

## **Evaluation of the Performance of ACTIFLO® Clarifier in the Treatment of Mining Wastewaters: Case Study of Costerfield Mining Operations, Victoria, Australia**

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**Abstract :** A pre-treatment stage prior to reverse osmosis (RO) is very important to ensure the long-term performance of the RO membranes in any wastewater treatment using RO. This study aims to evaluate the application of the Actiflo<sup>®</sup> clarifier as part of a pre-treatment unit in mining operations. It involves performing analytical testing on RO feed water before and after installation of Actiflo<sup>®</sup> unit. Water samples prior to RO plant stage were obtained on different dates from Costerfield mining operations in Victoria, Australia. Tests were conducted in an independent laboratory to determine the concentration of various compounds in RO feed water before and after installation of Actiflo<sup>®</sup> unit during the entire evaluated period from December 2015 to June 2018. Water quality analysis shows that the quality of RO feed water has remarkably improved since installation of Actiflo<sup>®</sup> clarifier. Suspended solids (SS) and turbidity removal efficiencies has been improved by 91 and 85 percent respectively in pre-treatment system since the installation of Actiflo<sup>®</sup>. The Actiflo<sup>®</sup> clarifier proved to be a valuable part of pre-treatment system prior to RO. It has the potential to conveniently condition the mining wastewater prior to RO unit, and reduce the risk of RO physical failure and irreversible fouling. Consequently, reliable and durable operation of RO unit with minimum requirement for RO membrane replacement is expected with Actiflo<sup>®</sup> in use.

**Keywords :** ACTIFLO ® clarifier, mining wastewater, reverse osmosis, water treatment

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