

PE 85-1

PRELIMINARY REPORT OF MINING ACTIVITIES ON CROW CREEK,
GIRDWOOD DISTRICT, ALASKA
September 27, 1937.

Introduction:

The Girdwood district, located near the head of Cook Inlet on the north shore of Turnagain Arm, has been the site of one operating lode mine, one placer operation, and development on two other properties. The total production from the two operating companies is estimated to have been from \$25,000 to \$30,000 in 1937. A total of 15 men have been employed during the operating season from May until October. During a hurried trip through the district only the following were visited: The Monarch Mine of the Crow Creek Mining Company, A. S. Erickson placer operation, and the new workings of the Greenback Mining Company. Snow and adverse weather conditions prevented the examination of surface prospects. The following is a report of general conditions at each operation:

The Crow Creek Mining Company (Monarch Mine):

The Crow Creek Mining Company owns and operates the Jewell and Monarch properties. These are located nine miles northeast of Girdwood. They are reached via a good gravel road for a distance of 7 miles and 2 miles of steep caterpillar road.

The Monarch Mine was discovered in September, 1909 by Conrad Hores, and it became known as the Barnes property. A complete history of the development of this mine is given in detail in Bull. 587 of the U. S. G. S., by B. L. Johnson, "The Central and Northern Parts of Kenai Peninsula," pp. 173-176, 1915. Later developments are described in "Investigations in Alaska Railroad Belt," 1931, U. S. G. S. Bull. 849-G, "The Girdwood District, Alaska," by C. F. Park, Jr., pp. 414-417.

The Crow Creek Mining Company obtained the Monarch Mine in 1929 from the Monarch Mining Company. A lease and option was later given to the Bruno Agostino Mining Company, but this lease and option has since been dropped. At the present time the Crow Creek Mining Company is operating both the Monarch and Jewell properties under the management of Harry Staser. The Jewell property was purchased in 1934.

Development in the Jewell Mine was reported to have consisted of the stoping of 15 tons of ore this season, of which 3 tons was milled. A total of 250 tons of ore was mined from the north and south veins this season. The greater amount of this ore was stoped above the upper tunnel of the south vein. The total development in the Monarch on the north and south veins, on the original Stella claim, consists of 950 feet of tunneling, 125 feet of crosscutting, 52 feet of winze (several feet has caved and been filled), and four raises, the latter aggregating approximately 100 feet.

Geology and Showings:

In U. S. G. S. Bull. 849-C*, pp. 415-416, the geology and showings are well described as follows:

"The country rock is the thin-bedded argillite-graywacke series striking nearly west and dipping 40° N. near the mine. Many dikes and small very irregular shaped intrusive bodies of medium-grained holocrystalline quartz diorite occur near the prospect. The country rock has been badly shattered in the vicinity of the veins, and part of the deformation is post mineral, resulting in brecciated vein materials, which in some places have been recemented and again fractured. The impression obtained is that there has been some continuous movement, possibly up to the present time. Both the north and the south veins are traceable several hundred feet along the strike.

"The south vein ranges in width from 6 inches to about 4 feet, with an average of 9 inches in the tunnel. The strike is from east to S. 80° E., and the dip is 55° - 70° N. * * * * *

"The north vein strikes about N. 80° E. and dips about 70° N. Where exposed in the tunnel and in several surface cuts it is from 10 inches to 3 feet wide, with an average of 1 foot. * * * * *

"There are several small crosscutting veins 6 inches wide that strike a few degrees west of north and dip either east or west. These crosscutting veins appear to be faulted, and in the lower adit of the old workings the strike swings from due north to N. 45° E. The small veins striking north appear to be slightly older than the main north vein, as they are offset along unbroken quartz in the north vein."

Plates Nos. 1 and 2 show both the surface outcrops and the underground workings on the north and south veins. Located between the two veins and nearly parallel is a fine grained acidic granitoid dike. These dikes are very common in this formation, and they have a strike that is nearly conformable to the strike of the sediments. These dikes are no doubt related to a granitic stock reported to the northeast of the head of Crow Creek.

The north vein outcrops in two places, one above the upper tunnel and in the open cut at the portal of the lower tunnel. In the upper tunnel the vein is exposed, the entire length 105 feet, of which quartz is exposed 90 feet and a small amount of stoping has been done. The vein pinches 15 feet from the face and from this point on, quartz is lacking. In the lower tunnel the vein is exposed the entire length 235 feet. This vein cuts a small flat vein near the face. Milling values were reported in sections of the vein.

