18.9.0.4

130°04'

56° 0'

PE-118-01

REPORT ON THE

RIVERSIDE TUNGSTEN MINE

NEAR

HYDER, ALASKA

BY

HOWARD M. FOWLER

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INTRODUCTION

The Riverside Tungsten Mine near Hyder, Alaska, was examined from July 19, 1951, to August 7, 1951, by Howard M. Fowler, Associate Mining Engineer for the Territory of Alaska Department of Mines. The examination was made at the request of Mr. Jim Langdon, in active charge of the mine for Mr. J. H. Scott, the owner of the property. The purpose of the examination was to:

1. Determine the distance from the present mine workings to the end line of the property.
2. Check the tungsten possibilities in the present mine workings.
3. Conduct a sampling program in the most promising areas.
4. Recommend a program of development for the Riverside Mine.
5. Conduct an examination of the eU_3O_8 possibilities at Riverside Mine.

LOCATION AND PHYSICAL FEATURES

The Riverside Tungsten Mine is located on the Salmon River Highway, seven miles North of Hyder, Alaska, and at latitude 56°0'N, longitude 130°04'W. Hyder is a small community with a population of less than fifty permanent residents. It is located at the head of Portland Canal and about two miles from Stewart, British Columbia.

Stewart is the largest community in the area and has a population of about 250 residents.

The region has been heavily glaciated and is characterized by high steep mountains and narrow valleys. The lower slopes of the mountains are covered with a heavy dense growth of brush and timber.

OWNERSHIP

The Riverside Tungsten Mine property consists of ten patented claims owned and operated by the J. H. Scott Company, Merchants Exchange Building, San Francisco, California.

GEOLOGY

The Riverside Mine is located at and near the contact of the Texas Creek granodiorite with the Hazelton series of graywacks, slates, greenstones, tuffs, and argillites. The mineral deposits are younger than the Texas Creek granodiorite and older than the nearby Coast Range batholith. It is probable that they were formed by residual solutions from the crystallization of the Texas Creek granodiorite. Three quartz-fissure veins are known at the Riverside, the Cross Vein, the Riverview Vein, and the Lindeborg Vein, all of which occur in shear zones. Numerous malchite, lamprophyre, and porphyry dikes cut the area, but all the dikes observed were of post mineral age and had no apparent influence on the mineralization of the veins.

The geology of this property and of the general area has been most completely covered by R.I. 4174, Tungsten Deposits in Alaska, by the U. S. Bureau of Mines, June 1948, and by Bulletin 807, Geology of Hyder and Vicinity, Southeastern Alaska, by A. F. Buddington of the U. S. Geological Survey, 1929.

The Riverside Mine has produced in excess of $600,000.00 in gold, silver, lead and tungsten. The Lindeborg Vein is the most prominent vein at the Riverside Mine and the one from which most of the property production has been made. It has been traced for approximately 4,000 feet along the strike and for over 1,000 feet along the dip.

Diamond drilling by the U. S. Bureau of Mines during 1942-43 disclosed a large porphyry dike nearly 100 feet in width cutting the Lindeborg Vein near the face of the present mine workings. No evidence of this dike was seen on the surface due probably to insufficient trenching. Beyond the dike, and on the Last Shot No. 1 and 2 lodes, owned by Mr. Charles Fehring, a small amount of trenching has been done on the continuation of the Lindeborg Vein. Near the end line and on the Last Shot No. 1 Lode, the vein was composed entirely of quartz and pyrite, with no galena or scheelite present.

On the Fehring ground, approximately 1,800 feet from the Riverside - Last Shot No. 1 boundary and at an elevation of about 1400 feet, trenching and a short tunnel on the Lindeborg vein have disclosed a quartz gangue containing considerable pyrite, galena, chalcopyrite, and sphalerite. No scheelite was observed. It is probable that none will be found at this elevation since the evidence indicates a lower range of temperature of crystallization. This does not mean, however, that scheelite bodies will not be found at greater depths. The converse is probably true and it is probable that a continuation of the Riverside levels on the Lindeborg vein into the Last Shot claims will expose additional mineable bodies containing considerable scheelite.

A transit-tape survey from the face of the Upper Level to the end line of the Last Shot No. 1 claim showed that the Upper Level has been advanced to within 405 feet of the Fehring ground. The Upper Level is the level fartherest advanced on the Riverside ground.

Scheelite bodies found in the Riverside Mine have in the past been considered to be a result of mineralization from a flat dipping lamprophyre dike exposed in the mine workings. However, the examination at the property by the Department of Mines engineers disclosed no evidence to support this. Instead, it appeared evident from the limited exposures that could be examined that the dike was post mineral and had no bearing on ore deposition. Further , it should be stated that the same structural controls that apparently caused the deposition of ore at the Riverside are present also on the Last Shot claims. These are: the intrusion of the high temperature Texas Creek magma into the Hazelton Series and the development of the strong Lindeborg shear.

