

TERRITORY OF ALASKA
DEPARTMENT OF MINES

PE-043-01

ASSAY OFFICE

November 20, 1941

AT Nome

PE 43-1

Report on

WARD COPPER COMPANY PROPERTY

Seward Peninsula, Alaska.

Mr. [unclear] [unclear] [unclear] [unclear] [unclear]
Chief of Assay Office, Nome
Report on [unclear] [unclear] [unclear] [unclear]
Received by [unclear] [unclear] [unclear]
Aug 28th 1941
345-6 - pp 139
" " " " " 244

Minor copy [unclear] [unclear]
[unclear] [unclear] [unclear]



TERRITORY OF ALASKA
DEPARTMENT OF MINES

ASSAY OFFICE

AT Nome

November 20, 1941

Mr. J. J. Knob
217 East Penn Street
Long Beach, Long Island
New York.

Dear Mr. Knob:

Pursuant to your request, I have examined the Ward Copper Company property near Kougarak Mountain, spending the time between September 23 and September 26, 1941 on the ground, and herewith submit my report thereon.

Sincerely yours,

A Ben Shallit
A Ben Shallit

ASSOCIATE ENGINEER
TERRITORIAL DEPARTMENT OF MINES

TERRITORY OF ALASKA
DEPARTMENT OF MINES

ASSAY OFFICE

Nome

AT 11/20/41

Ward Copper Company Report, page 2.

CONCLUSION

The findings of this examination should not discourage intelligent prospecting, but they suggest a prudent consideration of the available data, and entirely discourage an immediate large-scale investigation. No expensive permanent mining equipment should be installed until the mode of origin and the general characteristics of the ore body has been more fully determined. No milling machinery of even temporary character should be installed until a suitable tonnage of mill grade ore has been blocked out.

LOCATION

The Ward property is about three and one-half miles North of West of Kougarok Mountain, in the Kougarok district. The eight claims that constitute this property lie between Bismark and Star Creeks, tributaries of Quartz Creek, which is the head of the South Fork of Serpentine River. (Mineral Resources of Alaska 1916, U.S.G.S. Bulletin 662 1, page 440)

SURVEY

Land Office records at Nome, Alaska show a plat of the claim of Ward Copper Company issued under Mineral Survey No. 1306. The claim was located July 25, 1904 to June 10, 1907 under individual locations known as the EXCELSOR, ARKANSAS, GEM, VICTOR, BUTTE, SOUTHERN EXTENSION OF THE ARKANSAS, SOUTHERN EXTENSION OF THE EXCELSOR, and SIDE LODGES, and comprises an area of 152.013 acres. The claim was surveyed July 18-25, 1921 by Irving McK. Reed, U.S. Deputy Mineral Surveyor, and approved at the U.S. Surveyor General's Office in Juneau, Alaska on June 28, 1922. The survey is tied into U.S.L.M. 1306 located on the Excelsor claim, Latitude 65° 46' North, Longitude 165° 12' West.

TERRITORY OF ALASKA
DEPARTMENT OF MINES

ASSAY OFFICE

AT Nome

11/20/41

Ward Copper Company Report, page 3.

ACCESSIBILITY

The property is accessible by airplane or tractor. Although there is no regular air-field it is possible to land an airplane on the hillside directly north of and adjoining the property. Twenty bulldozer-hours would improve the landing to such an extent that pieces weighing up to 1500 pounds could be handled. Air freight would cost about five cents a pound from Nome and about three and a half cents a pound from Teller. The passenger fare is thirty dollars from Nome.

Another means of transportation is by way of the Seward Peninsula Tramway. The passenger fare from Nome to the end of the line is \$7.50, the freight rate is \$12.50 per ton. The 83 mile trip usually takes a full day. From the tramway terminus at Bunker Hill there is a $38\frac{1}{2}$ mile truck road to Taylor. Freight is hauled on this road for about \$40 per ton. From Taylor freight could be hauled by tractor to the property for about \$15 per ton.

Freight could also be brought by way of Teller or Deering via tractor at a cost of about \$1.00 per ton mile.

IMPROVEMENTS

The only building on the property is a dilapidated 16 by 35 foot shed as shown in the accompanying photograph. Aside from this the improvements were those listed on survey plat 1306 consisting of 4 shafts, 32 pits, 1 drain, 1 tunnel (adit), and 13 cuts. These are recorded as having a total value of \$18,815.00.

