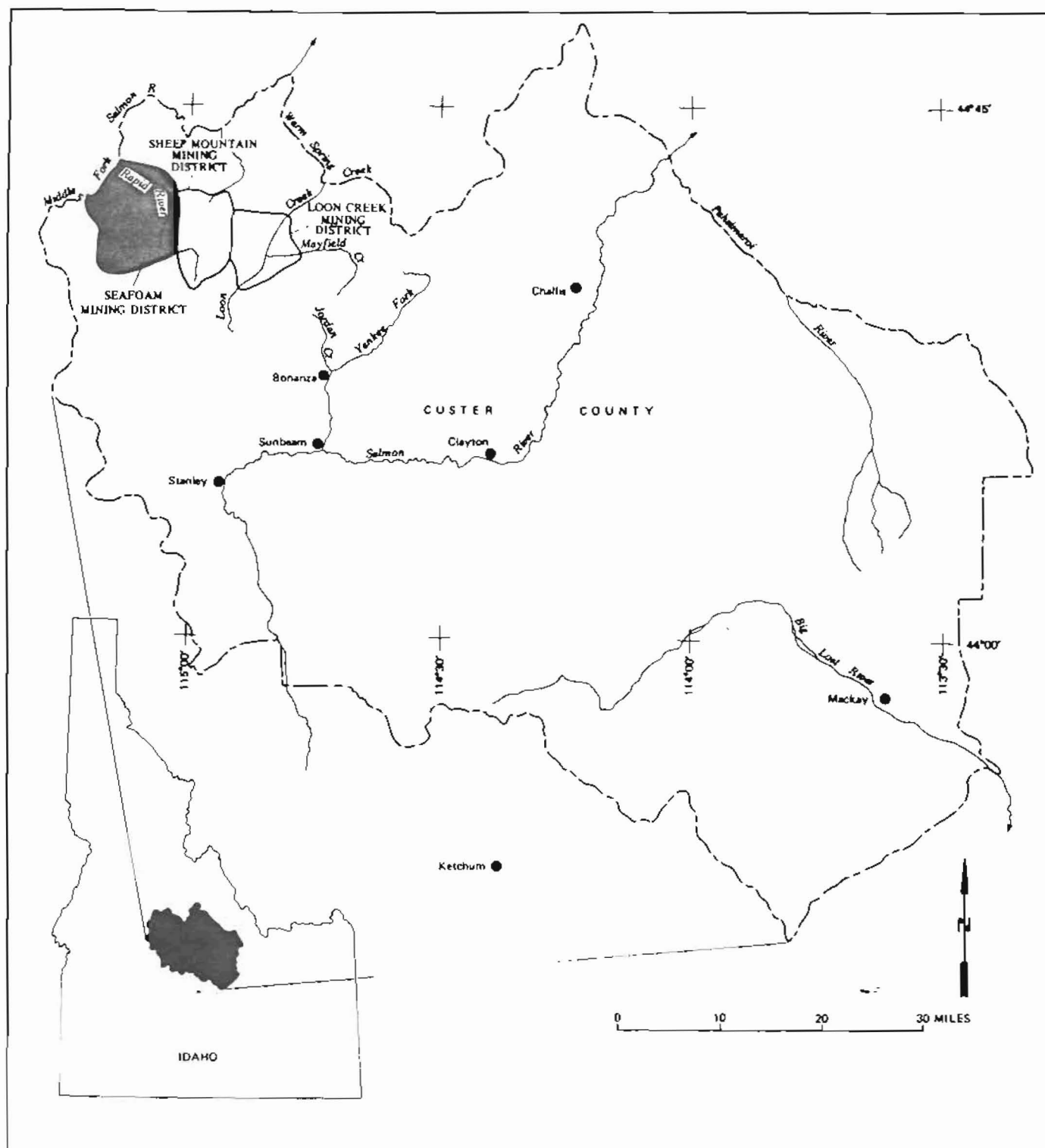


Figure 1. - Index map of the Seafoam mining district

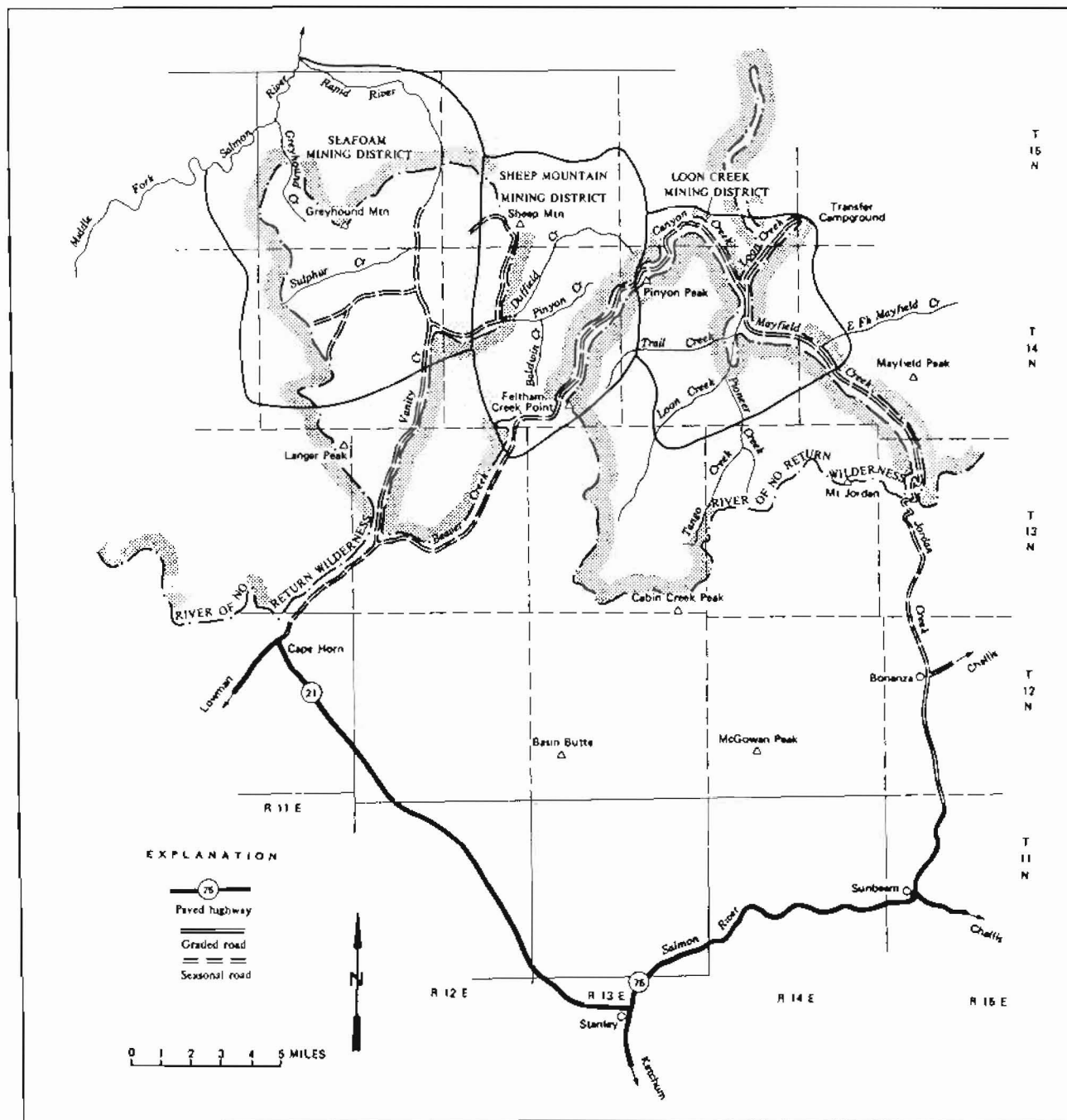


Figure 2. - Access routes to the Seafoam mining district

Elevations within the district range from 4,960 ft on the Middle Fork of the Salmon River to 9,185-ft Mt. Mills, one of several prominent peaks in the district. Topography ranges from rugged to very rugged, principally along stream canyons. Vegetation, dense in the valleys, includes stands of pine, spruce, fir, and aspen that thin toward the ridge tops. Some areas are dominated by brush, principally Ceanothus, bitterbrush, sagebrush, rabbit brush, and mountain mahogany (Treves and Melear, 1953, p. 3). Heavy snowfall is common, often blocking the road into the district in November; this road is usually reopened by June.

PREVIOUS STUDIES

Geology and mineral resources of the Seafoam mining district have been discussed by Bell (1919), Umpleby and Livingston (1920), Ross (1930, 1941), and Treves and Melear (1953). Additional accounts are on the Mountain King Mine (Cater and others, 1973; Olson, 1968), and on the Seafoam Mine (Campbell, 1927). Fringes of the district on the northwest, north, and northeast have been mapped and sampled by Cater and others (1973). The Greyhound Ridge quadrangle has been recently mapped by Bennett (1981) under the U.S. Geological Survey's CUSMAP program for the Challis 1° X 2° sheet. Geochemical studies encompassing parts of the district have been published by Knowles and Bennett (1978).

PRESENT INVESTIGATIONS

Preliminary work included a search of literature pertaining to geology and mineral resources within and near the mining district; historic mining claim locations were checked through Custer County records and recent claim locations were obtained through U.S. Bureau of Land Management records. Known mining locations were obtained