

KIRKLAND LAKE

A GEOLOGIC SNAPSHOT



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followed to the northern limits where a distinct salmon pink coloured, coarse grained porphyry unit was exposed. I think that there may have also been some wide graphite cut in the drift but I don't remember after all these years. The crosscut dimensions was large at about 7' wide by 8' high and the track (looked like 30 pound rail) was still in place.

At the bottom of the No. 5 Shaft it was possible to see where the winze hoistroom existed but the machinery has been removed. The hoistroom was whitewashed and bright looking. In looking vertically further down the winze shaft, one could see the water that flooded the deeper workings.

While studying the mining activity at the Lake Shore mine, one may notice that there is a wide gap on longitudinal section near 5000 feet subsurface where no mining took place. This is where the No.5 or Murdoch Creek, post ore, north dipping fault displaced the Main Break and created a fault gap. Interestingly, the deepest stoping below the gap displays a strong easterly plunge to the stoping excavations. If I recall correctly, this mineralization was accessed from long south crosscuts into neighboring properties on these bottom levels. This strong easterly plunge is either a fault induced trend or, an actual natural, easterly plunge. This was going to be a study area by the writer from the only available records, being the 100 scale and government published records.

Lake Shore Mine Tailings Project

While the Lake Shore Mine was operating until about 1956 the mill processed ore at a rate of 2000 TPD. A smelter/roaster also treated some ores but no detailed information was found on this process.

The photograph in Figure 33 is that of the Marathon auger rig used to delineate the remaining tailings in the former Kirkland Lakebed so that a Resource estimate could be compiled.



Figure 33: Auger & Split Spoon Drill Evaluating Tailings Tonnage and Au Grade

The quality and quantity of available tailings was first locally investigated with a power shovel and then by a split spoon drill sampling program, conducted over the lakebed where the greatest quantity of Lake Shore tailings were deposited. Keep in mind that all the individual mine operations discarded their tailings in the closest depressions to their mill locations until more distant sites were required, accessing these in the neighboring townships. Since the property boundary between Teck Hughes and Lake Shore Mines was the shoreline waters of Kirkland Lake, tailings ownership limits were not clearly marked.

In the assessment work, a power shovel first made an excavation off the northwest corner of the Harry Oakes Museum to a depth of about 15 feet. It was clear that the tailings were stratified with finer silt alternating with coarse sandy textured milled rock layers. The coarser that the tailings were, the higher the Au assays so obviously, there was a direct correlation in grain size to gold grade. The writer recalls grades of up to 0.32 OPT Au being returned in the power shovel investigations.

The power shovel work was followed by the surface split spoon drilling campaign, with both the writer and Doug Cater conducting the drilling program during the winter months with Marathon Drilling from Ottawa. An earlier, small tailings recovery dredging campaign behind the hoistrooms created a small pond about 100 feet across and about 15 feet deep. The winter ice was thickened up and then the tailings were sampled down to the original lakebed contact. Figure 35 picture shows Doug Cater preparing to capture the fluid-like tailings from the split spoon.

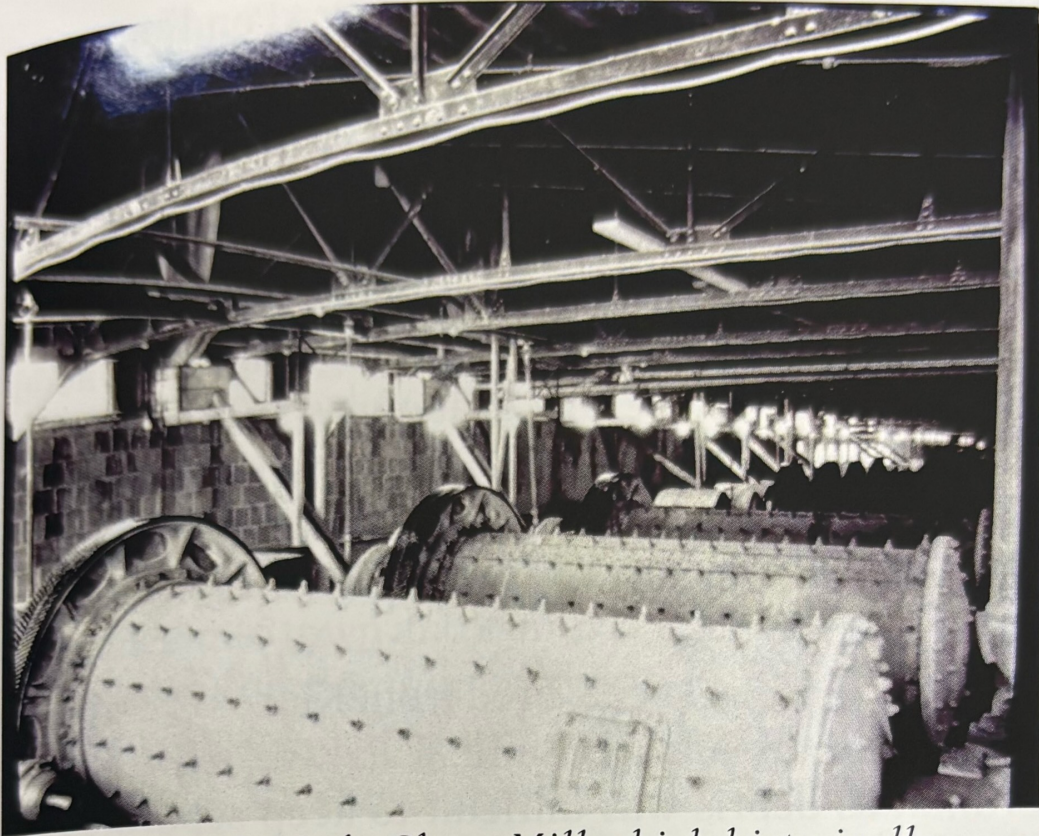


Figure 34: Lake Shore Mill which historically processed 2000 TPD.



Figure 35: Doug Cater Recovering Tailings Sample from Tube

Even the present day "Kinross Pond" an original bay arm of Kirkland Lake was sampled with returned assays of up to 0.50 OPT Au found in drilling at the south end of the bay. However, vegetation, branches and underlying blue clay were serious challenges to overcome in the subsequent 'mining' project.

The tailings Reserve tonnage figure is about 6M tons and the average grade was 0.07 OPT Au. If that gold assay figure is added to the in-situ historic rock reserve of the time then, the Lake Shore Mine was extracting near 0.60 OPT gold ore from the underground.

The tailings recovered from Kinross Pond were trucked to the Macassa mill. This was a limited operation as debris was difficult to keep separated using the shovel recovery effort.

The tailings in behind the mall were recovered with the Lady LAC dredge and piped to the Macassa mill for treatment.



Figure 36: Launching of the Lady LAC Tailings Dredge