

DATE: February 18th, 1991
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TO: AJD
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FROM: IDP
SUJET
SUBJECT: My review of Bob Friesens' update on Sam Mine geology

I have read Bcb's update several times over the last couple of months. While I don't agree with everything he says and much of what he says is not new, nevertheless I must commend Bob on having taken the time to document his views.

The entire issue of protolith being obscured by alteration has been recognized since very early in the exploration of this property. The original logging of RG 1 through RG 15 described the Rea mafics as felsic volcanics. Ever since then we have been very wary of giving genetic inference to the rock names unless there is good evidence for the protolith. Careful core logging of progressive alteration of rocktypes combined with the use of lithochemistry has helped. I am now comfortable with Sam being hosted by sediments and that the various sedimentary lithologies can be recognized in drill core through all but the most intense alteration.

I am also comfortable with the structural interpretation of Glover et al which has succeeded in explaining the internal stratigraphy where previous models have failed. If I have a criticism of Bob's interpretation it is that he fails to recognize the presence of an internal stratigraphy preferring instead to lump everything together as 'sediments' and ascribing all lithologic variations to alteration. At least in part, I think this is due to the difficulty of identifying subtle textural variations in surface samples without slabbing large numbers of samples. In addition, working almost exclusively in the pit area tends to blinker people from the stratigraphic and structural clues offered

by unaltered rocks distal to mineralization.

As far as the comments made about following up intersections such as that in Cana hole C90-6, I totally agree. These intercepts must be followed up and always have been, sometimes overly so as in the case of the 266 zone. However, I don't believe that drilling at right angles to the normal hole direction is the answer. Despite locally crosscutting relationships at Sam, nothing that Bob has described suggests to me that drilling NW or SE would have been better than the usual SW azimuth. Tonnes are developed in the plane of the principal structural grain and we have no evidence to indicate a substantial shift in the orientation of this grain anywhere in the area, let alone on the property. Given the depth of overburden on Cana, this development of tonnes is critical. We will follow up the Cana intercept and similar ones on Sam, but we will do so with a realistic minimum size in mind.