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### PEDRO DOME AREA

#### DOME CREEK AND VICINITY

The only lode mine in operation in 1931 in the western part of the Pedro Dome area was the Soo mine, at the head of Dome Creek. (See fig. 9.) Much of the lower portion of this basin is underlain with muck and is covered by large tailings piles from the former placer operations. The quartz diorite mass of Pedro Dome extends along the southern ridge westward nearly to Moose Creek (see pl. 3) and is continued westward by two dikelike masses of quartz porphyry.

SOO

The group of claims locally known as the Soo or Spaulding mine, near the head of Dome Creek, about 1½ miles west-northwest of Pedro Dome, is owned by the Reliance Mining Co. (See fig. 9.)

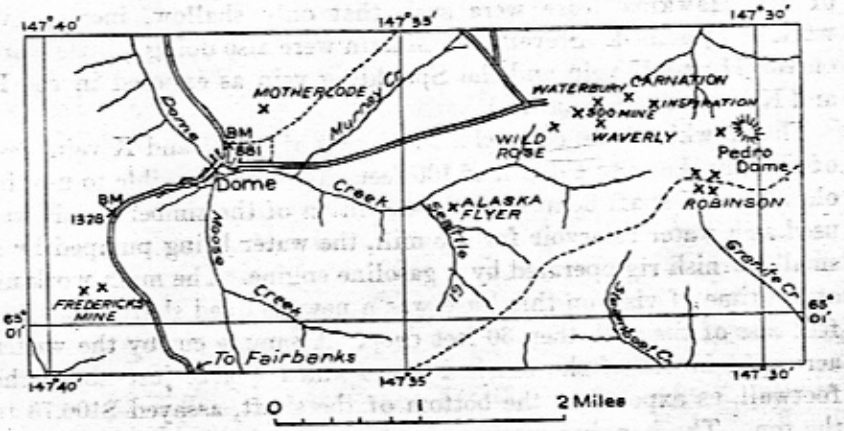


FIGURE 9.—Map of Dome Creek drainage basin, showing location of mines and prospects described in this report.

It is reached by automobile road from Fairbanks by way of Fox, Fox Creek, and Dome, a total distance of approximately 18 miles. The affairs of the Reliance Mining Co. seem to be managed by M. E. Stevens and S. A. Martin so far as relates to most of the claims. The Soo claim, however, is closely controlled by persons in Seattle, Wash., and this divided responsibility has caused some embarrassment. The claims, which have been patented under mineral survey 816, dated June 1913, are the La Rose, Wild Rose, Soo, Waterbury, Carnation, and Waverly lodes and the Equity Association placer. Mr. Stevens also has two claims, the Alpha and Omega, lying south of the west end of the patented group, and these will be included in describing this group of claims. The original owners did some work on the Wild Rose, but most of the development work on the

group is said to have been done by lessees. This will account in part for the placing and condition of the workings.

The output from this property was between $75,000 and $100,000 in the period 1912 to 1914 and about $65,000 since 1925. There is a lightweight 3-stamp prospect mill on the property with a 5 by 7 inch crusher and 3 by 8 foot plate, all run by a 10-horsepower gasoline motor. C. M. Hawkins, who had a lease on the H and K vein of the Soo claim in 1931, had also a gasoline-driven hoist, good for about 200 feet of sinking. All the machinery was housed in an old building near the H and K shaft. (See fig. 10.)

This mine was in active operation in 1912, when it was examined by Smith.[16] His description and that of Chapin[17] in 1913 cover many details not now observable on the property.

The only work under way at the Soo mine in the middle of July 1931 was in some shallow shafts on the H and K vein. The terms of Mr. Hawkins' lease were such that only shallow, inexpensive work was justified. Stevens and Martin were also doing a little work on the H and K vein and the Spaulding vein as exposed in the H and K tunnel. (See fig. 10.)

