

Tank Farm gets its name from the fuel storage tanks that were dug into the north wall of the explosion crater to camouflage them from potential aerial attack during World War 2. These depressions are still present and have become small circular freshwater swamps beside the track around the inside of the crater. Today North Shore City Council has labelled this volcano - Tuff Crater, a 19<sup>th</sup> century descriptive term that was written beside it and a number of other explosion craters on Hochstetter's 1864 map of Auckland's volcanoes. The earlier Maori name is Te Kopua o Matakamokamo, meaning 'the basin of Matakamokamo' derived from the oral traditional story - Te Riri a Mataaho or The Wrath of Mataaho.

The story is of an ancestor called Matakamokamo who in ancient times lived on Te Rua Maunga, a mountain standing on the site of Lake Pupuke. He instructed his wife, Matakerepo to weave him some new garments but was dissatisfied with the finished product and argued bitterly with his wife. While they were arguing their house fire went out and it could not be rekindled. Matakamokamo then cursed Mahuika, the goddess of fire, with the result that she called on her fellow deity, Mataaho, to send a volcanic eruption to punish the quarrelsome couple.

Mataaho caused Te Rua Maunga to sink beneath the earth, leaving Pupuke Moana (Lake Pupuke) in its place. At the same time he caused Rangitoto to rise from the sea offshore, and it was to this island that Matakamokamo and Matakerepo fled in panic. Later when they returned to the mainland the wrath of Mataaho was again directed upon them. They were turned to stone and sank beneath the ground by the western foreshore of Shoal Bay producing violent volcanic explosions which formed Onepoto and Tank Farm Explosion Craters - 'the tidal basins of Matakerepo and Matakamokamo'.

The time when Tank Farm Volcano erupted has not been dated but it is thought that it probably erupted about the same time as the other two nearby volcanoes - Onepoto and Pupuke. These two have recently been dated as the oldest known volcanoes in the Auckland Field, having erupted about 200,000-250,000 years ago. All three are in a line and the magma that fed them probably reached the surface along the same linear fault-line. The rising magma at about 1000 degrees C, encountered cold ground water as it approached the surface. This resulted in pulsating explosive blasts that threw volcanic ash high into the air and blasted surges of ash and vapour sideways devastating the surrounding land for several kilometres in all directions. This style of explosive eruption (technically known as phreatomagmatic) pulverised the overlying country rock as well as fragmenting the surface of the instantly chilled rising magma. As a result a mix of fine black basalt ash and lighter-coloured fragmented Waitemata Sandstone was thrown out by the blasts. This material accumulated around the wide crater building up the high surrounding ring of layered wet ash. As the wet ash dried out it hardened into a rock that geologists call tuff and the ridge around the crater is called a tuff ring or tuff cone. The supply of magma rising up from depth stopped before all the ground water had been used up and so eruptions never switched to the dry style that produces scoria cones and lava flows of many other volcanoes in Auckland.

All of these three North Shore volcanoes erupted during the Ice Ages, when sea level was well below the present and the Waitemata Valley and its tributaries were clothed in forest, with the heads of many kauri towering above the dense canopy of smaller podocarps and broadleaves. The explosive eruptions from Onepoto and Tank Farm volcanoes killed and buried this forest in the near vicinity. The moulds of some of these trees were preserved within the ash and discovered when some of Onepoto tuff ring was quarried away during construction of the northern approaches to the harbour bridge in the late 1950s. Some of the northeastern portion of the Tank Farm tuff ring in the vicinity of The Warehouse was also removed to provide material for the Northern Motorway at that time.

Prior to the eruption of Onepoto, Tank Farm and Pupuke volcanoes, a branching valley system flowed southwards from Wairau Valley down into Shoal Bay to link with the Waitemata River somewhere off where Bayswater marina now stands. The eruption of these three volcanoes built up tuff ring mounds that dammed the stream system forming a shallow lake that stretched well

back into Wairau Valley. The lake bed slowly built up with silt, mud and vegetation to form the flat area now occupied by Wairau Valley industrial and commercial enterprises. Overflow from this Wairau Valley lake diverted around the northern edge of the Pupuke Volcano and escaped through Wairau estuary at the northern end of Milford Beach, as it does today.

Tank Farm explosion crater was about 800 m across and nearly 100 m deep when eruptions ceased. Rain water collected in the crater forming a freshwater lake which remained in existence until about 8000 yrs ago. As no streams flowed into the lake, sediment accumulated very slowly on its floor. This was mostly composed of the silica skeletons of microscopic algae, called diatoms, together with volcanic ash that was blown across Auckland from eruptions near Taupo, Rotorua and from Mt Taranaki. Although this sedimentary sequence in Tank Farm crater has not been cored, that in Onepoto has and this provides a detailed record of volcanic eruptions in the northern North Island over the last 200,000 years. Pollen preserved in the sediment also provide a record of the changing vegetation of the North Shore during the last two Ice Age cycles of cold and warm.

After the end of the Last Ice Age, sea level rose from 130 m below present about 18,000 yrs ago to the present level by about 7300 yrs ago. Onepoto and Tank farm lakes both had developed small overflow streams with their lips slightly lower than present-day sea level. Thus about 8000 yrs ago each crater was breached by the rising sea as the Waitemata Valley was drowned to take the shape of the present Waitemata Harbour. Initially they became 20-30 m deep tidal lagoons. With each incoming tide suspended mud was carried into these lagoons and it sunk out of suspension through the still waters and quickly built up on its floor. Within a few thousand years both lagoons had become circular intertidal inlets and as sediment continued to accumulate mangroves and salt marsh became established. Onepoto has been dammed and reclaimed to create playing fields but Tank Farm remains as one of the few breached volcanic craters in Auckland that has not been reclaimed nor had a major road or railway line put through the middle of it.

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