

Cement Industry in New Zealand

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Portland cement¹ has been manufactured in New Zealand since the late 1800s. It still is, albeit at only one site, Portland near Whangārei. New Zealand had plenty of the raw materials for cement: limestone (calcium carbonate, 80%) marl or clay or shale (20%)² and coal. Marl adds iron, alumina and silica – with limestone, the building blocks of cement.³ In the modern “dry” process, the raw materials are finely ground to enhance the chemical reaction on burning. In the former “wet” process the materials are ground then mixed with water in a slurry.⁴ In both cases they are then burned in a kiln at very high temperatures, up to 1400 degrees C⁵, to form a hard “clinker” which is then ground to provide cement. Small quantities of imported gypsum are added to prevent instantaneous setting.⁶ Key processes are thus the firing and grinding (of both raw materials and product). Plants are located close to the raw materials and the product is sent to the users’ destinations, mostly by sea.

Early New Zealand plants started by manufacturing hydraulic lime. This is an early type of cement, which requires lower kiln temperatures than Portland cement, and is cheaper to produce. “Hydraulic” refers to the ability to set in a wet environment or underwater. It is made by burning limestone (calcium carbonate) containing impurities like clay or silica. It was a simpler product, with properties between ordinary lime and Portland cement. As well at the time the hydraulic lime was being produced little was known in New Zealand about Portland cement. The lime-burning skills though were a good foundation for the development of Portland cement, and some plants made both. Hydraulic lime was used in structures like the first Parnell Tunnel in Auckland,⁷ some of which are still standing today. It was recommended for the Calliope Dock in Auckland as being as stable as Portland cement, and much cheaper.⁸ It is still used in Britain for heritage purposes, such as repointing masonry.⁹ It has characteristics that suit such applications, being more flexible than a Portland cement based mortar, and it avoids the problem of a Portland cement

¹ So called because of its resemblance to the natural stone at Portland, England. Cement & Concrete Association of New Zealand, *The Manufacture of Portland Cement*, Wellington, 1989, p2.

² New Zealand Institute of Chemistry, *Chemical processes in New Zealand: Inorganic materials: The Manufacture of Portland Cement*, 1998, p4.

³ NZIC, p1.

⁴ NZIC pp 4-5. For another description of the processes. see H Morton, C Johnstone, and B Chin, *The Cornerstone Century, the Story of Milburn Cement NZ Ltd*, Christchurch, Milburn NZ, 2002, pp 11-12.

⁵ R Jaques, *Environmental Impacts Associated with New Zealand Cement Manufacture* (Study Report No. SR 68). Porirua: BRANZ, 1998, p9.

⁶ Jaques p9.

⁷ T H Wilson, *History of the Birth and Growth of Wilson’s Portland Cement in New Zealand*, Auckland 1956, p 9. See also G W Griffin, *New Zealand: Her Commerce and Resources*, Wellington, Government Printer, 1884, pp149-150.

⁸ Griffin p151.

⁹ J Ashurst, “The Technology and Use of Hydraulic Lime”, <https://www.buildingconservation.com/>

binding being more rigid and stronger than the materials it binds, which can produce undesirable stresses and deterioration in the surrounding original fabric.¹⁰

Cement manufacture was located around major sources of limestone and other raw materials, and as close to the market as feasible. In New Zealand it was not easy to fulfil all these conditions with the location of the limestone being the dominant factor.¹¹ Small scale manufacturing was possible, which enabled relatively local and distributed production,¹² but with improved transport and distribution, larger plants were built, and companies amalgamated, changed locations and merged plants. Limestone is quite widespread and “abundant” in New Zealand,¹³ and the 1880 Royal Commission into Colonial Industries received submissions from a diversity of places advocating its use for cement manufacture, including Greymouth, Gisborne, Timaru, and North Canterbury,¹⁴ none of which has ever had a cement plant since. The latter included a supporting report from Dr James Hector, Government Scientist, suggesting a plant at Heathcote, near clay deposits, and about equidistant from the lime and coal.¹⁵ The Commission supported the idea of establishing a cement industry and recommended the government buy 100 tons from any local manufacturer, as an incentive to get the industry started.¹⁶

