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Geological Survey Branch
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MEMORANDUM

To: Doug Flynn, Acting Manager Northwest Region

MONTHLY REPORT - NOVEMBER 1996

by

Paul Wojdak, NORTHWEST REGIONAL GEOLOGIST

HIGHLIGHTS

*Presented "Mining and Exploration Developments in Northwestern British Columbia" at Regional Geology review in Victoria on Nov 20, and at Yukon Geoscience Forum on Nov 25. Northwest B.C. exploration expenditures are estimated at \$46 million in 1996 (\$30.5 million in 1995) and exploration drilling at 194,000 metres. Yukon Geoscience Forum was attended by 351. Yukon exploration spending was \$54.5 million in 1996.

PROPERTY VISITS

*Polaris Taku (104K 003) visited on Nov 27. Golden Angus Mines, operating subsidiary of Canarc Resource Corp are conducting close spaced underground drilling to prove up mineable gold reserves, rather than wide spaced surface drilling conducted in recent years which indicated a 1.4 million ounce geological resource. Dan Darby is mine manager, Gill McDougall is site geologist. A new mine dry and office building has been constructed. Polaris Taku ore comprises refractory gold in structurally controlled quartz-arsenopyrite veins with associated carbonate/listwanite alteration of Paleozoic(?) greenstone. One development option being considered is trucking ore or concentrate to a autoclave proposed by YGC in Whitehorse. Drilling is underway on the AJ level to test a variety of Y, AB and C-vein targets adjacent to previously mined areas. Early in the program two holes had already intersected unexpected open stopes causing the company to speculate that old mine drawings are incomplete. Some 1,200 metres of a planned 3- 4,000 metres on the AJ level had been drilled. Rehab work on the caved Polaris level portal (about 35 m below the AJ level) was begun but completion has been deferred until January. Deeper levels are flooded to 24 m below the Polaris level and dewatering is planned early in 1997. (No pump test was done to determine the recharge rate.) During an underground tour a Sloko(?) felsite dike was noted occupying the same fracture as an ore vein.

Polaris
Taku

→ Polaris Taku

Polaris Taku is a high grade, underground, past-producing gold mine located in northwestern British Columbia, Canada, some 60 km east of Juneau, Alaska and 100 km south of Atlin, BC (in the Tulsequah Valley). Canarc Resource owns a 100% interest (subject to a 10-15% net profits royalty) in the property. The property's claims total 850 ha with elevations ranging from 17 m above sea level along the valley floor to 762 m along the slopes of Whitewater Mountain.

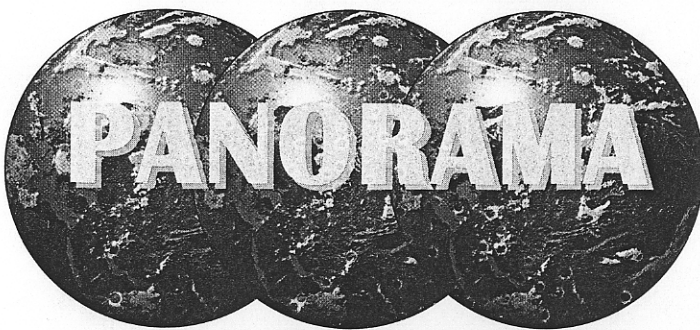
Gold mineralisation was first discovered at Polaris Taku in 1929. Subsequent exploration and development resulted in a production decision in 1937. From 1938 to 1942, and again from 1946 to 1951, the mine produced a total of 231,000 oz of gold from 759,000 t of ore at an average recovered grade of 0.3 oz/t. The mine operated at 250 t/d and shipped refractory gold-arsenopyrite concentrate by barge and cargo ship to the smelter in Tacoma, Washington, US.

Polaris Taku closed down in March 1951 due to rising postwar labour costs, fixed gold prices and the loss of the first gold concentrate shipment of 1951 in a storm off the BC coast. Mine records indicate that a mineral resource remained undeveloped at the time of closure and that mine grades increased during the final years of operation.

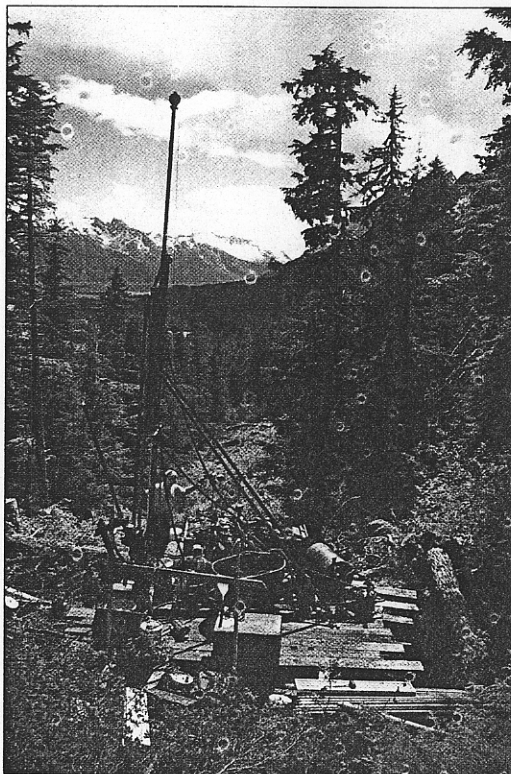
Canarc obtained an option on the property and commenced exploration in 1988. Since that time, Canarc has invested some C\$10 million in acquisition and exploration costs at Polaris Taku, including almost 24,700 m of diamond drilling in 109 holes, to significantly increase the geological resource below and beyond the old mine workings.

