

# ASH & ASSOCIATES CONSULTING LTD.

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July 22, 1994

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Dear Sultan,

## Re: Preliminary Assessment of the Twin Lakes Property

Alex McPherson and Al Beaton visited the Twin Lakes Property in May, 1994 at which time they sampled a shallow-dipping vein which had been discovered by a prospector in 1990. The sample results showed values up to 2.5-oz Au/ton over widths of one to two feet. They brought the assay results and history of the property to me for assessment. The vein's proximity to two mine shafts (which had produced significant high-grade gold ore in the 1930's) intrigued me, since the potential recovery of even 200 tons of like-grade (by surface mining) would result in a significant profit.

I was involved in a like-situation in Arizona some years ago in which near-surface, shallow-dipping veins which had been mined at the turn of the century, were successfully open-pit mined and heap-leached in the mid-1980's due to the occurrence of many additional narrow, gold-bearing veins which had been neglected by the early miners. Thus, the Twin Lakes property was considered to have the additional slight potential of falling into this class of deposit.

You advanced the finds necessary to secure the property and I inspected it with Al Beaton on July 10, 1994. During the inspection I was surprised at the shear number of mineralized trenches, opencuts, shafts, raises and stopes disclosed over the inspected area of some 2,000 feet square. The present claim group (Twin Lakes #1 to #4) was staked in 1953 over many of the old 1930's workings, and has been held by the same family since that time. Other than the required assessment work, no serious exploration work was done from the early '40's until Brenna Resources conducted a significant amount of backhoe trenching in 1988. That company may have missed the significance of what was uncovated since the option was allowed to lapse. The property has never been subjected to a serious drill program.

The following is a brief description of the property and potential as observed through research and my visit to the property.

Reserve Block loxiokm NORTH <u>4 claims</u> - ESTATE - 5%NSR IST 109 et SToms 2000 dur 3%NSR care@ 259000 4500 every 6m Electron Electron Independence - crows. grant. King claim Mo- claim I 604 685 2511 10.9 SETRIDOSSA & HER 01-52-1000 B2:22UW

#### **HISTORY**:

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The Oro Fino Mountain Camp was established in 1896 with the staking of the Oro Fino and Independence claims. The entire mineralized area developed over the following 46 years would cover an area estimated at about 4,000 feet east-west and 4,000 feet nerth-south. While a 3-stamp (6 ton-per-day) mill was initially constructed to treat the ore from the Oro Fino mine, production was very minor.

The ground upon which are now located the Twin Lakes claim group, adjacent to the old Oro Fino and Independence claims, was staked in the early 1920's as the Juniper and Huntsman Group. In light of the encouraging surface showings, COMINCO drilled the property in 1925 and although some good values were reportedly intersected at moderate depth, the drilling allegedly came up with disappointing results overall. The claims were allowed to lapse but were re-staked in 1928 as the Summit, Blue Bird, Eureka, Mountain Lion and Alice claims. Over the following seven years, the area now within the Twin Lakes claim group was extensively developed by adits, inclined shafts, open cuts, cross-cuts, drifts, raises and stopes. The main companies involved were B & E Mining Company and Parvenu Mines Ltd. Two mills were installed during this period. The first, rated at 15 tons per day, was replaced by a 40-ton per day mill in 1933. However, failure to raise funds during the depression resulted in the properties being leased out to individuals between 1935 and 1942, when final mining ceared due to the war effort. The claims were allowed to laper but were restaked as the Twin Lakes group of four claims, which cover the Summit and surrounding mines (other than the Oro Fino and Independence mines), and have been held by the same family since that time. In the late 1980's a mining company (Brenna Resources Ltd.) did some backhoe trenching and uncovered several more veins on the property, one of which was assayed by Alex McPhareon and ran over 2.0 oz Au/ton over 1.0 to 1.5 feet true width.

