

# GROUNDWATER & ENVIRONMENT NEWSLETTER

A PERIODIC NEWSLETTER  
COMPILED FOR  
HYDROGEOLOGICAL &  
ENVIRONMENTAL  
PROFESSIONALS IN W.A. MINING  
& RESOURCE COMPANIES

## WATER SOURCE PROTECTION

### Protecting Public Drinking Water Source Areas (PDWSAs)

PDWSAs proclaimed by DoW are areas where stormwater run-off & seepage/ infiltration is stored above/ below ground & used to supply community drinking water needs.

### Water Source Protection Plans

DoW prepares Water Source Protection Plans (WSPP) for PDWSAs which define water source/s (surface/ groundwater), catchment areas, & landuse management within specified priority (1-3) areas:

- P1: source protection is the prime beneficial landuse
- P2: no increased risk of pollution from existing landuse
- P3: risk minimisation to water source from existing landuse/s
- Wellhead Protection Zone (WHPZ): circle radius 500m in P1, 300m in P2 & P3 areas
- Reservoir Protection Zones: 2km from high water mark

Compatible/ incompatible landuses are defined for each zone. E.g. P1 incompatible landuses include animal husbandry, intensive agriculture, waste/ chemical storage & almost all commercial/ industrial development (DoE 2004). Some countries also specify sanitary protection zones as 50 to 60-day 'time of travel' areas to allow die-out of pathogens.



### Source Protection Policy in WA

The Australian Drinking Water Guidelines (NHMRC 2004) outlines a 'catchment to consumer' multiple barrier risk based management approach to the provision, supply & protection of water sources:

- Selection of an appropriate, safe, high quality water source: are alternative source/s within higher natural protective barrier/s available (e.g. confined groundwater)?
- Effective catchment control: what landuse controls are available within the catchment? If none then monitoring is required as a minimum. Are existing landuses compatible with source protection?
- Protection Buffer Zones: define appropriate landuse management areas.
- Risk Assessment: of potential contaminants within the catchment
- Catchment Protection Strategies:
  - Education (of landusers)
  - Surveillance (monitoring)
  - Enforcement: (responsibilities)
  - Emergency response: to specific events (e.g. failure of ADW guidelines/ spillage etc)

- Reporting: management, occurrences/ monitoring etc
- Treatment/ disinfection: requirements & performance monitoring
- Maintenance: e.g. of the distribution/ storage system

### Private Drinking Water Supplies

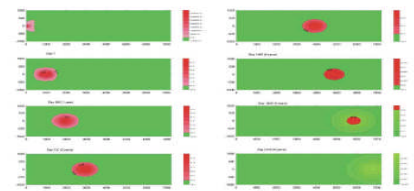
WQPN41 (DoW 2006) provides guidance applicable to rural dwellings, remote communities, mining camps & isolated sites on risks to water sources, waste disposal, options for protection, & quality testing.

**Sources:** Department of Environment & Conservation, Dept of Water, WA, NHMRC 2004

### 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, auditing, remediation & risk assessment - qualitative/ quantitative, health, & ecological.

### Next issue – Monitored Natural Attenuation

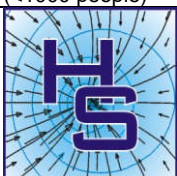


### Out of sight- out of mind?

Visit us at:  
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Broadband NetMeeting conferencing available for remote sites.

### Recommended Minimum Testing for Private Drinking Water Supplies (ADWG, NHMRC 2004, DoW 2006)

Description	Characteristics	Measured parameter	Frequency
Raw Water	Physical	pH, colour, alkalinity, EC, turbidity, algae	Fortnightly
	Chemical	Pesticides	Monthly
		Selected metals	quarterly
	Microbiological	Thermotolerant coliforms	monthly
Treated Water	Radiological	Gross Alpha & Beta activity screening	5 years
	Physical	pH, dissolved oxygen, turbidity, hardness, temperature, algae	daily
		Chemical	Disinfectant residual
	Microbiological	Selected metals, salts	quarterly
Thermo tolerant, coli forms		monthly	
Small water supplies (<1000 people)	Key characteristics	Indicator micro-organisms, Disinfectant residual, pH, Turbidity	"as frequently as possible"



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