through the U.S. Bureau of Mines Mineral Industry Location Subsystem (MILS), a computerized data file of mines and prospects cited in the literature or obtained from other sources. A major part of this study was directed toward: 1) updating existing locations, and 2) adding previously unknown locations to the data file. Each MILS location is assigned a unique sequence number of ten digits corresponding to a three-digit state code, a three-digit county code, and a four-digit deposit reference number, in addition to other data as outlined by Berg and Carrillo (1980). Rather than assign a MILS sequence number for each individual working, a number was given to each group of workings when, in the opinion of the investigator, it was probable that a prospector was attempting to trace an alteration zone or locate extensions of a structure or related structures. The assigned location, then, represents the main working, if more than one is present. Through contacts with claimants, as many names as possible were assigned to the new locations and, where appropriate, older historical names are given in parentheses below the primary name shown in the Appendix.

Most mines and prospects located were examined, mapped, and sampled. Chip samples were taken from mineralized structures when possible, and grab samples were taken from dumps where workings were inaccessible. Samples were crushed, pulverized, split, mixed, and fire-assayed for gold and silver; contract detection limits for these elements are 0.005 and 0.2 oz per ton, respectively. Quantitative values of visible or suspected elements were determined by atomic absorption, colorimetric, or X-ray fluorescence methods.

The boundary of the Seafoam mining district used in this report was transferred from Mitchell and others (1981) to larger scale topographic maps for compilation and reduced for this publication.

