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Water Treatment Success at Mt Todd

A major accomplishment for Vista Gold in the development of the Mt Todd gold project was successfully addressing the acid rock drainage (ARD) problem left from previous operations at Mt Todd.

Prior to Vista Gold's acquisition of the project, Mt Todd had been operated by other companies and was abandoned in 2000. Afterwards, sulfide minerals in the waste rock dump began to oxidize. With the heavy rains that Mt Todd receives five months annually, the project began to see ARD (ie. solutions with a pH of 3.3).

Prior to Vista Gold's involvement, this acidic water was discharged into the Edith River, causing great concern among the local communities, including the agriculture and fishing sectors.

Vista Gold's Water Treatment Begins

After taking over the project in 2006, Vista Gold began the process of changing the water management protocols. First, Vista Gold cut back and then stopped discharging the ARD into the river. They started storing the ARD on site, ultimately accumulating almost 17-million cubic meters of acidic water. Next, Vista started working to identify an economic method of treating this water and improving its quality to get it to a point where they could discharge in accordance with local environmental permits.

Vista decided to implement a 2-step process focused on treating the 11-million cubic meters of water in the open pit. First, finely ground limestone was used to neutralize the acid and increase the pH from 3.3 to just approximately 6.6. The second step was to treat the water in the pit using lime. With the lime, Vista was able to raise the pH to 8. Over time, it fell back to a well-balanced and neutral 7.2 pH.

Establishing Benchmarks in Water Treatment

Through this process, Vista Gold was able to clean up the water and

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precipitate over 99.9% of the contained metals. With demonstrated success, Vista began working with the regulatory agencies in the Northern Territory (NT) to develop the appropriate discharge protocols.

Different forms of monitoring the water quality, both the upstream and downstream of the Mt Todd site, were established. In conjunction with several consultants and the NT EPA, Vista Gold was able to demonstrate that discharging treated water at a certain dilution ratio would have no impact on the aquatic life in the Edith River system. The company was able to apply for and receive a waste discharge license, the mechanism that the NT EPA uses to control, authorize and monitor the discharge of the treated water into the Edith River.

Vista Gold has made a significant investment the infrastructure to be able to automatically discharge the treated water. This automated system works like this: 1) an autonomous telemetry system measures the flow of the river, 2) after the river reaches a certain minimum flow rate, the pumps start, 3) the amount of treated water pumped is automatically adjusted between 100 and 1000 liters per second depending on the flow in the river, and 4) when the flow in the river drops below the minimum, the pumps are turned off. In this way Vista is able to maintain the discharge ratio which is authorized in the permit. Furthermore, this information is readily available to the community via the Mt Todd website (<http://www.mttodd.com.au/>)

The water treatment program has been so successful and widely embraced that several things have happened.

- Vista Gold has been able to significantly decrease the volume of water that they now have on site from 17 million cubic meters to 10.5 million cubic meters.
- Vista Gold won the Australian Water Association's "Northern Territory Water Award" for 2017 for the development of the automated discharge system.

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- The NT Government has embraced the water treatment work done at Mt Todd. They now encourage other mining companies to do the same thing. Several mining companies have been referred to the Mt Todd site by the EPA with a request that they implement similar programs.

In Summary

Vista Gold has gone from having inherited a problem through its acquisition of Mt Todd to advancing an active treatment program to address the issue. Currently, the project is discharging treated water in accordance with the approved waste discharge license for Mt Todd. Vista Gold is working with the mining community in the NT to encourage others to adopt the principles of this program and meet the same standards that Mt Todd is meeting in an effort to have a broader impact on water quality in the Northern Territory.