### PAST PRODUCTION

Minister of Mines Annual Reports indicate that the mines within the present claim group boundaries produced 10,845 tons of ore, of average recovered grade 0.45 oz Au/ton, for a reported yield of 4,870 ounces. My knowledge of the milling methods used at the time suggest a recovery in the range of 80%. Thus, the average head grade was probably in the range of 0.55 oz Au/ton. The Oro Fino group, which is located outside the boundary of the present Twin Lakes group, is reported to have produced 13,256 tons yielding 3,977 oz. (which was put through the Twin Lakes mill), for a total of 24,100 tons averaging 0.37 oz/ton. The official tonnage and gold production is most likely under-reported since the government reports are rather sketchy, much of the milling was done by leasers who seldom reported the total production, amalgamation was used for gold concentration which tended to be subject to under-reporting, particularly with the '2% gold royalty to the crown which existed at the time.

### GEOLOGY

The gold mineralization is contained within a belt of metamorphic rocks about two kilometers wide which runs in a north-easterly direction from Oliver, through the Fairview mining camp and at least

to the mines on <u>Oro Pino Mountain</u>. In the Oro Pino Mountain mine area, this unit has been severely faulted and folded in at least two directions prior to, during, and after gold was deposited. The folded units tend to be rather shallow-dipping (from flat to perhaps as much as 35 degrees). Steeperdipping faults, which cut end displace the <u>schistose unit</u>, appear to have acted as the main conduits for the up-welling auriferous, silica-rich (epithermal?) solutions. 'As surface was approached, the solutions tended to deposit the pyrite, galena and gold in the quartz veins along the shallow-dipping planes of schistosity, particularly along seperations on the axes of anticlinus and synclinus. The cavities are more restricted along the flanks of the folds so that the thickness of individual veins tended to peter- out and the lodes tend to be crescent-shaped in vertical cross-section normal to the axes of the folds. The gold occurs in the free state, often in close association with <u>specks and blebs</u> of galena. The complete absence of sulfides in the quartz veins generally indicates barren or lowgrade values. The steeper-dipping fault veins, which probably acted as the gold feaders, appear to have much stronger strike and dip continuity since they were formed after the major folding sequence(s) and cross-cut the planes of schistocity, and are also auriferous.

## ASSESSMENT OF PREVIOUS DEVELOPMENT

I inspected four inclined shafts, many surface workings from which ore was obviously recovered in the 20's and '30's, plus a multitude of stopes and/or mise break-throughs on the property. Most of the shafts were filled with water. This may be a blessing in disguise as the walls can be expected to be clean when the water is pumped out for inspection. Furthermore, submerged support timbers retain their strength and therefore, ground conditions below the water table should be good.

A sketch of two stoped lodes mapped by the Mines Inspector in 1932 shows that one of these is located along the axis of a syncline. However, all of the underground workings inspected by me appear to be located on anticlines. This is probably because it is the anticlinat veins which would have tended to outerop (and therefore be discovered). The length of individually-mined anticlinal and syclinal veins appear to be vary in length from <u>20 to 30 feet along strike</u>, but generally possess stronger down-dip continuity, often exceeding 100 feet.

Minister of Mines reports indicate that the steeply-dipping veins tend to have both strong strike and dip-length continuity and can also contain good gold values.

High-grade gold appears to be <u>pockety</u>, with the very <u>high-grade bomenuas</u> being sporadically distributed within run-of neill or lower-grade quartz bodies. According to some early operators, the potential for bonanzas generally increases at junctions of the steep feeder veins with the shallow-dipping veins (a common occurrence in epithermal situations).

The development and mining conducted in the 1930's must be evaluated from a point of view of funding availability, mining practices, and relative costs at that time. Funding that was readily available for mineral exploration in the Roaring 20's dried up in the depression. Thus, development in the '30's was restricted to projects with a high probability of economic production. Producing mines had to make a profit in order to survive. There was no firsd-trough to go back to. Therefore,

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shafts were driven only on ore-grade/ore-width showings. Driving shafts on low-grade but ore-width quartz veins in hopes that the grade would increase, could not be afforded.

