

Note to: Don Gwelke

February 8, 2016

Regarding: Potential resource at Red Cloud Mine

As I have said before, it is a challenge to place a precise value assessment on all of the potential ore to be found underground at the Red Cloud Mine, largely because there is only the limited assay data available other than the overall production numbers, gold grades and recoveries that are not exactly known, recovery percentages from the test milling done in the late 1980's and some surface samples taken over the past 30 years.

It was reported that during its time of operation (1883-1903) the mine produced between 1.0 to 1.5 million dollars in gold. At the then current gold price of approximately \$20 per ounce, that represents from 50,000 (Stanton, 1906) and 75,000 (Brown & Gray, 1957) ounces of gold. This only represents what was processed by the owners at the time, one can only speculate how much was really recovered since it is a well known fact that a significant amount of gold actually went home in miners' lunchboxes.

Dr. Kim's report says that there may be approximately 50,000 ounces of gold contained in broken low grade ore stacked in the old workings and extensions outside the old ore shoot. At the current price of \$1100 per ounce this would have a value of \$55 million dollars.

Dr. Kim also said that the ore shoot that continues between the 500 and 600 levels contains 80,000 ounces. Comparing the volume of rock available to the size of the mined stope above, I suspect it could be less than half that, so I will call it 40,000 ounces to include lateral extensions. This would be valued at \$44 million dollars.

Thus a total of the gold mined, plus the stacked ore in the workings and the ore between the 500 and 600 levels would be 165,000 ounces, and would be currently valued at 181 million dollars (at \$1100 gold).

The ore shoot was "lost" below the 600 level. That word commonly means it was cut off by a fault. With a combination of geologic mapping and drilling, the ore shoot could be found whereas similar to other mines in the area; it would most probably extend to a much greater depth. In many of the mines in the Mother Lode area ore shoots persisted to additional depths of many thousands of feet. Let us assume that the Red Cloud ore shoot extends beyond the fault to a depth of twice that of the known 600 foot depth, or 1200 feet at the least. This would potentially double the figure in the paragraph above to 330,000 ounces, or \$362 million dollars.

In addition, surface sampling in the "Cat Cut" area, about 700 feet along strike to the west of the old shaft, returned exciting ore-grade gold values in vein quartz. By analogy with the main Red Cloud ore shoot, this appears to represent the surface expression of another ore shoot in this area. How large could this be? Because there is a limited amount of evidence of the extent of the gold mineralization due to there not being much testing done there at this time, I will assume for the

purpose of this note that it is the same size as the main Red Cloud ore shoot, which was 200 feet horizontally, at least 500 feet vertically and varied in thickness for a few feet to 15 feet. If it had the same gold content and grade as the main Red Cloud it would represent an additional 165,000 ounces of gold.

These estimates suggest that in and adjacent to the old workings there may be 50,000 ounces of ore, plus 40,000 more ounces between the 500 and 600 levels, or 90,000 ounces of gold valued at \$99 million. When the original Red Cloud ore shoot can be followed, and we could possibly double its current depth, that adds 165,000 ounces of gold. If the “Cat Cut” ore shoot found is present and the same size as the original Red Cloud ore shoot, that adds another 165,000 ounces. Thus there may be as much as an additional 420,000 ounces of gold present, with a gross value of \$462 million in the as of yet untouched “Cat Cut” ore shoot located at the mine. There might probably be other ore shoots of course, of which might extend to greater (or lesser) depths.

There is another type of up-side potential for a renewed Red Cloud mine. Most of the mines in the Mother Lode produced significant amounts of readily visible, coarse gold. Most of this was crushed in the mills and a large portion of it left the mines in the miners’ lunchboxes.



Our evidence that there is similar coarse gold at the Red Cloud is from the coarse gold collected by Ray Schilber in the 110 foot shaft (see photo on cover of my report), the coarse gold produced from the Wilfley concentrating table in the pilot mill in the late 1980’s, and the suggestion of substantial amounts of high-grading in Stanton’s report. There is said to be a specimen of coarse gold recovered from the Red Cloud in the local museum at Coulterville.



The relatively small very high grade areas containing coarse gold are generally called “pockets” – because they contained substantial amounts of gold in a small area. This gold most often occurs as small to rather large blebs of gold enclosed in quartz. This sort of stuff is often sold as jewelry gold – as polished cabochons in rings, bracelets or pendants (above, right) – at a higher cost per ounce of gold than simple fine gold.

In other cases the quartz is partially dissolved away using hydrofluoric acid to expose the gold. This specimen gold has a higher dollar value than the jewelry type. If the gold is crystalline or leafy the value is even higher. Smallish specimens of this material sell for tens of thousands of

dollars, and larger aesthetically pleasing specimens are extremely valuable. It is easy to find pictures of this material on the internet under the name “gold specimens”.

Quite a bit of dazzling specimen gold has been found in the walls of old workings in Mother Lode gold mines in the past few decades using sophisticated metal detectors. Perhaps the best example of this is the 16 to 1 Mine northeast of Sacramento. Descriptions of this and others can easily be found on the internet if you wish to get more details.



There is almost certainly some of this jewelry -> leafy -> crystalline gold present at the Red Cloud. It is impossible to quantify the amount at this time. From the available evidence, I expect some pleasant surprises as the mining progresses. Recovery of

specimen gold should be incorporated into the mining plans. When the old workings are opened and accessible, they would be examined with metal detectors to find examples of these course gold geologically unique and highly desired specimens.

In conclusion then, it is quite likely that we can expect to recover gold from low grade ore stacked in the old workings, and in the un-mined area between the 500 and 600 levels, totaling about 90,000 ounces of gold. Using mapping, structural interpretation and some drilling, we should reasonably expect to discover an extension of the Red Cloud ore shoot which would greatly enhance and could even double the amount mined plus that noted in the previous sentence, adding 165,000 ounces of gold. It is likely that there is another ore shoot present below the “Cat Cut” area, as suggested by surface sampling. If it is the same size as the known Red Cloud shoot, it would add an additional 165,000 ounces to the mineral resource at the red cloud, for a total of 420,000 ounces of gold. At the current gold price of \$1100 per ounce, this would be valued at \$462 million.

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