

History of the Lucky Lad, Franklin D, and Mountain Chief Mines, Valley County, Idaho

Victoria E. Mitchell

Staff Report 08-1
March 2008

Idaho Geological Survey
Morrill Hall, Third Floor
University of Idaho
Moscow, Idaho 83844-3014

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INTRODUCTORY NOTE

This report was prepared under a cooperative agreement with the U.S. Forest Service, Region 4, as part of an ongoing project to identify and describe inactive and abandoned mines in Idaho. The information in this report is from a number of published and unpublished sources in the Idaho Geological Survey's mineral property files. Where not otherwise noted, most of the mine production data is drawn from the U.S. Geological Survey's (USGS) annual volumes on *Mineral Resources of the United States* (1882-1923) and the equivalent volumes produced by the U.S. Bureau of Mines (USBM), *Mineral Resources of the United States*, 1924-1931, and *Minerals Yearbook*, 1932 to 1984; since 1995, the *Minerals Yearbook* has been published by the U.S. Geological Survey. Information on underground workings and mine equipment is generally from the annual reports of the Idaho Inspector of Mines (IMIR) published from 1899 to 1979. After 1974, the Mine Inspector's office was known as the Mine Safety Bureau, a section of the Idaho Department of Labor and Industrial Services. Detailed accounts of mine operations are, for the most part, drawn from the annual reports prepared by the companies for the State Inspector of Mines; these reports were required by law, and the information contained in them formed the basis of the Mine Inspector's annual reports. Reports of recent developments are taken from the Idaho Geological Survey's (IGS) annual reports on the developments in mining and minerals in Idaho (from 1984 to present) or from similar reports produced by the Survey's predecessor, the Idaho Bureau of Mines and Geology (IBMG) from 1975 to 1984. Other published sources are referenced in the text. A complete bibliography is included at the end of the report. Where direct quotations are taken from source materials, the original spelling and grammar are preserved even in cases where they do not conform to currently accepted usage.

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Victoria E. Mitchell¹

PISTOL CREEK RIDGE MINES

INTRODUCTION

The Pistol Creek Ridge mining area is at the headwaters of Forty-five, Gun, and Chokebore Creeks; the two mines from the area discussed in this report, the Lucky Lad and the Franklin D, are at the head of Forty-five Creek (Figures 1, 2, and 3). The area is within the Frank Church-River of No Return Wilderness area, but can be reached by the Artillery Dome road on an all-terrain vehicle (Dean Morgan, 2008, written commun.). The mines are approximately 28 miles from Landmark, Idaho, and 60 miles from Cascade, Idaho. Two properties in the Pistol Creek Ridge area (the Lucky Lad Mine and the Cougar Mine) produced ore between 1935 and 1941. Three other mines, including the Franklin D, have extensive development.

Cater and others (1973, p. 213-214) contained the following general description of the area and the ore deposits:

Pistol Creek Ridge is relatively flat topped but glaciated on northern slopes. The area of mine development has been moderately glaciated, but outcrops are not abundant. The overburden and forest cover on ridgetop and southern flanks make prospecting difficult.

Ore occurs in pods and highly irregular veins within faults that dip steeply and strike N. 40°-80° W. These faults cut both the quartz monzonite of the Cretaceous Idaho batholith and roof pendants of Precambrian quartzite [Figure 4]; they are displaced by postmineralization cross faulting and intrusion of Tertiary andesitic dikes. Partially to highly oxidized ore minerals occur primarily in vuggy quartz veins and in finely ground to blocky iron-stained breccia. Anglesite is present in many places and the sulfides in the vein material are mostly pyrite, galena, and tetrahedrite. Only oxidized ore was mined and none came from more than 60 feet below the surface. Sulfide minerals are exposed in the lower workings of the Lucky Lad and Franklin D. mines.

¹Idaho Geological Survey, Main Office at Moscow, University of Idaho, Moscow.

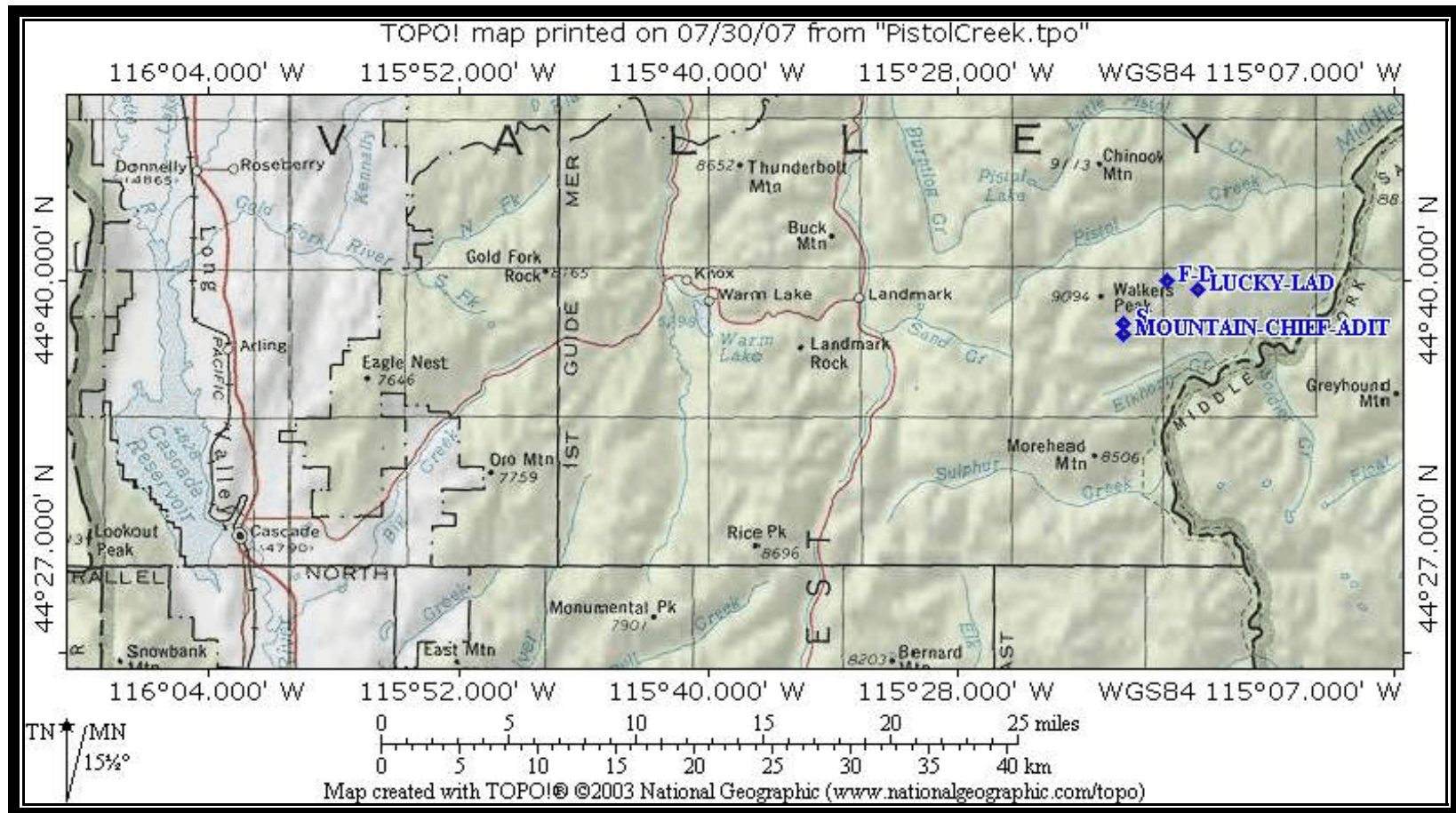


Figure 1. Location map of the Pistol Creek Ridge area mines, showing their relationship to Cascade, the nearest shipping point (National Geographic Society TOPO! map, scale approximately 1:500,000). The site labeled “F-D” is the Franklin D Mine, while the site labeled “S” is the Mountain Chief shaft.