TIMBER

There is no timber suitable for mining purposes. There are willows along the stream courses which could, if necessary, be utilized as fuel for prospecting.

TERRITORY OF ALASKA
DEPARTMENT OF MINES

ASSAY OFFICE

Nome

AT 11/20/41

Ward Copper Company Report, page 4.

EQUIPMENT

No usable mine or camp equipment was observed.

WATER POWER

There is no suitable water-power-site in the immediate vicinity of the property. In contemplating any water power project the limiting climatic conditions would have to be considered.

WATER

Sufficient water for mining and milling purposes could probably be obtained by ditching Star or Bismark Creek. No water measurements were taken as the creeks were frozen at the time of the examination.

FIELD WORK

During the examination of the property a sketch map was drawn using an aneroid and brunton. The elevation of the U.S.L.M. bench mark was assumed to be 1000.0 feet. Survey plat 1306 was used as a base on which to plot the topography and geology. Samples for assay were taken from the mineralized zone and from the iron stained limestone.

MINE WORKINGS

A ten foot adit in silicified limestone and an adjoining open-cut were the only accessible workings. Here the copper bearing minerals were seen in place. All of the shafts and trenches indicated on the patent plat contained varying amounts of sluff, and as the examination was too brief to determine whether or not the material on these dumps was indicative of the mineral in place, it was classified as float on the sketch map.

TERRITORY OF ALASKA
DEPARTMENT OF MINES

ASSAY OFFICE

AT Nome

11/20/41

Ward Copper Company Report, Page 5.

SAMPLES

Sample No. 1; An 84 inch vertical chip sample taken at the portal of the adit, and consisting of copper stained siliceous material. The sample assayed 0.46% copper, trace of gold and no silver.

Sample No. 2 ; A 48 inch chip sample at the adit face, ten feet from the portal, and consisting of copper stained siliceous material. The sample assayed 0.28% copper, 0.02 oz. gold per ton and no silver.

Sample No. 3 - Chips were taken on the sides of the adit from the portal to the face, a distance of ten feet. The sample consisted of the same type of copper stained siliceous materials as in samples No. 1 and 2. Assays showed 1.47% copper, 0.04 oz. of gold per ton, and no silver.

Sample No. 4 - Chips were taken from the face of a 6 by 8 foot exposure of copper stained siliceous material in the open-cut north of and adjoining the adit. The sample assayed 0.51% copper and no gold or silver.

To determine whether or not the iron stained limestone was the leached product of former copper mineralization, samples No. 5, 6, 7, and 8 were taken. These consisted of surface grabs. No trace of copper, gold or silver was found.

ASSAYS

The assays were run at the Nome Assay Office of the Territorial Department of Mines. The gold and silver were tested by standard fire assay methods and the copper by wet analysis titrating against a standard potassium cyanide solution.

TERRITORY OF ALASKA
DEPARTMENT OF MINES

ASSAY OFFICE

Nome

AT 11/20/41

Ward Copper Company Report, page 6.

METALLURGY

The samples taken were of ore that apparently could be treated by ordinary metallurgical processes, and would probably not be subjected to excessive smelter penalties. Since no commercial amount of ore has been blocked-out this applies only to the individual samples.

MILLING

The prospect is too undeveloped to consider milling problems beyond the physical condition of possible mill sites and the costs due to geographic and climatic conditions. No mill tests on the present showing would be truly indicative of the problems which might be met if commercial ore is developed.

GEOLOGY

As shown on the accompanying sketch-map, the patented ground is almost entirely in limestone. This series has been classified by the U.S.G.S. as belonging to the Port Clarence formation of the Nome Group, and probably Silurian in age. Locally the limestone is more or less schistose and contains thin beds of schist. This limestone becomes progressively less metamorphosed toward the west and exists as massive crystalline marbles on the divide between Kougarok and American Rivers.

The limestone outcrops on the two small knobs shown on the sketch, but due to frost action and other forms of weathering it is seen as talus on the hill slopes, and may or may not underly the tundra.

The tundra shown on the sketch map, is a subarctic accumulation of rock, silt, ice, and decayed vegetable matter covered by mosses, lichens, sedges, grass, and here and there some small willows and alder.

TERRITORY OF ALASKA
DEPARTMENT OF MINES

ASSAY OFFICE

AT Nome
11/20/41

Ward Copper Company Report, page 7.

