

# Ammonia fertiliser plant

**WMC Fertilisers, Phosphate Hill, Australia**

**(now owned by Incitec Pivot Fertilisers)**

RE provided the complete refrigeration requirements for ammonia liquefaction and storage for a new greenfield ammonium phosphate fertiliser plant, built adjacent to a rich deposit of phosphate rock. Ammonia is made on site, sulphuric acid is brought in by rail from a nearby copper smelter, reacted with the phosphate rock to produce phosphoric acid, which is combined with the ammonia to produce ammonium phosphate and then formed into granules and dried. It is one of the most remote chemical plants anywhere in the world, as the nearest city of more than 200 000 people is over 1500 km away. This remote location means high reliability and simple, minimal maintenance are essential.

RE delivered a system for liquefaction of the produced ammonia, plus reliquefaction of the boiloff from the storage tank. It must cope with wide and rapid load swings, as the produced ammonia can be fully used directly in production so no liquefaction load, then suddenly switched to 100% storage due to unplanned shutdown of the granulation plant.

- Three Mycom 320L compressors, each in 1 x 100% duty.
  - Cooling duties
  - 5840 kW at +4°C
  - 3180 kW at -5°C
  - 1278 kW at -33°C
- Separate Mycom 160S standby boiloff compressor
- Compressor drive motors up to 2900 kW
- Oil carryover measured <5 ppm
- Ammonia condenser, accumulators and flash drums
- Non-condensables purge, purge gas chiller and water wash systems

Since original commissioning, RE has continued to provide key staff for compressor overhaul during the scheduled three-yearly shutdowns, and to support the site operators during recommissioning after the shutdowns.



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