## 15<sup>th</sup> Ausimm Mill Operators' Conference 2020

## Paper Number:

## Nui Phao Mine – A study on the effect of flotation mechanism wear on metallurgical performance S.Morgan<sup>1</sup>, B. Weekes<sup>2</sup>, A. Jakowetz<sup>3</sup>, S Arnold<sup>4</sup>, S Taylor<sup>5</sup>, S Keokhounsy<sup>6</sup>

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## ABSTRACT

In most mining operations, achieving and/or exceeding plant production targets is an important measure of success. Equipment availability and efficiency greatly contributes to these targets and the best performance is obtained through routine preventative maintenance. For example, in comminution circuits, it is accepted that the SAG and Ball mill liners need to be replaced regularly to achieve the best grinding performance. However, for downstream equipment such as flotation cells, the effect of worn components on circuit performance is less understood. This can lead to flotation equipment being operated for longer periods 'as is' to reduce shutdown periods and spare part consumption. Thus, Outotec has partnered with Nui Phao Mining Company (NPMC) to study the effect of flotation mechanism wear (i.e. rotor and stator) on metallurgical performance. In addition, Outotec has conducted computational fluid dynamics (CFD) simulations to understand the effects of flotation mechanism wear on pumping and mixing within the flotation cell.

This paper will discuss the plant data collected at NPMC before and after the flotation mechanisms were replaced in the fluorite circuit. Factors investigated were power consumption, float cell striation and fluorite recovery and grade relationship. The findings of the CFD modelling simulations were also used to interpret the plant results.