

MEG LUNCHEON

AT THE HOTEL VANCOUVER- ROOFTOP

HEAP LEACHING AT THE GOLDEN BEAR

Wheaton River's Golden Bear mine is located in northwestern British Columbia, 140 kilometres west of Dease Lake. The property hosts several structurally controlled gold deposits whose alteration and mineralization is consistent with Carlin style deposits. To the end of 1997 a total of 249,000 ounces of gold had been produced from the property, including 31,000 ounces during 1997. Current mineable reserves total 1,180,000 tonnes grading 5.8 g Au / t.

Economic gold mineralization is hosted in several discrete fracture and breccia zones in Permian carbonate rocks along a northerly trending, regional scale, strike slip fault system. As a result of the strong structural control, the extent of alteration, characterized by varying degrees of decalcification and silicification, is limited to compact envelopes around mineralized zones. Two styles of mineralization are present. Refractory gold mineralization is present where volcanic rocks are in fault contact with the carbonate rocks, occurring in silicified carbonate breccias and sheared and gougy volcanics. In these deposits gold occurs as micron sized inclusions in arsenian pyrite. Oxide mineralization occurs along faults that are wholly hosted by carbonate rocks. Native gold is present in these deposits as micron sized grains along with goethite, hematite, iron hydroxides, illite, sericite and quartz.

Historic production at the Golden Bear came from the Bear Main deposit, where between 1990 and 1994, 535,000 tonnes of refractory ore grading 15.7 g Au / t were mined and milled through a dry grind, roast, and CIP process. With the discovery of the Kodiak A and Ursa oxide ore deposits, heap leaching was identified as the best economic process available, but the physical setting, at 2,000 m.a.s.l. in the mountainous, high precipitation terrain of northwestern B. C., would prove a challenge. With an extremely rapid leach recovery, a seasonal operation was proposed, with mining, stacking, and leaching running from May through to October. In order to minimize process solution exposure to the climate, heap leach pads use in-heap storage (pore space in the stacked ore). Solution ponding areas are triple lined, with a compacted clay, HDPE liner, geonet, HDPE liner package providing both leak detection and collection. When the Totem Creek facilities, the second of two heap leach facilities at Golden Bear, is complete, the total capital cost of the heap pad, events pond, adsorption plant, and support facilities will be C\$5.8 million, or ~C\$4.90 / t of capacity.

Contract open pit mining in 1997 began in May at the Kodiak A. Excavators, used to minimize dilution, load 50 tonne haul trucks for the 2.5 kilometre haul to the crushing plant at production rates of ~5,500 tonnes per day. In 1997, 363,000 tonnes at 3.5 g Au / t were mined, with the grade 17% higher than plan. Mining of the Kodiak A will continue in 1998, and the Ursa in 1999. Underground mining on a third oxide deposit, the Kodiak B, is set to begin as early as 1999. Open pit mining, crushing, and stacking costs are C\$ 20 / t over the project life.

Ore is crushed to -3/4", and stacking onto the heap leach pads using tandem gravel trucks. The stacked ore is treated with cyanide solution, recovering ~85% of the gold into solution over 60 days. Pregnant solution is collected in a sump and pumped through a 5 stage carbon column, where gold is recovered from the solution by contact with the activated carbon. When the first stage carbon is fully loaded, it is educted from the column, the rest of the carbon is advanced countercurrent to the solution, and fresh carbon is added to the fifth stage. The loaded carbon is trucked 8.5 km to the original stripping and refining facility at Bearskin Lake, where the gold is stripped using a hot caustic solution and electrowinned onto steel wool for refining into a dore bullion bar. Processing costs are C\$ 5 / t of stacked ore.

Total operating costs at the Golden Bear, with G&A, taxes, royalties, and refining charges included, are US\$ 225 / oz Au over the current five year mining plan. Open pit mining, crushing, and stacking costs are US\$ 106 / oz Au, underground mining, crushing, and stacking US\$ 173 / oz Au, and processing costs are US\$ 28 / oz Au. With capital at US\$ 35 / oz Au, a total cost of US\$ 260 / oz Au is returned.

Wednesday, March 25, 1998 at the Hotel Vancouver, 12 noon, \$25 at the door.

Visit the BC and Yukon Chamber of Mines Web Page @ www.bc-mining-house.com/chamber for a listing of MEG talks and copies of abstracts.

The Vancouver MEG is an informal association of mineral exploration professionals and associates who host luncheons every second Wednesday throughout the winter and early spring months. The luncheons are accompanied by a presentation on a current exploration program or other topical subject and would be of interest to any member of the mining or investment community. Tickets are sold at the door starting at 11:30 on a first come, first served basis.

MEG Vancouver Mining Exploration Group
