

GRAVITY DRUM FILTER CASE STUDIES



1. Poultry Abattoir – Victoria



Annual wastewater disposal fees were in excess of \$145,000 per month due to poultry fats loads in release water.

A DAF System was in place and was overloaded. Adjustments to the existing DAF system and the introduction of two Gravity Drum Filters with different filtration mesh sizes resulted in considerable poultry fat capture through separation of fats and solids from the wastewater. Screen wash mechanisms were adjusted accordingly to suit specific requirements.

The twin Gravity Drum Screen system is shown on the left. Annual wastewater disposal fee has been reduced to less than \$50,000 per month.

2. Power Station Coal Stockpile



The coal stockpile fines were accumulating rapidly and creating potential release issues due to overflowing. Two rotary drum screens were installed to recover the fines for reuse and alleviate the problem of rapid build up on site.

3. Coal Seam Gas - Exploration Well under Development April 2014



Problem:

Exploration drilling for Coal Seam Gas requires rapid return of clean water for drilling inclusive of additives. Currently Cyclones are used and are specified at $2\mu\text{m}$ filters. Actual water quality has inclusions of approximately $8\mu\text{m}$ which is above requirements.

Research & Development Progress:

As can be seen from the photograph above we are able to achieve clean, clean decontaminated water outcomes in initial trial work. This work is ongoing with the development of a process flow which includes the Gravity Drum Filter, Crossflow and Solar Desalination system.

Heavy clays, sands and soil are removed by use of a Flowbox and Gravity Drum Screen. The physical separation of solids and liquids results in the 3 centre section outcomes. The three levels of clarity come from variation in residency time within the CrossFlowAFM. These light cloudiness is not an issue for drilling purposes and is the result of clay fines of less than $0.45\mu\text{m}$ suspended in the water. These settle out over time or with flocculation, however such removal is not required. Starches remain in these waters as required.

The final result to the right in the picture is achieved either allowing for fines to settle then decanting of clean water back through the CrossFlow after decontamination of heavy metals etc. or distillation and desalination using an F Cubed Solar Distillation system. Both clear water recovery processes are too slow for immediate drilling needs, however have strong application in offsite processing of residual water for reuse and top up vs transportation to waste disposal sites or interim storage ponds.