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NEW PETROGRAPHIC STUDY COMPARES THE WHITEWATER AREA (B.C,) FAVORABLY WITH SULLIVAN (KIMBERLEY,BC) MINE

Enclosed is a new report prepared by Bruce Jago, Inco Ltd., July,1993. It concluded : "In view of some of the striking similarities between syn-sedimentary mineralization and alteration at Whitewater and the Sullivan Deposit, it is strongly recommended that this property be investigated in detail as the primary, laminated sulphide mineralization represents a significant, high grade, exploration target."

It seems the study of Jago dovetails nicely with work done by James C. Snell in a lengthy study dated June,1977. After a comprehensive review of the Whitewater district he concluded that the area might be best suited for an open pit operation. He also stated: "Diamond drilling might not be an effective exploration tool in this area due to the extensive faulting and fracturing and the fissile nature of the host slates and recoveries might be poor in the supergene zone. One or two initial large diameter vertical test holes should be considered if a suitable target can be developed. Percussion drilling will be much more economic and might provide more accurate results."

Please contact Pete Leontowicz or myself for additional information.

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J. Morin
Jamieson.

JUL 1 9 1993

INCO

INCO EXPLORATION AND TECHNICAL SERVICES INC.

MEMORANDUM

TO J. Morin

FROM B. C. Jago DATE July 9, 1993

SUBJECT **BRITISH COLUMBIA/WHITEWATER PROPERTY:PETROGRAPHY AND GEOCHEMISTRY OF GRAB SAMPLES FROM THE WHITEWATER MINE PROPERTY, 82 K/3E**

The Whitewater Mine area is located in the Slocan District of southeastern British Columbia. The area has a long history of mining which principally includes the exploitation of high grade, Ag-rich, galena-sphalerite-carbonate veins (Appendix A). The host rocks consist of a sequence of interbedded massive limestone, graphitic shale and various argillaceous rocks which have been metamorphosed to lower greenschist facies and, in places, intensely foliated. Several adits and outcrop exposures were sampled during 1993 in attempt to assess the potential of the area to host syngenetic mineralization similar to that currently being mined at the Sullivan deposit located at Kimberley, B.C. Feurteen samples collected by D. Carr (Appendix A) were slabbed and prepared for thin section and polished section examination and a suitable off-cut was submitted for geochemical analysis.

Conclusions

The Whitewater sample suite is composed of weakly Zn-Pb-Cu-Ag-mineralized graphitic shale, argillite and limestone, altered mafic intrusive, various Pb-Ag- and Zn-Ag-rich sulphide-carbonate veins and a single sample (RX051404/C93-0224) of very high grade (41.4 % Zn, 18.5 % Pb, 0.62 % Cu, 0.72 % Cd, 83 opt Ag and 0.05 opt Au) laminated Zn-Pb-Fe-Ag-rich massive sulphide. The laminated nature of the sample is interpreted to be primary and is texturally very similar to sediment-hosted Zn-Pb-Ag ore that is mined in the high grade Sullivan Depoeit which contains a probable, total reserve (exclusive of Fe-sulphide) of approximately 160 million tonnes. Vein-related Pb-Zn-Ag mineralization may, in part, be locally related to primary, syn-sedimentary sulphide accumulations and probably is not a viable exploration target.

In view of some of the striking similarities between syn-sedimentary mineralization and alteration at Whitewater and the Sullivan Deposit, it is strongly recommended that this property be investigated in detail as the primary, laminated sulphide mineralization represents a significant, high grade, exploration target.

Petrology and Sample Description

Detailed petrographic descriptions of the samples are given in Appendix B. The principal lithologies are graphitic and carbonate-rich schists, carbonate-rich and arenaceous argillites, massive limestone, fine grained gabbroic intrusives, coarse grained sulphide-carbonate vein samples and finely laminated sphalerite-galena-pyrite-freibergite, $(Ag,Cu,Fe)_{12}(Sb,As)_4S_{13}$, assemblages. Sulphide-carbonate veins are composed of coarse grained intergrowths of galena and/or sphalerite +/- chalcopyrite +/- freibergite and Mn-siderite and/or Mn-ferroan dolomite +/- quartz.

Argillaceous samples are all anomalous in base metals and Ag and probably are mineralized with minor amounts of syngenetic and vein-related galena-sphalerite mineralization.

