

KX 49-62  
49-6

PE-049-07

PRELIMINARY REPORT ON AN ANTIMONY PROSPECT ON WILLOW CREEK, FAIRBANKS DISTRICT, ALASKA  
LOCATION

A brief examination of an antimony prospect on Willow Creek, in the Fairbanks district, was made by the writer on September 5, 1942. Willow Creek is a tributary of upper Cleary Creek; it enters Cleary Creek from the south about a half-mile west of Bedrock Creek. The prospect, which was uncovered during placer mining operations, is situated in the bed of Willow Creek, about 100 yards above its mouth. It is about 24 miles northeast of Fairbanks, close to the Steese Highway.

A graded road traversable by trucks in dry weather, connects the prospect to the highway. This road could be kept open during the winter. Thus the prospect is favorably situated with respect to transportation of ore and supplies to and from Fairbanks.

OWNERS

The mining ground on lower Willow Creek is owned by the Tolovana Mining Company, which is controlled by Martin Pinska of Fairbanks. It is leased to Joseph Martin for lode mining and to Hjalmer Johnson for placer mining, according to information received from Mr. Pinska.

SHOWINGS

The antimony occurs as stibnite in a zone of white quartz and gouge that strikes east-west, across the valley of Willow Creek. In the Johnson hydraulic cut, where the overburden and gravel have been removed, high-grade ore can be traced continuously from the west side of the cut to the creek, a distance of about 75 feet. Ore is also found on the east side of the cut, about 100 feet from the creek. Between these two showings of ore the zone consists mainly of quartz and gouge, with minor amounts of stibnite and pyrite, and occasionally arsenopyrite.

In the main stibnite showing on the west side of the cut, the vein as exposed on the surface of bedrock is up to three feet wide. It is doubtful, however, if the true width of the vein is indicated by its surface exposures, since the soft bedrock has been considerably disturbed by weathering and by frost action. In the solid rock, which would probably be encountered several feet underground, the vein is probably somewhat narrower. Some pieces of high-grade stibnite found on the surface measured about a foot across; from this

it may be inferred that at least part of the vein is a foot or more wide.

Most of the ore is fine grained and massive; a minor portion is made up of coarse bladed crystals. The higher grade portions are nearly pure stibnite - a picked sample contained 56 percent antimony. Associated with the high-grade stibnite is vein material containing varying amounts of vein quartz and stibnite. Small amounts of pyrite and arsenopyrite also occur in the lower grade material. Because of the weathered condition of the surface of bedrock, the relationship of the stibnite vein to the enclosing zone of quartz and gouge could not be determined.

As exposed in the Johnson cut, the bedrock is mainly a soft, badly weathered mica schist, containing considerable clay. As nearly as could be determined, the schist strikes east-west - about the same as the stibnite vein - and dips steeply north. Several thin limestone beds were also noted; a few of these, about 100 feet upstream from the stibnite, contain sphalerite and pyrite which were evidently deposited by replacing part of the limestone. Since these replaced zones are relatively small, no determinations of their zinc content were made. Numerous small veins and lenses of quartz were also noted in the bedrock. For the most part they are glassy and barren-appearing; some of them, however, contain small amounts of pyrite, arsenopyrite, sphalerite and probably gold. All of the veins are badly shattered, mainly as a result of frost-creep.

#### CONCLUSIONS

The prospect is favorably situated with respect to transportation; for this reason it can be developed rapidly and economically, and the cost of shipping ore to Fairbanks would be relatively low.

As indicated by exposures, a worthwhile amount of high-grade ore is probably contained in the larger showing. Additional development work must be done, however, before an estimate of the possible tonnage of ore can be made.

In view of its favorable location and the good surface showings, further development is considered to be warranted.

Henry R. Joesting  
Assoc. Mining Engineer  
Territorial Department of Mines  
October 29, 1942