

## EXAMINATION AND SAMPLING PROGRAM OF THE "UPPER" SHOWINGS

CRONIN MINE - SMITHERS, B.C.

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M A P

1. "UPPER" Showings - Geology and Sampling

T A B L E

1. Description of Samples

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## INTRODUCTION

On September 18th and 19th I examined and systematically sampled an area located on a plateau above the present mine workings at the Cronin Mine in the Babine Range near Smithers. This area I will refer to as the "UPPER" showings. The area was trenched and stripped during the summer of 1972 and 1973 by Hallmark Resources who bought control of the Cronin Mine in 1972. Hallmark, under their consulting geologist Egil Livgard, sampled parts of the area and received interesting and significant silver and lead values from mineralized quartz veins. Much of the trenching hit bedrock, however, rubble obscures some of it. Therefore, I was very careful to only sample bedrock exposures and not rubble. Most samples taken were chips across a measured interval. The direction of sampling was designed to cross quartz veins and other structures at or near right angles. However, in some instances this could not be done for practical reasons. A total of 25 samples were taken for assay. Lead, zinc, silver, gold, copper and cadmium are the elements which will be assayed for.

## ACCESS

The "Upper" showings are reached by a good rocky road which continues past the present mine workings at the No.1 level up the ridge and along the Hyland Basin. The road runs through the middle of the area examined. An 1800 foot long base line marked at 50 foot intervals, and used by Hallmark, served as my baseline. Other than that, no surveying was done and thus the position of various data is only approximate. Sampling intervals, however, were measured.

The Upper showings lie at 5200 feet in elevation. As such, snow comes early and leaves late. I have returned to the area on September 27th and October 2nd, only to find it covered under 5 inches of snow.

## GEOLOGY

The mineralization is found in a complex zone of intrusive rhyolite,

sericitic schist and intensely folded black argillite. The main body of light greyish-green coloured rhyolite is roughly 3000 feet by 2000 feet in surface expression (Hallmark data). The major mineralization has been uncovered at or near its northwestern border. Most recently mineralization has been uncovered over continuous lengths along its western border. The western border of the rhyolite body has been altered to a sericite schist with strong southeasterly trending foliation with steep dips. In the vicinity of the Upper showings, the rhyolite is intrusive into argillite and in places may contain pendants of argillite. The argillite is strongly foliated and locally intensely folded. A strong easterly trending quartz vein system is exposed over a length of 2000 feet and a width of 500 feet. The dip of the veins is either vertical or approximately  $50^{\circ}$  to the north. One such quartz vein was traced over a 250 foot length with an average width of 2 feet.

Northerly trending diorite lamprophyre dykes intrude all other rocks. The widest dyke observed was 6 feet.

#### MINERALIZATION

The mineralization consists of argentiferous galena and sphalerite with relatively minor pyrite and chalcopyrite. Boulangerite, freibergite and arsenopyrite have been noted elsewhere in the mine area but have not been identified as yet on the Upper showings. The minerals are found in quartz veins, or as massive veins, breccia zones or fracture filling in the rhyolite with little quartz. Massive veins exist up to 2 feet in width. The major veins strike southwest-northwest and dip 45 to 65 degrees to the northwest. The significance of structural control (i.e. faulting) with relation to ore control is not known at present. One major quartz vein with an average width of 2 feet containing massive high grade mineralization has been traced on the surface over a length of 250 feet.

Three main showings have been known for a number of years along this system. They are: the Wardell, the Homestake and the Eureka. Of these, the Wardell appears to have the best potential. Recent channel samples

taken from the northwest portion of the present surface exposures gave the following results (release to Vancouver Stock Exchange by Hallmark on 20 September 1974):

NUMBER	LOCATION	% LEAD	% ZINC	oz./ton SILVER	oz./ton GOLD	% COPPER	% CADMIUM
66	15' of Wardell vein	5.00	0.66	10.2	0.08	0.03	0.013
67	128' of fracture west of #66	3.79	1.16	7.35	0.03	0.03	0.018
67A	12' of Wardell vein 60' NE of #66	52.2	8.95	110.00	0.10	0.11	0.135
68	5' of ore 35' NE of #67A	18.9	12.5	121.90	0.06	0.41	0.170
69	Leached fracture mineralization 66' wide 460' NE of #68	6.84	3.01	7.51	0.01	0.44	0.051

These samples were presumably taken in the immediate area of the Wardell showing. Assays from samples taken by myself in the same area should be examined and compared.

Leaching and oxidation on the surface appears to be significant. The rhyolite is orange-pink to cream-green in colour. The fresh surface of the rhyolite as seen underground is light to medium grey. The quartz veins and the areas of rhyolite breccia exhibit an apple green colour. This apple green colour is probably a secondary product of galena ( ? ). One 2 foot wide quartz vein with massive sulphide was dug down to a 10 foot depth with the aid of a backhoe. The effect of this leaching with depth was observed.

