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03/23/23
EGEE 497 - Section 03
Dr. Elsworth

New Zealand Trip Dispatch (Wed-PM)

After visiting the Mercury – Nga Tamariki geothermal plant, we traveled to the Geological and Nuclear Sciences (GNS) facility. GNS Taupo is a geothermal research facility located in Taupo, New Zealand. GNS is one of the leading geological research institutions in the country.

The research facility is situated near the town of Taupo, which is located in the central North Island of New Zealand. The region is known for its geothermal activity, including geysers, hot springs, and volcanic activity.

When we visited, we were given a very long and detailed powerpoint presentation of what the facility does. GNS Taupo conducts research on a variety of topics related to geothermal energy, including geothermal reservoir management, geothermal exploration, and geothermal power generation. The facility is equipped with a range of specialized equipment and laboratories for studying geothermal processes, including high-pressure reactors, spectrometers, and geophysical instruments. We went on a small tour after the presentation to observe some of their state of the art laboratories.

GNS Taupo has been involved in the development and operation of several geothermal power plants in New Zealand, including the Ohaaki Power Station and the Ngatamariki Power Station. The Ohaaki Power Station, which began operation in 1989, has a capacity of 104 MW and is one of the largest geothermal power plants in New Zealand. The Ngatamariki Power Station, which began operation in 2013, has a capacity of 82 MW and uses binary cycle technology to generate electricity from geothermal fluids. GNS Taupo also conducts research on the use of geothermal fluids for direct use applications, such as heating and cooling for industrial and agricultural processes. The facility has expertise in geothermal reservoir modeling and simulation, as well as the design and implementation of reservoir monitoring systems.

In addition to its research activities, GNS Taupo also provides consulting services to companies and governments in the geothermal energy industry. The facility's expertise is often sought after by companies that are developing geothermal projects in New Zealand and other countries. Overall, GNS Taupo plays a critical role in advancing the understanding of geothermal energy and its potential as a sustainable energy source.



Figure 1. GNS Facility



Figure 2. Ohaaki Power Station