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Re-designed Mt Todd Grinding Circuit to Result in Improved Gold Recovery and Increased Gold Production

Automated sorting technology was just the first stage of advancement at Mt Todd. The combined use of x-ray transmission (XRT) and laser sorting technologies enabled innovation in the grinding circuit at Mt Todd. Vista Gold has re-designed the grinding circuit at Mt Todd to increase gold recovery while at the same time lowering the use of energy.

How did Automated Sorting Technology aid in the Redesign of the Mt Todd Grinding Circuit?

Having the ability to sort using the combined technologies has enabled the engineering team at Mt Todd to deliver less material to the grinding circuit. As a result, the final product can be ground much finer than before. Vista Gold has developed a sorting and grinding circuit which, together, have lowered energy consumption by up to 10-12% while at the same time allowing production of more gold.

How does the Redesigned Grinding Circuit work?

Before redesigning the grinding circuit, Mt Todd was using a single and very large ball mill in each module to grind the ore. This huge piece of machinery was not only very expensive to purchase and install, but it would also consume more energy. This piece of machinery has since been replaced.

As part of the redesign, Mt Todd has pushed part of the work back to the HPGR crusher. After the initial sorting of materials has been completed, the valuable particles will be taken back to the HPGR crusher where it will crush the rocks to a finer crushed product size.

Instead of producing $\frac{1}{4}$ inch product, the HPGR crushing circuit will produce a final product that is about $\frac{1}{8}$ inch. The final material will then be classified by size and separated. The coarse particles are sent to a ball mill. Since this ball mill is not responsible for all of the grinding, it is much smaller and more energy efficient. The



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fine particles are sent to a regrind circuit to efficiently produce a finer final product.

How is this Saving Energy and Boosting Production?

For the previous large ball mill, the optimum grind size was 90 microns. Using the new grinding circuit, with these additional processing steps, results in a product that is only 60 microns or 33% smaller than the previous product.

Vista Gold's CEO Fred Earnest explained this by saying, "Producing a product that is 60 microns enables us to get higher recovery. Previously, our recovery was 81.7%. Now we estimate it will be 86.2%. That results in a 4.1% improvement in gold production net of sorting loses. So, while the grinding circuit consumes less energy, it recovers 4.1% more gold."

How have the Redesigned Sorting and Grinding Processes Improved the Mt Todd Project?

In the 1990s Mt Todd had a rocky start. Both of the previous owners had issues extracting the gold and dealing with hard rock that contains the gold.

Vista Gold bought this site knowing the history and knowing that this was a project worth undertaking. Vista has taken a slow and methodical approach to properly deal with each issue and find solutions that will work long term.

The growth in production coming out of Mt Todd is the result of the knowledgeable team and advanced technologies. Fred Earnest said, "The combination of a new team, a distinct vision, and being able to take our time before production has allowed us to integrate technologies that are more efficient."



VISTA GOLD

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Vista Gold is committed to innovation and striving to make the project more efficient and cost effective. By redesigning the grinding circuit, Vista Gold has improved gold recovery, increased production by 4.1%, and lowered energy consumption by up to 12%. Vista is excited to see the continued advancement of the project and are devoted to finding ways to realize Mt Todd's full potential.