GEOLOGIC SUMMARY

Principal geologic background data for this district has been provided by Ross (1930) and by Treves and Melear (1953). Recent geologic mapping by Bennett (1981) is modified in figure 3. The Seafoam mining district lies just inside the eastern border of the Idaho batholith (Treves and Melear, 1953, p. 7) and just southwest of the Tertiary Casto pluton (Cater and others, 1973, p. 26). Bennett (1981) indicates four major intrusive phases of the Idaho batholith are represented in the Seafoam mining district. The intrusive phases consist of quartz diorite of Triassic age, occupying the northern one third of the district, and Cretaceous quartz monzonite, granodiorite, and metasomatic granodiorite in the remaining two-thirds to the south. Roof pendants and xenoliths consisting of schist, quartzite, and/or calc-silicate skarn of uncertain age (Bennett, 1981) are present in the southern part of the district and progressively decrease in both size and occurrence from east to west. Treves and Melear (1953, p. 7) state that this indicates the plutonic rocks in the district are the roofward portion of the batholith and that the roof of the batholith dips to the east in this area. Tertiary dacitic and rhyolitic dikes occur throughout the district with the dacite dikes being most common (Bennett, 1981). Scattered remnants of glacial debris are present; alluvium occurs along major drainages. Landslide material is common on steep slopes.

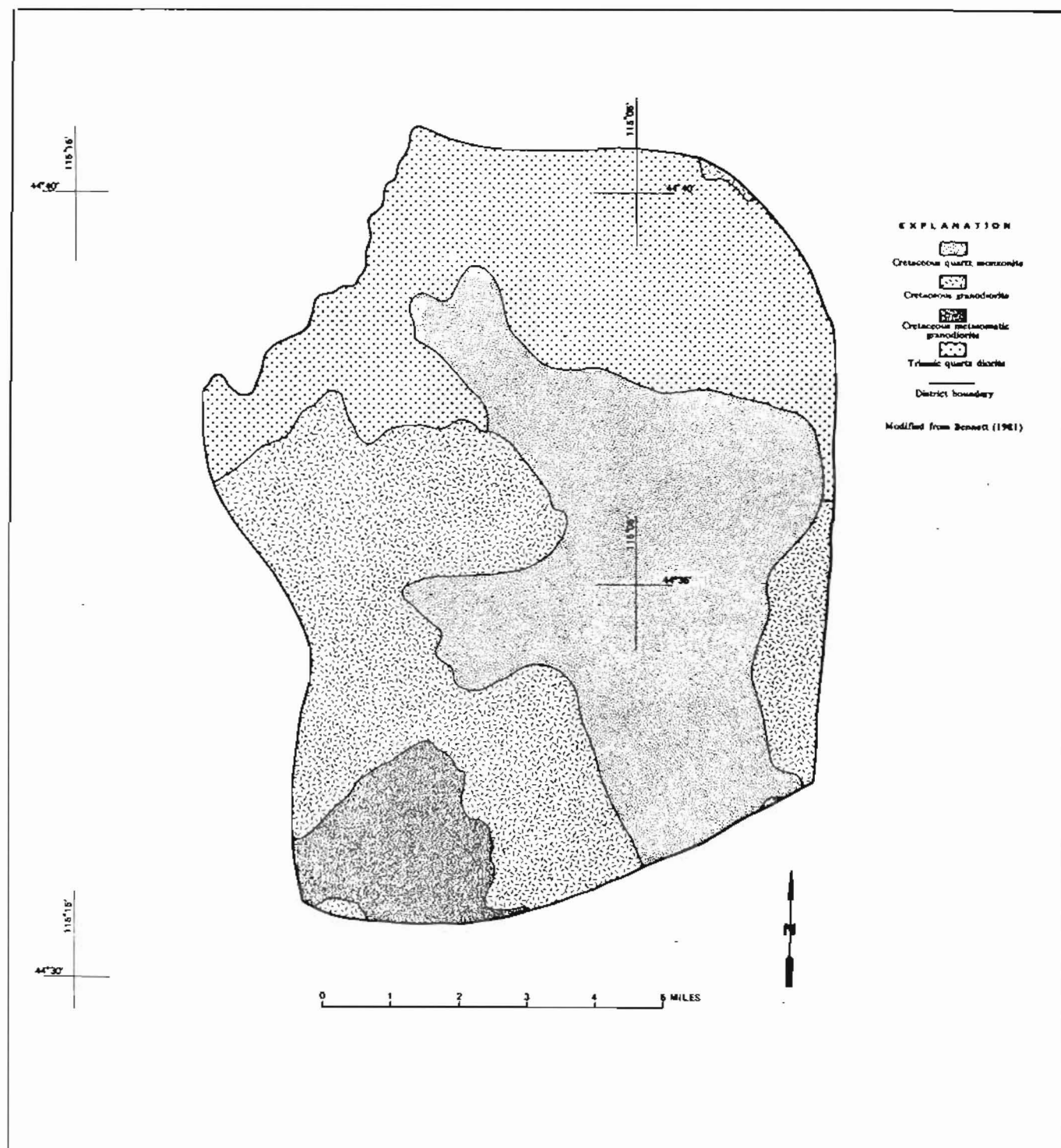


Figure 3. - Generalized geology of the Seafoam mining district

No major faults transecting the district have been identified. However, Treves and Melear (1953, p. 7) mapped two well-defined joint systems, one set striking northwesterly with steep to intermediate dips to the northeast and southwest, the second set striking northeasterly with steep dips to the northwest and southeast. They also state that a less well-defined, east-west steeply-dipping joint set exists. With the exception of a few north-south striking dikes, most dikes conform to the three joint sets (Treves and Melear, 1953, p. 7). Scattered mineralized shear zones in the district follow the dominant northwest and, to a lesser extent, northeast structural trends.