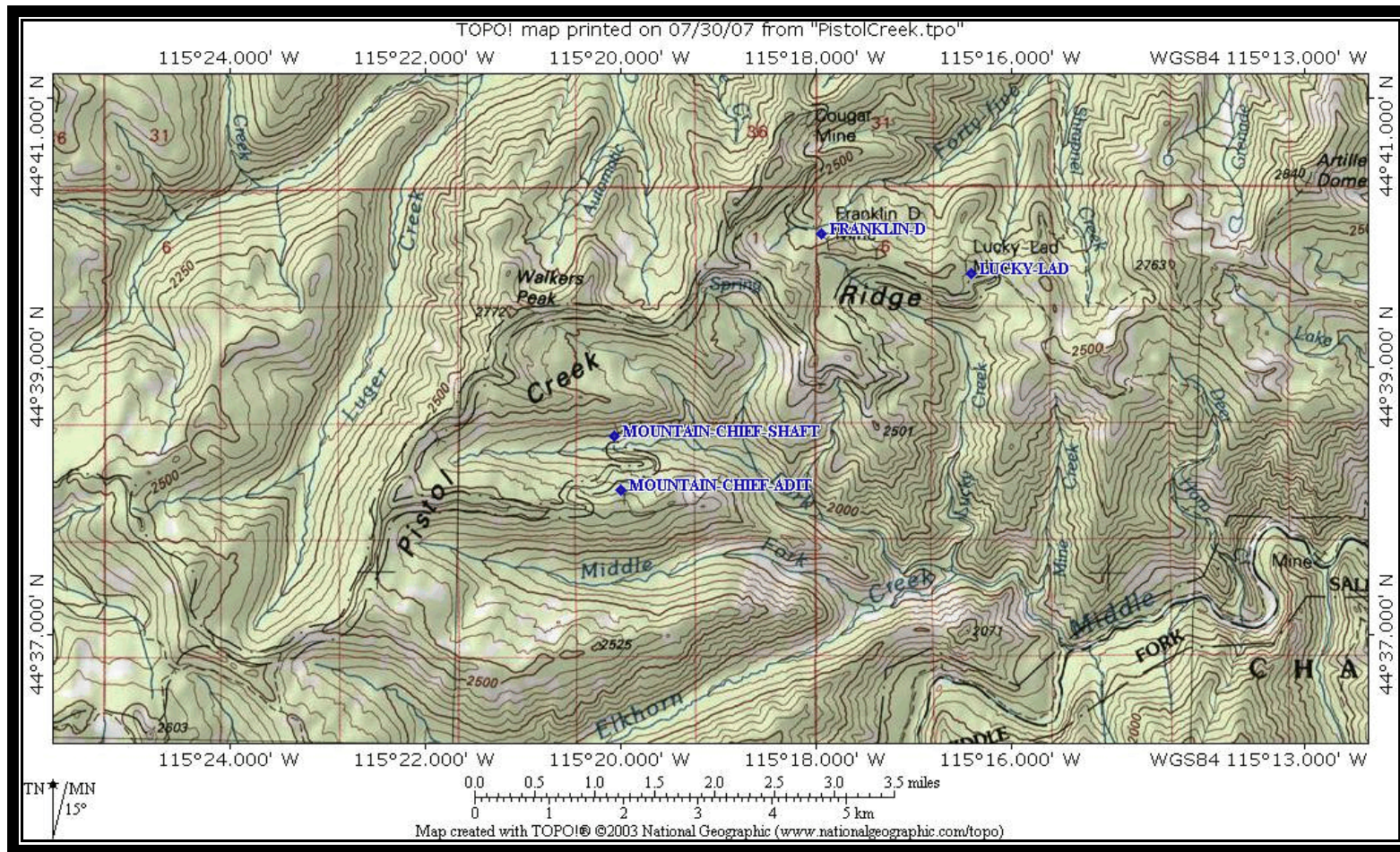


Figure 2. Map showing the locations of the Pistol Creek Ridge area mines and their relationship to each other (National Geographic Society TOPO! map, scale approximately 1:100,000).

