Re-use of Treated Waste Water

Bonlac Foods has recently completed construction of a **Wholemilk Powder Processing Plant** in Darnum, Victoria. **RAINMAN** was the chosen automated irrigation control system for the re-use of treated waste water from the plant. **RAINMAN** uses a sophisticated SCADA telemetry system to control, monitor and communicate to various instrumentation within the processing plant and surrounding irrigation areas.

Wastewater generated at the dairy factory is treated in 2 treatment lagoons and transferred to a system of storage lagoons. Aeration in the treatment lagoons is monitored and controlled so that the water quality is fit for discharge. Treated wastewater will be removed from the bottom of storage lagoon S1 and disposed of by irrigation on adjacent lands using a pumping plant.

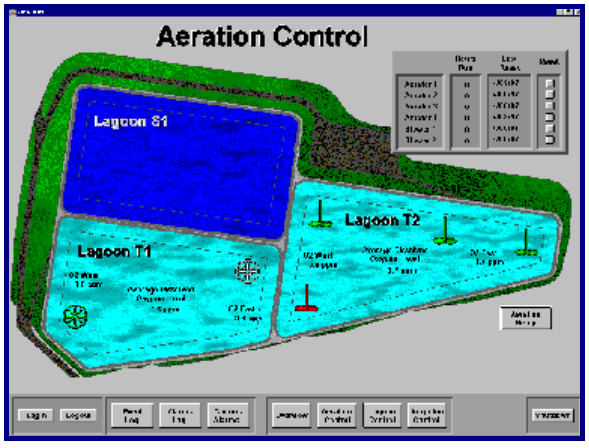
Excess wastewater will be pumped from lagoon S1 to an upper lagoon S2 and then returned to S1 via intermediate storage lagoons S3 and S4 when capacity becomes available. **RAINMAN** monitors the level in S1 and maximises the amount of water discharged to irrigation based on:

- the amount of water in storage
- daily waste volume continuously discharged from the factory
- available area for irrigation
- soil conditions
- weather conditions (eg. evapotransporation)
- seasons of the year, etc.

RAINMAN:

- collects information from instrumentation, sensors, main switchboard, motor starting equipment
- outputs control signals to solenoid pilot valves, motor control centre, field devices
- facilitates operation, manual and automatic regulatory control of aeration, transfer pumps
- manages the automatic disposal of wastewater by the land irrigation system equipment
- monitors, collects and stores data for trending and reports

Weather monitoring equipment is used to ensure irrigation only occurs when the wind speed and direction are within certain levels. Neighbouring farms and environmental guidelines make sure these conditions are met. **RAINMAN** accepts this data direct and makes irrigation decisions based on weather conditions and amounts of water in the lagoons, to ensure irrigation is maximised and the treated wastewater is disposed of correctly.



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Bonlac Foods, Darnum, Victoria