MINERAL DEPOSITS

According to Ross (1930, p. 1), the earliest recorded activity in the district was placer mining at the original settlement of Seafoam, near the present Seafoam Guard Station and the confluence of Seafoam, Baldwin, and Vanity Creeks. Custer County records indicate approximately 1,020 lode claims were located within the district between 1881 and 1980. Twenty percent of these were located during the decade 1901 through 1910 and 34 percent of the total were located during the last two decades. U.S. Bureau of Mines production records show approximately 4,700 tons of ore were extracted from 32 mines between 1910 and 1965. The ore had a historical value of approximately \$332,000; 36 percent of the value was from lead, 35 percent from zinc, 21 percent from silver, 7 percent from gold, and 1 percent from copper. Ninety-three percent of the values were produced between 1939 and 1953. The Mountain King Mine, in particular, and the Greyhound Mine have been the largest producers. Mining activity at other smaller mines in the district corresponds closely to the years of operation at the larger mines. The rise in gold and silver prices since the early 1970's has resulted in renewed interest in the district.

Significant mineral deposits, such as those in the vicinity of the Greyhound and Seafoam Mines, occur in Cretaceous granodiorite and quartz monzonite intruded by dikes ranging in composition from dacite to rhyolite; lamprophyre dikes are also present but less common. These are fissure-filling gold-silver-lead-zinc-copper deposits in northwest-trending shears. The ore occurs in shoots in a gangue of quartz or quartz-calcite. As the district's early history contains reports of stream gravels yielding gold by panning, it is assumed that gold occurs, at least partially, in the free state. Treves and Melear (1953, p. 15), however, state the gold as well as the silver at the Seafoam Mine probably is carried in pyrite. Ross (1930, p. 2) described the Seafoam mining district's lode deposits as lenticular masses arranged en echelon.

A second type of deposit is exemplified by the Mountain King Mine located in the eastern part of the district. This silver-lead-zinc-copper deposit occurs as a replacement in a large limestone pendant in a quartz monzonite host (Ross, 1930, p. 6; Treves and Melear, 1953, p. 16). Cater and others (1973, p. 180-181) state that the principal structure is a northwest-trending 2- to 8-ft-thick replacement vein containing argentiferous galena, pyrite, sphalerite, and chalcopyrite in a siliceous gangue. This type of deposit is more typical of those found in the Sheep Mountain mining district, rather than the common fissure-filling deposits elsewhere in the Seafoam district.

Results from samples taken throughout the district during the 1982 field season indicate that the galena is argentiferous. Where there is a high lead content in samples, there is almost always a corresponding high in silver content. Gold was particularly high in selected samples of heavily oxidized, greenish, porous, earthy material.

The origin of these deposits seems related to mid-Tertiary plutonism for they show similarities to deposits of this metallogenic epoch, as noted by Anderson (1951, p. 605-606). In their description of the Seafoam Mine, Treves and Melear (1953, p. 16) reported that granitic rocks of the Idaho batholith have been intruded by Miocene (?) lamprophyre dikes which, in turn, have been cut by the ore deposits. Trace elements present in the system at the Star Mine (Seafoam Mine group) include arsenic, bismuth, fluorine, molybdenum, beryllium, and niobium, indicating a possible genetic link to intrusion of the Tertiary Casto pluton (Cater and others, 1973, p. 26) or the Tertiary Rapid River pluton (Bennett, 1981). Their intrusive origin is further strengthened by the presence of an elliptical magnetic feature with a 140 gamma closure (U.S. Geological Survey, 1978) having a N. 55° W. axial trend centered over the ridge line west of Soldier Lakes, and a coincident, weak northwest-trending gravity salient (Webring and Mabey, 1981). Both of these features trend across the general northeast trend of similar geophysical features elsewhere in the Challis 1° X 2° quadrangle, but are parallel to the nearby Blue Bunch Mountain dike swarm (Olson, 1968, fig. 29).

Historical mining records indicate that the greatest intensity of claim locations were recorded between the periods 1901-1910 and 1961-1980. These periods, particularly the latter, coincide with significant increases in the price of precious metals. Continued increases or stabilization of precious metal prices or recovery of base metal prices should provide incentive for further exploration in the Seafoam mining district.

Mines and prospects within and near the southern part of the Seafoam mining district are shown on figure 4 and summarized in the Appendix.

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Appendix.--Summary of mines and prospects

