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REPORT  
ON THE  
SURVEY OF THE WORKINGS AND MINERAL SHOWS  
ON THE  
FRANCES CREEK PROPERTY  
OF  
FRANCES CREEK MINES LTD.

Guy B. Allen, P. Eng.  
July, 1973

Department of	
Mines and Technical Resources	
ASSESSMENT REPORT	
NO. 4538	M.P.

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## INTRODUCTION

A survey of all the workings and known mineral shows on the Frances Creek property of Frances Creek Mines Ltd. was carried out by the author, assisted by Mr. Cliff Runham during the period July 6 to 10, 1973. For purposes of the survey an Alpha pocket transit was used to record bearings and slope angles and a 300' chain marked at one foot intervals to measure slope distances. The data was employed to compute horizontal and vertical distances between survey points. Ten reference stations were set up at various locations within the surveyed area for tie-in purposes for future mineral discoveries. Reference post (station) No. 7, a claim post (Initial Post for FM No. 9 and 10, Final Post for FM No. 7 and 8), located immediately north of the base camp, was taken as base station. All measurements are recorded to the nearest foot.

For purposes of establishing absolute elevations above sea level all points were referred by computed vertical measurement to Reference Post No. 7. The absolute elevation of this station was determined by means of a Thommen barometer which was set at the known elevation of Lake Windermere ( 2622'ASL)

Figure No. 1 (pocket) records the surveyed location of all known adits, trenches, pits, mineral occurrences and roads on the property. A number of footpaths in various states of disrepair have been omitted, however the main footpath from the Lead Queen road to the No. 3 adit has been mapped. Most of the old buildings and tram stations have also been recorded.

Snow conditions interfered with spotting the exact positions of the Nos. 1 and 2 adit openings on the Lead Queen claim, as well as the Upper Steele adit.

Figure No. 2 is a detailed map of the Lead Queen workings and mineral shows. The workings consist of three trenches along the surface trace of the main vein and adit openings to three levels of underground workings. The trenches have been filled in with slide rock and none of the adits could be entered due to snow and slide rock cover. The traces of the underground workings depicted on Figure No.2 are derived from descriptions in the report by Leitch (1965) and the B.C. Minister of Mines Annual Reports.

## GENERAL

Descriptions of the access, topography, geology and mineralization on the property as well as the exploration and development history have been well outlined by previous authors ( see Bibliography), and the general setting only will be mentioned here.

The Frances Creek property consists of nine crown granted mineral claims, one mineral lease, and seventy-three located mineral claims, just north of Frances Creek and twenty-two miles west-northwest of Radium, B.C. The area has the typical rugged relief of the Purcell mountains with peaks to 9000 feet and steep slopes. Described mineralization consists of galena with minor sphalerite containing values in silver, lead, and zinc associated with quartz and carbonate gangue, occupying fault zones. The faulting has generally a northerly trend cutting Precambrian strata of the Purcell group. Rocks encountered include quartzites, argillites, black slates and calcareous schists.

The properties have a history of exploration and intermittent production dating back to the early 1900's.

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### OBSERVATIONS AND CONCLUSIONS

Probably the most striking observation of the results of the survey as represented on Figure No. 1 is the alignment of the mineral occurrences in a general north - south direction from the Steele workings to the vicinity of the No. 4 adit just north of Frances Creek. These 'shows' follow the trace of what has been previously mapped as a major fault cutting the length of the property and beyond. Various hypotheses have been proposed as to the location and control of the mineral-bearing vein or veins.

It was the main purpose of the present survey to help determine whether the mineralization in the Steele workings and the Upper Lead Queen workings were in fact a part of the same continuous structure and whether the structure could be traced beyond, even so far as the No. 4 adit. An additional objective was to locate the shows and workings in relation to each other so as to indicate where drill holes would provide the most meaningful data to assess probable reserve tonnages.

