Nanofiltration coupled with Thermal Desalination for Very High Salinity systems

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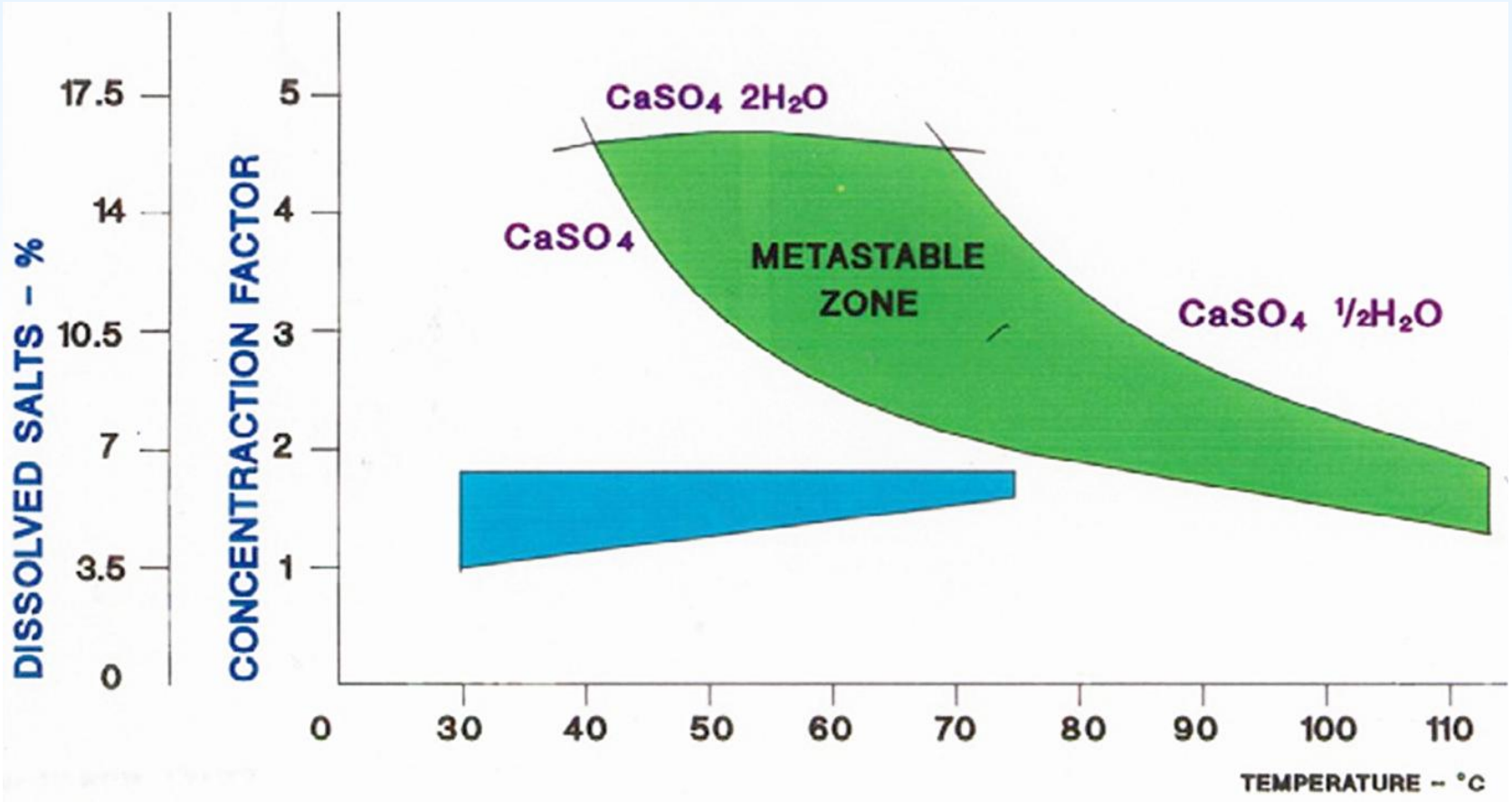
Salinity a barrier in desalination

- Beyond 50,000 ppm salinity
- Reverse Osmosis hits a barrier due to Osmotic Pressure Limits
- Thermal Units have scale problems
- Crystallizers work but at a very heavy energy price