Map no.	Property name	MILS sequence number	Workings	Summary
1	Unnamed prospect	0160370848	One caved adit 35 ft long, one trench.	Possible quartz-filled fissure in rhyolite. Quartz float contains minor amounts of pyrite, galena, and arsenopyrite. One grab sample: 0.046 oz/ton gold and 0.6 oz/ton silver.
2	Snowslide Claim	0160370874	One 60-ft adit, a partially collapsed adit, two pits.	Two ft to 4 ft wide quartz-filled fissure vein, strikes N. 40° W., dips 80° NE., in medium-grained quartz monzonite to granodiorite. Massive pyrite in quartz. Three samples averaged 0.312 oz/ton gold; two samples contained 0.2 and 1.3 oz/ton silver.
3	Empire Claim	0160370172	Unknown	Not verified.
4	Chuck Creek Claim	0160370030	Unknown	Not verified.
5	Capital State Claim	0160370113	Two pits.	Cater and others (1973, p. 196-198).
6	Unnamed prospect	0160370771	One small pit.	Quartz monzonite host, slight iron staining. One sample: no precious or base metals detected.
7	Unnamed prospect	0160370480	Possible caved adit.	Deeply weathered quartz monzonite. One select grab sample: <0.005 oz/ton gold and 0.2 oz/ton silver.
8	General Grant Claim (Greyhound Group)	0160370471	One adit.	Not examined.
9	Greyhound Mine	0160370223	Numerous adits and pits.	Not examined; Ross (1930, p. 4-5)
10	Unnamed prospect	0160370474	One caved adit.	Quartz vein in schist in quartz monzonite host. One sample: 0.4 oz/ton silver, no gold detected.
11	Unnamed prospect	0160370770	Two pits.	Quartz monzonite with minor quartz veins and minor argillic alteration. Two samples taken: no precious metals detected.
12	Unnamed prospect	0160370769	One 35-ft trench.	Quartz veins in quartz monzonite. One sample taken: no precious metals detected.
13	Unnamed prospect	0160370768	One 11-ft adit.	Northwest-striking quartz vein with pyrite in quartz monzonite with some metasedimentary xenoliths. Four samples taken: no precious metals detected.
14	Porphyry Peak Claim	0160370112	One trench.	Cater and others (1973, p. 196).
15	Owling Quartz Prospect	0160370660	Two adits, three pits.	Cater and others (1973, p. 195).
16	Brown Bear Prospect	0160370110	Two small open cuts about 80 ft apart.	Cater and others (1973, p. 198).