The New Zealand cement was originally of varying quality, and often low strength: engineers preferred the British imports. It was well into the 1890s before local Portland cement was accepted as being equal to the imported product.¹⁷ Prime Minister Seddon reportedly told the Public Works Department to accept New Zealand cements which had strengths 75% of British product or better.¹⁸ A duty of 12 shillings per ton was imposed on imported cement in 1894.¹⁹ By 1895 the Public Works requirements were met from New Zealand producers.²⁰ For all that, New Zealand was an early adopter of Portland cement, at a time it was “far from being in general use” in Britain and Europe.²¹

Cement is a critical construction material, and its costs (now) account for nearly half the total costs of making and delivering concrete.²² It was consequently of great importance in the developing colonial economy. Plants were opened and closed in tune with local markets’ demand for cement, and extensive

¹⁰ Ashurst, “The Technology and Use of Hydraulic Lime”; <https://www.singletonbirch.co.uk/> (Lime uses A-Z: “Mortar”); ALR Merrifield, pers comm.

¹¹ Rimmer, PJ, “Locational Factors in the New Zealand Cement Industry”, *Scottish Geographical Magazine* Vol 83, No 3, December 1967, pp 183-191; CJ Hudson, *The New Zealand Cement Industry – its development, growth and structure*, Victoria University MA thesis, 1960, p16.

¹² Hudson, p29.

¹³ T Christie, B Thompson, B Braithwaite “Mineral Commodity Report 21 – Limestone, Marble and Dolomite”, Wellington, Institute of Geological and Nuclear Sciences Ltd, 2001, p5.

¹⁴ *Report of the Colonial Industries Commission*, AJHR 1880, H-22, p18.

¹⁵ J Hector, Evidence to the Colonial Industries Commission, No 64, AJHR 1880, H-22, p64.

¹⁶ AJHR 1880, H-22, p 11-12.

¹⁷ Wilson p36.

¹⁸ Wilson p37.

¹⁹ G M Clark, *More than Just a Little Island: A history of Matakoho-Limestone Island*, Friends of Matakoho-limestone Island Society, 2001, p37.

²⁰ N P Isaacs, *Making the New Zealand House 1792-1982*, VUW PhD Thesis 2015, p83.

²¹ G G Thornton, *New Zealand’s Industrial Heritage*, Reed, Wellington 1982, p125.

²² Commerce Commission, *Holcim (New Zealand) v Atlas Resources Ltd*, Decision No. 513, 2003, p14.

price and market sharing was a typical practice in the early years.²³ The cement industry was licensed under the Industrial Efficiency Act 1936, in December 1936, and from then until it was delicensed in 1946, a licence was needed to make cement.²⁴ Five applications were made for a licence for new plants by December 1938 but were all turned down on the basis that there was adequate capacity already.²⁵ Even in 2003 the Commerce Commission noted that there were “co-operative arrangements” for coastal shipping of cement and selling of one major company’s cement by the other.²⁶

The following sections discuss the industry on a regional basis.

NORTHLAND

Mahurangi, Warkworth

J Wilson and Company started off producing hydraulic lime at Mahurangi, downstream from Warkworth, in 1866.²⁷ There were three other plants in the same vicinity, all eventually being bought by Wilsons.²⁸ Their attention was drawn in 1883 by the Government Analyst in Auckland (J A Pond) to a British book on the manufacture of Portland cement.²⁹ In 1884 the first Portland cement was produced, with saleable quantities by 1885.³⁰

The cement industry was “an industry started by men with small capital, large hearts and hopes, no experience, and little dreaming of the trials and tribulations ahead.”³¹ There was much experimentation, chasing improvements in quality, originally without professional chemical advice, including going up blind alleys like needlessly adding caustic soda to the mix, using coke rather than coal, and adding Plaster of Paris as a setting retardant rather than the cheaper raw gypsum.³²

Nevertheless, the Mahurangi plant was an early adopter of modern techniques like rotary kilns and tube and ball mills.³³ It originally used vertical kilns, which were 30ft high and 10ft wide (inside). They were filled by hand which took 3-4 days; the mix was burnt for 9-10 days, then it took 3-4 days to discharge, for a production of 30 tons of clinker. These were converted to the more efficient rotary kilns and tube mill grinders from the early 1900s. By 1906 its third rotary kiln was installed, only 10 years after the first

²³See eg Morton p43.