Sulfate scaling



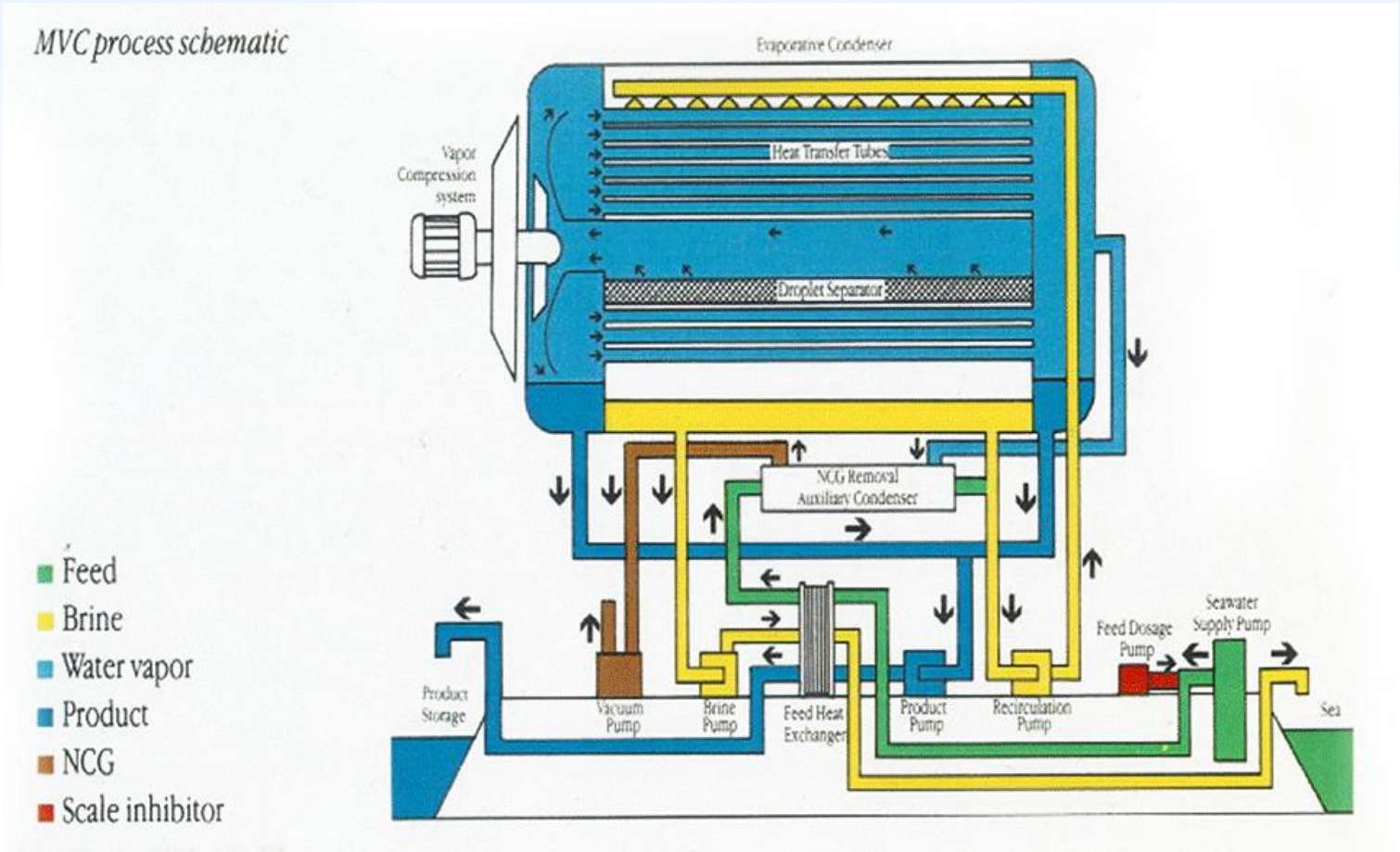
The industry needs high salinity desalination solution

- Formation water from reservoirs in oilfields
- Reject brines from desalination processes
- Saline rejects/ Effluents from industries
- Injection waters into Oil reservoirs for Pressure Maintenance

Designed Pilot Solution

- Salinity >70,000 ppm from saline water well in Emirates
- Proprietary AquaSwiss, LT 3 effect Mechanical Vapour Compression Unit
- Patented LET Nanofiltration technology coupled with MVC to remove selectively the SO_4– and other scaling ions

MVC- unit



Results

- Product water at 5ppm salinity
- Expected recovery factor 55 to 60%
- Cost of water production ~ $1/ m3 for 1000 m3/ day
  - (including electricity costs)
  - Over a warranted 20 year life-span of the desalination units
- Scalable to bigger sizes and lower per m3 production costs

Summary

- Unique and Cost effective desalination solution for high salinity solution
- Opens up new doors for saline waters produced from reservoirs
- Gives a tool to the environmental agencies to turn a disposable hazard into potable water
- Long lasting, low maintenance and robust