A boon on a pontoon!
Keeping Corowa’s water supply afloat

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Outline

Corowa’s water supply
• project drivers and constraints

Concept development
• selection of pontoon as a concept
• procurement approach

Design features
• Considerations in civil and mechanical design to improve O&M

Design features
• Advantages achieved in construction
About Corowa

An important regional town

- >5,000 population
- agriculture
- industry
About Corowa’s water supply

- Victoria St. Pumping Station (replacement)
- Water Treatment Plant
- Murray River
- Yarrawonga Weir
- Hume Weir

Drought conditions & hot summer coming

Subject to considerable fluctuation in level

60-180 l/s
Pumping station site & environmental constraints

- River level has **substantial fluctuation** (sometimes quickly)
- Riverbank area and river used frequently by public
- Sensitive vegetation
Previous pumping station issues

Constructed 1947 - out of service

Corroded - especially under water

Clogging - settling debri

Rising main & switchroom building OK
Traditional design – riverbank inlet
Alternate design – floating pontoon

- Floating pontoon and gantry moves in arc in sympathy with river level
- 2 mechanical hinge points with UV stabilised rubber bellows on bank
- Constant suction remains clear of river bank at optimised location for NPSHa / debri
Staged procurement

Tendered cost very low compared to traditional design

High level of co-operation throughout DD&C delivery. Initiatives:
- Owner’s engineer involvement
- GC21 co-operative contracting
- Successful teleconferencing though ipad
Suction pipework & pump maintenance
Hydraulic design & pump selection

Care in control philosophy to achieve target flow rates with varying river levels.

Maintain pump efficiency.
Mitigations against current & flood debri
Robust pontoon design

- Modular design for road transport
- Partitions – resistant to puncture / easy maintenance
- Water ballast with adjustable meta-centre
Easily assembled on shore
Drop, connect, fit out
Key lessons learned

Where temporary interruption to a supply is acceptable, pontoon pumping stations offer advantages:

• low cost
• fast construction period
• safe construction
• low environmental impact
• with careful review design, can be a system that is easy to operate and maintain

Questions…..