



DAIRY WASTE WATER MANAGEMENT SYSTEM

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TEC Square designs its processes to avoid waste water where possible. Why generate waste water when it can be avoided? With the right project design, planning and project execution, TEC Square reduces waste water liquid and BOD considerably, requiring a relatively small investment.

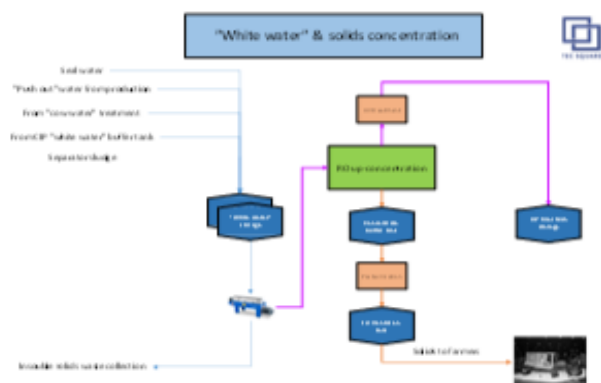
Our plants use less water, and a TEC Square operation with evaporation will actually generate excess water at a low milk intake. For dairy plants without evaporation we come close to “zero” water consumption.

Our philosophy is to dedicate additional investment in processing equipment to avoid generating waste stream. This additional investment will be largely compensated by:

- ◆ Less investment in a waste water treatment plant.
- ◆ Lower operational costs (waste water discharge, solids recovery and water reuse)

DAIRY WASTE WATER MANAGEMENT — KEY POINTS

- We can collect more than 90% waste solids, and turn them into animal food
- Less investment in waste water treatment



Waste reduction: Recovery of cow water

SPECIFICATIONS AND ADVANTAGES

	TEC Square Dairy Waste Water System	Advantages
Water Management	<p>TEC Square believes that engineering is done correctly when unnecessary waste is avoided.</p> <p>We prefer to invest in technology to avoid waste, rather than treating waste.</p>	<p>This philosophy has a huge advantages:</p> <ul style="list-style-type: none"> ◆ Less water purchase required. ◆ Allows for concentrated waste generation that can be reused in animal feed solutions. ◆ Fewer uncontrolled outlets. ◆ The use of early warning systems allows for effective implementation.
Waste Water Management	<p>We aim to create 3 waste streams:</p> <ul style="list-style-type: none"> ◆ Insoluble solids ◆ Soluble solids at about 10 to 20% concentration ◆ Water 	<ul style="list-style-type: none"> • Water can be reused 100% as process water
"Cow" Water Recuperation (from Evaporation plants)	<p>TEC Square uses "cow" water as:</p> <ul style="list-style-type: none"> ◆ Pre-flush for CIP. ◆ Excess "cow" water is polished in an RO system and re-used. The retentate will go to the "white water" plant for further treatment and concentration 	<ul style="list-style-type: none"> ◆ Less water purchase required. ◆ Treated cow water can be used as process water. ◆ Excess water can be discharged without further treatment.
Solids Recovery	<p>Solids contained in the water are recuperated from the following sources:</p> <ul style="list-style-type: none"> ◆ Sludge from separators ◆ "Cow" water RO retentate (evaporator only) ◆ Push out water (Start-up) ◆ Seal water ◆ CIP pre-flush <p>Solids are separated by a filtration system, and go to a fermentation system for animal feed processing.</p>	<ul style="list-style-type: none"> ◆ All low TS liquid streams are recuperated in 1 system and treated as one. ◆ Less BOD in waste water. ◆ Less water purchase required.

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