



**Project name:** Ridgeline mining – Deconstruction Mt Augustus

**Client:** Solid Energy New Zealand Limited

**Project date:** 2007 – 2011

**Project description**

Solid Energy New Zealand (SENZ) wished to mine a 6 to 10m thick coal seam below the Mt. Augustus ridgeline at Stockton Mine near Westport. The coal was covered by up to 30m of overburden, which required removal to access around 4 million tonnes of high quality coal. The Coal Mining Lease (CML) boundary was located just below the coal measures. The adjacent land is conservation estate - known habitat of kiwi and the native land snail – *Powelliphanta augustus*. The possible effects of mining operations on the surrounding conservation lands and waterways needed extensive pre-planning, design and consent processes.

The project involved high profile mining with zero tolerance for loss of water or rocks to the adjoining conservation estate lands. This project was the subject of considerable public protest and was under heavy environmental and media scrutiny.

**Geotech’s role**

The process of accessing the ridgeline resource involved a range of specialised contractors. Geotech were the prime contractor, providing low volume, high end ground engineering. Design for the deconstruction methodology and stabilization works was submitted by Geotech, with engineering confirmed by URS, and approved by the client. Geotech were contracted to provide specialized blasting and deconstruction works to remove the rock overburden, allowing SENZ to then remove the remainder using production mining techniques.

The project required cliff stabilization prior to precision blasting and rock deconstruction. Much of the work involved staff undertaking complex rope and abseiling tasks, as well as being responsible for highly technical blast execution. Geotech was also responsible for managing a major on-site risk factor, a 60 tonne block of sandstone nick-named ‘Scary Lucy’. Scary Lucy initially held up progress on the Ridgeline Mining project for two months and cost the project over \$70,000. Using a range of ground stabilisation techniques, Geotech were able to contain the threat of Scary Lucy. Ultimately the issue was resolved by safely detonating the block inside a safety net, and the project was returned to full efficiency.

At the completion of the project, Geotech were contracted to remove the high capacity dynamic rockfall barrier installed along the length of the ridgeline - the largest design-build rockfall protection project in the southern hemisphere.

**Resources applied**

Geotech had 15 staff working on the ridgeline project, employing a range of resources, including:

- Sandvik Ranger drill rig
- AR Xtend 150 boom mounted drill
- Komatsu excavators PC450 and PC 300 – 4 units
- Komatsu articulated dump trucks HM400 – 2 units
- Rock bolting gear



- Specialist blasting products and skills
- Dewatering kit
- Bolting and mesh systems for cliff and coal stabilisation

Geotech were also responsible for establishing support facilities on site, including staff facilities, office, communication systems, explosive magazine, storage and workshop facilities, lighting plant and specialist hand tools.



#### **Innovation and performance**

Mining coal along the ridgeline was technically far more challenging than any mining operations previously undertaken at Stockton. Specialised work processes were required to prevent any material falling from the escarpment into the adjacent conservation estate. Geotech were required to comply with all the terms and conditions of the CML, the Stockton Environmental Management Plan and all resource consents. The client's health and safety and commercial objectives were also to be achieved. Geotech staff undertook a range of technical precision drill and blast and rock deconstruction, operating from ropes. Work was successfully undertaken within closely monitored parameters. Geotech's permit to work and key performance indicators specified zero tolerance for lost material to water. The contract was completed with zero loss of control.

The deconstruction of Mt Augustus was described by SENZ's CEO as a "technical and environmental success for the business - the best project undertaken at Stockton Mine, fully achieving the company's objectives for risk management".



**Project value**  
\$7.7million

**Project reference**  
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