It would appear that although the aforementioned alignment of workings and shows does occur, there are significant local variations in the strikes of the actual mineralized veins. The Lead Queen vein as tapped in the Upper Lead Queen workings varies from a strike of  $310^{\circ}$  at its north exposure to  $330^{\circ}$  where exposed adjacent to the trenches. This latter strike parallels that of another short vein 80 feet to the east. Within the upper tunnels little information is available regarding the strike of the Lead Queen vein with the exception of a  $345^{\circ}$  strike noted for the north drift off the No. 1 tunnel. However, indications are that the vein flattens from an almost vertical dip where exposed on the surface to a  $45^{\circ}$  west dip in the No. 2 tunnel.

An extrapolation of the north end of the Lead Queen vein on its present  $310^{\circ}$  course would carry it across the cirque valley on a line well away from the Steele workings. The vein uncovered in the Steele workings was inaccessible to the author, but is reported by Croteau (1969) as having a  $S10^{\circ}E$  strike.

It is considered by the author that although the Steele vein and the Lead Queen vein are a part of the same regional fault zone, they are not one in the same vein. It would appear that

this major break as it transects the property has a number of secondary faults branching at acute angles in northwesterly and northeasterly directions. The 'Upper Vein' as mapped above the Upper Tram station strikes at  $6^{\circ}$ , the Big Chief tunnel strikes at  $355^{\circ}$ , and the vein exposed in the No. 4 tunnel strikes at  $350^{\circ}$ . Dips in all cases range from  $45^{\circ}$  to  $85^{\circ}$  west. As a result, each mineralized vein should be considered on its own merits in determining its extent, without attempting to extrapolate between veins over substantial distances. It is believed that most of these mineralized structures are fairly short, but there may well be a number whose presence has not as yet been revealed.

A strike length of 400' on the Lead Queen vein is apparent on the surface. Extensions of this length are drift, rock and snow covered. The No. 4 vein as exposed in the No. 4 tunnel has an indicated length of 160' and this may be increased to 220' if it can be established that the mineralization exposed in the trenching just south of the No. 4 adit is part of the same vein. The Upper Vein, discovered during this survey to the east of the Upper Tram station has an indicated length of 80' to the lower pit where an assay of a bag of weathered vein material returned 26.24 ounces of silver per ton. These three veins in addition to that exposed in the Steele workings are the most important located to date and should be the focal points for subsequent exploration endeavors.

Attempts to integrate the underground workings into the survey of the Upper Lead Queen area, as illustrated in Figure No. 2 is difficult due to the inability to perform a firsthand examination, and the incomplete descriptions found in the literature.

The top tunnel designated as the Upper Workings has the Lead Queen vein exposed at the adit. Leitch, however, reports vein material 22' - 25' in the tunnel which has been driven at  $72^{\circ}$  to  $77^{\circ}$ . Since the strike of the vein as exposed at the surface changes from  $330^{\circ}$  to  $310^{\circ}$  about 50 feet south of the adit, what we may be dealing with here are two branches of the same vein. Only detailed geological mapping in this area, and of the tunnel; or a drill hole to the north intersecting the extension of these two? veins will fully answer this question. The No. 1 crosscut is fairly well described in Leitch's report. One vein is reported here, drifted on in both directions from the main tunnel with a winze in the southeast drift. The No. 2 crosscut was not entered by Leitch, but he reports it as being the main ore producer. British Columbia Minister of Mines reports substantiate 100 feet of drifting with a raise to the No. 1 level. Leitch notes the amount of ore on the dump and suggests this indicates longer drifts.

However close Figure No. 2 approximates the true picture a number of parameters can be set forth;

1. The surface showings give good indications of a 400 foot length to the exposed vein.

2. The No. 2 crosscut and drifts establish at least a 200 foot depth to the vein. Whether this depth can be extrapolated for the full 400 feet of length is unknown.

If we consider a 400 foot strike length over a 200 foot depth with a three foot mining width, we can envisage roughly 24,000 tons of mineralized material. A history of the shipments since the turn of the century and the indications of ore presently on the dumps would suggest that probably no more than 5000 tons of rock was taken from the underground workings.

