

HOMESTAKE MINERAL DEVELOPMENT

ALASKAMIN PROSPECT

BOWSER CREEK, ALASKA

PROPERTY EXAMINATION

J. Buchholz

Vancouver, B. C.

June 13-16, 1968

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INTRODUCTION

At the request of Mr. L. G. White, Manager of Homestake Mineral Development Company, with offices at 615-1030 West Georgia Street, Vancouver, B. C. the writer accompanied Mr. White on an examination of silver-lead-zinc occurrences situated approximately 25 miles south of Farewell, Alaska at the headwaters of Bowser Creek. The deposits on Bowser Creek are replacement bodies in limestone apparently controlled by igneous activity as indicated by their proximity to granodiorite porphyry, igneous breccia and felsite dykes. Bowser Creek basin is located in the southern Alaska Range south-west of Mt. McKinley in an area of rugged terrain with considerable relief and abundant outcrop.

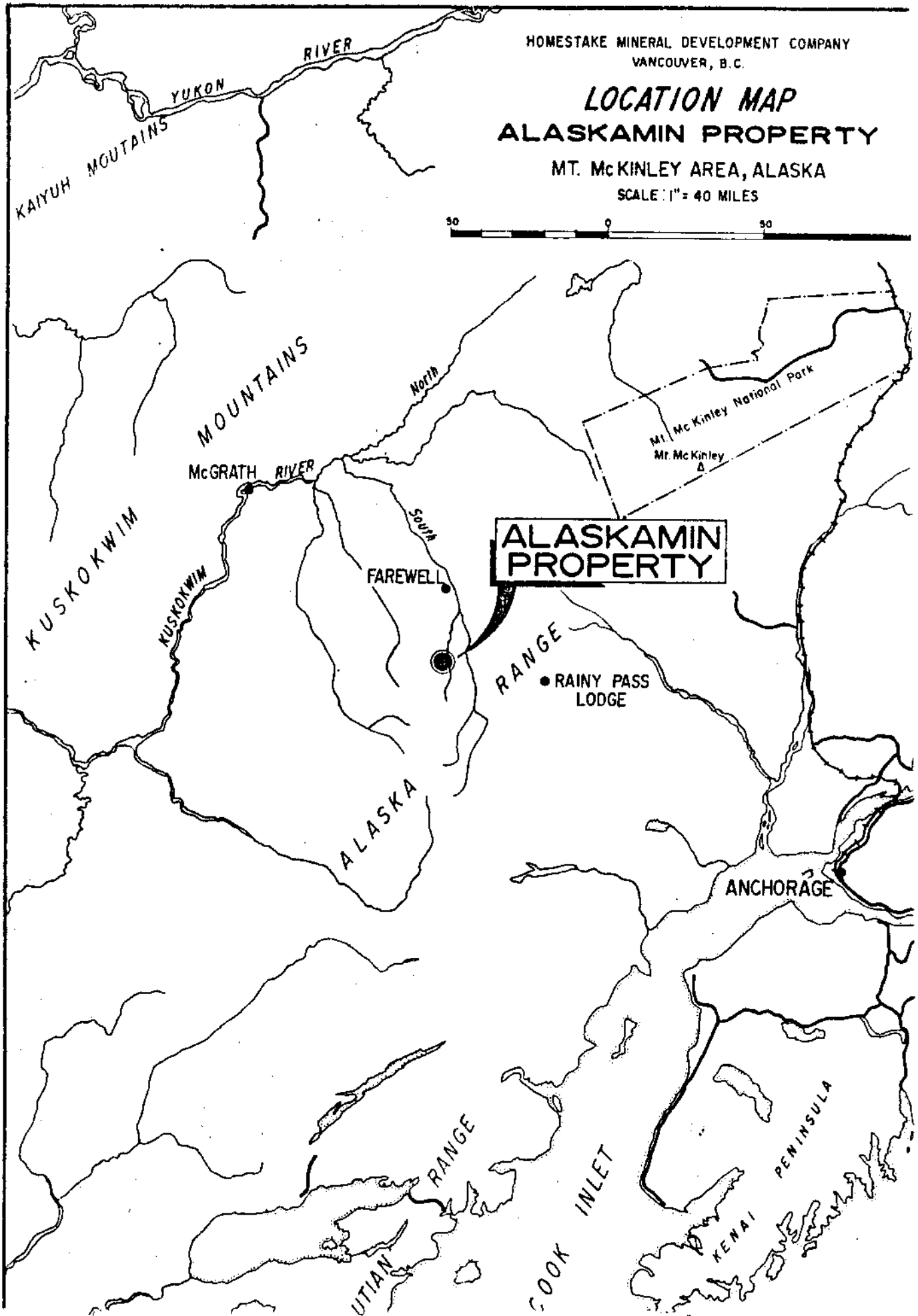
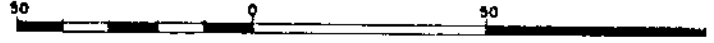
The purpose of the examination was to investigate new occurrences of base metals - silver deposits having been discovered by the U. S. G. S. during a heavy metals investigation of the Southern Alaska Range in 1967 - and to obtain a sufficient number of chip samples in addition to any geological information to allow an evaluation of the economic potential of the property. Accordingly a total of 17 (seventeen) chip samples were collected during a two day period of sampling and reconnoitering the area both on foot (parts of areas 3, 5, & 7, U. S. G. S. Circular No. 559) and by means of helicopter (reconnaissance by L. G. White). This report is based on observations made by L. G. White and the writer as well as a study of U. S. G. S. Circular No. 559 and 569.

