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GEOLOGICAL REPORT

ABC, DEF, GHI, AND JKL CLAIM GROUPS  
SAGE CREEK  
AKAMINA CREEK AREA, BRITISH COLUMBIA

MARK V MINES LTD. & ASSOCIATES

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ILLUSTRATIONS

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## SUMMARY AND CONCLUSIONS

This report summarizes the mineral potential of claims held by Mark V Mines Ltd. and associates in the Akamina Creek area, S. E. British Columbia. Importance of the area is noted by way of copper showings within certain rock units that could be hosts to bulk low-grade deposits and attention shown by companies through land acquisition of 220,000 acres in British Columbia and adjacent southwestern Alberta.

The principals hold 228 claims totalling about 10,000 acres, covering in part the Grinnell Formation of Proterozoic age. This formation and its contiguous formations are considered prime targets for the discovery of copper deposits.

An exploration program estimated to cost \$50,000 covering geochemical and geological studies for the 1970 field season is proposed.

## INTRODUCTION

This report reviews the geology and mineral potential of claims held by Mark V Mines Ltd. and associates in the Akamina Creek area, south-eastern British Columbia. The study is based on company reports and a review of government publications. The claims were acquired in 1969 to cover potentially favourable copper-bearing sedimentary and igneous rocks. Evidence of interest in this region is indicated by the large block of claims staked in British Columbia and mineral permits issued in adjacent Alberta, totalling approximately 220,000 acres, to cover the Proterozoic Akamina syncline. Major mining companies, such as Cominco and Falconbridge, have scheduled intensive exploration programs in this region for the 1970 field season.

## LOCATION

The claims are situated in the extreme southeastern corner of British Columbia and lie 40 miles southwest of Pincher Creek, Alberta, and 40 miles southeast of Fernie (Map 1). They are located in a southeast trending block north and south of Sage Creek at latitude  $49^{\circ}05'$  North and longitude  $114^{\circ}20'$  East. Access to the claims is via Highway No. 3 through Corbin, thence along the Flathead and Sage River roads.

Physiographically, the region is one of rugged mountainous terrain with elevations up to 8,500 feet.

The area is covered by the following Federal topographic maps:

Sage Creek            82-G-1 east half        1: 50,000

Fernie                82-G                        1:250,000

#### CLAIM DESCRIPTION

Mark V Mines and associates own 228 claims, totalling about 10,000 acres near Sage Creek, Mining District (Maps 1 and 2). The claim groups are as follows:

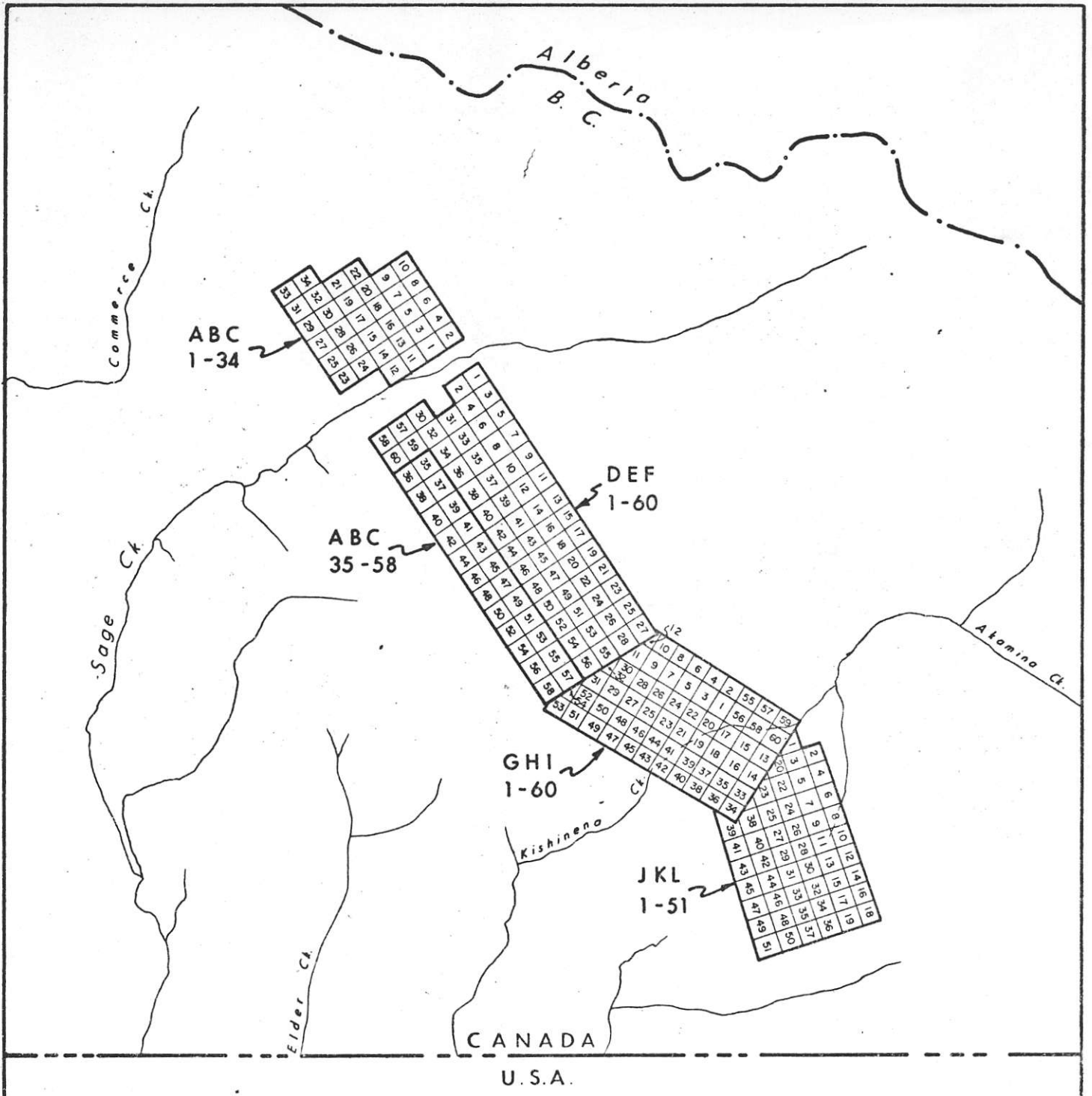
ABC Claim group	1-58
DEF Claim group	1-28, 30-60
GHI Claim group	1-60
JKL Claim Group	1-51

Overstaking by Falconbridge on claims ABC 5-10 is currently being contested.

#### PREVIOUS WORK

Geological Survey of Canada Paper 61-24, Fernie Map-Area by R. A. Price is the best source of information on the regional geology of the region.\* No reference is made to economic geology, however, the stratigraphic presentation provides a good working base to evaluate the sedimentary copper possibilities in the Proterozoic rocks.

\*See Appendix for additional references.



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**AKAMINA CREEK AREA**  
BRITISH COLUMBIA

PROPERTY MAP  
SAGE CREEK CLAIMS

MARK V MINES LTD.  
Scale 1" = 1 mile

Prospecting activities in the region prior to 1965 are not known, other than the interest shown by a local prospector, Frank Goble. In 1966, Goble optioned a group of claims between Yarrow and Spionkop Creeks, Alberta, (latitude  $49^{\circ}12'$  North, longitude  $113^{\circ}59'$  West) to Kennco Explorations (Western) Ltd. who conducted a limited program on this ground in 1966-67. Later Goble, with associates from Edmonton, formed the Akamina syndicate and proceeded to take out mineral permits in Alberta and stake claims in British Columbia. Akamina holds a part interest in Alberta permits owned by McMartin. Akamina was forced to drop claims in British Columbia because they failed to raise monies to complete assessment obligations. In 1968, Akamina optioned permits numbers 64 and 65 to Cominco who conducted field studies in that year and recently optioned permit number 148 to Falconbridge. Falconbridge has staked a large number of claims in British Columbia, some of which are oversteaking of Mark V Mines and associates claims.

Although the work to-date has not been overly exciting, the results must be considered inconclusive, and further studies appear warranted.