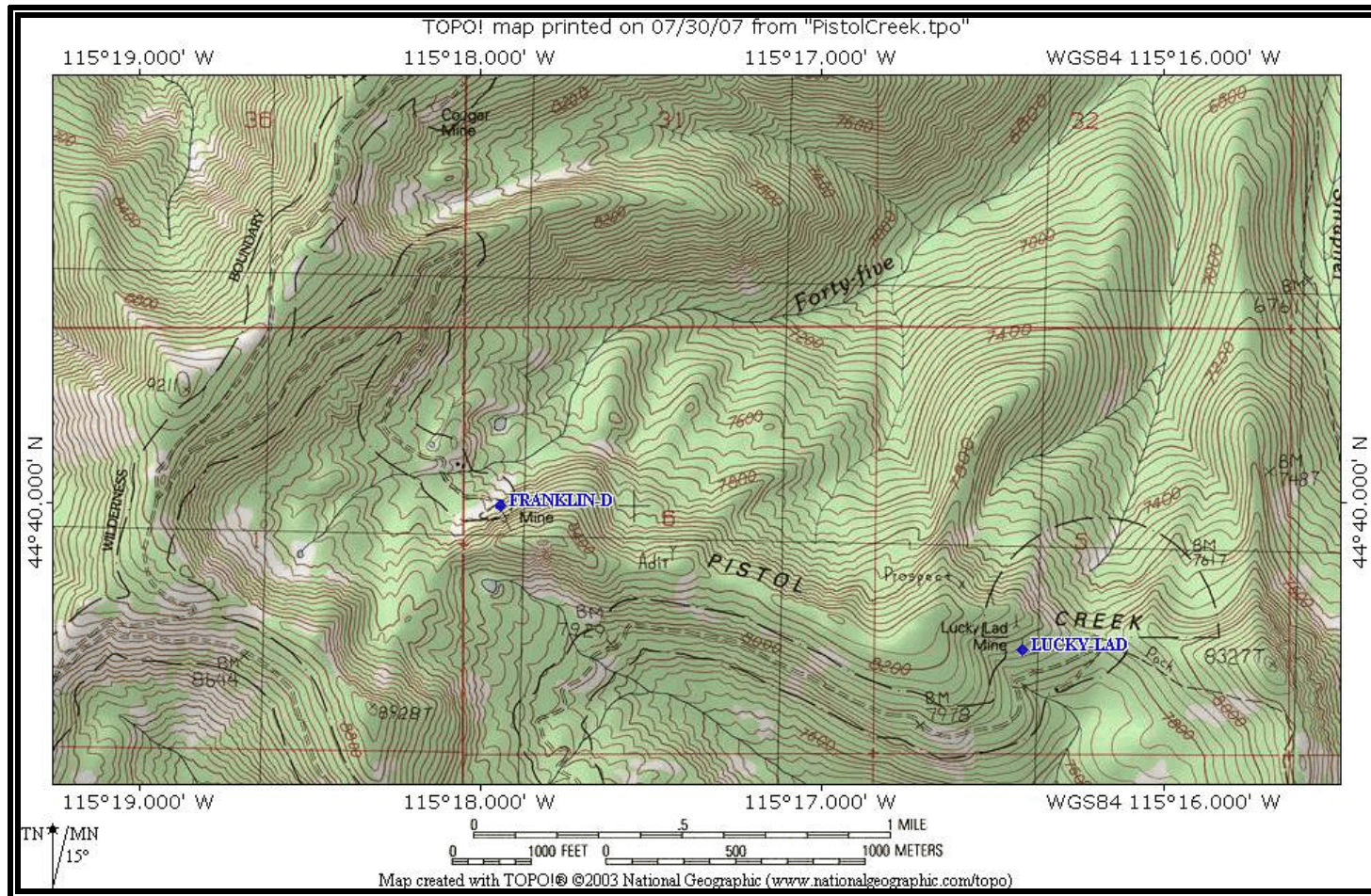


Figure 3. Locations of the Franklin D and Lucky Lad mines, Valley County, Idaho (National Geographic Society TOPO! map, scale approximately 1:24,000). Heavy dashed-and-dotted line is the wilderness boundary around the access roads to the mines.

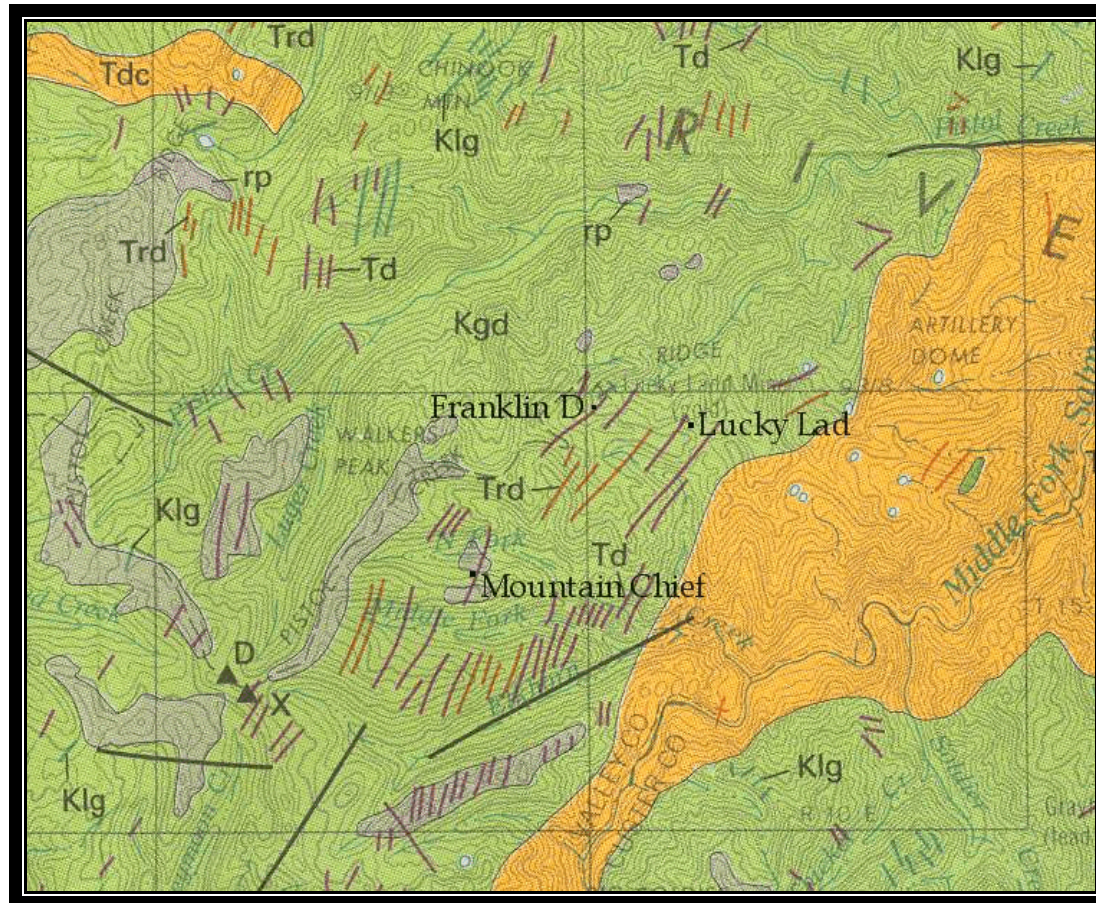


Figure 4. Geologic map of the Pistol Creek Ridge area, Valley County, Idaho (Fisher and others, 1992). rp – Paleozoic? or Proterozoic? roof pendants in the Idaho batholith; Kgd – Cretaceous biotite granodiorite; Klg – Cretaceous leucocratic granite; Tdc – Eocene diorite complex (Challis magmatic event); Trd – Eocene rhyolite dikes (Challis magmatic event); Td – Eocene dikes (Challis magmatic event). Heavy lines are faults.

The properties on Pistol Creek Ridge are estimated to contain approximately 87,550 tons of marginal oxide and sulfide ores. Samples contain 0 to 2.18 ounces gold, 0 to 20.49 ounces silver per ton, and 0.08 to 8 percent lead within the explored area. Additional tonnages of similar grade probably exist in covered, unexplored extensions of structures between properties, a distance of about 2 miles.

From the size of the trees in some pits in the area, one writer surmised that the Pistol Creek Ridge was known and prospected during the Thunder Mountain gold rush, which took place between 1900 and 1905 (Anonymous, n.d.¹)

LUCKY LAD MINE

The Lucky Lad Mine is in sec. 6, T. 15 N., R. 10 E., on the Chinook Mountain 7.5-minute topographic map (Figures 1, 2, and 3). The mine straddles the border of the Frank Church-River of No Return Wilderness Area, but the workings that produced ore are within the wilderness. The mine is on a ridge top at an elevation of about 8,000 feet.

Cater and others (1973, p. 221-223) described the geology and ore of the mine as follows:

Country rock in the mine area is quartz monzonite of the Idaho batholith which is cut by numerous dikes and northwest-trending faults. Scattered small remnants of metasedimentary rock occur in the mine area. The fault zone containing the ore dips steeply and strikes N. 70° W.; it consists of finely fractured to blocky iron-stained country rock. Parts of the zone are filled with irregular vuggy quartz veins that are less than 0.5 to 4 feet wide, as much as 60 feet long, and more than 60 feet in vertical extent. The only exposure of the fault zone is in the unmined back of adit 2 (fig. 70 [Figure 5]). At this point, the fault strikes N. 70° W. and dips 61° SW.; the zone is 4 feet wide and includes coarse to fine-grained iron-stained quartz veins. In this exposure, the fine-grained quartz is more intensely iron stained than the coarse-grained quartz which contains less than 5 percent limonite.