²⁴ Morton, pp 71, 78.

²⁵ Morton p 54. Hudson notes the proposed plants were at Centre Bush, near Winton; in the Hastings-Waipukurau area; at Woodville; at Cape Foulwind, “and elsewhere”. (p 36)

²⁶ Commerce Commission, p.13.

²⁷ Wilson p6.

²⁸ Wilson p112.

²⁹ Wilson p15; the book was *The Science and Art of Portland Cement Manufacture* by Henry Reid.

³⁰ Wilson p16, Morton p17.

³¹ Wilson p16.

³² Wilson p60.

³³ Wilson pp 48, 55.

successful use in the United States.³⁴ Frequent overseas trips to look at plants and techniques inspired this sort of innovation.

Limestone was produced locally, and coal came from mines near Whangārei. The product was transported to market (principally Auckland) in scows and small ships, some of which were owned by the company itself.³⁵ It was originally packed in casks (6 per ton), later in cotton or jute bags, 12 then 18 to ton, and by 1948 (at the new Portland plant) paper bags were used, 24 to the ton, 1 cubic foot each.³⁶

The Mahurangi works were amalgamated with those in Portland and Limestone Island, near Whangārei, in 1918 and reverted to a limeworks, apart from a short period in 1919 when power supplies to the Portland plant were restricted.³⁷ The Mahurangi works finally closed completely in 1929.³⁸ They now form an historic ruin, listed as a Category 1 Historic Place by Heritage New Zealand. A little of the plant lives on in Wellington: brass from the major steam engine's condensers was melted down and used in the gates for Parliament.³⁹

Matakohe, Limestone Island, Whangārei Harbour

Originally this was a lime works, from 1858. After trials of the local rock in Britain, the first batch of Portland cement in New Zealand was produced by Ernest Rutherford, in 1881,⁴⁰ and a cement plant was operating by 1884, although most of the production was hydraulic lime.⁴¹ It was leased to New Zealand Cement Company in 1896. Production expanded significantly, leading to refurbishment of the works. At its peak 270 people were employed.⁴² It amalgamated with Wilsons and Dominion Cement in 1918 and cement production was discontinued,⁴³ though it still provided some stone for Portland until the mid-1920s⁴⁴ and quarrying for agricultural lime production went on until 1963.⁴⁵ The ruins of the works are still extant.⁴⁶ Griffin notes that "cement has also been made at Kamo".⁴⁷

³⁴ Wilson pp 53, 61.

³⁵ R H Locker, *Jade River A history of the Mahurangi*, Friends of the Mahurangi Inc, 2nd ed, 2001, p 295. The section on the cement works is also available on line at <http://www.mahurangi.org.nz/2001/06/16/history-part7-cement-maker/> This is largely based on Wilson's book and is more accessible than that book.

³⁶ Wilson, p30.

³⁷ Locker, p295.

³⁸ Locker, p295.

³⁹ Wilson, p63.

⁴⁰ Clark, p111.

⁴¹ Clark, p27.

⁴² www.limestoneisland.org.nz

⁴³ Cement and Concrete Assn., p4.

⁴⁴ Clark, p66.

⁴⁵ www.limestoneisland.org.nz

⁴⁶ www.limestoneisland.org.nz

⁴⁷ Griffin, p147; Clark dates this at 1882, p28.