RESULTS OF EXAMINATION

Inasmuch as the Riverside Mine now has over a mile of workings, it was not practical to make a detailed examination of the entire mine. Many of the stope openings are presently inaccessible and it will first require the placing of stulls to permit access to the stope faces. However, those areas that appeared to have the most promise were examined.

The property has no proven ore reserves. The previous manngement apparently made no effort to keep development work ahead of actual mining operations. The result has been that stopes have been almost completely robbed. Further, it was noted that the previous management apparently was interested only in recovery of the galena present and made no effort to recover any scheelite. Both the Mill Level and Intermediate Level dumps contain considerable tonnages of scheelite ore that can be recovered by hand sorting. However, it is not possible to estimate the recoverable tonnage as it has been mixed with

considerable waste.

It should be noted here that careful examination of the Riverside Mine disclosed no noticeable radioactivity although encouraging samples have been obtained from structures on the nearby Mountain View prospect.

Because the present stopes have been robbed and because the drifts were stopped in low grade ore, the samples taken in the Riverside Mine cannot be considered representative. Therefore, they should be viewed with extreme caution. For this reason, recommendations for development work have been dependant almost entirely upon the strength of the vein structure rather than on assay results.

No proper mine development program has apparently ever been followed at the Riverside property. Much of the servicing of the various levels has been accomplished by back packing of supplies. There is no access to the upper levels from the Mill Level and although an aerial tramline has now been constructed from the road to the Intermediate Level, no suitable means for servicing the Upper Level has been developed. Any mine rehabilitation program at the Riverside should take this into account and provide for it.

A considerable tonnage of galena and scheelite has been found at the Riverside Mine that was of too high grade for milling. Inasmuch as it has not been practical to sort this ore in the stopes, it should be done on a picking belt or sorting table at the head of the mill. The high grade galena and scheelite tend to slime badly with resulting high tailing losses. Further, the mill circuit cannot be prepared for the sudden high grade jolts of feed and under these conditions reagent control can never be completely satisfactory. This also results in additional tailing losses.

Because of the sliming nature of this ore, all possible consideration should be given to the removal of the scheelite and galena from the mill circuit as rapidly as possible. Towards this end, a jig placed ahead of the grinding circuit and the installation of a rod mill to replace the ball mill would probably be advisable.

The replacing of the ball mill with a rod mill will require no special expenditure inasmuch as the ball mill was ruined during 1950 and will require replacing for future operations.

RECOMMENDATIONS

MINE:

A. See Longitudinal Section Map on Lindeborg Vein.

1. The raise and slide from the Intermediate Level (point marked 1 on map) should be continued through to the Upper Level. This will require a small amount of side swiping of pillars and will allow proper servicing of the Upper Level working faces.
2. Continued exploration on the Intermediate Level and Lower Sub-Level is warranted (see points 2 and 3 on map) and can be done at the same time the raise work is in progress.
3. Upon completion of the raise from the Intermediate Level, exploration can be started in the face of the Upper Level (point marked 4 on map).
4. At points marked 5, 6 and 7, promising showings of scheelite are in evidence. Further exploration in these areas is completely justified.
5. A raise from the Mill Level (point marked 8 on map) will prospect possible extensions of the East Ore Body below the Intermediate Level and if properly surveyed will provide a proper means of servicing the mine from the Mill Level.

6. Extensions of the West Ore Body below the Mill Level should be prospected. (Point marked 9 on map). Good galena and some scheelite showings have been reported below the Mill Level. This area can best be reached by dewatering the two flooded levels reached by the winze noted on the Mill Level map.

7. Encouraging scheelite showings are beginning to appear between the Mill Level and the Intermediate Level. This area can best be prospected by first completing the raise (point marked 10 on map) and providing servicing facilities from the Intermediate Level.

B. See Mill-Level Map of Riverside Mine.

1. The Mill-Level should be advanced (see point marked 1 on map) to the proper point for driving a raise to explore downward extensions of the East Ore Body and to provide more adequate servicing facilities for the upper mine levels.

2. Encouraging galena and scheelite showings have been reported by miners to be occurring on the two flooded levels below the Mill Level. As little information has been recorded on these levels, they should be dewatered and properly examined. At the same time downward extensions of the West Ore Body can be prospected (see point marked 3 on Mill-Level Map).

C. Mine-General.

1. Stulls should be placed in old stopes in promising areas in order that the old stope faces may be examined. Since little attention was paid to scheelite in the past, it is possible that some of the abandoned stopes may warrant re-opening.