Labor was cheap but supplies, such as explosives and diamond drilling bits, were expensive. Therefore, diamond drilling was normally restricted to hunting for faulted-off vein off-sets or determining if a lean section of vein would be followed by a high-grade section further down-dip in a deposit. Diamond drilling into the footwall beyond the target vein for purely exploration purposes was a hxury that could rarely be afforded. A drill-hole which intersected ore grade values over ore-grade widths was considered a success. A drill-hole intersecting low-grade values over larger width, or better-grade over very narrow widths was considered a failure.

COMINCO took over the Fairview area mines (located a few miles south-east of <u>Oro Fino</u> Mountain in the 1920's. The main purpose for acquiring those properties was for smelter flux. The main quartz vein was wide (up to 70 feet) and continuous for over 1,000 feet. The average gold grade, at about 0.10 oz / ton, was not high but acted a sweetener which helped defray the cost of transporting the flux to the Trail Smelter. It is probable that due to the close proximity of the <u>Twin Lakes</u> area mines to the Fairview mines, COMINCO optioned the ground within the present <u>Twin Lakes</u> claim group and drilled a few diamond drill holes in 1925, in hopes of establishing auriferous quartz structures of substantial width and on-strike coatinaity. The exercise failed to meet COMINCO's requirements but development of mines within the present Twin Lakes claim group commenced soon after (by smaller public companies).

The cut-off grade of vein material in the 1930's, which had to be mined by underground methods, hand-mucked, hauled by horse and wagon or truck to the mill, and put through a small, inefficient gravity mill, was considerably higher than the cut-off grade needed today utilizing large haulage trucks, modern drills and blasting with ANFO. I noted narrow veins in the hangingwall of the main stopes. These would not have paid to mine during the 1930's, so were neglected, but could constitute sweeteners in an open-pit situation today. The amount of underground development done in the 1930's for the amount of ore recovered would not be economically viable today. However, a strip-ratio of as high as 20 to 1 would still be viable if mining was done today by open-pit methods. The Fairfield and Bonapart operations are examples of this.

During the inspection I noted one area in which three anticlinal stopes were located stratigraphically over one another, separated by only five to ten feet of country rock. These were individually-mined by underground methods (note that today, these would have been selectively open-pitted at far lower relative cost). The presence of this repeating-vein occurrence made me suspect that this situation might be duplicated on many anticlinal and synclinal vein occurrences throughout the property. Later, during the inspection, I noted that a 1988 trench dug to bedrock at the "Alice Decline" disclosed a "new" vein some six to eight feet thick, just a few feet stratigraphically beneath the decline which was driven on an upper vein which had produced a considerable amount of ore in 1934. Whether the occurrence of this parallel vein was known of in the 1930's (but perhaps considered too low grade to mine), or whether it was missed completely by the early operators, is not known. However, this occurrence added confidences to my suspicion that a repeating vein-structure system was likely to be very prevalent throughout a large portion of the claim group. The thickness of overburden is generally one to two meters thick on ridges (and thicker in the depressions) throughout the property and bedrock exposure appears to be less than five percent. Due to the limited trenching and almost complete lack of diamond drilling don on e the preperty, it is most probable that many anticlinal veins (and even more synclinal veins) were missed in the 1930's.

Steeply-dipping ("feeder") veins were also uncovered by backhoe trenching in the late '80's, which show substantial widths and strong on-strike continuity. While the one I inspected appeared rather barren, it is probable that highly-mineralized sections occur at various points and overall, could constitute a low-grade ore. The large area over which mineralization is found suggests the potential for many more occurrences of of this type of vein.

