



PROJECT FOCUS

JABAL SAYID FILTER PROJECT

The Ma'aden Barrick Copper Company (MBCC) required an expansion of its Jabal Sayid Mine production from the current 1.8Mtpa to 2.3 Mtpa by 2019, 2.6 Mtpa by 2020 and to 3.0 Mtpa by the end of 2023. GR Engineering was engaged to design the upgraded plant and provide engineering services to support MBCC with the project execution.

A major component of this upgrade was an expansion of the existing concentrates and tailings dewatering facility. The planned expansion comprised the installation of one additional concentrate filter and two additional tailings filters within the existing process plant footprint and utilising the existing plant services infrastructure.

Concentrate thickener underflow will be pumped from the existing Concentrate Thickener to the new Concentrate Filter # 2 by upgraded Concentrate Thickener Underflow Pumps. Concentrate Filter # 2 will be a Larox continuous belt pressure filter. The existing Concentrate Filter (plate and frame type) will be retained to provide additional redundancy in the concentrate filtration circuit. Filtrate and area clean up sumps from the new facility will be returned to the existing Concentrate Thickener. Dewatered concentrates will be stored in a concrete bunker directly beneath the new filter. This material will be removed from this bunker by

FEL and loaded into trucks for shipment offsite.

Tailings thickener underflow will be pumped from the existing Tailings Thickener to the filter feed system of the new Tailings Filters # 3 and # 4. Upgraded Tailings Thickener Underflow Pumps will be installed for this duty. The two new Tailings Filters will both be Larox continuous belt pressure filters. The existing Tails Filters # 1 and # 2 (plate & frame) will be retained to provide additional redundancy in the tailings filtration circuit. Filtrate and area clean up sumps will again be returned to the existing Tailings Thickener. Dewatered tailings material will be stored in bunkers beneath each filter. This material will be removed from the bunkers by FEL and loaded into trucks for transport to the tailings dry storage facility or paste fill plant.

MBCC had awarded the filter and ancillary equipment supply contract to Outotec prior to GR Engineering commencing work on the project. GR Engineering undertook an initial review of all of the vendor information provided by MBCC and incorporated this data into the development of the final design.

The equipment purchased by MBCC for the Project included:

- 3 off Larox PF144/156 M60-1- 45 continuous belt vacuum filters, having a filtration area of 144sqm with 24 plates fitted. These machines were designed to be expandable to 156sqm;
- Tailing filter feed tank, agitator and pumps;
- Tailings filtrate air release tanks;
- Conc filter feed tank agitator and feed pumps;
- Conc filtrate air release tanks;
- Air drying and pressing air compressors and receivers for both areas; and
- Manifold flush and cloth wash pumps for both areas.

The design scope undertaken by GR Engineering included the tasks and deliverables listed below:

- Detailed design and drafting of all civil works;
- Review of the reinforcing bar scheduling work completed by civil contractor;
- Detailed design and drafting of all steel structures;
- Review of shop detailed drawings completed by fabricators in accordance with GR Engineering's design drawings;
- Detailed design and drafting of all mechanical items;
- Detailed design and drafting of all piping systems, inclusive of isometric drawings produced for all pipelines;

- Detailed design and drafting of all electrical and instrumentation systems;
- Programming and configuration of the plant control PLC's;
- FAT testing of the three filters;
- FAT testing of the new MCC switch room.
- Developed data sheets and scopes of work for the procurement of equipment (not supplied by Outotec), steelwork, platework, piping and all site installation contracts;
- Review of tender submissions received in response to these enquiries; and
- Provision of recommendations to purchase that enabled MBCC to procure these items.

There may be some ongoing site construction / commissioning involvement as the works on site progress but that has yet to be agreed.

SUMMARY:

Commodity: Paste Backfill

Region: Middle East

Location: Saudi Arabia

Project type: Brownfields design only

Client: Ma'aden Barrick Copper Company

Award date: January 2019

Completion date: Our design is complete, construction is ongoing

Project design manager: Sean Dunne

Process manager: Bill Gosling

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.

For more information visit: www.gres.com.au
or email gres@gres.com.au