IMPROVING QUALITY OF CAST PRODUCTS AND ENHANCING ENERGY EFFICIENCY OF COLD BLAST CUPOLA AT GOVERNMENT FACTORY

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Degree of Master of Science

Department of Material Science and Engineering

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Report Submitted in Fulfillment of the Requirements of the

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DECLARATION

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Eng. S.P.Guluvita.

Name of the Supervisor

ABSTRACT

The conventional blast cupola in Sri Lanka is faced with new challenges such as how to minimize the energy consumption and economically produce good cast iron product with available resources.

The important factor for economical and trouble free operation of the cupola is refractory repair. The selection of refractory and repair work should be carried out adhering to the described procedure and with trained personnel. Energy efficiency of the cupola can be improved by oxygen enrichment and correct cupola selection for refurbishing. Unlike several capital- intensive options, oxygen is a flexible tool requiring a minimal capital investment and the operating cost.

Oxygen enrichment through tuyre injection system can reduce the coke consumption, increase melt rate, reduce raw material cost, recycle environmental hazard waste and reduce the emission of flue gases. The proper selection of refractory bricks for each zones of cupola minimized the operational cost, maintenance cost and increased the capacity of cupola.

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