

On our ninth day in New Zealand, we toured the Stockton Coal Mine near Westport on the South Island. Before we embarked on our tour, which was offered through collaboration through the Solid Energy (the company that ran the coal mine) and a touring company called Outwest Tours, our daily speakers informed us about the background of what we would be seeing.

The alpine fault is a geological fault that runs the entire length of the South Island of New Zealand. It forms a boundary between the Pacific plate and the Indo-Australian plate. The uplift to the southeast of the fault is due to an element of convergence between the plates meaning that the fault has a significant high-angle reverse oblique component to its displacement. Average slip rates in the fault are 30 mm per year. The latest earthquake in this area was in 2009 with an estimated magnitude of 7.8.

The Stockton Mine, on the Stockton Coal Field, is the largest opencast mining operation in New Zealand. Solid Energy operates the mine in a partnership with Downer Australia. Solid Energy obtained the license to operate in 1987 for 40 years and the elevation of the mine varies from 500 to 1100 meters above sea level. Coal is extracted from seams just below the surface.

The mining operation is an important contributor to the Buller community and to New Zealand's economy - they directly employ more than 500 people. In recent years the Stockton production has been around 2 million tons per year of high value coal. The operation is expected to continue production at this level until 2028. Special care is taken to place the overburden in specially designed disposal areas to minimize land disturbance following the mining.

Stockton coal is bituminous with ash levels that are lower than 1%. The low ash and low phosphorus content of the Stockton coal means that it is in demand internationally for steel making. Most of the coal mined is exported for use in steel mills in India, China, Japan, South Africa, and Brazil.

Before the tour even started, we were picked up from our hostel in Westport by an off-road Mercedes transport vehicle. The truck had Plexiglas windows and was raised with off-road tires. We took a 40-minute journey to the mine entrance where we were greeted by large piles of coal. The first stop on this tour was to see where the miners get ready and store their personal belongings. Shortly after, we boarded our vehicle and put our hard-hats back on to see the mine. We toured around the different mining sites for both their high-value coal as well as their less valuable coal and got to see the seams of coal in the opencast mine. We briefly witnessed some basting as well before we finished. We were guided by a mineworker named Barry, who is the Environment and Community Manager for the mine. His job requires him to do extensive water testing for PH levels in order to meet resource consent requirements. Another major component of his occupation is relocating species that are indigenous to the area. One example of this is the extensive relocation of indigenous carnivorous snails that inhabit

the land.