Ore minerals comprise as much as 20 percent of the vein and include galena, anglesite, pyrite, chalcopyrite, and limonitic boxwork. The wallrock contains less than 5 percent anglesite. The northernmost adit (adit 1, fig. 70 [Figure 5]), from which the recorded production came, was driven along a vein 3.5 feet in maximum thickness containing 0.92 ounce gold, 48.4 ounces silver per ton, 38.1 percent lead, and 0.2 percent copper. Adit 4, driven to explore the fault zone at depth, cut narrow quartz stringers containing sulfide minerals. The ore in this caved adit was valued by R. E. Sorenson (unpub. data, 1935-36) at about \$40 per ton.

Several hundred tons of ore containing 1 ounce gold, 7.6 ounces silver per ton, and 8 percent lead is indicated between adit 1 and the ore exposed above adit 2. The ore shoot is estimated to be 3.5 feet wide, 45 feet long, and 40 feet in vertical extent. Additional resources of gold, silver, and lead may exist in oxidized and enriched zones along extensions of the mineralized structures, but no significant deposits were found by former operators during exploration work.

There are two different versions of the history of the mine. According to the brief version in Cater and others (1973, p. 221):

The property was originally located by Lafe Johnson, Art Kimball, and Dick Leahy of Cascade, Idaho, in 1935. The property was renamed the Lucky Boy, and some

¹Although this report is unsigned and undated, contextual clues indicate that it was written in late 1980 or January 1981. The author, based on accompanying cover letters, was probably Ernest Overbillig.

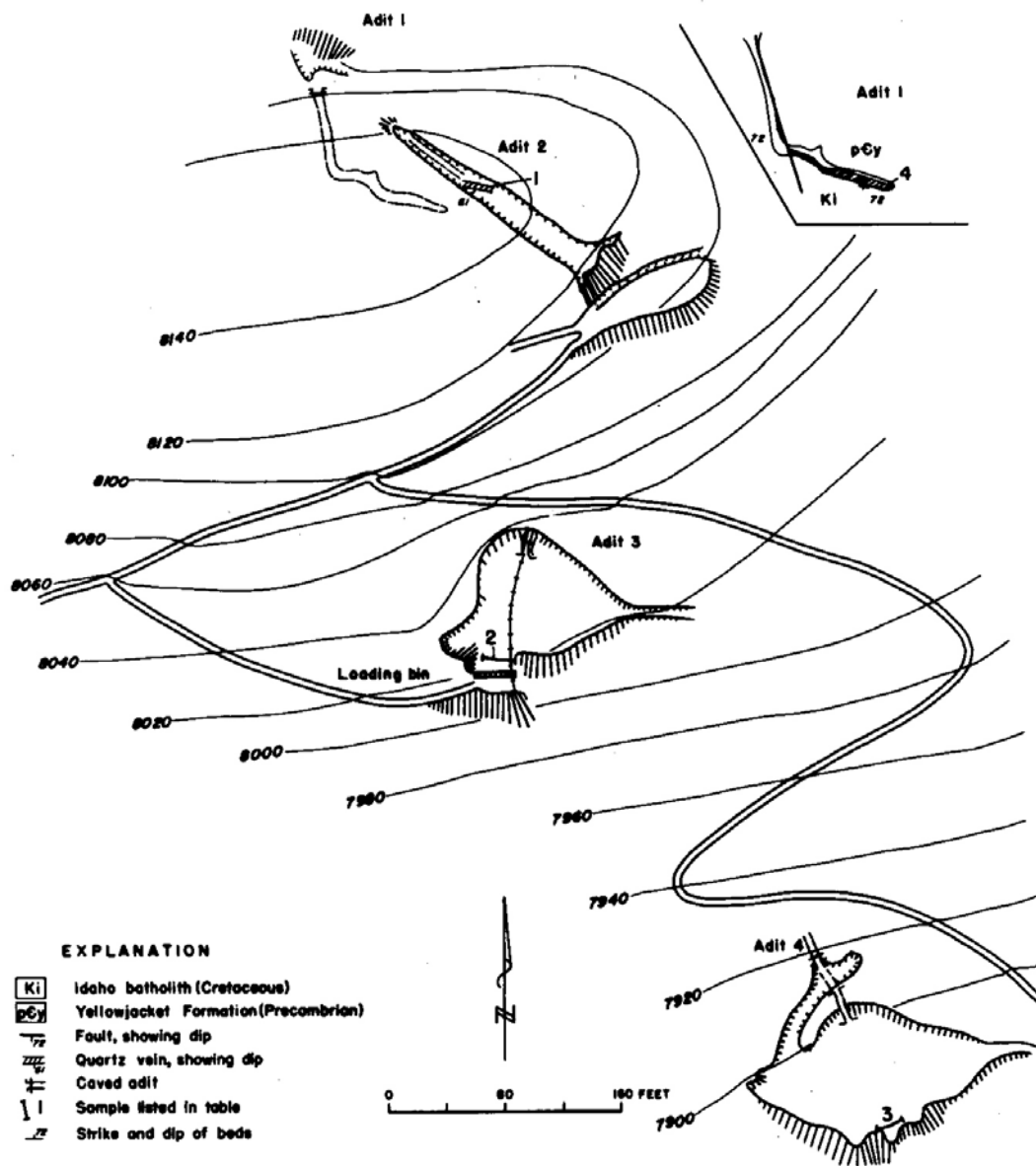


FIGURE 70. — Lucky Lad (Lucky Boy) mine.

Figure 5. Map of the workings at the Lucky Boy Mine (Cater and others, 1973).

production was made during 1935-40. The Lucky Lad was relocated in 1957 as part of the Eagle group by Bennie S. Smith, who sold the property to E. Y. Pruitt of Cascade, Idaho, in 1969.

Anonymous (n.d.) reported a more complex and sometimes conflicting story. Ben H. Seaward and H. H. Seaward² staked the “Lucky Boy,” the first claim at the Lucky Lad Mine, on August 30, 1933. Four other claims were staked ten days later. During the fall of 1933 or the winter of 1933-34, George O. A. Kellogg and E. H. Dewey joined the Seawards in their mining venture, and additional claims were staked in each of the next four years. All but one of these claims had some variation of the “Lucky Boy” name.

The Lucky Lad Mining Company was organized in 1935, and George O. A. Kellogg was the president, manager, and statutory agent of the new company. In 1935, the mine shipped a few cars of lead ore, rich in gold and silver, to a smelter in Utah. According to Anonymous (n.d.), this ore was first packed out by mule train to the end of the road before it was shipped onward by more modern means. Kellogg brought in a small bulldozer, which extended the road to the mine in the summer of 1936.