Portland

The Dominion Cement Company was founded in 1915⁴⁸ to establish a cement works at Portland, but ran into financial difficulties. It was amalgamated into Wilson's NZ Portland Cement in 1918. Major additions to the plant in 1953 doubled its capacity to 200,000t.⁴⁹ It was later (1970) bought by Winstones, and in 1988 by Fletcher Building and is now run as Golden Bay Cement.⁵⁰ Local limestone was used, supplemented by supplies from Waro, north of Whangārei, and coal came from the same area (now it comes from Huntly or is imported). From the beginning it was shipped to market by ship via a long jetty, and it is still distributed in same way. It originally used a wet process, but has used a dry process since 1983, which nearly halved the energy required.⁵¹ At that stage the capacity was raised to 430,000t pa, and with later modern process control improvements the capacity was raised again to 600,000t pa.⁵² Current output is over 500,000t pa.⁵³

GOLDEN BAY

Early cement undertakings were located at Ferntown near Collingwood and at Motupipi near Takaka. The Ferntown plant used coal, lime and clay from the immediate Collingwood area, and produced cement from 1882 to 1886. It had a capacity of about 1500 tons a year.⁵⁴ The Motupipi plant, owned by the New Zealand Atlas Cement Co, trialled cement manufacture in 1907 but closed after 6 months.⁵⁵ The Tata Islands, on the east coast of Golden Bay, were the limestone source for the Picton works (discussed below).

The longest running works were established at Tarakohe, north-east of Takaka, in 1910, with cement produced from early 1911,⁵⁶ by the Golden Bay Cement Works Ltd,⁵⁷ which had been founded in 1908.⁵⁸ The original capacity was 20,000t a year, by an early dry process.⁵⁹ These works gave their name to the Golden Bay brand of cement. By 1929 larger plant was installed and operating, with a capacity of 50,000

⁴⁸ Locker, p295.

⁴⁹ A Marriott and J La Roche, "The cement works of Northland" in *Evolving Auckland: The City's Engineering Heritage*, Wily, Christchurch, 2011, pp 281 - 285, at p285.

⁵⁰ Marriott and La Roche, p286.

⁵¹ For description see NZIC 4; Marriott and La Roche p285.

⁵² Marriott and La Roche, p286.

⁵³ In 2008 this was estimated as 850,000t, Ministry of Transport, *National Freight Demands Study*. The two major plants had a combined output of 1.4mt. By the 2014 National Freight Demand Study the total output had reduced to 1.1mt, and individual plant numbers were not available for confidentiality reasons. On the basis that overall output had reduced to 80% of the 2008 figure, the Portland works could have been producing over 600,000t. Christie et al in 2001 p 18 put the production at 550,000t. The plant's capacity is also assessed at 900,000t (NZ Institute of Economic Research, *Cement and concrete production: Economic Impact Assessment*, Report to the Cement and Concrete Association of New Zealand, 2008, p8).

⁵⁴ Isaacs 84; cf GG Thornton, *Cast in Concrete: Concrete Construction in New Zealand, 1850-1939*. Reed, Auckland, 1996, p 88 who says the plant was built but did not produce cement, also J H Smith, *Tarakohe: Golden Bay Cement Works 1908-1988: A century of Facts & Figures Reports and Reminiscences*, 2002, p3.

⁵⁵ Isaacs, 84.

⁵⁶ J H Smith, p5.

⁵⁷ J H Smith, p3; also The Prow, <http://www.theprow.org.nz/enterprise/tarakohe-cement/#.WFvOIVJXw>

⁵⁸ J H Smith, p3.

⁵⁹ J H Smith, p6. The dry process in those times was less efficient than the wet, as the materials were not so finely ground as in the wet process, nor as in modern dry processes.

tons, using a wet process.⁶⁰ However, it closed shortly after for 18 months because of a downturn in sales,⁶¹ (and in fact was closed several times, earlier and later, for the same reason).⁶²

A controlling interest in Golden Bay was bought by Associated Portland Cement, London (Blue Circle), in 1950.⁶³ Further expansion was then commissioned in 1952, bringing the capacity to 150,000 tons a year,⁶⁴ and shortly after to 200,000 tons, changing to a dry process (with the earlier kilns shut down).⁶⁵ They pioneered the concept of shipping in bulk to Wellington and other markets from 1955, from a small harbour they developed immediately adjacent to the works. With the demand from hydro and other schemes, demand grew substantially and in 1968 the surplus 1952 kiln was recommissioned and converted to a dry process.⁶⁶ Production rose to 300,000 tons. In 1970 the Golden Bay Company and Winstones (Portland) merged.⁶⁷ The works exported cement to Brisbane in the 1980s using the company's ship, and normal trans-Tasman freighters which could use the harbour.⁶⁸ At their peak in the 1990s the works produced 400,000t per year.

