

BE WHAT YOU WANT TO BE

WATER PLANNING

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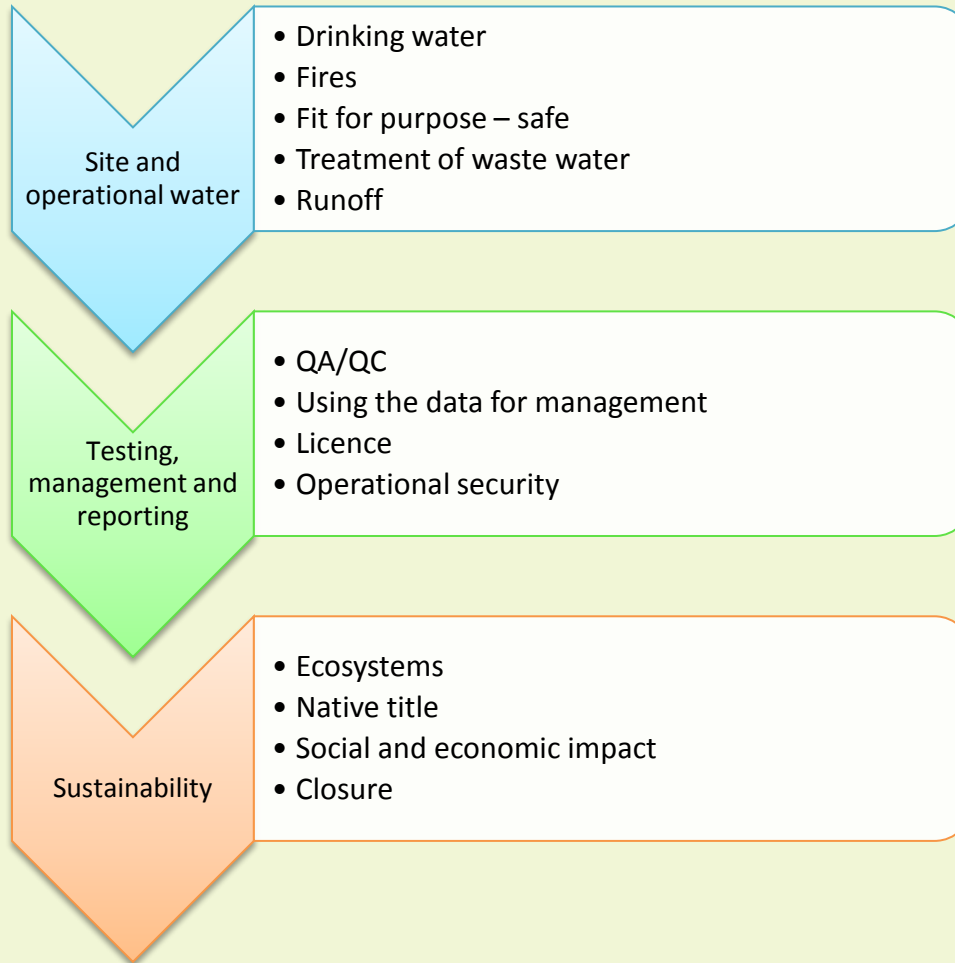
DROUGHT



FLOODING RAINS



AND EVERYTHING IN BETWEEN



EXPLORATION AND CONSTRUCTION

- Supply to workers
- **Baseline water quality data**
- Rocks – acidic – alkaline
- Salt
- Water courses – surface and ground
- Wastewater
- Site runoff

CONSTRUCITON

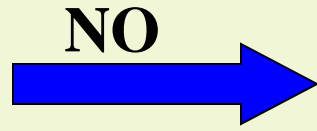
- System design
- Adequate supply
- Dead ends in system
- Warm water – *Legionella*
- Process water – quality
- Drinking water – water treatment/quality
- Emergency supplies

HIGH RISK

REGULAR MONITORING



EFFECTIVE CELL REMOVAL / NO LYSIS



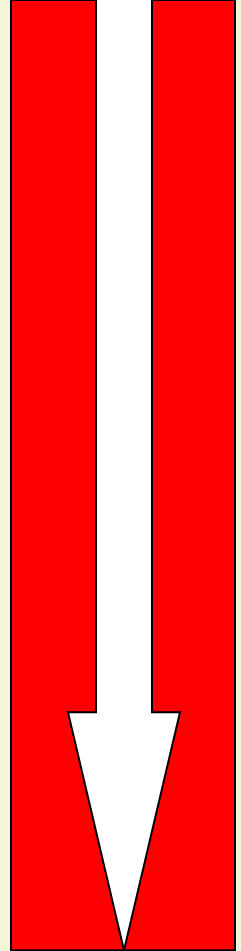
EFFECTIVE TOXIN REMOVAL



COMPETENT CHLORINATION FOR MIC AND CYN



HIGH QUALITY WTP



LOW RISK



From Chorus and Bartrum (1999)

FUNCTIONING MINE

- Supply (too little – too much)
- Water fit for purpose
- Drinking water
- Contact water
- Pit water
- Non-contact water – roads
- Waste water treatment
- Recycling
- Environment – AMD
- Monitoring, data and reporting
- Runoff - Licence

E. coli



Sammon, N.B., Harrower, K.M., Fabbro, L.D., and Reed, R.H. (2009) Green tree frogs: contamination of covered reservoirs in Northern Australia. *Water*(June 2009), 52-56.

Sediment runoff

- Increased vegetation
- Decreased flow
- Increased retention time
- **INCREASED HARDNESS**

AMD



Photos courtesy of R. Howse





Photos courtesy of R. Howse

Alkaline water

- Sulfate reducing dams
 - sulfides - oxidation
- Algal blooms
- Mixing strategies
- Rock types
- Mix with AMD
- Filtration systems - Europe





RELEASED WATER

- Quantity
- Quality
- How long on site?
- Improvement in quality prior to release?
- Monitoring, data and reporting (QA)
- Environmental Authority 😊

REMEDIATION

- Revegetation
- Sediment reduction
- General water quality parameters
- Salinity
- ORP
- Safety
- Other uses - cattle

CLOSURE







THANK YOU-