To justify a meaningful production decision sufficient ore must be outlined within a reasonable probability to cover all costs and provide a reasonable return on monies invested. The topographical and geological conditions present on this property suggest a small portable mill operating for 200 to 250 days a year as the most logical goal to pursue. This would require at least a fourfold increase in indicated reserves.

### RECOMMENDATIONS

As mentioned, the three mineralized vein areas suggested as targets for the next stage in the exploration program are the Lead Queen vein, the No. 4 vein and the Upper vein.

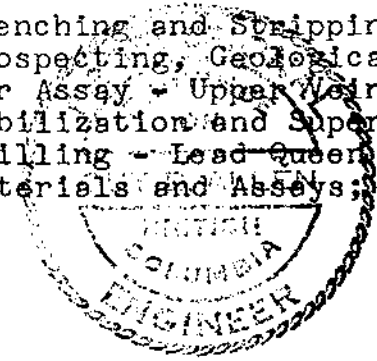
Lead Queen Vein: To facilitate a production decision the greater reserve figure mentioned should be outlined in this area. This cannot be done economically through rehabilitation and extension of the old workings. It is suggested that a modest drilling program of four or five holes totalling 1500 feet might indicate the additional tonnages required. Holes placed to intersect the vein at shallow depths 100 feet beyond the present north and south surface limits, and holes intersecting the vein 300 to 400 feet beneath the present surface exposures could, if successful, fill this requirement at moderate cost. Spotting of drill holes would be governed by terrain conditions and the results of preceding holes.

No. 4 Vein: The soil and drift cover should be stripped back to the north from the most recent mineral discovery that was uncovered in the trench just south of the No. 4 adit. The zone is about a foot wide and mineralized in the north wall of the trench.

Upper Vein: This vein is identified by a gash of stained rock above the Upper Tram station. Only one piece of rock from the talus slope showed visible galena. Pieces of well weathered material from the pit at the low end of the exposure assayed 26.24 ounces per ton of silver. This vein should be prospected, geologically mapped, and sampled for assay.