The Tarakohe works were closed in 1988 following a drop in sales.⁶⁹ The Tarakohe Harbour was sold to Tasman District Council in 1994,⁷⁰ and remained in use for small fishing vessels and barges, even on occasion small container ships.

WEST COAST

The very high grade⁷¹ limestone resource at Cape Foulwind, south of Westport, had been regarded as a potential cement plant for many years. In 1924 the National Portland Cement Company proposed a plant there, and again with new parties in 1926, but it was not constructed.⁷²

In an era of shortages of cement, and with the ethos of the day being to avoid imports, a new cement plant was opened at Cape Foulwind, Westport, in 1958, by the New Zealand Cement Company. It used the wet slurry process,⁷³ less energy efficient than the modern dry process (which was developed after the plant's construction⁷⁴). In 1963 the company amalgamated with the Milburn Lime and Cement Company to form

⁶⁰ JH Smith, p9.

⁶¹ JH Smith, p9.

⁶² Morton, pp 57, 68.

⁶³ JH Smith, p10.

⁶⁴ JH Smith, p10.

⁶⁵ JH Smith, pp 10-11.

⁶⁶ JH Smith, p12.

⁶⁷ JH Smith, p14.

⁶⁸ JH Smith, p18.

⁶⁹ JH Smith, p17.

⁷⁰ JH Smith, p35.

⁷¹ Christie et al., p5.

⁷² Morton, pp 60,64.

⁷³ For description see NZ Institute of Chemistry, p5.

⁷⁴ Isaacs, p80.

NZ Cement Holdings.⁷⁵ A second kiln was installed in 1966,⁷⁶ and a third in 1975.⁷⁷ By 1998 it was owned 100% by Holderbank Cement, “Holcim”, which is now part of the Lafarge Group.

The plant had limestone and marl close by, and coal was a short distance away by road. The product was distributed to market by bulk ship through Westport; with some also sent by rail to Canterbury.⁷⁸ The ships initially served North Island markets, but later they also served Canterbury through Lyttelton, and Deep Cove during the Manapouri hydro-electricity project. The river harbour at Westport had problems with a bar, which caused some unreliability in shipping, and in addition the harbour required frequent dredging. At one stage an alternative harbour was investigated close to the plant at Cape Foulwind, but it was never built.⁷⁹

In recent years it produced about 400,000t a year.⁸⁰ In 2016 it was closed and replaced with direct imports (from Vietnam) to silos built at Auckland and Timaru ports. It is still internally distributed by ship from Timaru (South Island and lower North Island), and from Auckland mostly to the local market, by truck, and also to the upper North Island.

OTAGO-SOUTHLAND

Walton Park

The first cement plant in the area was at Walton Park, Fairfield, Dunedin, in 1886, based on earlier lime burning experience on the Otago Peninsula.⁸¹ It was not an economic success and was sold to Milburn Lime and Cement Co in 1888. The plant did not last very many years, and was replaced in 1890 by a new plant on the shores of Dunedin Harbour at Pelichet Bay, just west of where the present stadium is.⁸² Despite the company’s name, no cement was ever produced at Milburn, because of the poor qualities of the clay.⁸³ Milburn produced agricultural lime, and also burnt lime for the company’s cement works.

Pelichet Bay

⁷⁵ Isaacs, p87; Morton, p4.

⁷⁶ Morton, p99.

⁷⁷ Morton, p107.

