



LIME MASTER LIMITED

Recovery and Reuse of Washing Water at Vibrating Screen through Installation of Concrete Ponds and Gutters (partially implemented)

SUMMARY OF THE OPTION

Lime Master Co Ltd is located in Saraburi, Thailand and produces 99,000 tons of lime per year. If the limestone used to produce lime is clean then this could save energy in the production process. For this reason, water is used to remove sand and dirt from limestone before it is conveyed to the kiln. Forty-two water jet nozzles, installed at the top of each of the two vibrating screens, spray water on the limestone while they are being sized. A 24-hours operating vibrating screen consumes >14,700 m³ of water per year, so a total of >29,400 m³ water is used per year in total. One cubic meter of water costs the company around US\$ 0.16, which includes electricity cost for pumping water from a deep well, water costs, and cost for transporting water to the plant with a water-tank truck. The company therefore pays > US\$ 4,680 for water per year.

The Team noticed that approximately 50% of water used in the washing process is discharged on the ground and spreads across the working area like a swamp. This water could be recovered through the construction of ponds and gutters and reused in the limestone washing process. Investment costs are estimated at US\$ 4,250. Potential annual savings are up to US\$ 2,340 for water costs, 14,700 m³ of water, 11,170 kWh electricity, and almost seven tons of CO₂ emissions. The estimated payback period is 2.3 years.

This option was implemented partially. A concrete pond was constructed and used as a reservoir for storing discharged washing water from vibrating-screen. However, the design of the pond was not ideal and therefore only part of the water is recovered at present:

- Water enters the pond through circular holes in the vertical walls of a pond, and therefore most water does not enter the pond. Holes should be made in the slant surfaces attached to walls of the pond to capture water more effectively.
- Gutters are still to be put in place, and therefore some water still spreads across the working area
- A water pump is used to lift recovered water back for reuse in the washing nozzles. However, this pump has to be cleaned frequently because the pond is not designed to filter out thick sediments, which now enter the pump with the recovered water.

The company has plans to renovate the complete working area including the modification of the concrete pond and the construction of gutters. However, this renovation is delayed due to the construction of the company's third production plant. As a result, financial and environmental benefits after implementation of this option could not be determined yet.

KEY WORDS

Cement, Thailand, Water Recovery



FOR MORE INFORMATION

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