DISCUSSION OF TILLCUM MOUNTAIN
SELF-POTENTIAL TEST SURVEYS TO DATE
(82F/13)

By G. G. Addie

INTRODUCTION

The first self-potential (SP) survey was made at Tillicum Mountain on August 22, 1980 with the discoverers Arnold and Elaine Gustafson. At that time a strong SP anomaly was noted at the 'Money Pit' — the source of the first high-grade gold samples. Over the next three years further surveys were undertaken in an attempt to either identify extensions of the 'Money Pit' or to find new 'ore' zones (1–ig. 3).

Results of the first survey were published in Geological Fieldwork, 1981 (Kwong and Addie, 1982). In this case the 'short wire' or 'relative potential' method using a 200-metre wire with stations every 5 metres was used. Finally in 1983 the longwire method (200 metres) was used (Burr, 1982). Because of the experimental nature of our surveys none of the lines have been closed; therefore the amount of error is not known.

1983 SELF-POTENTIAL RESULTS

This year the survey was run along a road which cuts across the geological boundaries (Fig. 3). Three SP anomalies were encountered; in all cases argillite is present.

OBSERVATIONS AND RECOMMENDATIONS

Both the 'Money Pit' and the 'Jennie Zone' have argillite contacts. Whether these are on the same argillite layer remains to be proven; folding of the sedimentary rocks is suspected. Solution of the structural problems could be greatly assisted by further SP work to trace argillite layers. Some of this argillite carries significant mineralization as indicated by the following assays from grab samples at the 522-millivolt SP anomaly on the road east of the 'Money Pit' (Fig. 3):

<table>
<thead>
<tr>
<th>SAMPLE NO.</th>
<th>Au ppm</th>
<th>Ag ppm</th>
<th>Cu ppm</th>
<th>Pb ppm</th>
<th>Zn per cent</th>
<th>As per cent</th>
<th>WIDTH metres</th>
</tr>
</thead>
<tbody>
<tr>
<td>27869M</td>
<td>3.4</td>
<td>10</td>
<td>192</td>
<td>800</td>
<td>0.44</td>
<td>0.3</td>
<td>5 (FW)</td>
</tr>
<tr>
<td>27870M</td>
<td>0.3</td>
<td>10</td>
<td>182</td>
<td>56</td>
<td>0.35</td>
<td>0.15</td>
<td>3 (HW)</td>
</tr>
</tbody>
</table>

NOTE: A check assay using the 'reject' from sample 27869M ran 6.5 ppm gold, confirming the gold content. Because of the erratic gold assays free gold is suspected.

CONCLUSIONS

(1) The SP survey method has been successful in identifying three anomalies in argillite.

(2) Both the 'Money Pit' and the 'Jennie Zone' mineralization have footwall argillites; it is not known whether they are the same argillite.

(3) Argillite samples at the 522-millivolt SP anomaly has a significant gold content which should be verified by detailed sampling.
Figure 3. Tillicum Mountain self-potential survey map (B2F/13).
REFERENCES


Figure 4. Amazon mine (Ainsworth Mining Camp) (B2F/15).
AMAZON MINE (AINSWORTH MINING CAMP)
(82F/15)

By G. G. Addie

GENERAL

The Amazon mine (Mineral Inventory 82F/NE-7) has been converted to an excellent mining museum by Mr. David May. The only map available of the mine was a partial map signed 'W.M.S.' dated July 20, 1953. We completed this survey using the 'Road Runner Underground Survey' method; a one-man survey procedure with the same accuracy as the traditional chain and compass method (Fig. 4).

GEOLOGY

The geology of the area and the Amazon mine is well described by Fyles in Bulletin 53 (1967). Stratigraphically the mineralization is in dolomitized Lardeau Group metamorphic rocks (Middle Cambrian to Ordovician in age). The intrusions (lamprophyre) and veins are believed to be Tertiary. The extent of dolomitization is not known. The presence of tin in the assays suggests a genetic association with granite. Perhaps a magnetic anomaly on the east side of Woodbury Creek represents a subsurface granitic plug. If so, this area should be prospected for vein and replacement deposits.

We only have four observations to add to the description of Fyles (1973):

(1) The veins are tension veins.
(2) The rake of the 'ore' is suspected to be steeply to the southeast as defined by a stope.
(3) The veins are post-lamprophyry (believed to be Tertiary in age).
(4) The garnet schist contains meta-autunite.

ASSAYS

<table>
<thead>
<tr>
<th>Laboratory No.</th>
<th>Mark</th>
<th>Au ppm</th>
<th>Ag ppm</th>
<th>Pb ppm</th>
<th>Zn ppm</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>27600M*</td>
<td>051083-1</td>
<td>&lt;0.3</td>
<td>&lt;10</td>
<td>0.38</td>
<td>2.92</td>
<td>10310N 505W</td>
</tr>
<tr>
<td>27601M</td>
<td>-2</td>
<td>&lt;0.3</td>
<td>&lt;10</td>
<td>1.26</td>
<td>2.83</td>
<td>11085N 642W</td>
</tr>
<tr>
<td>27602M</td>
<td>-3</td>
<td>&lt;0.3</td>
<td>&lt;10</td>
<td>350 ppm</td>
<td>4.57</td>
<td>11075N 597W</td>
</tr>
<tr>
<td>27603M</td>
<td>-4</td>
<td>&lt;0.3</td>
<td>&lt;10</td>
<td>450 ppm</td>
<td>700 ppm</td>
<td>11070N 630W</td>
</tr>
<tr>
<td>27604M*</td>
<td>051283</td>
<td>&lt;0.3</td>
<td>85</td>
<td>10.5</td>
<td>3.8</td>
<td>11790N 610W</td>
</tr>
</tbody>
</table>

*Sb = 0.3 per cent

REFERENCE

PHANEROZOIC

- Undifferentiated
- White Creek batholith

HELIKIAN-PURCELL SUPERGROUP
- Van Creek, Nicol Creek and younger
- Creston and Kitchener
- Aldridge / Fort Steele

Thrust fault
Normal fault
Anticlinal fold

Figure 5. Regional geological map showing location of Sullivan deposit.