Despite this new road (or perhaps because of it), the U.S. Bureau of Mines reported only very small production from the mine in 1936. The Lucky Lad made large shipments of lead ore rich in gold and silver in 1937 and 1938; in 1938, the mine was the only producer in the district and shipped 348 tons of ore to a smelter in Utah. For the next three years, the mine remained the only producer in the district, although the 1941 output was very small.

The mine closed during World War II. Afterwards, according to Anonymous (n.d., p. 4):

After World War II Dr. Kellogg [George O. A. Kellogg] died and young George Kellogg [George E. Kellogg] could not see any chance of working it [the mine] on \$35.00 per ounce gold price so he dropped the Lucky Lad claims and in 1957, Bennie S. Smith relocated the Lad mine as the Eagle Group. Then, in 1969, Bennie Smith sold his claims to E. Y. Pruitt and Pruitt has been carrying on annual assessment work until the 1980 season when Electronic Metals took over.

The Lucky Lad Mining Company forfeited its corporate charter on November 30, 1948. The work on the mine up until that point was described as follows (Blackburn, 1946, p. 2-3):

The development work has been done as follows:

The vein was struck first at 108 feet in a crosscut driven from the North side of the mountain. From that point we drifted on the vein for 153 feet more. Five carloads of ore were shipped in the course of that work. (These five cars not included in the enclosed smelter report.) Next came a crosscut from the South side of the mountain, meeting the

²Oberbillig (1980, p. 2) noted that “Geo. Kellogg and Harmon Kimball both state that Ben Seward located the Lucky Lad outcrop. The original location notices are in Ben Seward’s name as locator.” This information suggests that the second version of the story is closer to the truth. In addition, information from other sources (the timing of when the company was organized and when the property shipped its first ore) support the Anonymous (n.d.) version of the property’s history. From the company’s 1935 report to the Idaho Inspector of Mines, the Lucky Lad had 100 feet of workings prior to 1935. The difference in the spelling of the last name of the discoverer(s) between the two reports is not explained, but it is believed that the same people are described in both reports.

former tunnel, following which, one ore chute, was stoped out yielding, another five cars between there and the surface, 81 feet at the high point. The low grade ore was used for fill.

A cross-cut was then driven from the 200 feet level on the South side of the mountain hitting the ore at 586.5 feet and continuing on that strike on the vein for 389.6 feet further. This drift showed ore of a good grade for milling its entire length, as well as some shipping ore along a Westerly strike. Also in an Easterly direction from this point 90 feet of drift was run on the vein showing a good grade of milling ore and was still continuing. We have another cross-cut started but not completed that will intersect the vein on the East and at least 200 feet from the point where the original cross-cut intersected it.

At a point approximately 120 feet from there the original cross-cut intersects the vein, a raise was run to the upper level. At about 60 feet from the lower tunnel a station was cut and a drift was driven for 100 feet to the Southeast and 50 feet to the North west. Some stoping was done from this level. Numerous short cross-cuts have been driven also, both in the foot and hanging walls for prospecting purposes. The richest ore chute was worked out from the 200 foot level up and can only be seen in the floor of the tunnel and we will pull up the track and clean it up for sampling. Production data is enclosed. [These data are not present in Idaho Geological Survey's copy of the letter.] One can see readily from the smelter returns that the problem would be in extracting the values from the sulphides. A report from R. S. Handy attached. [This report is not present in Idaho Geological Survey's copy of the letter.]

All of this work has been done in a good workman like manner, the timber is in good condition, all of the workings are in such a condition that they may be investigated easily. They are so located that a thorough investigation and sampling by an engineer should give all the information needed.

This property is not equipped with power machinery All of the work has been done by hand. The mine was equipped with sufficient hand tools for a crew of some 15 men but it would be hard to say just what is left at present. Blacksmith equipment, three mine cars, rails for 1500 feet of track and a 1500 watt power plant that furnishes electricity for all the buildings and small power tools.

Cascade, the county seat of Valley County, is our nearest railroad and source of supplies. This town is a lumbering center having several saw mills and lumber yards, offering a selection of almost any lumber likely to be needed, at reasonable prices. There are also branches of three loading stores located there. Butcher shops, hardware stores, garages, machine shops; in fact, all supplies, other than heavy mining equipment, may be obtained there.

Of course this is not meant to serve as an engineer's report by any means. I have merely tried to call to your attention some of the things that I thought might be of interest to you in your consideration of the property.

Very truly yours,

J.E. Blackburn
Superintendent

Electronic Metals, Inc., was organized in 1964 and administratively dissolved in 2001; the registered agent for the company from 1983 onward was George E. Kellogg. In October 1979, Electronic Metals leased the Lucky Lad from its owners, the Pruitts. Other leases were also negotiated in the area, and Electronic Metals made these early lease

payments and paid for the initial development costs. In 1980, the company opened 100 feet of the 200 level of the Lucky Lad (Anonymous, n.d.). In addition, provisions were made to lease a mill until the venture proved a success and the company built its own mill on land leased from the state of Idaho (Oberbillig, 1981a). A geophysical survey located a second vein in the Lucky Lad Mine 100 feet southwest of the previously mined vein (Oberbillig, 1981b). At the end of 1981, Electronic Metals was still searching for a joint venture partner to finance its efforts to reopen the Pistol Ridge area mines. It is unknown whether any partners were located, but no further mention of the mines was found. Figure 6 shows a picture of the main adit in 1994. Total recorded production from the mine from 1935 to 1941 was 1,138 tons of ore. This material yielded 1,308.6 ounces of gold, 24,165 ounces of silver, 2,661 pounds of copper, and 315,477 pounds of lead.

FRANKLIN D MINE

The Franklin D Mine is in sec. 5, T. 15 N., R. 10 E., on the Chinook Mountain 7.5-minute topographic map (Figures 1, 2, and 3). The mine is at an elevation of about 8,100 feet near the head of Forty-five Creek. It is at the end of a narrow corridor surrounding a road that penetrates the Frank Church-River of No Return Wilderness Area.

Cater and others (1973, p. 214-219) described the geology and ore of the mine as follows:

A northwest-trending mineralized fault zone of irregular width cuts quartz monzonite of the Idaho batholith (fig. 65 [Figure 7]). The monzonite is cut by northwest-striking Tertiary dikes. The fault zone strikes N. 49°-62° W. and dips from 80° NE. to vertical. Three adits and several test pits have been dug along it. The fault zone can be traced through a length of more than 1,200 feet (fig. 66 [Figure 8]), is exposed in workings through a vertical distance of nearly 250 feet, and has an average width of 3.5 feet.

The zone is 2-7 feet wide and is composed of finely divided to blocky iron-stained breccia and in places contains an irregular quartz vein. Some of the breccia contains up to 5 percent anglesite. The vein material is composed of at least 75 percent quartz and 5-25 percent pyrite, galena, anglesite, and limonite, combined.

The fault zone (fig. 67 [Figure 9]) is offset nearly 30 feet by a vertical fault striking N. 45° E., 230 feet from the portal of adit 1. In the section of the drift northwest of the cross fault, the highly iron-stained zone is up to 7 feet wide including breccia and an irregular quartz vein. The vein comprises about 35 percent of the total zone width. An additional 5 percent of the material in the fault is sulfide minerals and their oxidized counterparts. Samples from this section of the zone contained a trace gold and less than 0.40 ounce silver per ton.