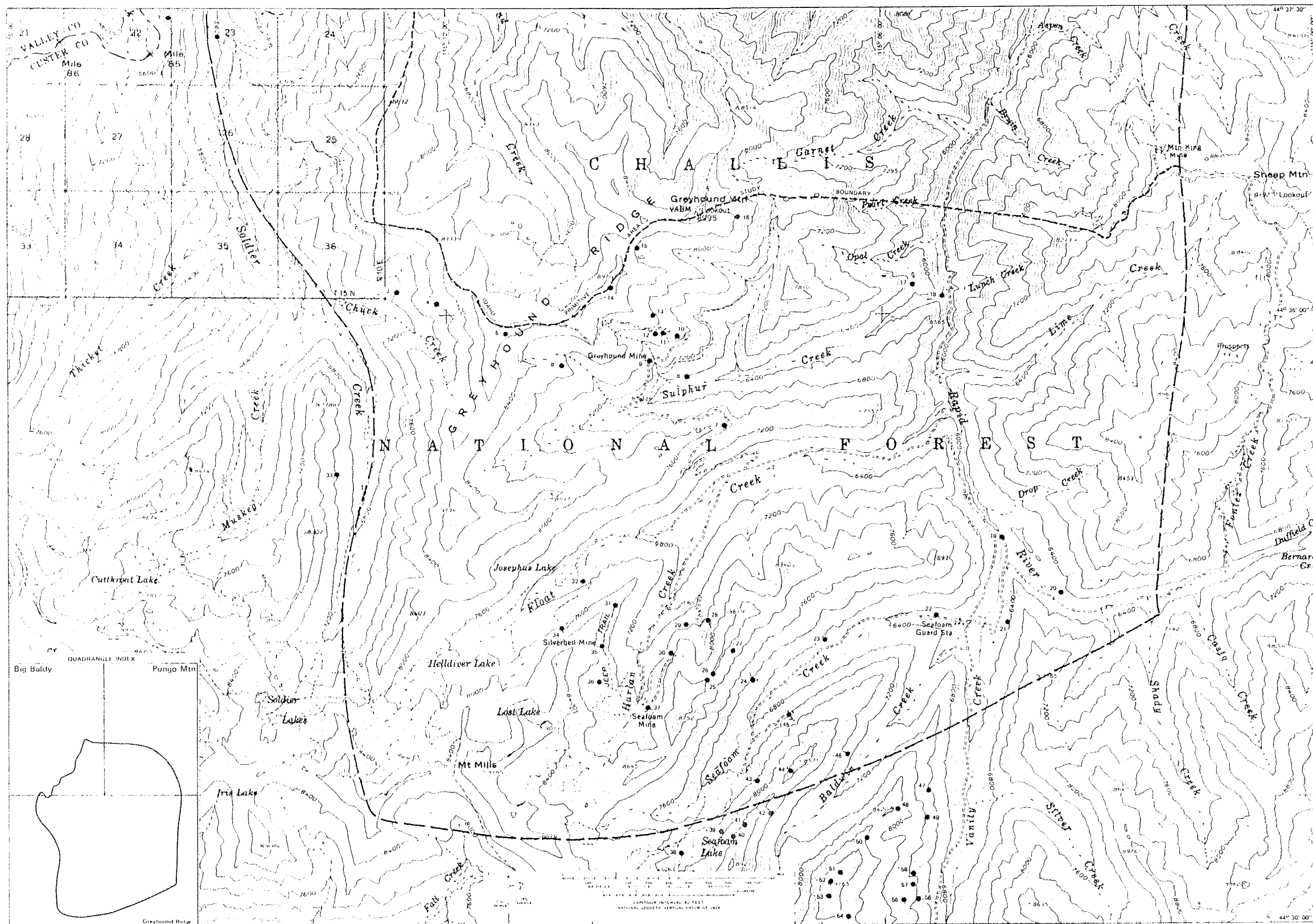


Figure 4. - Mines and prospects in the Seafoam mining district

Appendix.--Summary of mines and prospects--Continued

Map no.	Property name	MJLS Sequence number	Workings	Summary
17	Unnamed prospect	0160370772	One pit.	Skarn zone with iron oxides and pyrite cut by numerous dikes in quartz monzonite host. Two samples: no precious metals detected in one sample; an 80-ft chip sample contained 0.2 oz per/ton silver.
18	Shiney B No. 13 Claim	0160370773	Outcrop.	Schist enclosed in dike rock, in quartz monzonite host. Indication of sulfide oxidation. One sample: no gold, silver, lead or zinc detected.
19	Lovenest Claim	0160370753	One 20-ft adit, one 50-ft trench, seven pits.	Northwest-trending shear in quartz monzonite with mafic dikes and metasedimentary xenoliths. Three select grab and nine chip samples: all select grab samples contained <0.005 oz/ton gold; one contained 2.6 oz/ton silver, 0.34 percent lead, and 0.51 percent zinc. All chip samples contained <0.005 oz/ton gold and <0.2 oz/ton silver; four contained <0.01 percent lead; three averaged 0.06 percent zinc.
20	Unnamed prospect	0160370812	Five-ft adit.	Metasedimentary xenolith in quartz monzonite. One grab sample: no precious metals detected.
21	Nessie No. 12 Claim	0160370754	Two adits, one 160 ft long and one 25 ft long.	Northwest-striking zones in quartz monzonite cut by mafic dikes. Sphalerite, galena, arsenopyrite, pyrite are present. Twelve samples: two select samples contained 0.160 and 0.328 oz/ton gold, 2.8 and 50.0 oz/ton silver, 0.1 and 0.2 percent copper, 2.39 and 8.30 percent lead, and 0.03 and 2.40 percent zinc. Of ten chip samples, only one contained > 0.005 oz/ton gold; four averaged 0.325 oz/ton; of nine analyzed for copper, lead, and zinc, none contained more than 0.01 percent copper; all contained lead and zinc averaging 0.13 percent lead and 0.06 percent zinc.
22	Vanity Creek Claims	0160370240	Unknown	Not verified; may be old placer workings near Seafoam Guard Station.
23	Unnamed prospect	0160370475	One pit.	Disseminated sulfides in silicified schist in granitic host. One chip sample contained 0.01 percent zinc; no gold, silver or lead detected.
24	Enterprise Mine	0160370752	One 150 ft adit, one caved adit estimated <200 ft long.	Shear zone in granodiorite cut by lamprophyre dikes. Granodiorite contains xenoliths of argillite. One select grab sample and four chip samples: the select sample contained 0.052 oz/ton gold, 2.0 oz/ton silver, 0.27 percent lead, and 0.04 percent zinc; chip samples averaged <0.005 oz/ton gold, <0.2 oz/ton silver, 0.01 percent lead, and 0.05 percent zinc.

Appendix.--Summary of mines and prospects--Continued

Map no.	Property name	MLS Sequence number	Workings	Summary
25	Unnamed prospect	0160370774	One pit.	Quartz vein with pyrite in granodiorite. One select grab sample: 0.074 oz/ton gold and 0.01 percent lead.
26	Unnamed prospect	0160370775	One pit.	Heavily iron-stained silicified granodiorite. One sample: no precious metals detected.
27	Clark Colleen Claims (Collister Property)	0160370246	One 13-ft adit, two caved adits estimated >150 ft in total length, two trenches totaling 110 ft in length.	Mineralized shear zone striking N. 35°-45° W. in granodiorite. Abundant iron oxide, arsenopyrite oxidation, and quartz-filled shear zone. Eight chip and three grab samples: four samples contained 0.010, 0.020, and 0.044 oz/ton gold; seven samples contained 0.2, 0.6, 0.8, 1.6, 1.9, 20.3, and 22.2 oz/ton silver; two samples contained 0.13 and 2.01 percent lead; six samples contained 0.01, 0.01, 0.03, 0.05, and 1.92 percent zinc; copper in four samples ranged from 0.01 to 0.55 percent; a 2 ft chip sample contained 22.2 oz/ton silver and 1.92 and 0.55 percent zinc and copper, respectively.
28	Colleen Group	0160370468	Three adits, totaling 566 ft in length.	Quartz-filled shears in granodiorite. Ten samples: two grab samples contained 0.08 and 0.128 oz/ton gold; two grab and two chip samples contained silver ranging from 0.3 to 0.4 oz/ton; lead in seven samples ranged from 0.01 to 0.32 percent, two samples had 0.01 and 0.02 percent zinc; two samples had 0.02 percent copper.
29	Colleen No. 10 Claim	0160370767	One 40-ft adit.	Shear zone containing pyrite in granodiorite with metasedimentary xenoliths. Zone strikes northwest. Three samples: one chip sample contained 0.206 oz/ton gold and 1.2 oz/ton silver; another chip sample contained 0.02 percent zinc; a grab sample contained 0.4 oz/ton silver.
30	Star Mine	0160370469	Eight adits totaling 935 ft; three short, caved adits; nine small pits, one 70-ft trench.	Steeply-dipping silicified shears in quartz monzonite. The main shear (Star Vein) strikes N. 6° W. and dips generally at 90°. The shear is quartz-filled with a sulfide stringer. Forty-eight samples, 14 of which are from the "Star Vein", the remainder from surrounding scattered pits and adits. The Star Vein contains a weighted average of 0.125 oz/ton gold, 4.26 oz/ton silver, 0.11 percent copper, 2.64 percent lead, and 0.968 percent zinc over an 86 ft length and a 2.9 ft width. Gold in the remaining 34 samples ranged from 0.058 to 0.502 oz/ton; silver content ranged from 0.2 to 27.1 oz/ton. Copper, lead and zinc were seldom detected.

