Dominion Salt - Mount Maunganui, NZ
Salt Refinery Crystallization System Expansion

Demand for Dominion Salt’s high-purity, sodium chloride products for their rapidly growing markets was pushing production at full capacity around the clock, only stopping for planned maintenance shutdowns.

A driving factor for this increased production is the growing demand for pure, pharmaceutical-grade salt in the Pacific Rim, Southeast Asia, and South America. The applications for this salt include saline drips for injection, haemodialysis, eye washes, and contact lens solutions.

Production of pharmaceutical salt requires certifications according to strict manufacturing processes and quality guidelines to European, British and United States Pharmacopoeia.

The capacity of Dominion Salt’s existing vacuum evaporation system used to produce purified salt was reaching its limit. This system was originally installed in 1972 by HPD and was rated at approximately five tonnes per hour of production. In order for Dominion Salt to expand the overall production of their certified pharmaceutical salt production while maintaining supply to their other core markets, a capacity expansion would be required.
Plant Expansion
Increased Efficiency & Process Integration

Upon deciding that a capacity expansion was necessary to satisfy customer demand, Dominion Salt contracted HPD once again to upgrade the salt plant. Dominion Salt would increase capacity from 5.2 tonnes per hour to 9.6 tonnes per hour production using the latest available salt crystallization technology.

The process and design objectives for the new crystallization system included:
- Reliable production of high-quality salt using the existing system to the extent possible.
- Integration of a new salt crystallization section of the plant while maintaining integrity of the established, certified, pharmaceutical grade production processes.
- Increase total salt production without increasing steam consumption.

A difficult aspect of the new crystallization equipment design was the integration of the expanded system with the original plant. The certified process for producing pharmaceutical salt must be strictly maintained while integrating the new capacity.

Another challenging element of the project was the limitation of steam consumption. Due to constraints of steam generation on site, the increased plant capacity had to rely on existing steam volumes.

The Results

The two, new salt crystallizers were successfully installed at Dominion Salt. The Vacuum Salt plant was completed and started up in 2010.

The design maintained the certified pharmaceutical process for the current production line originally started up in 1973.

Including the capacity expansion, steam consumption efficiency at the plant improved by 60% for each tonne of salt produced.

The original system, after nearly four decades of service, continues to operate well. The original plant operator at Dominion Salt and the Process Designer at HPD also worked on the expansion.

“...expansion of our plant was necessary, we called HPD. Based on the continuous, reliable operation of the original system they supplied, we wanted the level of expertise HPD provides that is crucial to our production and quality requirements.”
- Robin Goldsack
Chief Executive
Dominion Salt

New salt crystallization equipment installed at Dominion Salt as part of the Vacuum Salt plant expansion.