⁷⁸ Proposals to connect the plant directly to the rail network never eventuated, and rail traffic was sent from the plant by road to silos built a little east of Westport, adjacent to the railway, for later loading into pressurised rail tank wagons. The same method was used to transport cement from the plant to the wharfside silos for shipping.

⁷⁹ Morton, pp 11,13.

⁸⁰ Ministry of Transport, *National Freight Demands Study*, 2008, p.83 gives 510,000t as the output from the Westport plant. Christie (2001) p 18 gives 500,000. In the 2014 *National Freight Demand Study* only an estimate of the total production of the two plants was given, for confidentiality reasons. At 1.1mt this was about 80% of the 2008 total, so an estimate of the Westport plant’s recent annual output is 400,000t. The capacity is assessed at 500,000t (NZIER p8)

⁸¹ Isaacs p 87. The lime kilns remain at Sandymount on the Peninsula: See N Smith, *Heritage of Industry: Discovering New Zealand’s Industrial History*, Auckland, Reed 2001, pp 220-221.

⁸² Morton, p19.

⁸³ Morton, p19.

This plant was on an area of reclamation in Otago Harbour. It got its “marl” content from the mud of the Harbour, until 1905 when the source was switched to a Burnside quarry.⁸⁴ It was significantly upgraded in 1911. Limestone came from Milburn originally (as for the Walton Park plant) and later from Dunback, near Makareao (north of Dunedin) by rail.

Like Wilsons, the company’s executives also used overseas study trips as a source of innovation.⁸⁵ New Zealand’s first rotary kiln was installed in the Pelichet plant in February 1901.⁸⁶ This enabled coal to be used rather than coke (which frequently had supply issues).

Burnside

The Pelichet Bay works closed at the end of 1928, and the new Burnside works opened early in 1929, with a capacity of 50,000 tons a year.⁸⁷ It used the wet process. This was also supplied with lime from Makareao. It was duplicated in 1954, but it in turn closed in 1988,⁸⁸ after being reduced to one kiln the year before, because of market conditions.⁸⁹ It originally produced bagged cement only but bulk loadouts were established in 1959.⁹⁰ It was largely dependent in earlier years on rail transport, and its output was frequently limited by shortage of rail wagons for inward limestone and coal (as well as shortages of coal itself).

An earlier plant at Burnside was established in 1909, with some plant and buildings from Picton,⁹¹ and was originally a competitor. It got into financial difficulties and merged with Milburn, but was used by Milburn for only a short time before being closed 1910.⁹² Much of the machinery was sold to an Australian firm in 1913.⁹³ Some of its buildings were later incorporated into Milburn’s 1929 plant.

In 1971 Holderbank acquired 42% of the company’s shares;⁹⁴ raised in 1999 to 100%.⁹⁵ In 1988 it changed its name to Milburn New Zealand Ltd., since 2002 it has been Holcim NZ.

⁸⁴ Morton, p35.

⁸⁵ Morton, pp 23, 53; New Zealand Cement Holdings, *100 Years: Helping Build a Nation*, Christchurch, New Zealand Cement Holdings, 1988, p26.

⁸⁶ Morton, pp 4, 33.

⁸⁷ Hudson, above no. 11, p36.

⁸⁸ Isaacs, p87; Morton, p124.

⁸⁹ Morton, p124.

⁹⁰ Morton, p93.

⁹¹ Morton, p35.

⁹² Morton, pp 37-38.

⁹³ Morton, p40.

⁹⁴ Morton, p106.

⁹⁵ Morton, p132.