The Hawkins lease covered a short part of the H and K vein west of the tunnel and to a depth of 100 feet. It was impossible to use the old H and K shaft because of the condition of the timbers, so it was used as a water reservoir for the mill, the water being pumped by a small Cornish rig operated by a gasoline engine. The main working at the time of visit on this lease was a new inclined shaft about 150 feet east of the mill, then 30 feet deep. A sample cut by the writer across 14 inches of the crushed iron-stained quartz just above the footwall, as exposed in the bottom of the shaft, assayed $106.76 to the ton. The hanging wall was not exposed in the workings. In late August Mr. Hawkins is reported to have sunk a second shallow shaft about 75 feet west of the old H and K shaft to reach a pillar of ore left by the original Heath and Kerns lease, above a shallow tunnel he had previously run. Just west of the mouth of the tunnel the H and K vein is apparently faulted. What appears to be the same vein was opened on the Omega claim, about 500 feet farther west and 150 feet south of the projection of the H and K vein. It is stated that the H and K shaft is 136 feet deep, with a drift to the east about 400 feet long at the 100-foot level. One ore shoot yielded 400 tons of $36 ore.

In the crosscut tunnel, which cuts the H and K vein about 75 feet below the outcrop, the old drifts are caved, but Stevens and Martin were driving a new drift eastward on the vein. At the face of this

[16] Smith, P. S., op. cit. (Bull. 525), pp. 190–194.
[17] Chapin, Theodore, op. cit. (Bull. 592), pp. 343–345.

40-foot drift the fracture zone strikes east and dips 60° N., cutting quartz-mica schists which have a very low north dip and east strike.

