FINAL PROJECT SUMMARY

Value Model for use of GE Simulation Software

Project number:	P2-012
Program Coordinator:	Greg Wilkie
Project Leader:	Erik Isokangas
Timing:	July 2020 to March 2021
Participants:	Mining3, CRC ORE

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PROJECT OUTCOMES

- The value of using modelling and simulation using GESim was identified for evaluating the application of Grade Engineering in the day-to-day operation of a mine.
- GESim can be best incorporated into Grade Engineering processes during the initial and expansion planning stages. It can also be useful in weekly and monthly production planning provided data can be easily exchanged between mining software and the models.

RESEARCH COLLABORATION

- Mining3 is the leading research organisation directed by the global mining industry to develop and deliver transformational technology to improve the productivity, sustainability, and safety of the mining industry.
- Mining3 brings to this project expertise in Mine Process Modelling, Complex Simulation, Integrated Mine process design and implementation for future mining systems. Mining3 developed the original GESim discrete-event modelling framework.
- Collaboration is a key to this project as Mining3 works closely with CRCORE to transition the technology to the industry, through training and demonstrating the value of the framework for a new case study.

BACKGROUND TO THE PROJECT

- Novel Grade Engineering® solutions such as in-pit crushing and screening, add a level of complexity to resource management and the decision-making process in a mine. Complexity is introduced through material transport time, equipment resourcing, and planned and unplanned delays. Ore is typically mined from multiple faces, potentially impacting on heterogeneity and the value of the GE solution. These all affect the characteristics and stability of the material delivered to the ROM and the total value achieved.
- GESim was developed as a framework of methods and models to improve the understanding of material flows and resource utilisation in complex operations and allow for development of appropriate operational methods for Grade Engineering® solutions. Modelling methods will also be developed to use these models during operation of the mine for short-term scenario planning, identifying the actions which will maximise the value of the final product

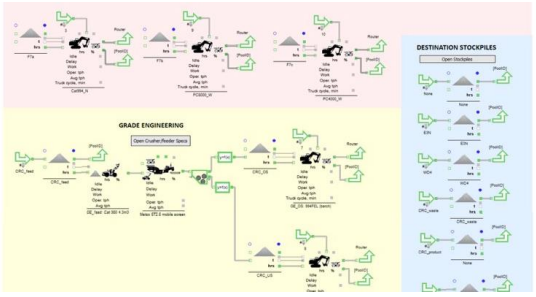

Figure 1: An image of a part of the GESim modelling application, showing several loaders, stockpiles, and the Grade Engineering process circuit.

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