Orawia or Clifden, Southland

A plant was established in 1954,⁹⁶ taken over by Milburn in 1968, and then closed.⁹⁷ At one stage clinker from this plant was used at Burnside.⁹⁸

OTHER PLANTS

Silverdale

This was a short-lived plant, less than a year in 1924.⁹⁹

Te Kuiti

Young in his Te Kuiti history notes that Wilsons had kilns operating in the Te Kuiti area in 1907.¹⁰⁰ A new plant was established 1955, by the Waitomo Portland Cement Company, on a site in the Waitete Valley to the south of the town, adjacent to a large limestone deposit. At its peak it employed 120 people.¹⁰¹ It was taken over by Golden Bay in 1961, and they transferred their redundant 1929 kiln to Te Kuiti.¹⁰² The plant closed in 1970 on the merger with Portland.¹⁰³

Lee Valley, near Nelson, 1993- 1998

This was a small plant (20,000 tpa); owned by Golden Bay via Waitomo Cement. There was local limestone and marl but coal and silica sand had to be trucked considerable distances to the plant.¹⁰⁴

Picton: at Elevation

A “fairly large” works,¹⁰⁵ employing up to 200 men,¹⁰⁶ producing 22 tons per day, was opened in 1904.¹⁰⁷ Limestone came from the Tata Islands in Golden Bay; the cement was estimated to need 25% from this source and 75% from local rocks. The proportions proved to be the other way round.¹⁰⁸ Moreover councils in Golden Bay were concerned about the impact on the Tata Islands, so the plant was short lived, closing after only 3 years.¹⁰⁹

⁹⁶ Morton, p94.

⁹⁷ Morton, pp101-102.

⁹⁸ Morton, p94.

⁹⁹ Christie et al., p9; Isaacs, p83.

¹⁰⁰ Young, *Story of Te Kuiti*, Wellington, Winter Productions, 2013, p100; Thornton Cast in Concrete, p89 says these were for cement.

¹⁰¹ Young, p104 (says open 1956, closed 1972).

¹⁰² JH Smith, p11.

¹⁰³ Isaacs, pp83, 86; JH Smith p14.

¹⁰⁴ Jaques, p20.

¹⁰⁵ JH Smith, p5.

¹⁰⁶ J Andrews, “Wellington and Marlborough Cement Works”, *Journal of the Nelson and Marlborough Historical Societies*, Vol 1, Issue 5, October 1985, p55.

¹⁰⁷ JH Smith, p5.

¹⁰⁸ Andrews, p55.

¹⁰⁹ JH Smith, p5.

PROPOSALS, NOT BUILT

Urquhart Bay, Whangārei Heads

A company was formed in the 1920s to build a new works here, but this did not progress.¹¹⁰

Te Kuiti

In 2011 the Perry Group announced a proposal to build an 80,000t plant at Te Kumi, north of Te Kuiti, using limestone from the adjacent Ravensdown quarry, it was intended to serve local markets, including Auckland and the Bay of Plenty.¹¹¹ It did not go ahead.

Wairarapa (Woodside)

Pacific Cement Ltd proposed in 1974 to build a 50,000t pa plant at Woodside near Greytown (to the west of the railway just north of Woodside station). The intended size of the plant was later increased to 100,000t. The company's view was that it was more efficient to establish small scale plants close to their market, rather than large plants with expensive distribution chains. The market in this case was to be the lower North Island. Limestone and clay was to come from a quarry near Gladstone, 30km away, and coal from Huntly. Distribution of the cement was to be by road.¹¹² There was substantial local opposition to the plant, and it did not proceed.

Weston (Oamaru)

The quality of the limestone at this site has given rise to a number of proposals to build a cement plant there. There were proposals in the 1950s,¹¹³ the 1960s,¹¹⁴ 1977,¹¹⁵ and 2008,¹¹⁶ and probably earlier. A plant there is still a possibility. Holcim have retained the rights to build the plant even though it is now importing all its cement.

Centre Bush (Southland)

A licence was applied for in 1938/39 but rejected by the Bureau of Industry. A private company was registered for this site but was liquidated in 1949.

Fiordland Caswell Sound

It was intended to make cement from marble quarried there from 1881 to 1887, but apparently this did not happen.¹¹⁷

¹¹⁰ Clark, p57.

¹¹¹ <https://www.infonews.co.nz/>, 18 March 2011.

¹¹² Pacific Cement Ltd, *Environmental Impact Report Cement Works Wairarapa*, Lower Hutt 1976, sections 1, 2 and 4. This document goes into some detail about the proposed process.