Overall, for the mine, the silver values are associated with the lead and usually run about 2 oz. silver per percentage lead. Cadmium is associated with the zinc and runs about 0.15% per percentage zinc.

Egil Livgard, Hallmark's consulting geologist, has noted that "there appears to be some evidence of zoning between surface (5200') and the lowest level of the mine (4650'), with an increase in the zinc to lead ratio." There is considerably more galena than sphalerite found at surface. The percentage ratio of freibergite, the silver mineral, appears

to increase with depth, ranking with sphalerite in the zonal pattern.

### STRUCTURE

The structural pattern over the Upper showings and the entire mine area is not complex with the exception of the immediate contact zone between the rhyolite and argillite. Here there is often intense folding and crenulation within the strongly foliated argillite. The argillite may even approach a phyllite in appearance. A sericite schist unit which sometimes separates the rhyolite and argillite is also strongly foliated. In general, the foliation trends  $115^{\circ}$  with near vertical dips or slightly to the north. Faulting within the area may be important. The probable trend of the faulting is south-southeasterly.

Fracturing has been intense in the rhyolite. The limits of the fracture mineralization has not been reached in the stripping. The width of known veins and mineralized fractures north of the Wardell showing is about 300 feet. The total length is unknown but is in excess of 2000 feet.

### EXPLORATION POTENTIAL

The overall potential of the Cronin Mine has been enhanced by the uncovering of the Upper showings. Any attempt, of course, to develop the Upper showings in any manner would have to be carried out on an integral basis with the rest of the mine. As such, an extensive feasibility study would be required. However, before any such study is initiated, much more exploration development should be carried out, both on surface and underground, to assess the potential of the mine. Diamond drilling would best test the area and should be the first step.

The possibility of operating the mine as an open pit operation has been considered by the Hallmark people. Accessory considerations with regard to this matter would be the rugged terrain and the extreme weather.

### SUMMARY

The Cronin Mine has been producing intermittently since 1917. All of

the work has been of the small, high-grade nature. There has been virtually no exploration development except for a few diamond drill holes back in the late 1940's. The uncovering of the Upper showings has added a new dimension to the picture. It is time that an extensive exploration program including extensive diamond drilling be undertaken to assess the mineral potential of the Cronin Mine, both underground and open pit.