The gold resource currently stands at 3.5 Mt at a grade of 0.42 oz/t, or greater than 1.4 Moz contained in a probable and possible geological resource within three principle vein systems. All these veins are open for resource expansion along strike and/or at depth.

During 1996, Canarc undertook a C\$5 million feasibility programme,

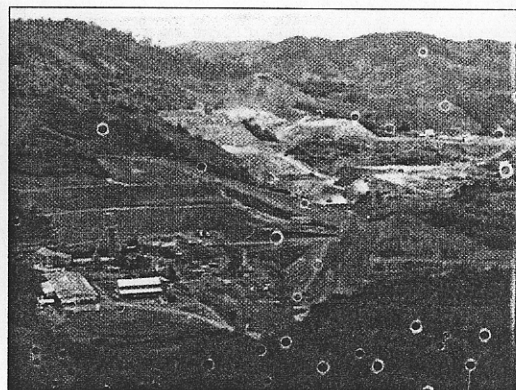


Great hopes for Polaris takeover



Left: Canarc has invested in an extensive drilling programme at Polaris Taku.

Below: View of Obuasi open pit in Ghana.



including over 1,000 m of underground development and 38,000 m of underground drilling, culminating in a feasibility study by the first quarter of this year. The goal is to prove up the mineable reserves to over 0.75 Moz and to carry out final engineering, metallurgical and environmental work at the site.

Canarc reports that the most attractive aspects in favour of developing Polaris Taku are the high grade and large tonnage potential. The most obvious risks are the higher relative costs of processing a refractory

ore and the permitting requirements of any new mine development in North America.

Independent metallurgical studies have demonstrated gold recoveries of over 90%, indicating that a conventional autoclave circuit will provide more than satisfactory gold recoveries. Recent actions by the BC Ministry of Mines have signaled a change of policy in favour of developing mines in the province, and a government consultant has recommended the funding of a road into the Tulsequah Valley.

Komatsu perform well in Ghana

Ashanti Goldfields Co. (AGC) commenced surface mining at Obuasi in 1989. Its mining fleet then was largely comprised of Komatsu machines; 28 units in all comprising PC650 excavators, D355 and D155 crawler dozers, HD325 trucks, WA600 wheel loaders and WD600 wheel dozers. Subsequently, additional HD325 trucks, PC1000 and PC1600 face shovels, D375 and D475 dozers, HD785-3 trucks, and WA800-2 wheel loaders have been introduced, raising the total Komatsu fleet to 112 machines.

The operation extracts ore from both hillsides and deep pits, giving a combination of up- and downhill hauling. Conditions are becoming increasingly difficult as hauls become deeper and longer, and the transition from oxide to sulphide ore has resulted in the haul material becoming more abrasive.

The AGC fleet alone shifts some

4 Mt/month of material and combined with other earthmoving contractors, a total of 5.25 Mt/month is hauled from the surface mines. The stripping ratio is 12:1 and the mined grade averages 4 g/t. AGC is happy with the Komatsu equipment and reports that it has performed far better than expected. Some of the original machines are nearing 40,000 operating hours and still achieving availability in excess of 90%. This reliability, along with the introduction of larger units, has meant greatly increased productivity.

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I N T E R O F F I C E M E M O R A N D U M

Date: 14-Dec-1994 02:59pm PST
From: Tom Schroeter
TSCHROETER
Dept: Energy, Mines & Petroleum Res.
Tel No: 660-2812

TO: Bruce McRae (BMCRAE)
CC: Ron Smyth - Min. of EMPR (RSMYTH)
CC: Brian Parrott (BPARROTT)
Subject: Polaris Taku (Tulsequah Area)

(505) 880-5300

CONFIDENTIAL: I just had a long chat with Joe Laravie with Santa Fe Gold, Reno, Nevada. He has been examining the Polaris Taku property for a possible option and wanted further information on the Tulsequah area. He is particularly interested in access logistics (US/Canada), First Nations involvement, and the 'implications' of the Windy Craggy scenario. He sounds very serious and I know Sante Fe would be a very positive, welcome addition to BC. I took the liberty of passing on your names as contacts. Tom