2. Promising areas should be washed down. The covering of muck from blasting frequently hides the fluorescence of the scheelite under the mineralite.
3. Consideration could well be given to option of the adjoining Last Shot Claims. It should be borne in mind in arriving at an option agreement that no ore bodies have as yet been proven on the claims.

MILL:

1. Consideration should be given to the installation of a picking belt or sorting table at the head of the mill. The tendency of the high grade galena and scheelite to slime has resulted in high tailing losses in the past.
2. For the same reason as above, a jig ahead of the grinding circuit to eliminate fines before sliming should be considered.
3. Reduction in sliming in the grinding circuit can be obtained by conversion to a rod mill. Inasmuch as the ball mill must be removed, consideration of this should be made.
4. The mill should be winterized for year round operation. The cost of yearly shut-downs and re-openings of the property is always great.

GENERAL:

1. Dump ore should be sorted out on the Mill Level and Intermediate Level. A considerable tonnage of scheelite ore can be found on both levels.
2. Assay facilities should be constructed at the property. The delay in waiting for results from the States or from Ketchikan is too great for satisfactory mine and mill operation.

3. Extreme caution must be used in the selection of management personnel for this property. This one factor will probably prove to be the most important consideration in the success or failure of the operation of the property. Inasmuch as the mine is in an isolated area with long winters, and near communities where drinking is excessive, it will require a man in charge that has will power sufficient to prevent secondary considerations from taking primary importance over the operation of the property.

CONCLUSION:

The Riverside Tungsten Mine, while it has, at present, no proven ore reserves is a completely justified mining investment venture.

Past operations have disclosed ore shoots of exceptionally high grade galena and scheelite. While those shoots are now almost completely mined out, the structural controls that permitted the formation of those shoots are apparently still present.

Much of the success or failure of the future operation of the mine will undoubtedly depend upon the careful selection of qualified management personnel.

Respectfully submitted,

Howard M. Fowler

Howard M. Fowler
Associate Mining Engineer
Territory of Alaska
Department of Mines

ASSAYS OR RIVERSIDE MINE SAMPLES, HYDER, ALASKA

Sple. No.	Date	Width	Type	Oz.Au.	Oz.Ag.	Value ton	% pb.	WO3
HMF-206	7-27-1951	3.8'	Channel	0.02	Tr.	$0.70	0.60	0.07
HMF-207	"	Greenish Fl. mineral identified as impure calcite, dotomite, and/or						
HMF-208	"	3.8'	Channel	0.03	1.66	2.54	2.05	0.02
HMF-209	"	3.8'	Channel	0.10	Tr.	3.50	0.60	0.14
HMF-210	"	3.5'	Channel	0.11	1.05	4.80	0.51	1.30
HMF-211	"	3.7'	Channel	0.01	2.08	2.22	0.28	0.05
HMF-212	8-1-1951	4.0'	Channel	Tr.	Tr.	——	0.50	Tr.
HMF-215	8-18-1951	3.0'	Channel	0.14	1.86	6.57	1.44	0.11
HMF-216	"	3.0'	Channel	0.05	3.55	4.94	0.18	0.03
HMF-217	"	Yellow Fl. mineral on outcrop below Premier Tramline ident. as impure						
HMF-218	"	Whitish secondary mineral seen in mine workings with mineralite ident. as impure CaCO3						
HMF-219	8-6-1951	0.7'	Channel	0.72	25.12	28.56	2.79	% Zn. 1.50
HMF-220	8-6-1951	1.1'	Channel	0.24	5.64	13.48	7.46	

REMARKS

Sple. cut in stope above Point No. 4 on Section Map. Vein pinching rapidly.

aragonite. No importance.

Sple. cut at Point 11 on Section Map.

West end of main pillar on upper sub-level.

East end of " " " " " "

Face of drift - Lower sub-level - at Point 3 on Section Map.

Face of Intermediate Level.

Face of short drift from raise off Intermediate Level - at Point 7 on Section Map.

At Point 5 on Section Map.

calcite. No importance.

Au.	Cu.	
.42		Sple. cut in Short Tunnel on Last Shot No. 2, approx. 1800 ft. from Riverside end line.

Sple. cut in open cut on Last Shot No. 2 and 100' from Last Shot No. 1.

SAMPLES CUT BY HOWARD M. FOWLER, ASSOCIATE MINING ENGINNER FOR THE TERRITORY OF ALASKA DEPARTMENT OF MINES.

ASSAYS BY KETCHIKAN ASSAY OFFICE.

Howard M. Fowler

Howard M. Fowler,
Associate Mining Engineer