



Common Ways That Tailings Laboratory Test Programs Go Wrong.



David is a Research Fellow at The University of Western Australia with over 20 years of consulting and research experience related to the testing and analysis of tailings. He is currently working on the UWA Future Tails project sponsored by BHP and Rio Tinto.

Date: Tuesday, March 19, 2024

Time: 5:30 to 7:30 PM

Venue: Sofitel Brisbane Central

249 Turbot Street, Brisbane QLD 4000, Australia

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Presentation Outline:

There has been a significant increase in the in-situ investigation and laboratory characterisation of tailings over the past decade. Similarly, there are more advanced laboratory testing devices and testing centers available for use by those seeking to characterise tailings mechanical behaviour. While these advances are undoubtedly beneficial, there are nonetheless many occasions where a significant quantity of laboratory tests on tailings are carried out using sample preparation approaches, test methods, or stress conditions such that the results obtained may misrepresent actual in situ behaviour to various degrees. Often these issues are only identified in third party review (if at all), after the available material obtained from depth has been exhausted.

This presentation first outlines the series of decisions that the engineer and/or testing centre must make in order to carry out a laboratory test program on tailings. Particular emphasis is placed on means to manage saturated samples from depth in terms of the effects of sample management, sample disturbance, and subsequent reconstitution procedures. Examples are presented demonstrating how some attempts to test in situ samples "intact" - i.e., assuming negligible disturbance - and the use of inappropriate sample preparation methods can provide misleading results. Finally, the important differences between below-slope plane strain conditions and typical axisymmetric laboratory tests are highlighted and means to relate these two situations in the application of laboratory test results are outlined.

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