



# LINER ANALYSIS

Created For: John Doe, Operations Manager



## About This Report

The following is an analysis of the Mantle and Bowl Liner used in the 1000 hp Cone Crusher operating in a Pebble Crushing circuit at Goldmine.

This Report Was Created By:

**Jerrod Dulmes** | President



[www.OptimumCrush.com](http://www.OptimumCrush.com)



## Background:

Personnel from Optimum Crush® met with the milling operations and maintenance group to discuss the overall performance and life of the mines Pebble Crushers. The operations group would like to extend the life of the Mantle and Bowl Liner to reduce the number of annual shutdowns required to replace these parts which should lead to overall reduced material and maintenance costs.

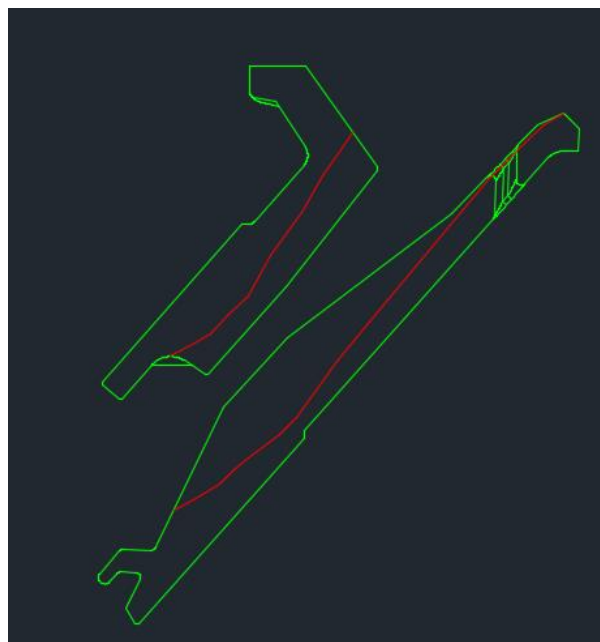
## Review of Current Design

The following is a laser scan comparison of the current profile in-use vs the wear profile after it was removed from the crusher. There is evidence that material is staying in the crushing chamber longer than it should be and is thus wearing out the Mantle prematurely and reducing throughput.

The current material is a low-grade 13% Mn Steel.

The liner life is currently 21 days.

Average throughput is 375 tph.



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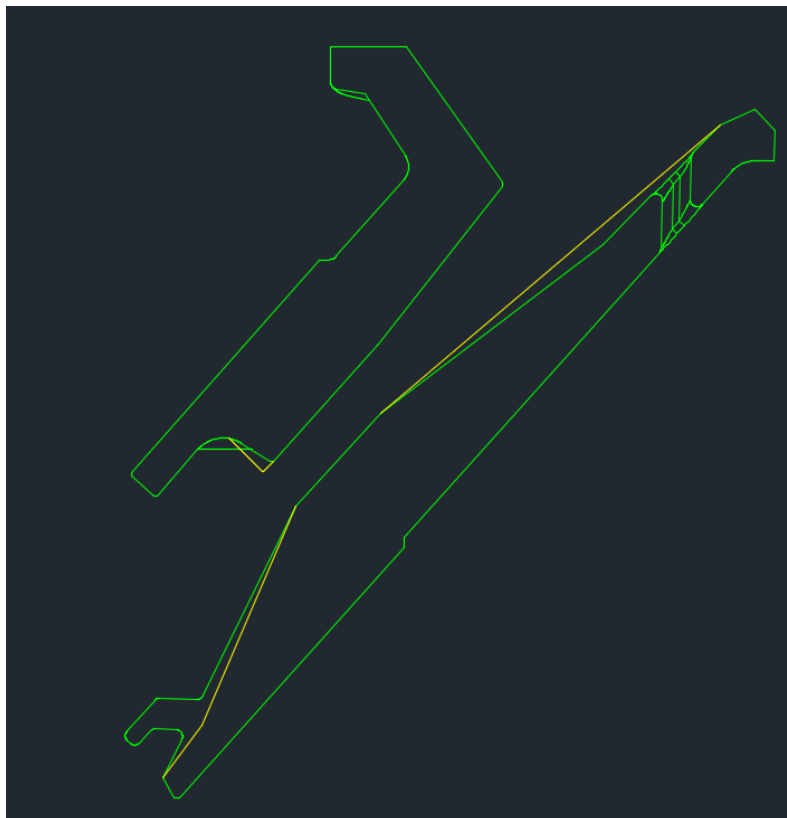




## Proposed Design

A minor change in the profile of the Mantle and Bowl Liner shown below in Yellow should allow the rock to more freely flow through the crushing chamber which should increase total throughput by as much as 5%.

A material upgrade to the Optimum Crush OC18+ is a material better suited for Pebble Crushing applications and in similar applications has proven to increase line life by approximately 16%. This increase could extend the period between maintenance shutdowns by over 3 days. This would completely eliminate 2 full shutdowns per year.



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## Price and Delivery

Mantle: \$15,000 USD

Bowl Liner: \$14,500 USD

Delivery: 10 weeks

Shipping Terms: DAP Mine Site

## Summary

The current liner design has been reviewed and a proposed design improvement has been supplied that could lead to as much as 5% average increase in throughput. A material upgrade could increase life by as much as 16% which could potentially eliminate the need for two maintenance shutdowns annually.

Thank you,

Jerrod Dulmes  
President

