

Shando Naini

EGEE497 Dispatch

Dispatch: Huka Falls and Wairakei Terrace Pools

On the morning of Thursday, March 9th, our day began by visiting Huka Falls, New Zealand's most visited natural attraction. Although only 15 meters across and 11 meters from upstream to downstream, the falls had a discharge of around 220,000 L/s. The flow rate is almost as high as the American Falls in Niagara, which is around 283,905 L/s (75000 gal/min converted). The American Falls has a significantly higher gorge drop than Huka, which shows the true force and volume that the Waikato River provides. The main reason for this large volume is the drainage of Lake Taupo, which has many inlets but only exits from the Waikato. Additionally, the river narrows from 100 meters to 15 meters, constricting the volume as it enters the falls. Imagine an entire concert venue trying to exit from a few doors at the same time. However, the flow is controlled by Mercury's elaborate hydropower system on the Waikato, which involves 8 different dams and a series of control gates that close during droughts, and open during flooding. These hydropower dams contribute to 10% of the country's total energy production, so maintaining the lake levels is vital for the company. During our visit, we saw the river at a much higher flow rate than usual, attributed to one of the wettest winters for New Zealand in late 2022. The lake level was only five centimeters from the maximum of the operating range, and thus created a higher drainage into the Waikato. Although a higher flow rate is directly proportional to a higher power output, it can result in serious damage to the lakeside communities and tourism industry. Thus, Mercury has only about five feet difference for an operating range, 1167 feet to 1172 feet. There were approximately 90 drownings during the year 2022, which caused the local officials to place extra emphasis on swimming and boating only on specific areas on the Waikato.



Figure 2: Huka is Maori for Foam, shown by the gorge

After our short visit to Huka Falls, we were able to enjoy the hot waters of the Wairakei Terrace geothermal pools. Based on the Maori principles of natural holistic health, the water serves as a natural provider of physical and mental wellness. The Maori had used them for thousands of years, and believed the Wairakei water was invaluable because of its healing powers and therapeutic relief. The pools drew its geothermal water from 1.5 kilometers underground, thus making it very mineral rich. The terraces had four different pools each of varying temperatures, from 30 to 40 degrees centigrade. The hottest pool was situated at the highest elevation, and as decrease in temperature and height. The waters are rich with silica, sulphate, potassium, and many other minerals, all intended to heal the body and mind.

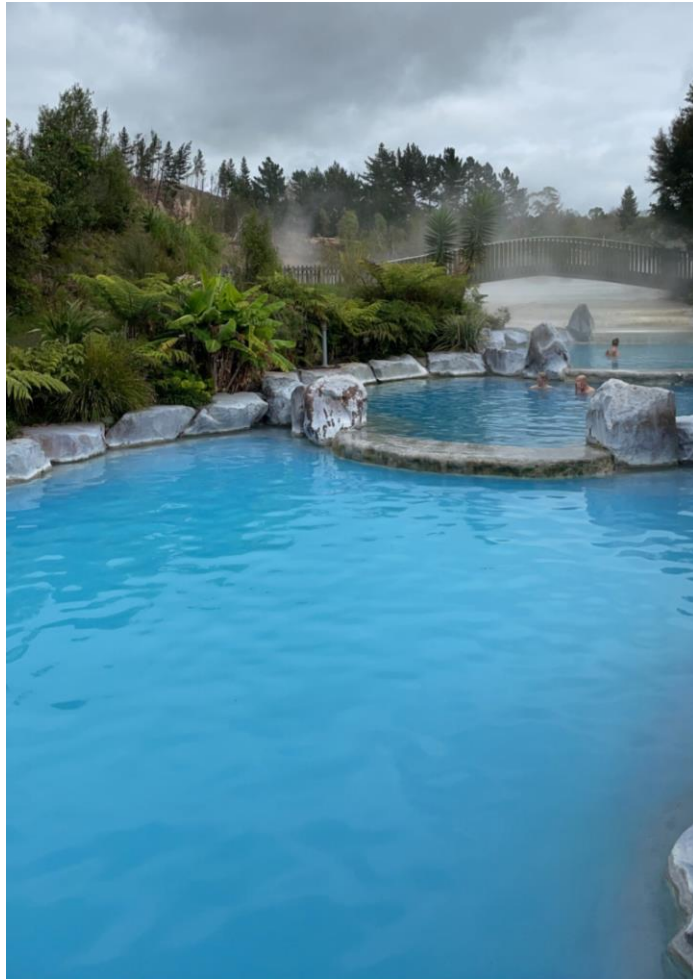


Figure 2: 3 of the 4 Wairakei Terraces Pools