*Op. cit., p. 1.

The south vein is exposed in surface cuts for a distance of 100 feet above the upper tunnel. Below the upper tunnel, slide rock covers the vein and the vein has not been found below. In the upper tunnel the vein is exposed over the entire length of the tunnel, 280 feet. Several small intersecting veins occur on the hanging wall, formed by movement of this wall. A short shoot of good ore was found in this tunnel beginning 40 feet from the portal. This shoot is nearly a hundred feet in length and varies from 1 to 3 feet in width. The shoot was formed in a structure caused by a flattening in dip or roll on the vein. Near the face of the drift the vein splits into small stringers. Considerable of this vein has been stoped above the tunnel level. The winze, located 70 feet in from the portal is open to the lower sub-level. This level is 25 feet below and has a length of 50 feet, with a short crosscut back to the main vein in the level above. A small quartz vein shows in the drifts off the level and several small spur veins are cut by the crosscut. A distinct roll in the hanging wall shows along the crosscut. The main vein at the end of the crosscut is only 8 inches in width. These converging spur veins have no doubt been contributing factors in the formation of this rich ore shoot. The movement on the hanging wall shows an upthrust movement of the hanging wall to the west. The lower tunnel, located vertically 100 feet below and 245 feet west, has been driven a total length of 380 feet including several crosscuts. The south vein was not intersected on this level, and a problem still exists as to its location. There is a possible chance the vein was cut by the drift in the vicinity of the hard graywacke, and it was compressed to a small unnoticeable seam or slip. A flat cross vein was cut at a point 80 feet from the portal and this vein was followed for a distance of 60 feet. This vein corresponds to the cross vein which outcrops on the surface between the two lower tunnels. Beginning near the portal of the tunnel a recent flat fault cuts across the tunnel. Due to the flatness of this fault approximately 15° dip, it is found along most of the length of the tunnel. The strike of this fault is a little south of east. Movement of walls could not be determined. This fault, together with the hard graywacke bands, plus the 100 feet difference in elevation, no doubt contains the solution of the problem of the continuity of this south vein. A continuation of this drift under the ore shoot and a raise connecting up to the present winze in the upper tunnel will solve this problem. With the tenor of the ore in the ore shoot in the upper tunnel, this further development is warranted.

Mineralization:

The mineralization is distributed throughout the quartz and is greatest on the seams and penetrates the walls. In places the walls contain sufficient values to mine for ore. In the walls and somewhat in the quartz the mineralization is considerably oxidized. The minerals contained are pyrite, arsenopyrite, galena, sphalerite, chalcopyrite, pyrrhotite, and gold and silver. The gangue minerals consist of two generations of quartz, granulated varieties, calcite, altered wall rock pieces, and iron oxides.

Machinery:

The mill machinery consists of a Wheeling jaw crusher, 15-ton Denver quartz mill with inside amalgamation, 40-mesh screens, a 5x5-foot amalgam plate, three-quarter size Straub concentrating table. Contained in the same building is an Ingersoll-Rand single compressor, 12x14". Both mill and compressor are run by a 5-foot Pelton wheel with a 153-foot head. 420 feet of pipe line and several hundred feet of flume lead the water to the Pelton, located on the side of the mill building. A 10-H. P. Fairbanks Morse gasoline engine is used for auxiliary power. A small air hoist is used on the tram to the Monarch. Three aerial trams are used, two 1500-foot trams to the Monarch north and south veins, and a new 2500-foot tram to the Jewell Mine. A new tractor, 20-H. P. and a Chevrolet truck comprise the transportation equipment. An Ingersoll-Rand steel sharpener is used in the blacksmith shop. A combined mill, power, and blacksmith shop are contained in one structure, and a cook house, bunk house and an ore bin and storage structure--the latter at the portals of the two mines, comprise the buildings. A total of five men were employed this season, and the operating season extends from the middle of May until the middle of October.

Greenback Mining Company:

The Greenback Mining Company owns two claims which adjoin the Jewell property and are located less than a thousand feet below the mill of the Crow Creek Mining Company at the head of Crow Creek.

The owners of these claims are Clyde Brenner, J. Campbell and Stanley McCullam. Besides the owners, two men have been on contract in driving a crosscut tunnel, 330 feet south from the mill along the bank of Crow Creek. This crosscut tunnel is at approximately the same level as the bottom of the incline shaft located at the mill. This tunnel is in 150 feet with most of the distance through glacial moraine only a few feet below the surface. The two parallel veins have not been intercepted. The shaft workings were filled with water and the tunnel on the west side of Crow Creek was not visited.