HOMESTAKE MINERAL DEVELOPMENT COMPANY  
VANCOUVER, B.C.

# LOCATION MAP ALASKAMIN PROPERTY

MT. MCKINLEY AREA, ALASKA

SCALE: 1" = 40 MILES



### SUMMARY AND CONCLUSIONS:

Recent discoveries of silver-lead-zinc mineralization occurring over widely scattered areas at several localities in the Bowser Creek area 25 miles south of Farewell, Alaska, are of economic interest for the following reasons:

- 1) Assay results from sampling carried out by both U. S. G. S. geologists and Homestake indicate Ag. values ranging up to 250 oz. per ton.
- 2) Ratios of Ag. -Pb. range up to 4 : 1.
- 3) Continuity of mineralization appears to be good, as is evident from the fact that zones north and south of Bowser Creek are on strike adjacent to an intrusive-limestone (see geology of areas 3, 5 and 7.) contact.
- 4) Several interesting stream sediment anomalous areas outlined by U. S. G. S. geologists in the summer of 1967 indicate that a mineralized belt at least 25 miles long by 15 miles wide warrants further exploration.
- 5) The possibility that mineralization may recur along overturned beds should be investigated.

It is concluded that the known silver-lead-zinc showings on  
Bowser Creek warrant further exploration work.

### LOCATION AND ACCESS

Bowser Creek, a tributary of the Post River which flows northerly into the south fork of Kuskokwim River, is located approximately 25 miles south of Farewell, Alaska. Latitude  $62^{\circ} 15'$  and longitude  $153^{\circ} 40'$  pass through the south central part of the property.

Access to the area from Vancouver is by means of regular scheduled flights via Seattle to Anchorage. At Anchorage, helicopter or small fixed wing aircraft are available for charter to the area. As there are no roads leading to the property, the best source of supplies is McGrath, 85 air miles north-west of Bowser Creek.

Most of the ground in the vicinity of the showings can be travelled by foot since the slopes although steep are not generally precipitous and are devoid of vegetation. Elevations range from 2000 feet at Post River Valley to over 6500 feet, (peak north of Bowser Creek). Talus covers the lower portions of the slopes as well as the valley of Bowser Creek. An air strip suitable for small fixed wing aircraft has been constructed at Alaskamin's base camp on a gravel bar immediately north of the mouth of Bowser Creek. The distance from the camp to the headwaters of Bowser Creek (areas 3, 5 and 7) west of camp is approximately  $2 \frac{1}{2}$  - 3 miles. A road from Farewell to the property, along the valley of the Post River could be constructed economically within a relatively short time

period. Farewell possesses a 5000 foot gravel runway maintained by the Federal Aviation Agency.

### HISTORY

The Bowser Creek prospect is a new mineral occurrence discovered by U. S. G. S. Geologists during a heavy metals investigation of the southern Alaska Range in the summer of 1967. The only previous work of the general area dates back to 1902 when Brooks (1911) traversed the south fork of the Kuskokwim River. Since the discovery of the silver-lead-zinc occurrences, considerable preliminary exploration work has been carried out by both Alaskamin and St. Eugene Mining Company. Further work is being completed by both companies, and additional ground has been staked recently.

### CLAIMS

At the time of the examination of Alaskamin's Bowser Creek prospect approximately 300 mineral claims had been staked. Since that time additional claims have been and are being acquired. The status of the claims and their expiry dates, etc. have not been investigated.

### GEOLOGY

For a full description of the geology of the Bowser Creek area, the reader is referred to U. S. G. S. Circulars No's 559 and 569 published by the United States Department of the Interior in the spring and summer of 1968 respectively. For purposes of this report, a brief summary of the general geology is herewith included.