#### Costs

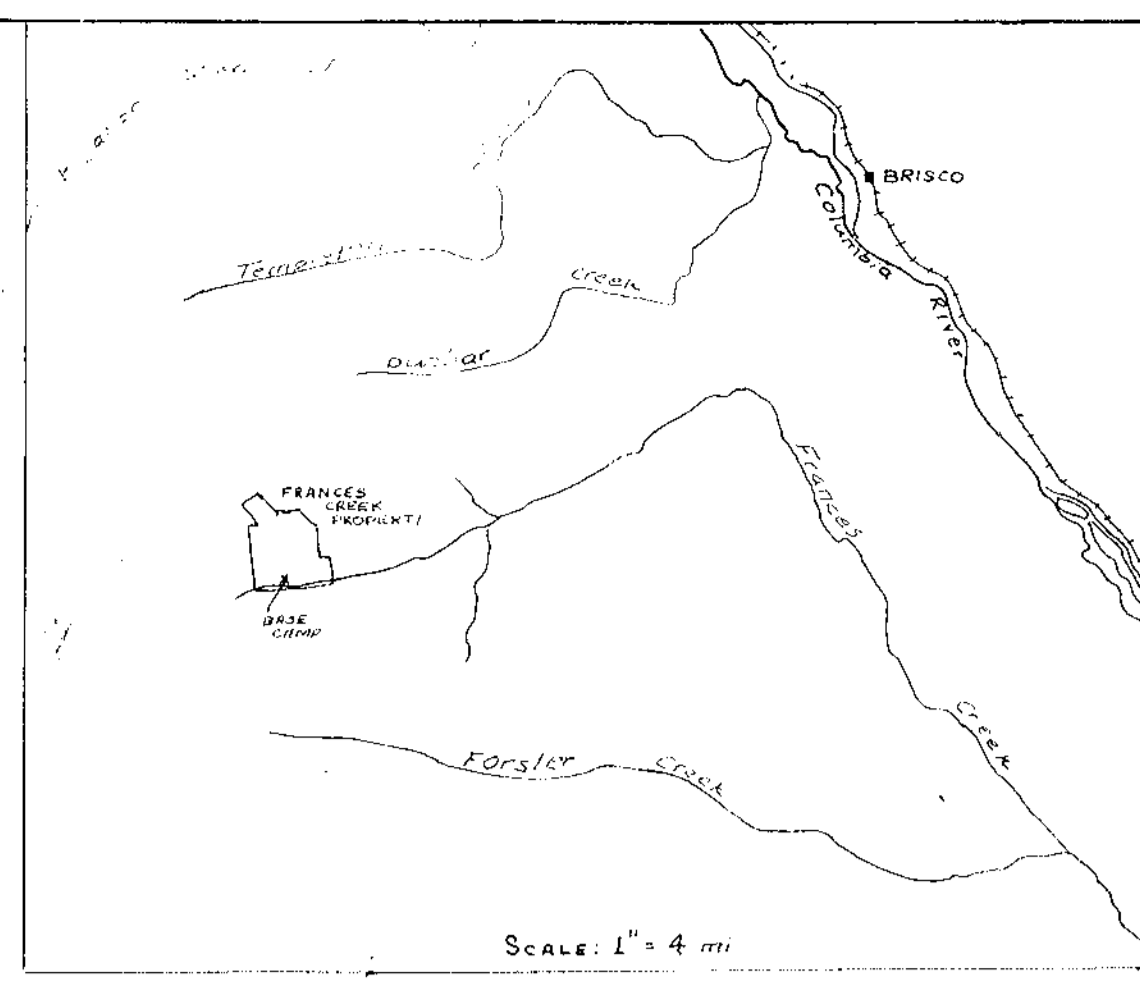
1. Trenching and Stripping No. 4 Vein .....	\$300.00
2. Prospecting, Geological Mapping and Sampling for Assay - Upper Vein .....	\$450.00
3. Mobilization and Supervision .....	\$500.00
4. Drilling - Lead Queen Vein - includes Supervision, Materials and Assays; 1500 feet @ \$15.00 .....	\$22500.00
Total	<u>\$23,750.00</u>