The offset section of the mineralized fault in the drift south of the cross fault is predominantly breccia as much as 7 feet wide with a highly irregular quartz vein 0.5-2 feet wide. The vein contains 10-20 percent combined pyrite, galena, and anglesite. The pyrite content decreases toward the face as galena correspondingly increases. A winze was sunk on a massive 2-foot-wide section of the quartz vein in a 6-foot-wide section of the fault near the cross fault. Sample 24 from the quartz vein in the winze contained 1.62 ounces gold and 11.80 ounces silver per ton. Sample 25 taken from the entire width of the fault zone in the winze contains 0.52 ounce gold and 2.36 ounces silver per ton and 0.1 percent lead. Samples taken along the quartz vein from the winze to the face, averaging



Figure 6. Lucky Lad adit in 1994 (Idaho Geological Survey photograph by Falma J. Moye).



Figure 7. Franklin D Mine, view to the south (Cater and others, 1973). Tch – Eocene Challis Volcanic Group; Td – Tertiary dike; Ki – Cretaceous Idaho batholith; F – fault; S – mineralized fault zone.

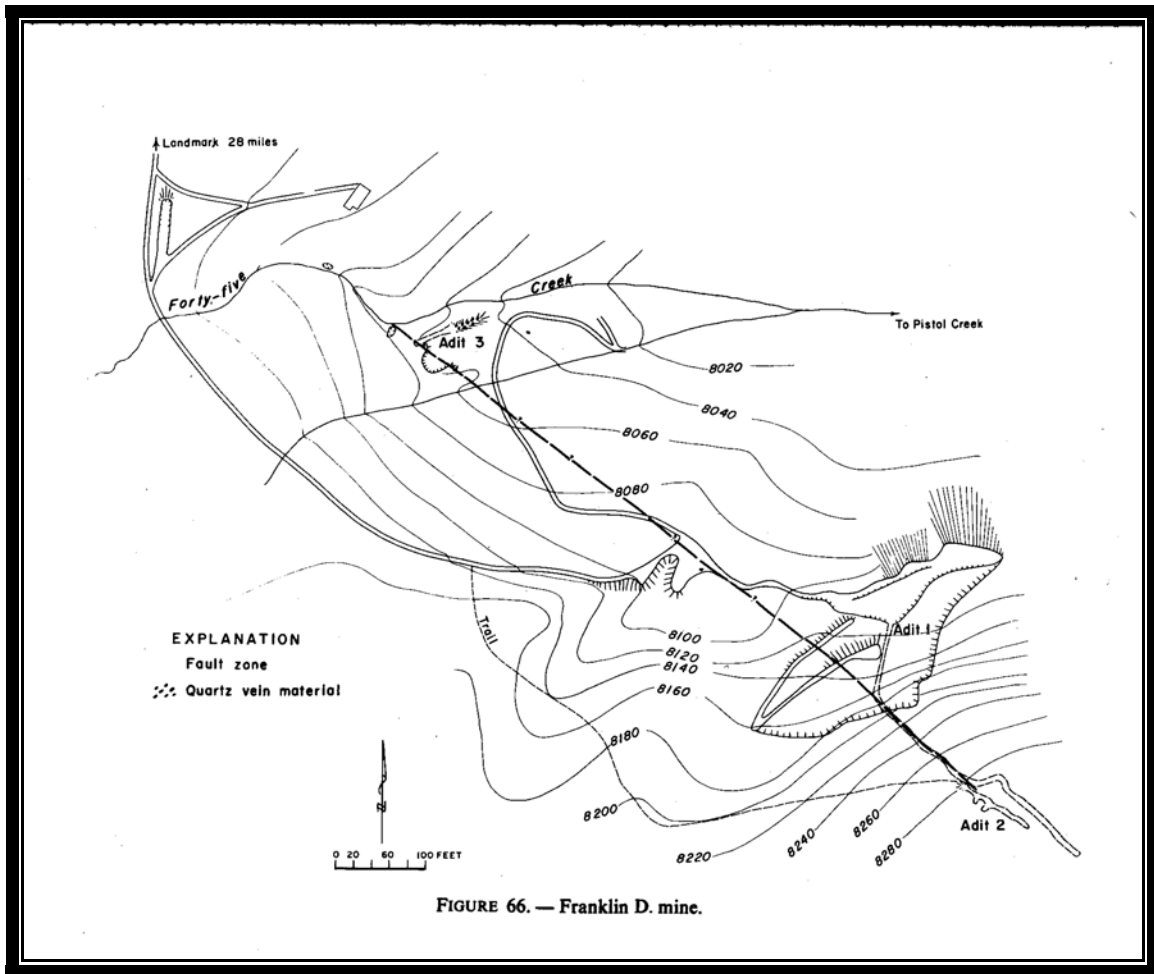


Figure 8. Map of the Franklin D Mine (Cater and others, 1973).

