

Samuel Co

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hangingwall and a mineralized 'marker' chert unit occurs in the footwall (cf. Battle Zone - in hangingwall). The Battle lens has been traced by drilling over a strike length of 335 metres, a width of 180 metres, and a thickness of about 9 metres. The 'average' grades, to date, are about 15% zinc, 3% copper, plus significant amounts of gold and silver. The discovery of these relatively high dollar per unit value orebodies is a bright spot in a struggling mining industry and is largely responsible for the rejuvenated interest in the search for VMS deposits along the entire west coast of BC and SE Alaska.

Past production (1966 to end 1991) in all zones at Myra Falls amounted to over 210 000 tonnes of copper, 610 000 tonnes of zinc, 145 000 tonnes of lead, 20 million grams of gold and 745 million grams of silver from about 14 million tonnes of ore. Reserves are estimated at approximately 12 million tonnes grading 1.7% copper, 4.4% zinc, 0.4% lead, 40 g/t silver and nearly 2 g/t gold.

By mid-afternoon we departed for Port Hardy at the north end of the island. The evening was devoted to strolling around this scenic fishing/mining/tourist (BC Ferries route to Prince Rupert and Vancouver) city.

On Tuesday, April 28th we were hosted by John Fleming and Allan Reeves at the Island Copper mine, located some 16 km southwest of Port Hardy, on the north side of Rupert Inlet. John gave us an excellent talk prior to a pit tour. The Island Copper calcalkaline porphyry Cu-Au-Mo deposit commenced production in 1971 and since that time has produced over 1 million tonnes of copper, 260 000 tonnes of molybdenum, 31 103 kilograms of gold (7th largest in BC) from over 300 million tonnes of ore milled. Current reserves are estimated at approximately 115 million tonnes grading 0.35% Cu, 0.017% Mo, and an estimated 0.069 g/t Au. Mineralization and alteration studies of the mine have benefited greatly over the years by the diligent work by mine staff (especially John Fleming), a thesis study by Olga Arancibia at Queens University, and independent consultant observations (e.g., Sillitoe). Current worldwide analogies of Island Copper include Tanama (Puerto Rico) and Kolugha (Solomon Islands). Mineralization is hosted by a quartz feldspar porphyry dike which intrudes lower Jurassic Bonanza Group pyroclastic rocks. As a point of interest, mining is currently taking place at 3390 metres below sea level - the deepest open working in North America!

By noon it was time to embark on the long trip southwards to Bellingham, Washington via the BC Ferry from Nanaimo to Tsawwassen. The next morning, April 29th, we took the scenic route eastwards from Everett, Washington through Stevens Pass (still lots of snow) and into Wenatchee. A quick 20-minute 'burgers, fries, and shake' lunch stop rejuvenated the group (well, most of us) for the afternoon talk and underground mine and surface mill tours at the

Cannon mine. The Cannon mine is the second largest underground gold producer in the United States with an average annual gold production of over 150 000 ounces. It is a typical sediment-hosted (arkoses and siltstones) high level epithermal adularia-sericite vein type deposit located in a structurally controlled northwesterly trending Tertiary graben structure. The mine/mill site is located at the end of a residential street just on the outskirts of Wenatchee. The orebodies locally referred to as 'reefs' do not crop out - in fact some lie directly below homes and the local riding stables. Obviously this situation has raised some interesting environmental and human resources aspects - all of which have been extremely well handled by the company (albeit at a significant cost). Our host at the mine was Don Cameron. The average millfeed is 1425 tonnes per day with head grades of 0.29 opt Au. Approximately 70% of the very fine grained gold is recovered in a *unique* flotation system (flash flotation). Mine life is currently estimated to 1995 with much of the favourable 6 km of strike length along the favourable structure still to be explored.

Staying overnight in Wenatchee meant an opportunity for tour participants to seek out their favourite dining/watering hole establishments. By all accounts, all had a good time!