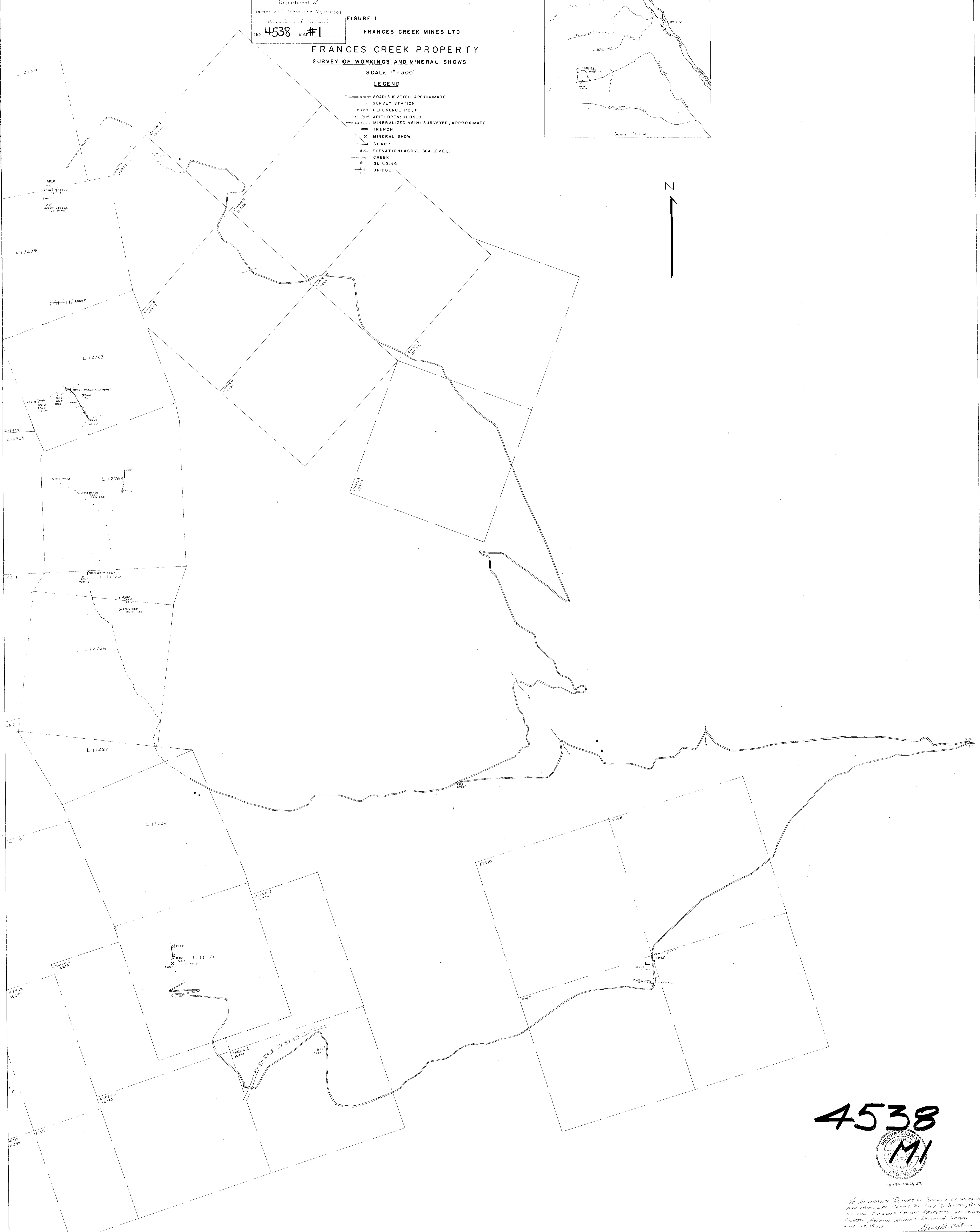
*Guy B. Allen*  
Guy B. Allen, P. Eng.  
July 30, 1973

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FIGURE 1  
FRANCES CREEK MINES LTD  
FRANCES CREEK PROPERTY  
SURVEY OF WORKINGS AND MINERAL SHOWS  
SCALE: 1" = 300'



- LEGEND
- ROAD SURVEYED, APPROXIMATE
  - SURVEY STATION
  - REFERENCE POST
  - ADIT: OPEN; CLOSED
  - MINERALIZED VEIN: SURVEYED; APPROXIMATE
  - TRENCH
  - MINERAL SHOW
  - SCARP
  - ELEVATION (ABOVE SEA LEVEL)
  - CREEK
  - BUILDING
  - BRIDGE