Appendix.--Summary of mines and prospects--Continued

Map no.	Property name	MILS Sequence number	Workings	Summary
31	Unnamed prospect	0160370470	Two caved adits with a probable combined length of <75 ft, one trench, one pit.	Probable quartz shear filling in granitic rock. Three samples: no gold, silver, or copper detected; one sample contained 0.01 percent lead and 0.02 percent zinc.
32	Josephus Group (Float Creek Claims)	0160370242	One collapsed adit 50 ft long, four trenches, eighteen pits.	Moderately altered granodiorite float with iron and manganese staining and scattered quartz veins with minute amounts of visible pyrite and galena. Eight samples: no gold or silver detected in one chip sample; of seven grab samples five contained 0.01 to 0.09 oz/ton gold, and six contained 0.2 to 8.4 oz/ton silver.
33	Old Soldier No. 1 Claim (Soldier Creek)	0160370744	Two small adits 6 ft and 35 ft long, two pits.	Two siliceously altered shear zones 3 ft and 4 ft wide strike N. 10° E. and N. 45° W. and dip 75° NW. and 87° SW., respectively, in medium grained quartz monzonite. No visible ore minerals. Two samples: 0.092 and 0.164 oz/ton gold and 0.6 and 0.5 oz/ton silver.
34	Silver Bell Extension Claim	0160370241	Three adits (two caved).	Northwest-striking quartz veins and shear zones in granodiorite. Veins contain pyrite. Five samples: one chip sample contained 0.035 oz/ton gold and 0.2 oz/ton silver; four grab samples contained 0.030, 0.122, 0.130, and 0.398 oz/ton gold, and <0.2, 0.9, and 0.4 oz/ton silver.
35	Silver Bell Group	0160370243	At least one caved adit, three pits or trenches (possible caved adits) totaling 100 ft in length, six small linear pits perpendicular to main workings.	Quartz-filled shear striking N. 60° W. in granodiorite. Silicified limestone xenoliths in the intrusive. Four samples: three select samples contained 0.006, 0.118, and 0.242, 0.006, and 0.118 oz/ton gold; 5.3, 7.3, and 168.7 oz/ton silver; and 0.04, 8.0, and 51 percent lead. A random dump sample contained <0.005 oz/ton gold, 0.3 oz/ton silver, and 0.01 percent lead.
36	Mountain Dew Claim	0160370751	Three caved adits, estimated from 120 to 250 ft long.	Quartz veins and shear zones in granodiorite. Veins striking northwest contain pyrite and galena. Four samples: a select sample contained 0.068 oz/ton gold, 7.9 oz/ton silver, and 1.23 percent lead; three random grab samples averaged 0.041 oz/ton gold, 4.43 oz/ton silver and 2.3 percent lead.
37	Seafoam Mine	0160370247	Four adits on Silver King Claim.	Not examined; Ross (1930, p. 3-4).
38	Wildgoat No. 3 Claim	0160370843	Three pits and one road cut.	One ft to 1 ft 9 in. iron-stained, chloritized shear zone strikes N. 35° W. and dips 55° to 70° NE. in siliceously altered granodiorite. Visible sulfide minerals are pyrite and galena. Two chip and one select grab sample: no gold detected; two contained 1.0 and 4.0 oz/ton silver.

Appendix.--Summary of mines and prospects--Continued

Map no.	Property name	MILS sequence number	Workings	Summary
39	Unnamed prospect	0160370842	One 87-ft adit.	One and one-half ft-wide fault zone strikes N. 10° E., dips 45° SE., with chloritic alteration, calcification, and visible sulfide minerals. The host rock is friable, medium grained granodiorite. Two samples: one contained 0.042 oz/ton gold and 1.8 oz/ton silver.
40	Unnamed prospect	0160370841	One small pit.	Two and one-half ft-wide massive quartz vein strikes N. 18° W., dips 78° SW. in phaneritic granodiorite. No visible ore minerals. One sample: no gold detected and 0.2 oz/ton silver.
41	Unnamed prospect	0160370840	Two small pits.	One and one-half-ft to 5.5 ft-wide altered shear zone striking N. 27° W., dips 63° SW. in phaneritic granodiorite. Quartz veins up to 3 in. wide but no visible ore minerals. Three samples: no gold detected; one contained as much as 0.5 oz/ton silver.
42	Unnamed prospect	0160370465	Two small adits, 150 ft and 50 ft long.	Two-ft to 4 ft-wide siliceous altered zones with three different attitudes--N. 5° E. 90°, N. 35° W. 90°, and N. 60° E. 50° SE. Host rock is phaneritic granodiorite. Three samples: no gold detected; two contained 0.2 and 9.6 oz/ton silver.
43	Wildgoat No. 1 Claim (Trade Dollar Prospect)	0160370476	One 70-ft adit, one small pit.	One ft to 2 ft-wide iron-stained gouge zone strikes N. 10° W. to N. 62° W., dips 90° E. with disseminated pyrite and galena. Host rock is friable, siliceously altered granodiorite. Four samples: no gold detected; three contained 0.2 to 2.4 oz/ton silver.
44	Unnamed prospect	0160370460	Two partly collapsed adits, 35 ft and 80 ft long, eight pits.	Three-ft to five-ft-wide zone of chloritic alteration, strike N. 26° W., dip 80° NE., in phaneritic granodiorite with iron and manganese staining. Localized quartz veining, apparently barren. Six samples: one contained 0.02 oz/ton gold; three contained 3.4 to 20.3 oz/ton silver.
45	Lost Claim Group	0160370244	Four caved adits, one 38 ft adit. Estimated 200 to 300 ft of total workings.	Mineralized shear striking N. 30° W. Five samples: three grab samples contained 0.04, 0.064, and 0.132 oz/ton gold; 5.4, 23.4, and 45.0 oz/ton silver; 0.22, 1.04, and 1.28 percent lead; 0.06, 0.12, and 0.88 percent zinc. Two chip samples contained <0.005 and 0.018 oz/ton gold; 0.3 and 2.0 oz/ton silver; <0.01 and 0.09 percent lead; 0.08 and 0.06 percent zinc. One grab sample contained 0.13 percent antimony.
46	Unnamed prospect	0160370467	Four caved adits, total length estimated 100-250 ft, one small prospect.	Steeply-dipping northwest-striking shears filled with mineralized quartz veins in granodiorite. Six samples: two grab samples contained 0.20 and 0.864 oz/ton gold; two grab samples contained 1.0 and 3.0 oz/ton silver; one sample contained 1.86 and 0.01 percent lead and zinc, respectively. One sample contained 0.01 percent antimony.