April 30th took us on a morning drive northeastward to the famous Republic mining camp. A combination of 'unfamiliar' back roads and 'unclear' instructions led us to Echo Bay's Kettle epithermal gold mine. This turned out to be a bonus visit, as our real destination, the Overlook mine, was located 23 miles to the east. Ore from the Kettle mine is trucked to the mill at the Overlook site where it is mixed and treated with feed from the Overlook mine at a rate of 1800 tons per day. Hosts at the mine were Junior Russell, Dan Hussey and Bill Keys. The Kettle mine opened in May 1990 with gold grades averaging 0.28 opt Au in quartz veins averaging 6 to 10 feet wide. By the time it closes later this year it will have produced in excess of 80 000 ounces of gold - a good regional exploration target. The Overlook deposit is a model for replacement-type gold deposits found in contact metamorphosed and metasomitized rocks in northeastern Washington. Host rocks include volcanoclastic and epiclastic rocks of Permian and Triassic age. Four distinct relatively flat-lying zones containing a network of quartz veins with massive sulphides with or without magnetite have been outlined with reserves estimated at 2 million tonnes grading 0.135 opt Au. The Overlook mine has about 3 years of life remaining; other regional properties could increase the total mine life to 8 years.

The late afternoon trip northwards across the border to Penticton, with the appropriate stop for 'supplies', finished in time to enjoy a lavish pizza & beer dinner while watching the Vancouver Canucks oust the Winnipeg Jets in the 7th game.

The morning of May 1st was spent with two brief visits to the Dusty Mac and Vault Tertiary epithermal gold properties located near Okanagan Falls, just outside of Penticton (a short cab ride for one of the crew when the bus 'buddy' system broke down). Between 1975 and 1976 approximately 93 500 tonnes of ore were mined from the Dusty Mac deposit yielding an estimated NSR value of \$3.5 million.

We examined the West Trench on the North Vein of the Vault property. A 158 metre strike length along the quartz-adularia-calcite vein assayed 7.2 g/t Au and 50 g/t Ag over an average width of 0.38 metres. Elsewhere on the property the Main Zone has estimated reserves of 152 000 tonnes grading 14 g/t over a strike length of 1066 metres and a depth of 150 metres.

In the afternoon we toured the Nickel Plate skarn mine, including the recently mined-out Cauty deposit open pit. Since 1904 production from the Hedley camp (primarily Nickel Plate has totalled more than 1.7 million ounces gold (4th largest in BC) and 400 000 ounces silver. Hosts at the mine were Dominic Bordin and Don Parsons. Daily mill throughput is 3600 tpd with estimated operating costs of US\$320/oz Au. Reported grades are 0.07 opt Au, and the removal of about 37 million tonnes of rock, will allow operations until 1995. Otherwise, the mine will close next year. For the past year and a half, approximately 60 000 ounces of gold were recovered from 90 000 tonnes of ore from the Cauty open pit. The installation of the patented Inco SO₂ air cyanide process has helped the mine decrease operating costs significantly.

The Friday evening festivities included some unusual calisthenics / aerobics at the local watering hole in Princeton.

The morning of May 2nd was spent touring the Stawell alkaline porphyry Cu-Au deposits, located a few kilometers outside Princeton. Carl Bottaro toured us around Pit 3 and the new Virginia Zone pit. Current milling rate is 23 000 tpd and mine life is estimated at 4 years with an average grade of 0.48% copper. If the price of copper were to rise over \$1.40/lb, pit expansions could occur, extending the mine life significantly. In addition to the significant quantities of copper produced since 1917 over 650 000 ounces of gold and 8.5 million ounces of silver have also been recovered.

The quick four hour trip to Vancouver enabled many of the previous night's celebrants and week long tired bodies to catch some shut-eye before returning safely about 5 pm. A hearty thanks to all tour participants and mine hosts for a very enjoyable as well as very successful field trip. Suggestions or volunteers to organize similar 5-6 day trips? The planning approval process for this trip started about four months prior to departure. Please let someone on the MDD executive know

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