The single sample of massive sulphide mineralization (RX051405/C93-0224) is composed of fine grained, gently to intensely folded sulphide laminae (Plate 1) dominated by 1) sphalerite-, 2) galena-freibergite-pyrite +/- chalcopyrite- and 3) freibergite +/- galena +/- pyrite-rich assemblages. Galena-freibergite-chalcopyrite-

rich assemblages have been remobilized into fold closures and pyrite-chalcopyrite-freibergite +/- galena - rich assemblages (Plates 2 and 3) occur as rounded to ovoid boudins, up to 1 cm across, in laminated sulphide. There is no question that this sample represents primary, syn-sedimentary mineralization. Textural evidence suggests that at least some of the galena in this sample is related to sulphide-carbonate vein formation. As a result, the Cu-Pb-Zn analysis for this sample probably is not representative and contains excess Pb over that expected from primary, undeformed laminated mineralization.

One sample of an altered, igenous-textured rock (RX051401/C93-0220) is present in the sample suite and is interpreted as a albitized metasediment. This is very significant as it suggests that albitization, which is part of the alteration mineralogy associated with the genesis of the Sullivan ore body, also is present in the Whitewater District. This sample also is extensivley chloritized and probably contains cummingtonite amphibole although this has not been confirmed by energy dispersive X-ray analysis.

Geochemistry

The geochemistry of the sample suite is given in Appendix C and associated geochemical plots are given in Appendix D. All of the samples, including rusty weathering graphitic and arenaceous argillites and limestone, contain at least anomalous concentrations of Zn, Pb, Cd and Ag. Vein-related mineralization can be either Pb-Ag-, Zn-Ag- or Zn-Pb-Ag-rich (Figure 1). All types contain anomalous concentrations of Cu (max. 0.72 %), Sb (max. 1104 ppm), Bi (max. 82 ppm), Cd (7150 ppm) and Au (1680 ppb) but mineralized sediments, including the sample of laminated sulphide, are relatively Au-rich compared to sulphide-carbonate veins. This suggests that Au is strongly fractionated during vein formation and that the highest Au grades should be expected in primary sulphide accumulations. This is exemplified by the sample of massive, laminated sulphide (RX051404/C93-0224) which grades an exceptional 41.4 % Zn, 18.5 % Pb, 0.62 % Cu, 0.72 % Cd, 83 opt Ag and 0.05 opt Au. At prevailing metal prices, this material has a gross value of approximately $800.00 US/ton.

Whitewater samples are plotted in Figure 2 in terms of their Cu-Pb-Zn contents. The single sample of laminated massive sulphide (RX051405) plots near the field boundary between volcanic/sediment-hosted Zn-Pb-Cu deposits and sediment-hosted Pb-Zn deposits as defined by Large (1980). This is very close to the average composition of sulphide ores from the Sullivan Zn-Pb-Ag deposit (160 million tonnes). Samples of the various metasedimentary rocks and sulphide-carbonate vein samples also are shown on this plot. Most plot closer to the Zn apex than RX051405 and all but a few are distinctly Zn- or Pb-rich.

Figure 3 (Beaudoin and Sangster 1992) compares the Au-Ag-Pb-Zn contents of Whitewater samples with those of samples from mainly vein-hosted ore environments.

In terms of the Zn-Pb-Ag contents, Whitewater samples are most similar to veins occurring in carbonate replacement/mantos and Pb-Zn skarn deposits although the sample of laminated sulphide plots near the field boundary for carbonate replacement/mantos-type occurrences and may actually plot outside of this field if the excess Pb content of the sample (see above) is taken into consideration. On the Au-Ag-Pb plot, Whitewater samples all are distinctly enriched in Au compared to all other vein-type deposits. This underscores the positive economic potential of the sample suite compared to one gathered from a strictly Pb-Zn-Ag-rich, vein-type environment.

Bruce Logan

/md

x.c.: P.J. Rush
R. A. Alcock

Attachments

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AVERSE NUMBER:
T.S: 82K/3E

PROJECT: Whitewater Mine Property
AREA: Slocan Mining Division, 20 km east of New Denver, B.C.