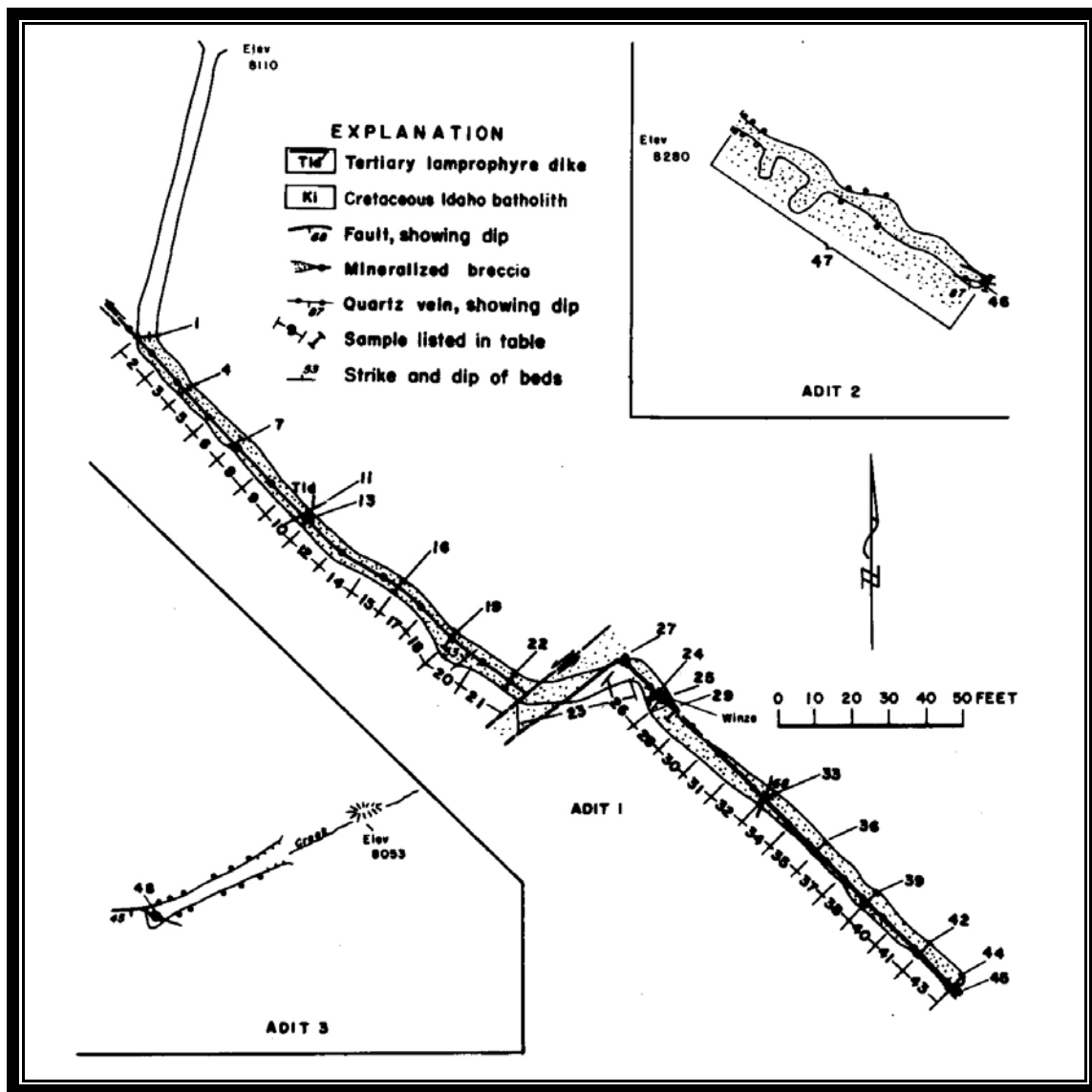


Figure 9. Underground workings at the Franklin D Mine (Cater and others, 1973).

approximately 10 feet in length, contained an average of 0.88 ounce gold, 4.62 ounces silver per ton, and less than 1 percent lead. Samples taken at 10-foot intervals across the fault zone, exposed in the back of the drift, averaged 0.46 ounce gold and 2.2 ounces silver per ton and less than 1 percent lead.

The values of gold and silver are greater south of the cross fault and decrease toward the face. Lead values are minor and erratic.

Adit 2 was driven along iron-stained brecciated quartz monzonite (fig. 67 [Figure 9]). Some anglesite is visible in the breccia. Small quartz stringers are exposed in the face, where a vertical fault trending N. 60° W. was intersected. Sample 46, taken across the face of the working, contained 0.56 ounce gold and 0.98 ounce silver per ton, but no lead. Sample 47, taken along the wall through the length of the adit, contained 0.28 ounce gold and 0.70 ounce silver per ton.

Adit 3 (fig. 67 [Figure 9]) is near Forty-five Creek. The adit, driven through fractured granite, crosscuts a wide fault striking N. 60° W. and dipping 80° SE. A 2.2-foot-wide quartz vein occurs in the fault. The vein resembles the exposure in the last 130 feet of adit 1 and is composed of 60-80 percent quartz and 20-40 percent combined pyrite and galena. The vein is cut by a low-angle strike-slip fault at the face and is displaced eastward an undetermined distance. The offsetting fault strikes N. 87° E. and dips 30°-45° S. A sample taken across the vein contained 1.05 ounces gold, 3.21 ounces silver per ton, and a trace lead.

The mineralized fault probably extends continuously between adit 1 and adit 3 with minor displacement by cross faulting; it appears to persist through a vertical distance of at least 300 feet. Sample results define discontinuous marginal ore shoots within the fault. A potential resource is estimated to total nearly 81,000 tons of submarginal mineralized material, containing an average of 0.59 ounce gold and 4.48 ounces silver per ton. An ore shoot of approximately 750 tons containing 1.48 ounces gold and 1.80 ounces silver per ton is estimated to occur within the marginal material. The potential is good for the discovery of additional gold and silver resources of a grade comparable to those known.

Figure 4 shows the general geology near the mine.

Cater and others (1973) credits the discovery of the Franklin D to Art Kimball in 1938; Anonymous (n.d.) stated that Art Kimball and Fred Janssen staked the first claims at the property in 1936. The two men staked additional claims in 1937 and 1938. Oberbillig (1980) reported a third version of the discovery of the Franklin D: Art Kimball and Mr. Jensen located the mine in 1938. A trip to the Valley County courthouse to examine the original claim records would be required to sort out these conflicting stories.

In 1940 and 1941, the Sunshine Mining Company leased the Franklin D, extended the road from the saddle on the Lucky Lad road, built a cookhouse, and drove either all the tunnels on the property (Anonymous, n.d.) [Figure 9] or at least Adit 1 (Oberbillig, 1980). No production came from the mine because the ore in the main adit was developed late in 1941. The mine was closed for the duration of World War II by War Production Board Order L-208 prohibiting the operation of nonessential mines for the duration of the war (Anonymous, n.d.)

According to Cater and others (1973), the Franklin D was relocated by Art Kimball in 1964 as part of the Fourth of July Group. In 1975, the mine was owned by Mrs. A. W. Kimball of Ada, Idaho, and was under lease to J. B. Colson of Kellogg, Idaho (Reith, 1975). Scurry-Rainbow Limited of Calgary, Alberta, Canada, conducted a detailed sampling and comprehensive mapping program at the mine in the summer of 1975. The results were reported to be "highly encouraging" (Cheesman, 1976).

The mine was leased to International Minerals, Inc., in 1976 (Anonymous, 1976). In 1980, Electronic Metals, Inc., leased the Franklin D (Oberbillig, 1980). At the end of 1981, Electronic Metals was still searching for a joint venture partner to finance its efforts to reopen the Pistol Ridge area mines. It is unknown whether any partners were located, but no further mention of the mines was found.

PROSPECT SOUTH OF PISTOL CREEK RIDGE

MOUNTAIN CHIEF PROSPECT

The Mountain Chief Prospect (Figures 1, 2, 4, and 10) is in sec. 14, T. 15 N., R. 9 E., on the Chinook Mountain 7.5-minute topographic quadrangle. The mine is on the North Fork of Elkhorn Creek. The main adit is at an elevation of about 8,000 feet, and the shaft is at an elevation of about 7,200 feet. Both these features were mapped as unnamed by Willett (1985), but were identified by Moye (Mitchell and Bennett, 1995) as the Mountain Chief Prospect, although the shaft had caved to such an extent that in 1994 it had the appearance of little more than a root cellar. A bunkhouse and kitchen were also present near the shaft (Mitchell and Bennett, 1995).

There are two mining sites at the Mountain Chief Prospect. The upper site, at 8,000 feet, contains the main adit (Figure 11), which was 586 feet long, in addition to a caved adit over 30 feet long and four pits. The site showed evidence of production, although no production has been reported (Willett, 1985). Willett (1985, p. 134) described the geology of the adit as follows:

Ten-in. to 1.3-ft-thick fault zone strikes N. 35° - 50° E. and dips 60° SE. in porphyritic granodiorite intruded by Tertiary dacite dikes. Fault zone exposed in a 20-ft-long drift strikes N. 65° W. and dips 87° NE. contains pyrite.

