



Met Dynamics is a privately owned consulting firm that specialises in the simulation of mineral processing systems.

Our goal is to apply our advanced simulation capabilities and extensive experience to provide practical, sustainable business solutions to our clients' challenges.

Our Capabilities

Our advanced simulation platform is based on the commercially-available SysCAD application, which offers both **steady-state** and **dynamic simulation** modes.

We have augmented SysCAD with our own suite of enhanced mineral processing unit operation models, including cone and gyratory crushers, SAG, ball and rod mills, HPGR's, vibrating screens, hydrocyclones, flotation cells and more.

Our enhancements include multi-component modelling for mixed feeds of hard/soft materials, ore blending, sorting and separation processes. **This unique capability is not available in any other commercial simulation platform.**

We also assist our clients with process and downtime data analysis, and designing test work programmes to support our mineral processing solutions.

Our Experience

We have provided solutions across the project lifecycle, from **conceptual** and **feasibility design** to **operations**.

Our solutions have ranged from simple plant mass balances to highly-sophisticated dynamic simulations.

Met Dynamics' principal engineer, Scott Munro, has more than a decade's experience in mineral processing simulation and consulting, across a range of commodities.

Simulation Solutions

Surge and availability studies

Debottlenecking and system constraint analyses

Process control design/testing/improvement

Production planning

Business decision support

Training

Our Clients

Rio Tinto Iron Ore

Yandicoogina, Paraburdoo, Hope Downs, Brockman, Cape Lambert

Rio Tinto Energy

ERA Ranger & Rössing Uranium

Rio Tinto Diamonds

Argyle & Diavik

Freeport McMoRan

PTFI Freeport, El Abra, Morenci

Newcrest

Cadia, Ridgeway, Telfer

Newmont

Boddington

Recent Project Profiles

Rio Tinto Iron Ore, Yandi Sustaining Project, 2012-2014

Met Dynamics delivered separate dynamic simulations of the proposed Junction South West overland conveying, crushing and screening plant and Junction South East wet plant for process control system design, testing and improvement.

The process control systems of each plant were extensively evaluated by the simulations and the strategies refined well in advance of the traditional design sequence.

We also deployed our new upward current classifier dynamic modelling technology to predict the impact of these machines within the wet processing system.

Newcrest Cadia Valley Operations, "Cave To Concentrate", 2012-2013

Met Dynamics produced an integrated process simulation of the Cadia Valley province, including three underground mines, two grinding plants and four flotation trains. The simulation predicts gold and copper concentrate production, energy consumption and throughput constraints for a given set of mine production plans.

The simulation was used across the organisation for Life-Of-Province production planning, capital expenditure planning, process diagnostics/improvement and assessing the impacts of block cave pre-conditioning.

Met Dynamics' integrated simulation capability is also a critical component of Bear Rock Solutions' "Rock To Revenue" business improvement approach (<http://bear-rock.com>).

RTE Rössing Uranium, 2011 & 2012

In 2011, Met Dynamics assisted Bear Rock Solutions with a review of the four-stage fine crushing plant at the Rössing Uranium operation in Namibia. We used a dynamic simulation of the plant, incorporating surge capacity and crusher liner wear prediction, to identify the root cause of constrained throughput.

In 2012, a follow-up review was conducted into the operation of the rod milling plant at Rössing. A dynamic simulation of mill performance subject to liner and media wear was combined with an availability/utilisation assessment to align throughput with the fine crushing plant.

PTFI Freeport, Grasberg Block Cave project, 2009 - present

Met Dynamics have been offering ongoing support to the design of the primary and secondary SAG pre-crushing system at PTFI in Indonesia.

Our role has been to provide independent, simulation-backed advice to verify vendor assertions regarding throughput and performance of proposed machines, across the Life-Of-Mine of the Grasberg block cave.

This work has made extensive use of our proprietary Kinematic Crusher Model, co-developed with Bear Rock Solutions.