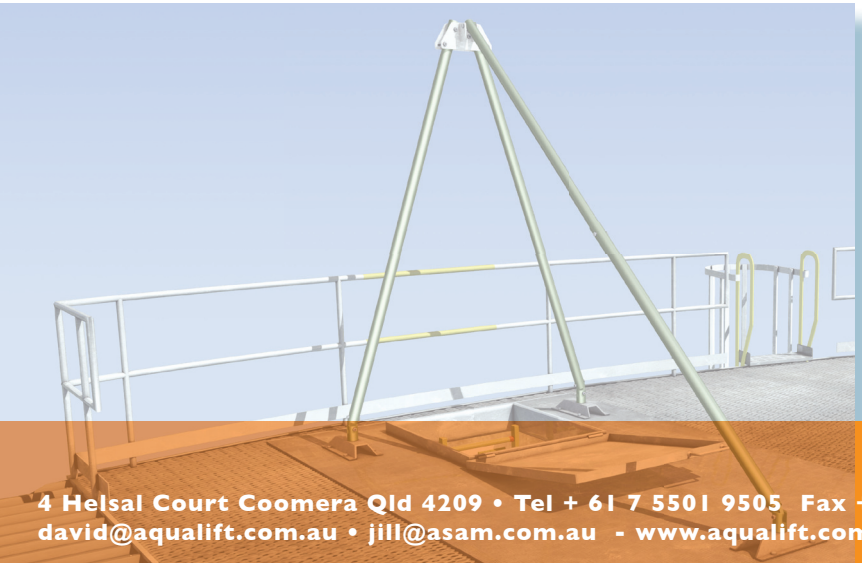
in the field

RESERVOIR DESIGN - ‘Look, Listen and Feel’

In this current environment of cost cutting, it makes good sense for designers and asset owners to leave the office for a few days to ‘look, listen and feel’ and to avoid the cut and paste mentality from past plans and design outcomes. Investigate what is working well and what is failing and only then can we advance and make real gains in asset life, water quality and productivity. The irony of this current trend in the way we are building our reservoir assets, is that many ‘retro designs’ are actually more expensive to build and maintain.

Future Reservoir Design

In the last 15 years, many improvements have been made to tank designs and the correct management of water quality. However with todays rate of staff change overs and retirements, we are witnessing the loss of ‘corporate memory’. This loss of knowledge on our previous design successes and failures is limiting our ability to move forward and to improve on what we have already built.



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Reservoir Design for the Future Generation

4 Helsal Court Coomera Qld 4209 • Tel + 61 7 5501 9505 Fax + 61 7 5501 9506
david@aqualift.com.au • jill@asam.com.au - www.aqualift.com.au

Four significant areas are selected as examples of poor Reservoir design.

1. **Roof material failures** – metal products such as lower quality roofing screws, zincalume type rolled purlins and 'safety mesh' placed under steel roof sheets are showing serious failures in under 10 years. Most reputable manufacturers have provided good information of product suitability, yet this appears to have been ignored in many cases.

2. **Roof drainage systems** incorporating centre box gutters have a proven failure rate due to collapse and leakage issues, but they are now returning due to 'cut and paste' designing from older projects.

3. **The older 'centre pitched' roofing designs** are more expensive to construct and the numerous ridge flashings allow contaminants to accumulate and enter the tank. A roof utilizing full length sheets, combined with a lower pitch angle is better sealed and will allow maintenance tasks to be carried out in a safer manner.

4. **Internal pipe work** that corrodes prematurely due to poor material selection or configurations that disturb sediments or make tank cleaning difficult.


Ridge capping appears to be sealed.


Corroded purlins and safety mesh.

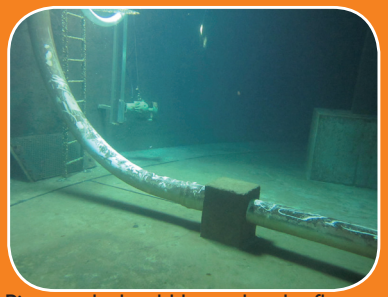

Box gutter blocked and overflowing.


New ductile iron pipework corroding.


Ridge capping debris.


Corroded roof screws and safety mesh.


Box gutter collapsed.


Pipe work should be under the floor.


Centre pitched roof debris.


Roof sheet corrosion from safety mesh below.