## RECOMMENDATIONS

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Based upon the high-grade history of the local mines and assays recovered from the "McPherson/Beaton" showing, I visited the Twin Lakes property to assess whether a small amount of high-grade ore could be economically scabbed from near surface by stripping. However, in light of the large area noted which had obviously undergone severe, complex stress, the shear number of underground workings on the property, the probable occurrence of so many undeveloped, shallow-dipping and steep-dipping veins, a definite potential exists for the occurrence of an open-pit-type situation. Whether the property might pay to mass-mine as a potential heap-leach operation or whether selective open-pit mining might be better-employed to produce a mill-grade (or shipping-grade) ore would depend upon the results of mapping, drilling, metallurgical test work, and feasibility studies. One of the complications is that the gold is apparently <u>uneventy distributed throughout the vein</u>, which makes assessment by drill valid only if many holes are drilled and the material assessed on a statistical basis.

The recommended work regarding the property is as follows:

- Recommissance Mapping: <u>A quick mapping job</u> of the property should be done to confirm or dispute the impressions I gained during my quick visit to the property. The mapping should include the workings on the Twin Lakes group and the ground a bit to the north and east and south-east, including the Oro Fino and Independence Crown Grants. The area of interest, as I see it, is shown on the enclosed map as the dashed area.
- 2) Due Diligence: Due diligence is required to confirm that the Twin Lakes claims are valid. The Twin Lakes group juts out into the O/C Mineral, Placer & Coal Reserve, which was registered in 1959. Since the Twin Lakes group was staked in 1953, the claim group is almost undoubtedly grand-fathered (as is suggested on the claim map). However, it pays to make sure.
- 3) Acquisition of Ground in the Reserve: Old Ministry of Mines Reports suggest there may be some additional old workings on this Reserve. The reason for the placement of the Reserva

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is not known. It is not an Indian Reserve. It is not restricted to a specific water-shed. Therefore, acquisition of more ground within the Reserve boundary to encompass stray old workings (if they do, in fact, occur) is always possible if it can be shown that they form part of a potentially-viable economic unit.

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- 4) Transit Survey: A transit (EDM) survey should be done to determine the south boundary of the Twin Lakes claim group. From observation of the four center claim posts (which were visited by me) it would appear that the claim-group location was somewhat mis-located on the claim map. From the claim map it would appear that a major, 900-foot-long cross-cut, put in under the old "Summit" workings, may be collared on the reserve. The four center claim posts of the Twin Lakes group ars in place. A star shot and the original claim record would be required to locate the south property boundary but at present, I don't feel a legal survey is justified. The survey would also be needed to establish aerial survey targets. Finally, the survey would determine whether the old tailings deposit is located on the Twin Lakes claim group, or on the "Mo" claim (which is held by someone else).
- 5) Old Mill Tailings Assessment: The reason for the interest in the tailings is that the mill was an inefficient gravity-type mill and the +24,000 tons of mill tailings dump located adjacent to the creek are likely to have an average gold content of between 0.10 and 0.20 oz per ton. There is a decided possibility that the tailings could be recovered and processed at the CanDorado site on a profit-sharing basis. I would suspect that the cyanide-recoverable gold in these tailings may exceed 90%. Based on the present gold price of US\$385, a Canadian dollar at US\$0.725, a mining and transporting cost of \$14 per ton, a leaching cost of \$10 per ton, and a measury of 90%, the tailings represent a potential pre-tax profit of \$570,000. Assuming that the tailings are owned by another party and that a deal can be made with him, the profit would have to be split by the owner, the investors, and CanDorado. One way or the other, the tailings should be wall sampled. I would be able to determine the tonnage, an accurate head grade, the cyanide-recoverable grade and the feasibility of processing these tailings at a cost of less than \$8,000. If the cyanide-recoverable grade of the tailings warrants exploitation and the tailings occur on the MO claim, an option should be investigated.
- 6) Acquisition of the King Claims: Some investigation of the ground located between the Oro Fino crown grant and the Twin Lakes group should be made. If the geology looks promising, an option on the King and King #2 claims should be sought. The Minister of Mines Report for 1932 indicate that the Horseshoe and Standard claims adjoin the Oro Fino and/or Independence Crown Grants. Therefore, they are likely to be on the King claims. On these claims there apparently is a series of veins with good widths, strong strike-lengths, and showing some good values in places.
- 7) Acquisition of the Oro Fino and Independence Crown Grants: Options on the Oro Fino and Independence crown grants should be sought since as much (or more) production appears to have been put mined from these claims, as came off the Twin Lakes claims. Although I did not visit these properties, the geology, according to the Minister of Mines Reports, appears to be very similar.