The lower site consists of an inclined shaft that had caved at 30 feet by the early 1980s. The shaft was driven along a 2.9-foot-thick fracture zone with a strike of N. 45° W. and a dip of 69° NE. The porphyritic granodiorite host rock contained minor iron oxide stains (Willett, 1985). No historical information is currently available about this site.

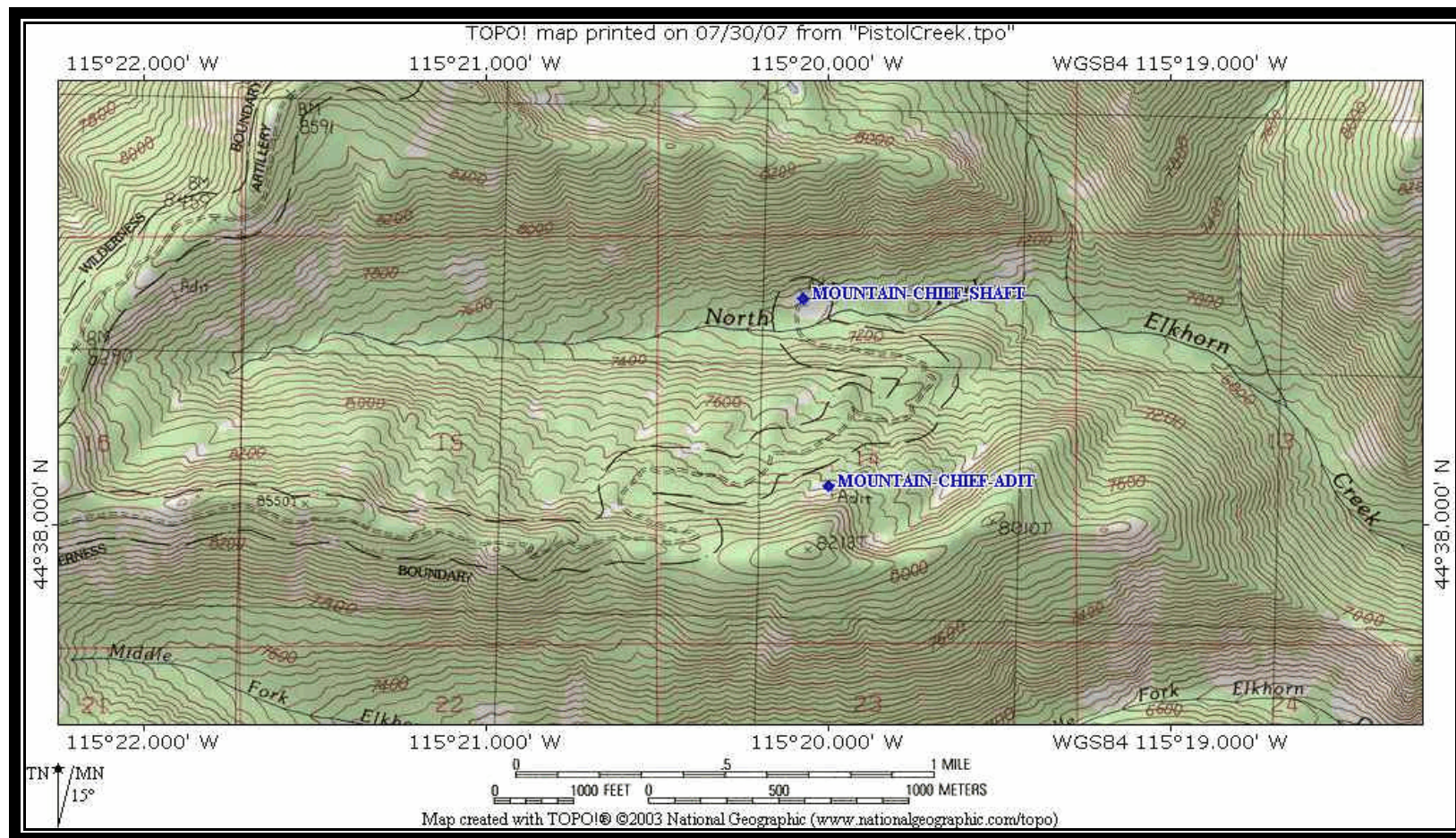


Figure 10. Location of the Mountain Chief Mine, Valley County, Idaho (National Geographic Society TOPO! map, scale approximately 1:24,000).



Figure 11. Adit at the Mountain Chief Mine (Idaho Geological Survey photograph by Falma J. Moye).

REFERENCES

- Anonymous, 1976, Mining lease with purchase option agreement: Unpublished document in Idaho Geological Survey's mineral property files, 7 p.
- Anonymous, n.d., Pistol Ridge Mines, Inc., 1981 program: Unpublished report in Idaho Geological Survey's mineral property files, 18 p.
- Blackburn, J.E., 1946, Letter to F.C. Van Deinse, dated June 17, 1946: Idaho Geological Survey's mineral property files, 3 p.
- Cater, F.W., D.M. Pickney, W.B. Hamilton, R.L. Parker, R.D. Weldin, T.J. Close, and N.T. Zilka, 1973, Mineral resources of the Idaho Primitive Area and vicinity, Idaho: U.S. Geological Survey Bulletin 1304, 431 p.
- Cheesman, W.C., 1976, Feasibility study and recommended exploration for the Franklin D gold and silver property, Valley County, Idaho: Unpublished report in Idaho Geological Survey's mineral property files, 14 p.
- Fisher, F.S., D.H. McIntyre, and K.M. Johnson, compilers, 1992, Geologic map of the Challis 1° x 2° Quadrangle, Idaho: U.S. Geological Survey Miscellaneous Investigations map I-1819, scale 1:250:000.
- Mitchell, V.E., and E.H. Bennett, 1995, Site inspection report for the abandoned and inactive mines in Idaho on U.S. Forest Service lands (Region 4), Chapter Four: Challis National Forest, Part A: Middle Fork Ranger District, Section II: properties in the Pistol Creek area, Valley County, Idaho: Idaho Geological Survey project completion report, 24 p.
- Oberbillig, Ernest, 1980, Pistol Ridge mines: Lucky Lad (Kellogg), Franklin D (Art Kimball-Jensen), Cougar (Earl Kimball): Unpublished report in Idaho Geological Survey's mineral property files, 6 p.
- Oberbillig, Ernest, 1981a, Letter to "Prospective Joint Venturer" dated January 28, 1981: Idaho Geological Survey's mineral property files, 1 p.
- Oberbillig, Ernest, 1981b, Letter to "Prospective Joint Venturer" dated December 29, 1981: Idaho Geological Survey's mineral property files, 3 p.
- Reith, D.G., 1975, The Pistol Creek Ridge area, Valley County, Idaho, with especial emphasis on the Franklin D. Mine: Unpublished report in Idaho Geological Survey's mineral property files, 12 p.
- Willett, S.L., 1985, Mineral appraisal of the Upper Middle Fork Unit, Custer and Valley Counties, Idaho, in James Ridenour, compiler, Mineral Resources and Occurrences of the Frank Church-River of No Return Wilderness, Custer, Idaho, Lemhi, and Valley Counties, Idaho: U.S. Bureau of Mines Mineral Land Assessment Open File Report MLA 64-85, p. 123-138.