



Brightwater

# PROJECT REPORT

## Laminex MDF Plant

Gympie, Queensland Australia  
2008



TURNKEY SOLUTION PROVIDERS TO INDUSTRY

CONCEPT



DESIGN



MANUFACTURE



INSTALL



COMMISSION



OPERATE



## The Situation

Laminex MDF plant near Gympie, Queensland Australia, required the replacement of their existing G1 Heat Energy Plant, which has been in production over 20 years. The new heat energy plant had to be engineered to have a design life of 20 years, and would require being in production 360 days a year, 24 hours a day, with a target uptime of 99%.

The plant would required to be designed with the future in mind, as Laminex expect to upgrade their existing Press Line in the future to generate more output production capacity.

The main design parameters were:

- Thermal Oil at 270°C with a capacity of 14.3MW
- Flue Gas at 400°C with a capacity of 10.4MW  
Equaling a total firing capacity of 24MW
- Dust emission level: maximum 120 mg/Nm<sup>3</sup> based on 12% O<sub>2</sub>

## The Solution

During negotiations between Laminex and Brightwater, a Metso Panel Board Heat Energy Plant was agreed. Metso have a long history of designing efficient Heat Plant throughout the world from the extreme cold of Poland to the tropical warm South America.

Brightwater were selected as the main contractor for the project and overseen and managed the design, fabrication and installation of the Heat Energy Plant.

Brightwater fabricated a number of the design critical and technical equipment, such as the thermal oil piping, fuel push floor, fuel feed conveyor and ash / slag conveyor. The other items were sub-contracted out to optimize time and logistics.

Brightwater for the first time used a fabrication workshop in Vietnam. Lilima 18 was chosen from a number of companies, based on there fabrication expertise, workshop capacity and availability. Brightwater located a Project Manager from our Nelson office to oversee the progress and workmanship. Although there were a few problems with this first venture into Vietnam fabrication supply we have gained a lot of experience and expect future ventures in the region.

Brightwater also utilised a number of local companies within the North Brisbane area to provide labour and expertise in a number of areas.

One of the most critical aspects of this plant is the refractory lining inside the heat plant. The main concept design was Metso, however Total Refractory Management from Brisbane carried out the detail design and installation. This included the very important initial heat up schedule, which is critical to the long life of the refractory and ultimately the heat plant.

Brightwater contracted Meo Engineering from Auckland to design and install the electrical and SCADA systems on site. There had to be close communications between Brightwater, Metso and Meo to ensure that we delivered what our client required.



## The Benefits

Due to the constraints of the existing Press Line the new heat energy plant is currently operating at a reduced “turned down” capacity, and still obtains a high level of efficiency. Once Laminex upgrades the G1 Press Line, the heat plant can be re-configured to increase the output and increase the efficiency of the plant further.

The heat energy plant is designed to ensure compliance with the local environmental regulation which formed part of the handover testing. Being as efficient as it is, the plant recorded lower than expected readings and well within the regulations required, even though it was not running at the optimum output capacity.

Brightwater was successful in completing this project, by using its experience in the MDF industry and working hard with its project partners to achieve its goals.

## The Challenges

One of the main challenges of the construction was the tight space constraints within the construction site. The site was situated between the existing G1 Heat Energy Plant and the MDF’s 33KVA transformer switch

yard. This location had a large impact on the amount of crange and works areas available during construction. A strategy was put in place to utilise the crange as efficiently as possible. The Heat Plant was mainly constructed by utilising a 15 tonne Franna and a 65 tonne hydraulic slew crane. The main objective was to construct the new Heat Plant without disrupting the existing heat plant and ensuring the safety of all site staff when working in the confines of the small construction site. Stringent Health and Safety measures were implemented to ensure the safety of all workers working in the construction site to ensure that the dangers of working next to a 33KVA switch yard and an operational heat plant were managed to an acceptable level. During the project there were no Lost Time Injuries.

Another challenge was the “change over”. Laminex required that the existing heat energy plant had to continue producing throughout the construction, until a pre-determined date. At that point Brightwater would have 9 days during a planned maintenance shutdown to disconnect the existing heat plant’s flue gas ducting; thermal oil and sander dust lines and connect the new heat energy plant. The time scales was tight, however Brightwater achieved this with good planning and co-ordination between all contractors and our client.



# Main Project Contractors

*Meo Engineering:*

Electrical design and installation

*Babbage Consultants:*

Structural and thermal piping design

*Metso Panelboard:*

Heat energy plant design, propriety equipment supply and start up supervision

*Saunders and Ward:*

Structural steel fabrication

*Masters Engineering:*

Installation labour

*Lilima 18:*

Vietnam fabrication

*Cooloola Crane Hire:*

Cranage

*Bellis Contracting Services:*

Cladding and insulation

*Total Refractory Management:* Refractory design and installation

*Asset Management Inspection Services:*

Third party inspections



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