Appendix.--Summary of mines and prospects--Continued

Map no.	Property name	MILS sequence number	Workings	Summary
47	Betty Ruth Claim	0160370761	Two adits, 120 ft and 110 ft long, three pits. The upper and lower workings are connected by a winze.	Shear zone containing malachite, pyrite, and arsenopyrite striking northwest in granodiorite. Nine samples: a grab sample contained 0.204 oz/ton gold, 28.0 oz/ton silver, 0.05 percent copper, 5.60 percent lead, and 0.27 percent zinc; eight chip samples contained 0.006 to 0.164 oz/ton gold and 0.5 to 29.0 oz/ton silver. Five chip samples contained copper ranging from 0.01 to 0.05 percent, and five contained lead ranging from 0.22 to 3.65 percent and zinc ranging from 0.03 to 0.13 percent.
48	Wild Buck Claim	0160370759	One caved adit, estimated >40 ft long, and two trenches.	Shear zones strike northwest in granodiorite with biotite schist xenoliths. Four samples: three grab samples averaged 0.059 oz/ton gold and 10.73 oz/ton silver; two averaged 0.83 and 0.03 percent lead and zinc, respectively; one contained 0.04 percent copper. A chip sample contained 0.038 oz/ton gold, 2.8 oz/ton silver, 0.06 percent lead, and 0.02 percent zinc.
49	Surprise No. 1 Claim	0160370764	One 20-ft adit.	Shear zone with pyrite in granodiorite. One sample contained 0.02 percent zinc; no gold, silver, or lead detected.
50	Canary Yellow Claim	0160370760	Two caved adits, estimated at >350 ft total length, one small pit.	Northwest-trending quartz-filled shear in granodiorite. Rock highly altered, some schistose rock in talus. Malachite observed on dump. Three grab samples: <0.2, 48.2, and 61.0 oz/ton silver; 0.62 percent copper; 7.90 and 8.10 percent lead; 0.20 and 0.42 percent zinc.
51	Mia No. 22 Claim	0160370758	One small pit.	Quartz vein with pyrite in mafic metasedimentary rocks. One sample: no gold or silver detected.
52	Mia No. 22 Claim	0160370757	One small pit.	Quartz vein in granodiorite with marble and schist xenoliths. Pyrite and possible molybdenite present. One sample: 0.01 percent copper, and 0.01 percent zinc; no gold, silver, or lead detected.
53	Mia No. 29 Claim	0160370756	One pit or trench.	Northwest-striking quartz veins cutting granodiorite with marble xenoliths. One sample taken: no gold or silver detected.
54	Mia No. 30 Claim	0160370755	One small pit.	Six in. wide quartz vein in northwest-striking shear in granodiorite host rock. A select grab sample: 0.568 oz/ton gold, 20.0 oz/ton silver, 0.22 percent lead, and less than 0.01 percent zinc.

Appendix.--Summary of mines and prospects--Continued

Map no.	Property name	MILS Sequence number	Workings	Summary -
55	Longshot No. 3 Claim	0160370765	Three pits.	Quartz vein in granodiorite. One select grab sample: 1.11 oz/ton gold and 1.0 oz/ton silver.
56	Longshot No. 3 Claim	0160370766	One trench.	North-south striking shear zone with pyrite and arsenopyrite in granodiorite host rock. One grab and one chip sample: 0.118 and 0.134 oz/ton gold, 0.9 and 7.9 oz/ton silver, 0.17 and 7.70 percent lead, and 0.03 and 0.12 percent zinc; the grab sample contained 0.07 percent copper.
57	Long Shot No. 1 Claim	0160370762	Two adits, 50 ft and 80 ft long, one caved adit.	Shear zones and quartz veins in granodiorite with some metasedimentary rocks and diabase dikes. Malachite, pyrite, arsenopyrite, and galena exposed in workings. Shear zones strike west to northwest. Eight samples: seven contained from 0.018 oz/ton to 0.756 oz/ton gold, averaging 0.201 oz/ton; silver ranged from 0.2 to 12.4 oz/ton. Three contained as much as 0.10 percent copper, from 0.17 to 7.90 percent lead, and from 0.01 to 0.13 percent zinc.
58	Bonanza No. 1 Claim	0160370763	Two trenches and three small pits.	Four in. wide quartz vein with pyrite strikes N. 42° W. in granodiorite. Two samples: grab sample contained 0.048 oz/ton gold, 0.7 oz/ton silver, 0.08 percent lead, and 0.01 percent zinc; chip sample contained 0.005 oz/ton gold and 0.2 oz/ton silver.