



## PROJECT FOCUS

# OK TEDI CRUSHER REPLACEMENT

Ok Tedi Mining Limited (OTML) operates a large scale copper and gold mining and processing facility in the Western Province of Papua New Guinea. Ore won from the open pit mine at an annual rate of 24 million tonnes feeds a processing facility consisting of a gyratory primary crusher, two parallel grinding modules, flotation and gravity separation and sulphur removal.

The operation commenced in 1985 and current life of mine plans see production continuing until at least 2024, and potentially beyond 2030 with an increase in resource and reserve inventory. It is envisaged that a significant portion of the increased reserve material would be sourced from a cut back of the east wall of the open pit and this cut back will realise a significant increase in ore milled, project life and project revenue. The existing crushing plant, screening plant and some of the conveying circuit was located at the crest of the current eastern wall of the open pit and needed to be removed and replaced to allow a cut back to take place. This requirement to replace these facilities on a new site, to the east of the open pit, developed into the Crusher Replacement Project (CRP).

The scale of this project was very significant, especially when considering the remote and mountainous location of the site, the degree of effort required to access the site with heavy loads and that the construction was self-executed by the OTML operations team. The gyratory crusher that was installed is one of the largest machines of this type currently manufactured in the world.

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Over 13,000 m<sup>3</sup> of concrete and over 2,500 tonnes of fabricated steel was required to construct the new facility. The site itself required substantial pioneering earthworks, undertaken by OTML, to enable the plant to be constructed within the Ok Ningi valley. Overcoming the challenges posed by the new site and executing a construction project of this magnitude is indeed a credit to the OTML team.

GR Engineering was awarded an EPCM contract in 2018 for the provision of engineering services to complete the detailed design for the CRP. The key objective of this project scope of work was to provide OTML with the necessary engineering services, procurement support and detailed design deliverables to enable the self-managed owner's team to execute the construction and commissioning of the CRP. The scope of this contract required GR Engineering to undertake the following tasks:

- Establish a design basis and a process design criteria for the processing facilities to be constructed;
- Conduct design reviews, HAZID and risk assessments in conjunction with the OTML project team;
- Select suitable process equipment and design the concrete and steel structures required to support the selected equipment;
- Create technical specifications to enable the procurement of the process equipment, construction materials, fabricated items and site construction services;
- Provision of the engineering design and management services required to create the detailed design deliverables;
- Provide OTML with engineering assistance for the design of drainage diversions, sediment control structures, water supply pipeline upgrade works and the extension of existing services to support the new infrastructure;
- Provide on-site and off-site based resources to assist the OTML team with implementing the engineering designs and supervision of construction activities.

The new crushing, screening and crushed ore stockpile facilities was completed and commissioned in 2020. Once the new facilities had been fully commissioned and operating reliably at nameplate capacity, the old crushing, screening and conveying systems were demolished and the mine cut back was commenced.



## SUMMARY:

**Commodity:** Copper-Gold

**Region:** South East Asia

**Location:** Western Province PNG

**Project Type:** Brownfields, EPCM schedule of rates and procurement support

**Client:** Ok Tedi Mining Limited

**Award Date:** March 2018

**Completion Date:** Early 2021 (Commissioning)

**Project Manager:** Rod Schier

**Total Project Value:** USD 110M

## About GR Engineering

A leading process engineering, design and construction organisation that strives to provide workable, cost effective solutions and quality services to the global resource and mineral processing industry. GR Engineering has a proven track record of delivering turn-key projects in over 20 countries.

The company guarantees integrated, efficient and practical designs whilst maintaining a high level of safety and operational performance.

Personnel at GR Engineering have the capability and track record to undertake projects from the initial evaluation and study phase through to design, construction, commissioning, operational support and asset management.

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