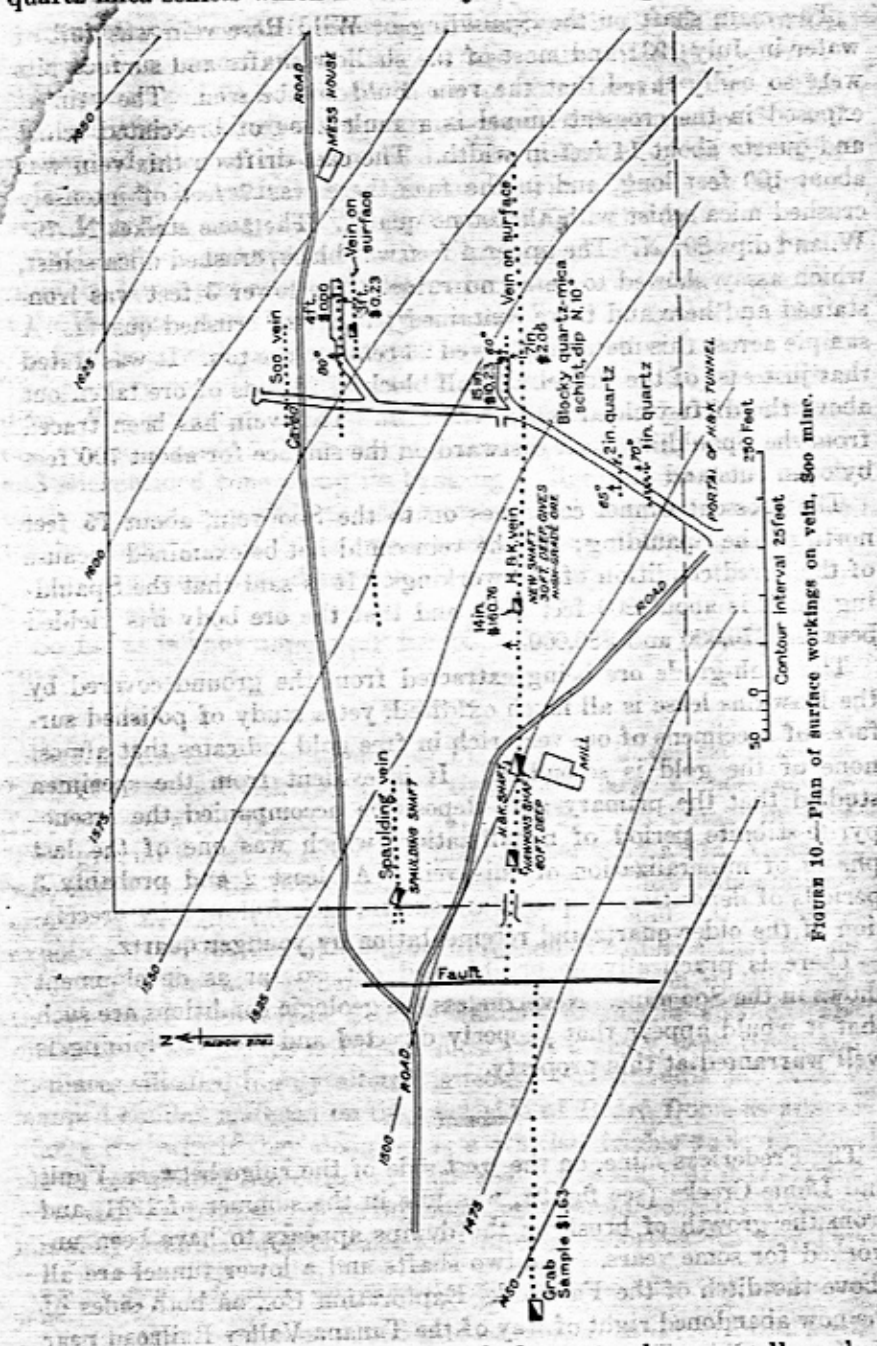


Figure 10.—Plan of surface workings on vein, Soo mine.

It consists of 6 to 8 inches of crushed quartz above a well-marked footwall. A sample of this quartz assayed $2.06 to the ton. Above

this is 14 to 16 inches of hard, apparently uncrushed white quartz, a sample of which carried only 23 cents to the ton.

The main shaft on the Spaulding or Wild Rose vein was full of water in July 1931 and most of the shallow shafts and surface pits were so badly caved that the vein could not be seen. The vein as exposed in the crosscut tunnel is a fault zone of brecciated schist and quartz about 14 feet in width. The east drift on this vein was about 100 feet long, and in the face there was 7 feet of intensely crushed mica schist with almost no quartz. The zone strikes N. 76° W. and dips 80° N. The upper 4 feet was black, crushed mica schist, which assay showed to be of no value. The lower 3 feet was iron-stained and here and there contained patches of crushed quartz. A sample across this material assayed 23 cents to the ton. It was stated that just east of the tunnel a small block of 28 tons of ore taken out above the drift yielded $80 in the mill. This vein has been traced from the Spaulding shaft eastward on the surface for about 700 feet by open cuts and pits.

The crosscut tunnel continues on to the Soo vein, about 75 feet north of the Spaulding; but the vein could not be examined because of the caved condition of the workings. It is said that the Spaulding shaft is about 200 feet deep and that the ore body has yielded between $70,000 and $80,000.

The high-grade ore being extracted from the ground covered by the Hawkins lease is all much oxidized, yet a study of polished surfaces of specimens of ore very rich in free gold indicates that almost none of the gold is secondary. It is evident from the specimen studied that the primary gold deposition accompanied the arsenopyrite-stibnite period of metallization, which was one of the last phases of mineralization of this vein. At least 2 and probably 3 periods of deposition of quartz are shown, each followed by brecciation of the older quartz and recementation by younger quartz.

There is practically no ore blocked out, so far as development shows in the Soo mine. Nevertheless the geologic conditions are such that it would appear that properly directed and financed mining is well warranted at this property.

### FREDERICKS

The Fredericks mine, on the west side of the ridge between Vault and Dome Creeks (see fig. 9), was idle in the summer of 1931, and from the growth of brush on the dumps appears to have been unworked for some years. The two shafts and a lower tunnel are all above the ditch of the Fairbanks Exploration Co., on both sides of the now abandoned right of way of the Tanana Valley Railroad near the former Ridge Top station.