GEOLOGY
(continued)

Float and exposures in natural and artificial cuts indicate that much of the area covered by tundra is underlain by closely folded and faulted siliceous, graphitic, mica, and greenstone schists. No igneous rocks were noted in the immediate vicinity but their existence, especially in the form of dikes and sills could not be precluded as the tundra and elluvial limestone might hide any trace of them. The line of demarkation shown on the sketch-map between the elluvial limestone and the tundra is only approximate. The underlying formation could only be guessed at; and although the brief examination indicated schists, the possibility of the limestone continuing under the tundra for a considerable distance can not be dismissed.

A rapid inspection of the north-west slope of Kougarok Mountain above the property disclosed alternating series of limestone and schists, with dark gray siliceous micaceous schists predominating.

MINERALOGY

The only ore minerals seen in place were the green and blue copper carbonates and iron oxide in the adit and on the face of the adjoining open-cut. These minerals occur as a stain in the upper part of the mineralized zone with some tendency toward concentration in the lower part of the deposit. The commercial ore on the dumps consisted of azurite and malachite in about equal amounts. The main gangue mineral is quartz, but calcite and fluorite was observed on some of the dumps. Bornite and chalcopyrite was found on the dumps of some of the pits to the west of the survey hub.

TERRITORY OF ALASKA
DEPARTMENT OF MINES

ASSAY OFFICE

AT Nome
11/20/41

Ward Copper Company Report, page 8.

ORE DEPOSITS

From the evidence shown in the adit and adjoining open-cut the lode appears to be an impregnated zone lying in the limestone near a lime-schist contact. The malachite, azurite and limonite are probably the oxidation products of chalcopyrite and pyrite. It appears that these sulphides were formed in the quartz which now replaces the limestone; the quartz being introduced along the bedding planes of the limestone. The mineralized solutions probably circulated along the lime-schist contacts and along the bedding planes of the limestone itself, therefore, the mineralized zone is essentially a silicified limestone and retains the banding of and merges with the limestone with which it is in contact.

SHIPMENTS

From Mineral Resources of Alaska 1916, page 441:

"The following table published with the permission of the owner, give all available information concerning the copper shipments made from this property to date;

	Quantity	Copper %	Value
1906	8 tons	41	\$1200.00
1907	8 tons	41	1200.00
1913	14 tons	30.34	1400.00
1916	18947 pounds	981.12
		Total	\$4781.12

TERRITORY OF ALASKA
DEPARTMENT OF MINES

ASSAY OFFICE

AT Nome
11/20/41

Ward Copper Company Report, page 9.

SUMMARY

The property under consideration occurs in a fairly accessible region in which normal mining and prospecting costs are not prohibitive. The geology is that of a series of schists, and limestone containing thin bedded schists. The property was apparently patented on the showings of some copper mineralization in an adit, opencut, shafts and pits. It is also likely that several of the claims were patented on the showing made by a little copper float and considerable iron stained limestone. Where found in place the copper mineralization consisted of a small amount of copper oxides in a silicified replaced limestone. Elsewhere, tho not seen in place, the mineralization was probably similar.

The inaccessibility of much of the old workings does not allow for a fair interpretation of the original prospecting. The accessible workings however indicate a type of mineralization that coupled with the low assays and the small definite areal distribution suggest extreme caution in pursuing further prospecting. The failure to obtain even traces of copper from the surface grab samples taken in the iron stained limestone suggests that there is no relationship between the copper mineralization and the iron stain. The physical characteristics of the limestone further discourages any expectation of surface leaching with secondary enrichment in depth.

The low gold contents of the samples taken in the mineralized zone discourages the thought that the deposit could be worked as a gold mine.

A Ben Shallit
ASSOCIATE ENGINEER
TERRITORIAL DEPARTMENT OF MINES

TERRITORY OF ALASKA
DEPARTMENT OF MINES

ASSAY OFFICE

Nome

AT 11/20/41

Ward Copper Company Report



Airplane view-
Looking North.



Airplane view-
Looking South.



Airplane view-
Looking West.

TERRITORY OF ALASKA
DEPARTMENT OF MINES

AREA OFFICE
Nome

AT 11/20/41

Ward Copper Company Report

U.S.L.M. Survey Hub 1306.



Looking North-
From survey hub.



Airplane landing-
North of, and adjoining
property.

TERRITORY OF ALASKA
DEPARTMENT OF MINES

ASSAY OFFICE

AT Nome
11/20/41

Ward Copper Company Report.

Buildings-



Adit and Drain-