¹¹³ Morton, p90.

¹¹⁴ Morton, p96; Rimmer, p189.

¹¹⁵ Morton, pp 111,118.

¹¹⁶ N Isaacs, "Cementing History", *Build*, June/July 2008, p87.

¹¹⁷ Isaacs *NZ House*, p84.

SUMMARY

Cement manufacture has been a feature of a number of regions in New Zealand where there were good raw materials, principally limestone. However, over the years smaller plants have been closed as uneconomic, and until 2016 two large plants met the demand. Now with cheap shipping, and even larger plants internationally, imports have become competitive, and one of those plants has been closed in favour of imports. As well, a new business has started at Mt Maunganui grinding imported clinker (and blast furnace slag) into cement, including adding small amounts of local limestone and imported gypsum.¹¹⁸

The following summary table is taken, with the author's permission, from Isaacs, *Making the New Zealand House*, p83, amended and updated:

NEW ZEALAND CEMENT WORKS

Date	Location	Company	Closed	Merged Moved	Became / Note
1885	Mahurangi, Warkworth	John Wilson & Co. Ltd	1929	1918	Wilson's (NZ) Portland Cement Ltd Mahurangi Cement Works
1882	Ferntown, Golden Bay	Ferntown Coal Mine & Portland Cement Works	1886		Plant to Golden Bay Cement Co
1886	Walton Park, Fairfield, Dunedin	James McDonald		1890	Milburn Lime & Cement Co
1890	Pelichet Bay, Dunedin*	Milburn Lime & Cement Co. Ltd	1928		
1896	Limestone Island, Whangārei	NZ Portland Cement Co.	1918	1918	Wilson's (NZ) Portland Cement Ltd Limestone Island cement

¹¹⁸ HR Cement, <http://www.hrcl.co.nz>; *Inside Resources*, 25 January 2017.

1904	Elevation, Picton*	Wellington and Marlborough Lime and Cement C Ltd	1907		
1906	Motupipi, Golden Bay	NZ Atlas Cement Company	1909		
1907	Te Kuiti (1)*	John Wilson and Co Ltd			
1909	Burnside (1)*	Burnside Hydraulic Lime and Cement Company	1911	1910	Taken over by Milburn in 1910
1910	Tarakohe, Golden Bay	Golden Bay Cement Works Ltd		1919	Golden Bay Cement Co. Ltd
1916	Portland, Whangārei	Dominion Portland Cement Co. Ltd		1918	Wilson's (NZ) Portland Cement Ltd Portland Cement Works
1924	Silverdale	Mappin and Co.'s Silverdale Lime Company	1924		
1929	Burnside, Dunedin (2)	Milburn Lime & Cement Co. Ltd	1988		
1955	Te Kuiti (2)	Waitomo Portland Cement Ltd	1970	1961	Golden Bay Cement Co. Ltd
1957	Clifden, Orawia, Southland	Southland Cement Co. Ltd	1968	1969	NZ Cement Holdings Ltd
1959	Cape Foulwind, Westport	NZ Cement Co Ltd, Guardian Cement		2016	NZ Cement Holdings Ltd
1963		Milburn NZ Ltd + NZ Cement Company merger			NZ Cement Holdings Ltd

1977	Burnside, Dunedin	Milburn NZ Ltd (52% Holcim)	1988		
1993	Lee Valley, Nelson*	Waitomo Portland Cement Co Ltd	1998		
2012	Mt Maunganui	HR Cement Ltd			Processes imported clinker

Original Sources: (Jaques, 1998; New Zealand Concrete Research Association, 1984; Smith, 2001; Thornton, 1996)

*Sources for revision: Walton Park Morton, 2002; Picton J H Smith, 2002; Te Kuiti (1) Young, 2013, Thornton, 1996, (Cast in concrete); Lee Valley Jaques, 1998. Otago Peninsula and Milburn deleted from the table as these were not cement plants. Temporary closures of Tarakohe not regarded as new plants on reopening. HR Cement added 5/2024, from their website.

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