

GROUNDWATER & ENVIRONMENT NEWSLETTER

**A QUARTERLY
NEWSLETTER COMPILED
FOR HYDROGEOLOGICAL &
ENVIRONMENTAL
PROFESSIONALS WITHIN
W.A. MINING & RESOURCE
COMPANIES.**

ARD/ASS

Acid rock drainage & acid sulfate soils are naturally occurring rock/sediments/soils containing sulfide minerals, predominantly pyrite.

Below the watertable they remain reduced as potential ASS. Excavation/disturbance of PASS can lead to oxidation generating large amounts of sulfuric acid & mineral leaching releasing toxic acidic metal-rich drainage affecting run-off & groundwater. ARD generation can continue indefinitely from exposed spoil.



Solutions include neutralization, soil covers, re-wetting, and re-burial. Mine management can occur through acid/base accounting & forward planning.

ARD can damage ecosystems, affect concrete & steel pipes, contaminate groundwater and reduce agricultural productivity.

Dewatering Hazards



Pumping in progress

Dewatering without due care and planning may lead to:

- Settlement in adjacent areas
- Sand/ sediment pumping
- Interception of mineralised/ saline/ hot water.
- Excess corrosion/ scouring in dewatering systems
- Lowering of water tables (& bores) used by other parties.
- Impact phreatophyte vegetation and levels in groundwater dependent ecosystems.
- Release turbidity & sediments into surface water bodies.
- Introduce contaminants, such as acidity and metals, into waters used for recreation, agriculture and domestic water supplies.

Just these few outcomes above may lead to a number of

detrimental side effects including deoxygenation of water, toxicity to biota and reduce light penetration to receiving water bodies.

Assessment of impacts & forward planning of dewatering campaigns may be undertaken using computer simulations, including how /where water is discharged and how it can be re-used or disposed of on site.

HydroSolutions Pty Ltd

We are a specialist hydrogeological consultancy providing expert services including investigation, potable & process resource development & dewatering. Our environmental capabilities include contaminated site investigation, remediation and risk assessment - qualitative/quantitative, health, & ecological.

Next issue – Risk Assessment



Know the risks before you commit

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