In Bull. 849-G* the vein and workings are described as follows:

"The country rock near the vein is massive graywacke. On the west side of Crow Creek the vein is opened by a drift 175 feet long. At the start of the drift the vein averages 6 inches in width, but it gradually pinches down to a thin slip in the face. A 54-foot incline shaft is sunk on the vein on the east side of Crow Creek, and two levels from this shaft extend along the strike of the vein. The upper level is about 30 feet in length and the lower level about 50 feet. A second vein, which strikes S. 35° E. and averages about 5 inches in width shows up in the shaft. The second vein is separated from the main vein by about 10 feet of graywacke. * * * * * The main vein at places is as much as 1 foot wide in the two levels."

*Op. cit., p. 1.

The main vein strikes N. 45° E. and dips 65° N. These veins were reported as intersecting to the north, where a short ore shoot was found. The owners report in the bottom of the drift in the west tunnel a narrow width of ore exposed over 150 feet that averages by assay in gold \$107 a ton. The type of ore and mineralization is very similar to the Monarch.

Machinery:

This season no ore was milled and the machinery contained in the mill consists of a 10x12" Blake crusher, three 750-pound stamps, Gibson impact amalgamator, half-size Wilfley concentrating table, and a 5-H. P. Fairbanks Morse gas engine furnishes power. A two-stage Ingersoll-Rand portable compressor, run by a Waukesha air cooled gas engine, is used for mining.

The Bahrenberg property, which consists of the Hottentot claims, was not visited. It is located on the north slope of Barnes Mountain at the very head of Crow Creek. This year Mr. H. Bahrenberg has been engaged in assessment work, and has also been prospecting glacial moraine gravels in which he reports finding placer prospects. K+ 852

The showings on this property are described in Bull. 849-G* as follows:

"The country rock is mainly argillite (strike N. 25° W. and dip 45° E.), but along part of the vein one wall is quartz diorite. The occurrence of this quartz diorite is peculiar, as it is found in apparently detached blocks or lenses of different sizes from 6 feet in diameter up. There is evidence of some movement, but many of the walls are tight, and the impression gained is that the igneous rocks were, in general, intruded in their present positions.

"The main vein strikes N. 80° W. and dips 80° N. The average width is about 8 inches, but the vein has not been prospected to a depth of more than a few feet. There is a shallow adit about 65 feet long and one small surface cut. It is possible to trace this vein only about 75 feet along the outcrop, as a branch of Raven Glacier covers the east end, and the country to the west is so precipitous that it is entirely inaccessible.

"The property contains several other small veins, which have been superficially prospected. These veins strike nearly west and dip 70° N."

The mineralization is reported nearly the same as the Monarch Mine.

*Op. cit., p. 1.

A. S. Erickson Placer Operation:

A. S. Erickson and associates are hydraulicking with seven men on Crow Creek above its junction with Glacier Creek and three-fourths of a mile above the canyon. The holdings consist of three associations and two single placer claims, totaling a block of ground nearly a mile in length on Crow Creek and adjoining the patented Girdwood property above. The camp is located five miles via good gravel road northeast of Girdwood.

Two No. 7 giants are engaged in cutting a firm gravel bank on the right limit a few hundred feet above the camp. The pay or old channel gravels average from 12 to 16 feet in depth. These old channel gravels are overlain with unconsolidated glacial deposits which vary in thickness. The bedrock is a clay cemented gravel of fine character. The character of the pay gravel is water laid with numerous sand and clay seams, and they are coarse with numerous large well worn, rounded, glacial striated boulders. They consist of slate, graywacke, greenstone and granite boulders, which correspond to the formation on upper Crow Creek. The gold occurs distributed through this stratum of gravels, and the richest spots, as reported by the management, are in the vicinity of the largest granite boulders.

The gravels are hydraulicked into 60 feet of 4x4' boxes, using railroad rails for riffles. The tailings are stacked with a No. 7 giant using a 6-inch nozzle. Each shift the remaining large boulders are drilled with jackhammers and blasted, and thus all material goes through the sluices. Two shifts are worked with three men to a shift. A Chicago Pneumatic single 10x12" compressor is run by a 26" Pelton wheel and furnishes air for the Jackhammers. 1000 feet of pipe line is used, ranging from 4' down to 18 inches. Three No. 7 giants are used with interchangeable nozzles. The pit is lighted with a 800-watt Delco light plant. Two trucks are maintained for hauling, and besides the camp building a small saw mill is operated, with a Fordson tractor, and another Fordson tractor is used to haul timber to the mill, etc.

