cutting edge technology at work

Service and Maintenance Program

LAKESIDE
COOLING TOWERS
(AUSTRALASIA) PTY LTD
ABN 40 054 793 216

ESTABLISHED 1958

LAKESIDE PROVIDES A NEW SERVICE

Lakeside Cooling Towers now provides a new service to the industry!

Due to many recent cooling tower inquiries encompassing every possible users & including the mining and power industries we have decided to provide our clients with a new service.
We can assist with the sizing of cooling towers required for each process as well as general ancillaries required.
In addition Assessment of cooling capacities and the potential for upgrading of the existing facilities to allow additional loads.
Lakeside has been involved with many projects that required upgrading of process requirements without the replacement or addition of cooling towers.

- As an O.E.M. (original equipment manufacturer) we are able to create a world class product in the design and manufacture of cooling towers.

The picture above shows a typical result of our design and manufacturing success. On the left it shows a typical old design cooling tower that is replaced by Lakeside's designed cooling tower that is 1/8th in size and consumes a proportional reduction in energy. This installation provides the necessary cooling for Dubai Aluminium's die casting plant.
Through thorough testing, enhancing and continuous improvement we are able to consistently achieve world class efficiencies and performance entailing modularity expansion, extension and usage of space requirement as well as ensuring continuity of process work.

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In 2010, Rio Tinto needed to expand their aluminium production on Boyne Island, Queensland. They had existing cooling towers that Lakeside had previously installed in 1996. They requested information about refurbishing these as well as increasing the capacity without necessarily increasing the footprint and existing facilities. Lakeside undertook the calculations and put forward a proposal including an estimate of costs, required labour and materials to complete the project within the specified shut down period (i.e. one month). Production capacity was increased by 30% and the overall project came in well under budget.

- We have successfully produced and refurbished cooling towers to meet each of our clients' unique requirements. We have serviced, maintained and built excellent relations with all our clients for many years and continue to enjoy excellent relationships and are well known and highly regarded by all key stakeholders within this group.

Standards Australia valued our expertise in the industry and invited us to assist them in setting up the Australian Standards for cooling towers, now known as the ASNZ3666.

In 2000 Santos was experiencing problems with their Flash Evaporator operations and sought a cooling tower that resolved these issues. Lakeside undertook the complete new design of a new type of cooling tower heat exchange medium to facilitate this.

The testimonial shown on the next page details this successful outcome.

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Production

The Santos raw gas gathering network system in the SA Cooper and Eromanga Basins consists of approximately 440 operating gas wells, feeding into 13 gas satellite facilities, which are connected into the Moomba Processing Plant through 9 separate trunklines. One of these trunklines provides gas supply from the Ballera Plant in South-West Queensland to the Moomba Plant.

Water

Water is essential to Santos operations. Water is required for:
Steam generation. Process requirements.
Domestic purposes for Cooper Basin Camps.These various users require water of various qualities. Domestic water requires water suitable for human consumption. Steam generation and some process facilities (eg.'Benfield' solution) require water of a far higher quality.Raw water is provided by an above ground pipeline from artesian bores at Gidgealpa, 27kilometres north-west of the Moomba camp. This water is purified, according to its end use,by various systems including: Reverse Osmosis.& Flash Evaporation.

In 1970 Lakeside Cooling Towers supplied Santos with Flash Evaporator cooling towers for their Moomba Gasfields in South Australia.
The original 700 DF series towers supplied to these Gasfields by Lakeside were the timber crossflow cooling towers and have been in operation for 30 years.
These timber cooling towers performed their heat rejection of Flash Evaporators; however due to the high minerals content of the water and its build up, the timber fill (heat exchange medium) in these cooling towers was being replaced on a regular basis.
By the year 2000 Santos has operated in the Cooper Basin region for over thirty years. Santos is committed to continually improving its environmental performance and uses the principals of ecologically sustainable development to guide its environmental programs. It also aims to achieve standards of environmental management which are beyond compliance with relevant regulations to ensure that all of its activities are carried out in the most environmentally responsible manner practicable.
With these targets in mind, Santos approached Lakeside Cooling Towers and inquired as to an alternative to the timber cooling towers that would be easier to maintain in compliance with the health and safety guidelines as well as provide a better and more efficient alternative to their 30 year old cooling towers.
Lakeside designed new galvanized steel cooling tower frame with a 316 stainless steel heat exchange medium that would last many years and detract from the minerals build up.
The upshot was a highly efficient maintainable cooling tower that reduces energy consumption and provides for an Occupational Health and Safety advantage.

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Steam Generating Capability

The total steam generating capacity at the Moomba plant is 430 tonne/hr (MCR) of high pressure(HP) steam. The normal operating demand for steam is about 300 tonne/hr (Summer) and 380 tonne/hr (Winter). Given reliable operations, the steam generators are capable of satisfying year-round steam requirements.

However, due to historical unreliable performance of the steam generators, considerable review and effort has recently been directed at the Moomba steam generation reliability and capacity.

The main reasons for poor reliability have been identified as:

- Unacceptable Boiler Feed Water (BFW) quality excursions.
- Resultant internal fouling and damage to steam generators and in particular No. 10 Boiler.

To address these issues the following actions have been implemented:

- Installation of a new Reverse Osmosis (RO) water plant.
- Tighter quality testing and control of BFW and condensate return quality.
- Extensive overhaul of No. 10 Boiler including:
  Complete replacement of screen and sloping wall tubes, replacement of 6 superheater tubes, comprehensive acid clean, independent inspection before and after the acid clean.
- Replacement of shells on Nos. 3, 4 and 5 Flash Evaporator plants.
- Modifications to prevent contamination of condensate returns.
- Replacement of superheaters in Nos. 4 & 6 Boilers.
- Retubing of the Dump Condensers.,Elimination of Deaerator bypassing.

In the year 2000 Santos purchased the 3 newly purpose designed Lakeside Cooling Towers for their Nos. 3, 4 and 5 Flash Evaporator plants.

Following the overhaul of No. 10 Boiler, it was inspected in January 2001 and found to be in good condition after 12 months of reliable operation and confirming that the new design of Lakeside Cooling Towers is performing in accordance with Santos's requirements.

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