#### GENERAL GEOLOGY

The region under study is underlain by Proterozoic sedimentary and intrusive igneous rocks and intrusive igneous rocks of probable Tertiary age (Map 3). The Proterozoic rocks comprise a variety of clastic and carbonate sedimentary units and volcanic flows intruded by basic igneous



sills, dikes and small plutons. Acid porphyry dikes and sills of probable Tertiary age have been mapped in a few areas.

Structurally the broad Akamina syncline is the prominent feature in which the Proterozoic sequence has been gently folded about a northwest axis.

The Grinnell Formation has been accentuated on Map 3 to illustrate the structural features of the Akamina syncline and to show how the formation's distribution has affected land acquisition in British Columbia and Alberta.

#### EXPLORATION OBJECTIVE

The potential target in southeast British Columbia and southwest Alberta is copper deposits within stratified sedimentary rocks with some possibilities for deposits in igneous rocks. To-date, copper showings have been found in a variety of rock units over such a large area that the conclusion must be drawn whereby economic copper deposits within this environment are considered a possibility.

From a priority standpoint, the principal copper target is certain rock types in the Grinnell, Appekunny and Syeh Formations. Non-red pelitic and arenaceous beds within the upper part of the red bed Grinnell Formation are of special significance and to a lesser degree similar lithological units in the Appekunny and Syeh Formations. Although a large number of copper showings are noted in the Purcell volcanic and intrusive basic rocks, the writer believes the genetic implications favour finding a copper

deposit in sedimentary rocks. Deposits of this type are found at White Pine, Michigan, and Mt. Isa, Queensland, Australia. Gross similarities in tectonic framework and lithology provide sufficient evidence to pursue an exploration program in this environment.

#### PROPOSED EXPLORATION PROGRAM

Claims held by Mark V Mines Ltd. and associates cover the Grinnell Formation on the west flank of the Akamina syncline over a distance of 12 miles. Copper showings along Sage Creek within this formation are of interest because of their location relative to the companies' claims.

An exploration program is proposed directed to the search for copper deposits in sedimentary rocks. A program of stream sediment geochemical surveys in conjunction with geological mapping and rock geochemical surveys is recommended. One or two experienced prospectors should be attached to the project to provide both technical and prospecting assistance.

ESTIMATED COST OF PROGRAM

Stage 1 - Geochemical and geological surveys

Personnel

One party chief	\$ 6,000.00
One junior assistant and two prospector-technicians	8,000.00
Assays and geological supplies	3,000.00
Accommodations and miscellaneous support	9,000.00
Use of helicopter for one month	7,000.00
Trenching	7,000.00
Supervision	6,000.00
 Contingency	 <u>4,000.00</u>
	 <u>\$50,000.00</u>

Timing--May - September, 1970

Stage 2 - Follow up will invariable constitute detail mapping and diamond drilling and it is not possible to estimate the magnitude of any program until Stage 1 has been completed.

Additional Notes  
on the  
Comparisons of the Akamina Area  
with  
Other Copper-Bearing Regions with  
Similar Geological Features

In addition to the White Pine, Michigan and Mt. Isa Australia copper deposits, the Russian Udokan and Kennecotts deposits at Spar Lake, Troy Montana show striking similarities to the Akamina environment. Kennecotts Spar Lake prospect, located within 150 miles of the Akamina area, is in quartzites of the Proterozoic Ravelle Group (Purcell equivalent). The deposit is rumored to contain 40 to 50 million tons of about 1.0 percent Cu and 2-4 ounces Ag. Kennecott recently completed an extensive surface drill and underground exploratory program with further studies continuing. They have purchased several ranches in adjoining areas, which may indicate an operation could develop in the near future.

## APPENDIX

### REFERENCES

- Douglas, R. J. W., Preliminary Map, Waterton, Alberta. Paper 52-10, 1952, Geol. Sur. Can.
- Douglas, R. J. W., Preliminary Map, Pincher Creek, Alberta, Paper 51-22, 1951, Geol. Sur. Can.
- Price, R. A., Fernie Map Area, East Half, Alberta and British Columbia, Paper 61-24, 1962, Geol. Sur. Can.