



PROJECT SHEET

Water Desalination Plant

The Carnot Group supported an Australian company in the design of a 1.5 megalitre per day water desalination plant. The system purifies water from a coal mine enabling its re-use or safe discharge back into the environment. The design was based upon 'falling film evaporator technology.' Carnot also set up the quality assurance system, operating and maintenance schedules and costs and advised the Board on technical and project financial matters. The team was made up of mechanical engineers all experienced with process and equipment development.

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outcomes, for a diversity of
clients across multiple industries.**

PLANT DESIGN

The important factors in the design of this plant were the highly corrosive nature of the feed water, the drying and removal from site of the salts and tight capital and operating costs constraints.

The operation of the evaporator was optimised with strong reference to fundamental heat transfer and fluid dynamics.

The following indicate some of the important tasks undertaken:

- » Heat and mass balances for the full plant
- » System PFD, P&ID and modes of operation
- » Modelling the performance of the evaporator
- » Material selection
- » Process control
- » Interaction with suppliers of equipment
- » Operational cost schedule
- » Maintenance cost schedule
- » Capital cost estimates
- » Risk assessment
- » Establishment of QA and document control systems

For more information visit carnot.com.au

Phone +61 3 9013 9397
Mobile +61 408 108 018
Email nwoodman@carnot.com.au