The gold recovered is both worn and rough, and the larger pieces have a flat nature. One four-ounce nugget was the largest found, while the average is less than 50 cents. Very little black sand is obtained in the sluices. However, a considerable amount of sulphides which contain high gold values is recovered. This season a total of 50,000 bedrock feet has been cleaned and this was reported as averaging 75 cents a bedrock foot. However, the production was reported totaling \$15,000 for the season, which averages 30 cents a bedrock foot. This is the only placer operation in this district.

TERRITORY OF ALASKA
DEPARTMENT OF MINES

ANCHORAGE, ALASKA

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B. D. STANLEY
Geologist in Charge

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GIRDWOOD DISTRICT, ALASKA ~~KX~~ 85.64
September 27, 1937

The Jewel and Monarch properties are now being acquired by Joe Danich of Anchorage, Alaska. Particulars of the acquisition have not been ascertained.

The work on the properties for the season consists of rehabilitation of the road, mines mill, and camp. A sampling program for both mines is also being conducted. Future plans include further development on the South vein of the Monarch and a stoping program on the Jewel. It is hoped that the downward extension of the South vein orebodies can be developed from the workings at the 3200 foot elevation.

The work is being done by a crew varying from two to four men.

The Territorial Department of Mines work there was undertaken in an attempt, to help in planning the development work on the Monarch and to facilitate the mining program on the Jewel. In addition to the above the samples taken by Mr. Danich were assayed in the Anchorage Assay Office.

The work at the Monarch consisted of studying the geology, checking strikes and dips and plotting that information on the Department of Mines map dated September 29, 1937. The difference in elevation of the two levels was checked against that in the Geological Survey Bulletin 849-G and an old unidentified transit survey that indicated 128.3 feet. This interval is being used. The September 29 sketch was traced and additions were made. The study indicates that the downward extension of the vein should have been cut by the lower workings or that the vein should show in the large outcrop just north of the portal of the lower workings. Since it does not show it must be concluded that the vein pinches or fingers out west of the upper portal so that it is not in place to be found by the present lower workings. It is not believed that the flat fault moved the vein because it does not show any great amount of movement, because the movement of the hanging wall seems to have been S 40 W, a direction

That has been prospected by the larger part of the lower workings, and because some quartz was found in the fault at the turn, which either confirms the lack of appreciable movement or suggests that the fault was open at the time of the quartz deposition. (Since the last quartz deposition was barren and that may be the one in the fault, some of the reasoning may be discounted. Further, it was not learned whether the fault on the south side of the timbered section of the lower workings could have moved the vein and so been responsible for the difficulty in finding the vein in the lower workings, but it is believed unlikely since it is steep.) It was noted that a large portion of the stoping and the stope from which it is said that the highest grade ore came from is located near the intersection of the spur vein and the roll in the main vein. This intersection and roll plunge approximately 15 degrees to the east and attention is directed to the possibility that development on the lower level might not be fruitful until it approaches the lower extension of this plunge rather than merely the lower extension of the vein dip beneath the present stoping.

Future prospecting or development would contain the least element of chance if the ore were followed down from the winze, and since it is not known whether the ore is pinched in the bottom of the winze it must be recommended that the winze be cleaned out and the vein sampled and measured at least. If this work should disclose some ore to the east it might be stoped from this level. The pumping problem might be minimized by careful ditching on the level. If the sampling and measurements should disclose sufficient ore a survey could be made and more intelligent planning of the development on the lower level could be done.

Finally, a long gamble from the lower level should be mentioned. That would be a short 45 degree raise (20 to 25 feet long) from the end of the first crosscut to the north. Such a raise, although almost surely doomed to failure, because the vein does not show in the timbered workings nearer the portal or in the hard outcrop north of the portal, would check the possibility of a flattening of the vein. This raise could be driven small and it is possible that it would not be necessary to remove the muck from the crosscut.

The work on the Jewel Vein consisted of mapping the workings and measuring the vein thicknesses. The stopes were not surveyed.

A Map of the Monarch Mine Buildings was made to facilitate in making out an insurance application.