

and Onekaka North, and these three areas have been examined in considerable detail. Owing to the difficulties of access and limits of accommodation and time, general surveys and a less amount of detail work have been carried out at Tukurua and at the Onekaka Centre and South ridges which rise to an elevation of over 2,300 feet.

The work has now proceeded to the stage where a definite assurance can be given that the ore deposits are adequate to meet the requirements of the steel-making programme proposed. This assurance is based on a general examination of the entire area, study of all the tunnels which have been driven, the analytical data derived from the samples taken and on general experience with deposits of similar type in other parts of the world.

In preparing the estimates of ore reserves, two classifications have been made,—ore which is “assured” by the surface indications correlated with the tunnels driven, and “probable” ore based on the position of the tunnels, local indications and general experience.

IRON ORE RESERVES.

The amount and quality of ore in the various blocks are estimated as follows, together with the proportion of iron sand concentrate recommended to be used in the blast furnace.

Estimate of Iron Ore Reserves.

Area.	Average Iron Content.	Assured Ore.	Probable Ore.
	%	Tons.	Tons.
Rinonui	48·0	6,079,000	1,500,000
Rinopai	42·5	1,000,000	..
Onekaka North	34·0	1,100,000	100,000
Onekaka Centre	34·5	590,000	} Not sufficient data available.
Onekaka South	33·6	3,300,000	
Tukurua	37·0	1,000,000	
Iron ore	42	13,069,000	1,600,000
Proportion of Iron Sand Concentrate	55	3,267,000	400,000
Total Iron-bearing Materials	..	16,336,000	2,000,000

The average iron content stated above does not represent the quality of the ore itself but is representative of the ore and the foreign material which is associated with the ore, and as allowance has been made for this associated mineral in calculating the tonnage of ore, these estimates are definitely conservative. No estimate has been included for the “probable” ore in the Tukurua, Onekaka Centre and South areas, owing to the fact that sufficient work has not been done to give a satisfactory basis for estimation in these blocks, but there is every indication that considerable additional tonnage of ore will be exposed by further work.

Combining the above tonnages with the average iron content of the material in the ground, the metallic iron content of the “assured” reserves of 16,336,000 tons is 7,196,000 tons of iron. The amount of metallic iron required per year is 115,000 tons and on this basis the “assured” ore ensures a life of 62·6 years.

Similarly, the 2,000,000 tons of “probable” ore contain 971,000 tons of metallic iron or a further 8·5 years’ supplies, giving a total reserve equivalent to seventy-one years of manufacturing operation.

LIMESTONE AND DOLOMITE.

Investigations have been made and confirm that there are available large quantities of these materials of good quality on the Tukurua stream, near the Parapara river, Mount Burnett, and near Takaka. No difficulties should be experienced in securing the required supplies.

LOCATION OF THE STEEL WORKS.

The establishment of adequate reserves of iron ore, limestone and dolomite in the neighbourhood, confirm the previous recommendation that the steel works should be erected as near the ore-body as possible and therefore on the coast at Onekaka. The principal factor in making this recommendation is the cost of assembling the raw materials required for the manufacturing process.

The Westport district does not possess the necessary reserves of suitable coal to supply all the coal required, and as a result, freight charges would be incurred in the assembly of coal, ore, and dolomite. In addition, Westport would be less favourable for the distribution of the various products to market.

Greymouth has the definite disadvantage of its difficult harbour conditions and the handicap of the port being unusable for an average seventy days per year, as well as its unfavourable position for the market.

With the steel works established in Wellington, the freight charges will be increased by the greater distance over which the coal must be carried from the West Coast, and by the loading costs, freight charges from Onekaka to Wellington, harbour dues and unloading charges, on the whole of the iron ore, dolomite and limestone required. These materials, apart from coal, will amount to about 300,000 tons per year which at a freight and handling cost of 5/- per ton, represents an annual charge of £75,000.