## GENERAL GEOLOGY

The predominant rocks of the area consist of a sedimentary unit of paleozoic limestone and siltstone with interbedded shale and limestone underlain in one area north of Bowser Creek by dark grey argillite. (Reed and Elliott 1968). The rocks of this unit have been assigned an age ranging from Ordovician or older - Argillite - to middle or upper Ordovician - siltstone. Igneous rocks consisting of igneous breccia, granodiorite porphyry and felsite dykes of Tertiary (?) age cut all three members of the sedimentary unit and appear to have localized the sulphide deposits at Bowser Creek. The sedimentary rocks are folded along a north-northeasterly direction with plunges both to the north-northeast and south-southwest. Locally, the folds are overturned and the axial planes are either vertical or dipping steeply to the east. A major fault system is parallel to the trend of the folding with the faults of this system occurring near axial planes of folds. Both the northeast-trending faults and folds are cut by the intrusive rocks.

## ECONOMIC GEOLOGY

The mineralization at Bowser Creek consists of three distinct types, these being:

1. Relatively narrow discontinuous lenses of replacement sphalerite - pyrrhotite carrying silver and minor galena and chalcopyrite in limestone. Example - Sample No. 45811

Figure 5.

2. Narrow but strong faults or shears containing galena rich in silver (argentiferous) and minor sphalerite and chalcopyrite in limestone. Example - Sample No. 04714  
Figure 4.
  
3. Narrow pyrrhotite - sphalerite stringers in shears and fractures within the intrusive. Example - Sample No. 04715  
Figure 7.

Of the three types of mineralization the most interesting economically and the one most likely to produce an orebody is the replacement type (No. 1 above) as this type has the following characteristics some of which are not possessed by the other two types:

- a) economic grade
- b) sufficient tonnage potential
- c) susceptibility to available prospecting techniques

The fact that a combination of two of these different types of mineral occurrences may be found in any one area and may therefore be considered as a single mineral zone has already been established.

Figure 4.            Sample #'s 45801-802 - Type 2  
                          Sample #'s 45803-805 - Type 1

Obviously such a combination enhances the possibilities of the area. This should be considered in planning any exploration work and in outlining target areas to be explored. All shears and faults should be prospected - especially where they occur in limestone near zones of oxidation or mineralization.

The sample results obtained by Homestake as well as all the significant data prepared by the U. S. G. S. Circular # 559 have been compiled in Figures 2, 3, 4, 5, and 7. The reader is referred to these figures included with this report. (Comparison)

The geological mapping completed by Reed and Elliott was found to be accurate where checked.

Mineralization, although narrow and discontinuous as noted, appears to possess strong continuity along zones as may be verified by the fact that the zone sampled by U. S. G. S. and Homestake Figure 3 is on strike with the zone of Figure 5 - a distance of over 2500 feet along strike. In addition, subsequent work by Alaskamin has uncovered mineralization south of Area 3 - again along strike of the zone of Figure 3. Both areas are located on the Eastern intrusive - limestone contact with the Ag-Pb ratio being as high as 4 : 1 in some sections. That portion of ground covered with morainal till and rubble between areas 3 and 5 should be investigated for possible extensions of mineralization by means of

## RECOMMENDATIONS

1. A preliminary work programme for the claim block and surrounding area indicated on photo enlargement of Bowser Creek should include the following:

- a) reconnaissance mapping of the area, employing,
  - 2 geologists
  - 2 prospectors
  - 2 drillers
  - 2 helpers
  - 1 cook.

Initial mapping to determine correct location of contacts, and structural features should be carried out on a scale of 1" = 1000 feet. A photo enlargement should be prepared at this scale to provide a good base map on which to plot information obtained.

- b) selection of favourable area (i. e. intrusive sedimentary contacts, skarn zones and shearzones, etc.) to be followed by detailed mapping at a scale suitable to the type of topography and abundance of outcrop present: Plane table mapping should be considered for selected areas.

- c) general prospecting of the north half of the claim block - gamma group.

- d) vertical loop E-M ground survey and magnetometer survey over areas covered with overburden to trace and locate sulphide conductors.
  - e) hand trenching (gasoline rock drill) and sampling in conjunction with prospecting and as follow-up work to detail mapping and E-M survey.
2. This preliminary programme to be carried out with support of helicopter.
  3. The reliability of previous sampling, including Homestake sampling, to be checked. Sampling to be extended and carried out in a more systematic manner. Many of the assay results given in Circular No. 559 are either "grab" or "selected" samples and should not be considered as anything other than indications of mineralization.
  4. Soil sampling of selected areas should be taken on a grid pattern since topographic ridges run approximately North-South and structure also trends approximately North-South.
  5. Time for completion of this programme is estimated to require six weeks employing the persons indicated. The cost for this six weeks programme is estimated to be not less than \$35,000. This cost should allow for:



6. Other areas referred to in U. S. G. S. Circular #569  
example Ozzna Creek should be prospected and investigated  
by methods similar to those indicated above.

Yours truly,

WESTERN GEOLOGICAL SERVICES LTD.,



J. Buchholz

JB:vsm

July 22, 1968