T A B L E 1

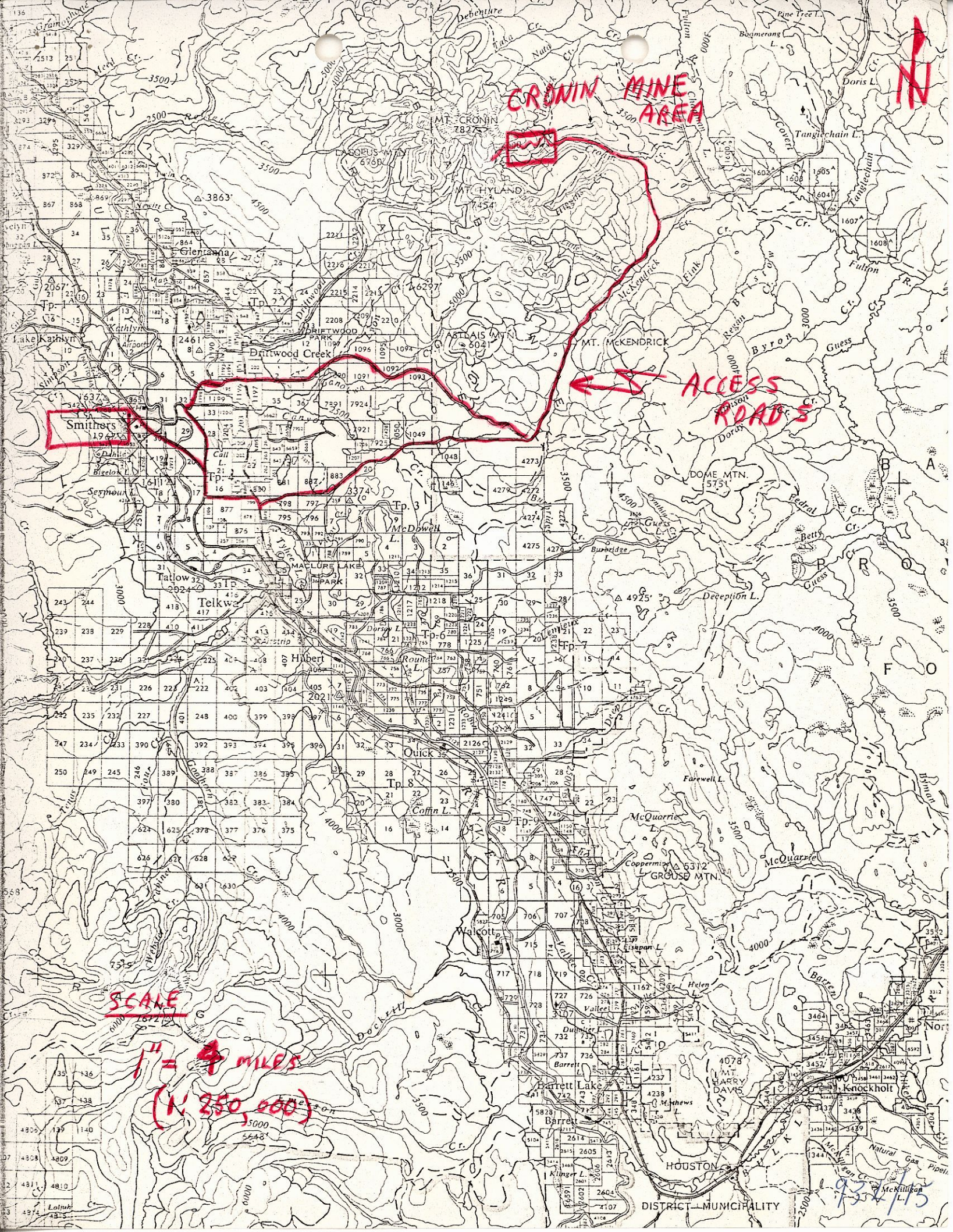
DESCRIPTION OF SAMPLES FROM THE "UPPER" SHOWINGS - CHONIN

<u>SAMPLE NUMBER</u>	<u>DESCRIPTION</u>
C - 1	Black mud 5" thick overlying rhyolite.
C - 2	Chip sample over 30 ft. in rhyolite (bearing 115°).
C - 3	Grab sample of best mineralization in rhyolite.
C - 4	Chip sample over 60 ft. in rhyolite (bearing 025°). Black mud plus pyrite overburden.
C - 5	Chip sample over 30 ft. in rhyolite in contact with well foliated phyllite (bearing 090°).
C - 6	Rock specimen of rhyolite.
C - 7	Chip sample over 100 feet along Wardell vein (bearing 030°).
C - 8	Chip sample over 80 ft. in rhyolite.
C - 9	Chip sample over 25 ft. in quartz filled zone in rhyolite. Attitude of quartz veins - 090°/60°N.
C - 10	Grab sample over 3 ft. wide quartz vein with attitude 095°. Near rhyolite-argillite contact.
C - 11	Grab sample of light green coloured sericite schist.
C - 12	Chip sample over 15 ft. wide quartz vein with bearing 095° in rhyolite. Good galena and sphalerite mineralization.
C - 13	High-grade vein area sampled across strike over 60 ft. Galena and sphalerite.
C - 14	Chip sample over 100 ft. across quartz veined area in rhyolite (bearing 045°).
C - 15	Chip sample over 50 ft. of high-grade zone in quartz veined rhyolite. Good galena and sphalerite mineralization.
C - 16	Chip sample over 3 ft. wide quartz vein with massive sulphides. Host rock is rhyolite. Attitude of vein is 110°/80°NE.
C - 17	Chip sample over 175 ft. (chips every 25 ft.) in rhyolite.
C - 18	Chip sample over 1 foot of high-grade quartz vein in argillite near contact with diorite lamprophyre dyke.
C - 19	Chip sample over 3 ft. across diorite lamprophyre dyke.
C - 20	Chip sample over 4 ft. of diorite lamprophyre dyke into argillite.
C - 21	Chip sample over 4 inches of flat lying high-grade quartz vein in sericite schist. Attitude quartz vein is 115°/17°NE.

Description of Samples from the "UPPER" Showings - Cronin

<u>SAMPLE NUMBER</u>	<u>DESCRIPTION</u>
C - 22	Grab sample of high-grade quartz vein in sericite schist.
C - 23	Grab sample of high-grade quartz vein 3 ft. wide outside caved adit.
C - 24	Chip sample over 4 ft. of Wardell vein with massive galena and sphalerite plus freibergite.
C - 25	Massive sulphide sample from Wardell vein with sphalerite. Assay for iron (Fe) content in sphalerite.





CRONIN MINE AREA

ACCESS ROADS

SCALE

1" = 4 MILES  
(1:250,000)

9/25/15





Mount Cronin

Moraine

Glacier

HYLAND BASIN

Mount Hyland

Glacier

Haystack Creek

PREVIOUS MINE WORKINGS

Fire Lookout

MAIN CAMP

CRONIN ROAD

UPPER SHOWINGS

Higgins Creek

Little doe Creek

SCALE

1.25" = 1 MILE  
(1:50,000)

931/15