

NEW ZEALAND STEEL WATER MATTERS

Steelmaking, using the black ironsands of the West Coast of New Zealand's North Island, has been present on the banks of the Waiuku Estuary for over 50 years. Today, New Zealand Steel operates as the world's only producer of steel manufactured from ironsand, and is the largest single manufacturing site in Franklin employing over 1200 people.

Over the next few editions of the West Franklin Breeze, we will be taking a closer look at the steel mill and its environmental position within the community.

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This month we focus on water, where it is sourced, how it is used, how it is returned back into the environment, and the sustainability around these points of interest.

Much of the water used in the steelmaking and finishing processes is drawn from the Waikato River, 18 kilometres away. River water is supplemented by the large volume of stormwater collected from across the industrial site.

Water is extracted at a point on the Waikato River about 14 kilometres from the river mouth. Approximately 18,000 tonnes of water is extracted daily, representing around 0.06% of the average Waikato River's total flow.

One of the possible results of taking water from the river is the uptake of fish. Avoiding this has been a primary concern for New Zealand Steel, since the installation of the intake in the mid 1980s. As a result, they developed an innovative intake structure, for the mill's river water supply, designed to avoid the uptake of fish. This intake has been situated 300 metres from the river bank to avoid interference with whitebait which tend to swim close to the edge of the river. Water sprays across louvres creating turbulence to avoid larger fish being entrained when the pumps operate. When there is no uptake of water, gates close over the intake pipes so it remains closed off to fish. The company are confident their methods are very successful.

Consulting ecologists and Waikato Regional Council recently confirmed the effects of the Steel mill water take are minimised. At the inside mine a different intake structure is in place, this intake also seeks to avoid the uptake of fish.

The company also respect the cultural and spiritual values of the local tangata whenua, and recognise the significance of taking water from the sacred river for industrial use. The company continues to seek improved understanding and solutions for any issues raised.

It continues to be important to New Zealand Steel also, that any recreational activities on the river remain unaffected by the water uptake system.

Water is vital for both the Glenbrook and the ironsand operations. The transportation of ironsand from the Waikato North Head mine to the Glenbrook Mill, the ironsand concentration

process at the mine, and for the steelmaking processes at the Glenbrook mill.

The transportation of the ironsand requires around 7000 tonnes of water each day. The river water is mixed with ironsand to form a slurry which is then pumped to the Glenbrook mill through an underground pipe.

At the mill, water is used for cleaning waste gases, producing steam in the boilers, cooling, spraying and rinsing product, dust suppression, conveyance of solid wastes and general plant cleaning.

Of the total volume of water in the steel mills water circuits, around two percent is discharged in to the Waiuku Estuary each day. To achieve maximum conservation, water is cleaned, cooled and recirculated many times in each process. Each day around 1 million tonnes of water is in circulation throughout the steel mill processes, with around 18,000 tonnes of fresh water added daily.

The company places importance on returning water used in these processes to the environment in the best possible condition. The water that is released undergoes various types of treatment, so that it will meet the high standards specified in discharge permits issued by council.

The steel mill continues to implement further improvements to its processes which are over and above consent limits.

Three types of waste water need to be managed at the Glenbrook site. These result from the transportation of the ironsand, the steelmaking and finishing processes, and stormwater collected from the industrial site. With appropriate treatment 98 percent of the water is reused or recirculated.

Water from the ironsand slurry transport must be treated with a settling agent to remove clay minerals. The cleaned water is then drawn off and discharged to a nearby drain before then discharging into the Waiuku estuary.

Stormwater from the Glenbrook site is captured in large settling ponds, where solid material that is collected as water flows over roads, through yards and stockpile areas and is able to settle. By the time the water travels through the large ponds it is clean enough to discharge into the Waiuku estuary or recycled



back into the mill water circuits.

New Zealand Steel's environment management system places great importance on its commitment to minimise any effects of taking or discharging water, as well as controlling the use of water. In order to fulfil this commitment, the company employs a rigorous monitoring programme.

This programme includes the use of daily grab sampling, flow proportional composite sampling, biological monitoring, and continuous turbidity sampling.

Regular reports are sent to the council on the findings of these samples, with the inclusion of independent environment consultants.

For the main continuous discharges, water is tested daily for temperature, pH, suspended solids and dissolved oxygen. Weekly tests are taken for oils, iron, zinc, chrome, lead and nickel. Discharge water quality standards are specified in the resource consents held by New Zealand Steel.

Monitoring of metal in sediment and shellfish is undertaken in the estuary where the mills wastewater discharges. Independent biological consultants sample this area to ensure marine life is not being adversely affected and is safe for food collection.

The council also conducts surveys in the Waiuku Estuary and the Wider Manukau Harbour.

New Zealand Steel has demonstrated its commitment to the environment by implementing a formal Environmental Management System, providing a structured process to monitor and improve its environmental performance. External auditors annually audit the company's management systems to check its health and review the company's process for continual improvement and risk management. This in turn has many benefits for the environment, the community and the company's reputation as a responsible commercial organisation.