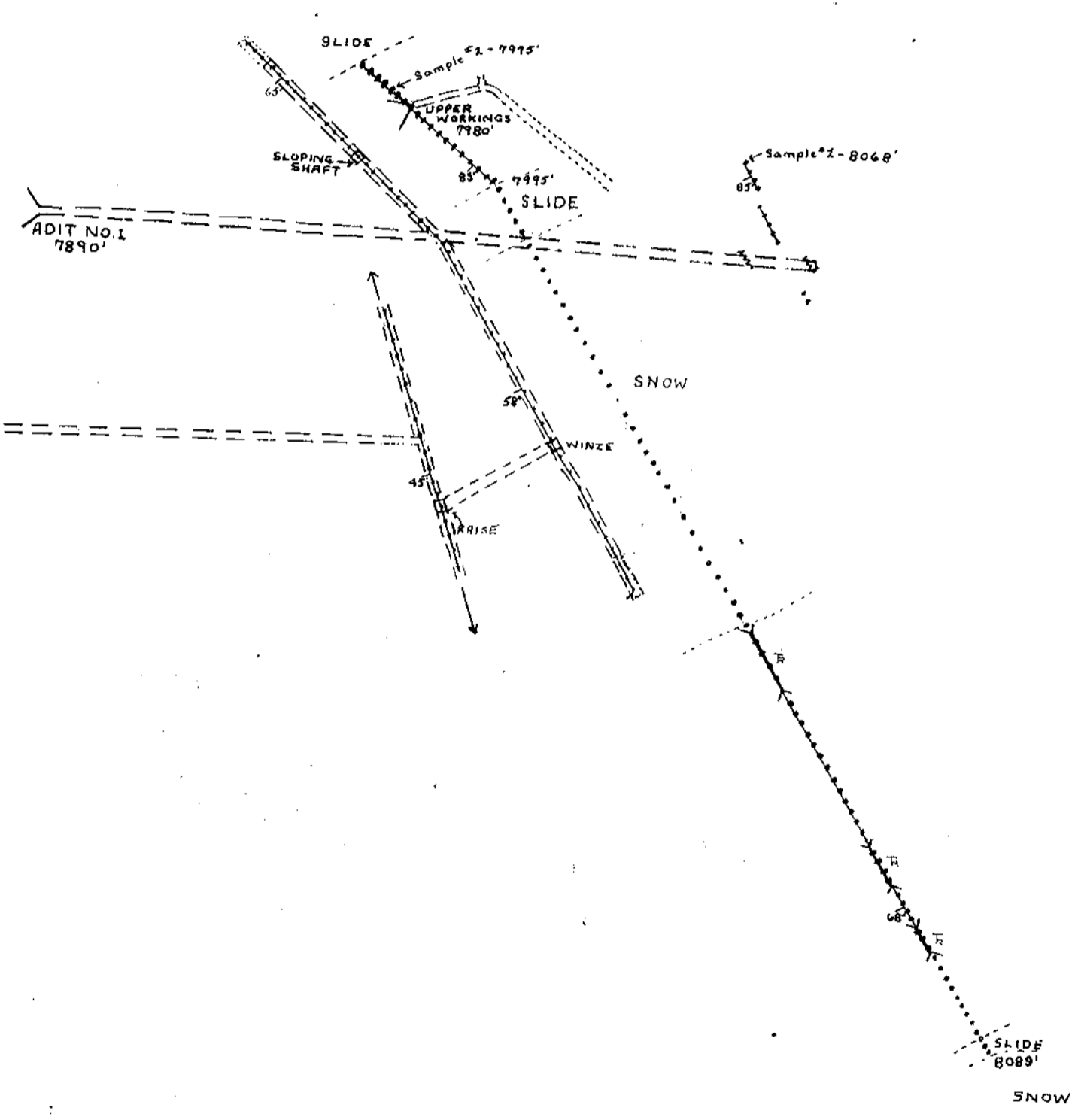


4538



To Accompany Report Survey of Workings  
and Mineral Shows of Frances Creek  
on the Frances Creek Property of Frances  
Creek Mines Limited District of  
July 30, 1973  
H. R. Allen





Department of  
Mines and Petroleum Resources  
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FIGURE NO. 2  
FRANCES CREEK MINES LTD.  
FRANCES CREEK PROPERTY  
LEAD QUEEN WORKINGS  
SURVEY OF WORKINGS AND MINERAL SHOWS

SCALE: 1" = 50'  
LEGEND

- ADIT
- UNDERGROUND TUNNEL
- TUNNEL EXTENSION NOT DETERMINED
- TUNNEL EXTENSION APPROXIMATE
- FAULT ZONE IN TUNNEL
- MINERALIZED VEIN: KNOWN; APPROXIMATE
- MINERALIZED VEIN DIP
- SHAFT, WINZE, RAISE
- SURFACE TRENCH
- ELEVATION (ABOVE SEA LEVEL)

*No Accompanying Report on Survey of Workings and Mineral Shows by Geny B. Allen, P. Eng. on the Frances Creek Property on Frances Creek, Golden Mining Division, dated July 30, 1923*

**4538-172**