GEOLOGIST(S): D. Bohme, S. Casselman
DATE: July 26, 1993

AMPLE UMBER	SAMPLE TYPE		SAMPLE LENGTH, WIDTH, AREA	outcrop, subcrop, and/or boulder	SAMPLE DESCRIPTION Rock type, lithology, character of soil, stream silt, etc. Formation Mineralization, etc.	RESULTS (ppm / % / g/t)					
	RX Rock, Talus	Grab, Chip, Channel				Cu	Pb	Zn	Ag	As	(ppb) Au
K 51990	talus	grab	0.4m	dump	Taken from the Charleston–Slocan Adit tailings dump. Medium-gray, fine-grained metavolcanic(?). Amphiboles appear altered (chloritic); some fine-grained pyrite noted. Calcareous in places (some fine carbonate veinlets).	5	14	70	.4	4	5
K 51991	talus	grab	0.4m	dump	Keyston Adit tailings. Banded limestone unit with some galena–sphlerite replacement along bedding planes.	105	10000	10000	174	2	55
K 51992	talus	grab	0.4m	dump	Well mineralized sample from Keystone tailiegs; limestone replacement. Possibly some fine-grained albite crystals.	86	10000	10000	141	2	55
K 51993	talus	grab	0.3m	dump	From the Whitewater Mine tailings near #3 adit. Fine-grained massive sulphides with quartz–siderite vein material along the margins. Banded galena–sphalerite and freibergite present.	7100	10000	10000	200	1605	1330
K 51994	talus	grab	0.3m	dump	From the Whitewater Mine tailings near #3 adit. Fine-grained, high-grade sample of massive sulphides. Banded galena–sphalerite-rich horizons up to 5 cm wide. Some rounded clasts of quartz–siderite vein material noted in the sulphide matrix.	10000	10000	10000	200	1630	3930
K 51995	rock	grab	0.6m	outcrop	Along the main road to Whitewater Mine; banded argillite unit with very thin laminations/coatings of hydrozincite. Some calcareous bands also noted. Syngenetic mineralization(?).	63	460	16800	3	80	35

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RESUME OF THE SLOCAN-CHARLESTON, LEONTOWICZ AND HOSPITALITY CORP. PROPERTIES

The Slocan-Charleston Mining Co.Ltd.,Peter Leontowicz and Hopitality Corp. own Crown granted mineral claims in southeastern B.C. that combined cover approximately 1,000 acres. Peter Leontowicz acquired the Whitewater property a few years ago and now the combined package of three properties makes a very attractive opportunity for some major mining company. The base metals are currently coming back into favor so the zinc/lead found here should be enticing. There is also a silver/gold potential that could also arouse alot of interest.

We are interested in getting our properties into production and will consider a lease/royalty or an arrangement whereby we provide the property and an associate provides the development capital and management. Profits will be shared on a mutually agreed basis after the associate recovers the development costs.

GENERAL DATA

The Slocan-Charleston Mining Co. Ltd. owns 5 mineral claims consisting of the Charleston, Kingston, Keystone, Colorado and Corean, situated in the Slocan area of the West Kootenay Mining District, B.C. The property lies approximately 1 1/2 miles northeasterly from the abandoned railroad station at Retaliack, B.C. Logging operations during 1978-79 opened up the area.

DEVELOPMENT

Peter Leontowicz has done a considerable amount of stripping and investigative work on the Whitewater claim during recent years. It is now his opinion and that of other prominent geologists that a large volume of ore-bearing structures exist on the combined properties with a sufficient amount of ore blocked out to start a mining operation immediately.More recently, on researching the basel slate belt which is of huge dimensions and exists on all properties within the Whitewater area, it has been noted that where this slate belt is bisected or intruded by Listwanitic and Lamprophyric dykes the mineral values have been greatly enhanced, especially the precious metals (Au,Ag,Pt)

(Over)

The recent intrusives were responsible for additional ground preparation and supplied minerals and conduits for enrichment structurally and chemically (quartz bearing and graphitic shear zones).

Rock and soil samples north easterly from below the east Matheson Tunnel yielded anomalous gold values with silver, copoper, lead and zinc. This zone is continuous north easterly to the Colorado-Slocan-Charleston area with a vertical distance of over 1,000 feet and horizontally for +5,000 feet.

There has been a considerable amount of development work on the Slocan-Charleston's Keystone/Charleston claims however the most promising and least developed is the Colorado. Here a mineralized vein 10-12 feet wide is exposed on the surface. An assay on the vein ran 5 oz. silver, 7.9% zinc, 7.3% lead, 2.1% copper, 2.7% antimony and other minor values. This vein is also immediately adjacent to the Whitewater vein that produced large tonnages of ore in the past. A number of engineering reports are available for those interested in these properties.

For those interested in more geologic information please contact Peter Leontowicz since he has an extensive mining background. If you want to discuss deals, etc. then contact the individuals and companies listed below. It is hoped that the three properties will be considered as a unit.

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