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8) Aerial Photography: Low-level aerial photography, followed by an orthographic contour map at two-meter intervals at a scale of 1:500 (~= 1 inch = 40 ft), is recommended. This would certainly be ideal for mapping and tracing relatively flat-lying vains and would simplify the mapping process because fewer lines and less survey work would be required. The aerial photography could be done over a larger area and would likely disclose most of the old workings in the general Oro Fino Mountain area. On the other hand, there could be a timing problem. Having a company do the large-scale aerial photography is not asually difficult to get on short notice. However, a time problem may exist with the contouring work due to the usual backlog of work at the contouring firms, which can eat up two to three months of time. Since much of the area is up at the 5,000-foot elevation, this could kill the geological mapping work for this year.

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- 9) Detailed Surface Geological Mapping: Detailed surface geological mapping is recommended. The site-mapping could be done this fall on Xerox blow-ups of the low-level acrial phnics, which works well. These could then be transferred onto the orthophoto/connur map when the final product arrives. The mapping can be expected to line up areas of greatest interest.
- 10) Treaching: The areas of greatest interest should then be trenched with a large track backhoe (to get right into bedrock), along the strike of the axes of the synclines and anticlines (and perhaps strip some of the veins which are found). This system is less expensive than diamond-drilling and will give more insight into the geology than straight drilling since the strikes and dips of the veins and formations will be disclosed.
- 11) Mine Dewatering and Underground Mapping: Underground mapping of all stable, uncaved adits, shafts, stopes and raises should be undertaken. Since most of these are filled with water they will have to be pumped out. However, the area is quite dry and most of the workings are quite small so that huge pumps are not required. Note that the workings should be pumped out at a relatively slow rate since the schist absorbs water and if the water level is dropped too fast, the ground may become unstable. The pumping should be done while the surface mapping is in progress to reduce enstly waiting time. Watch out for the air quality in the long "Mill" adit.

No drilling can be recommended until the above tasks are done.

In closing, it should be noted that between 5,000 and 10,000 tons of "waste" are located at the portals of the Twin Lakes mines. At least this much more can be expected to be present on the Oro Fino and Independence crown grants. A visual examination of the Twin Lakes property mines indicated to me that these could likely be up-graded to shipping-grade ore (as long as the task is done by methodical, modern methods), and/or could form a "free" source of heap-leachable ore for shipment to CanDorado. A grade of 0.10 to 0.15 oz/ton is probable. Assuming a total tonnage of 20,000 tons from the Twin Lakes property and the Crown Grants, a grade of 0.15 oz/ton, \$15 shipping and crushing costs, and \$10 leaching costs, the return to the company ( at 50% of the profit) could be about

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\$300,000 by direct-shipping all the dump material. The profit may even be higher if some obvious waste was culled out. If this profit is added to the tailings, a profit of over \$800,000 is possible, although the profits would have to be split between the owners, the investors, and CanDorado. This type of return would certainly help pay for exploration costs. The evaluation of these piles would be more costly than sampling the tails and thus, there is no immediate urgancy to do this. However, it should be borne in mind that the dumps do represent a valuable resource.

Yours truly, ASH & ASSOCIATES CONSULTING LTD.

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Wayne M. Ash, P. Eng. President.



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