

EPA Guidelines

Pollutant management for water well drilling

Updated April 2004¹

EPA 388/04: This guideline provides information on the construction of water wells (permitted under Section 9 of the Water Resources Act 1997) that will enable drilling contractors and their clients to avoid environmental harm, and thereby meet their obligations under the Environment Protection Act 1993 and the Environment Protection (Water Quality) Policy 2003.

Please note: this guideline is not intended for environmental monitoring wells for the assessment or remediation of site contamination. When drilling such wells, waste issues should be managed in accordance with EPA recommendations.

Risk of environmental harm

Well drilling operations, and associated activities such as equipment washdown, generally produce large volumes of wastewater that contain sediments, mud and drilling additives such as stabilisers, cement or fine rocks. You may be causing environmental harm by discharging these wastewaters at high volume directly into waters or onto land where it may enter waters. This is considered an offence under the *Environment Protection Act 1993* (the Act) and the *Environment Protection (Water Quality) Policy 2003* (the Water Quality Policy).

'Waters' are defined by the Water Quality Policy as all surface and underground waters including the water within a public stormwater disposal system or irrigation drainage channel. Waters that are also defined as watercourses include wetlands, lakes, rivers, creeks, and artificial channels or wells, even if they are temporarily dry.

Some groundwater released to the surface as a result of well drilling operations may be highly saline or contain high concentrations of heavy metals. This polluted water should be treated in the same manner as wastewater and not discharged into any waters. High volumes of wastewater must be contained on site and disposed of away from any watercourse.

The potential for polluting watercourses increases significantly if drilling activities, in particular well construction, are undertaken in a high rainfall area, on steep terrain, near a natural watercourse

¹ Now includes reference to the *Environment Protection (Water Quality) Policy 2003*, and to noise levels.



(stream, dam or wetland), or separated from a natural watercourse by saturated soils. Efforts must be made to minimise the potential pollution risk by carefully selecting the best location for the well, taking into account the above factors.

Legislation

The principle legislation dealing with pollution in South Australia is the Environment Protection Act. In particular, Section 25 imposes the general environmental duty on all persons undertaking an activity that may pollute to take all reasonable and practicable measures to prevent or minimise any resulting environmental harm.

The Water Quality Policy offers the most specific protection of the state's waters. It prohibits the pollution of our natural waterways and the stormwater system. The Water Quality Policy has general obligations with which every person, business and industry must comply, as well as specific obligations for particular activities. Failure to comply with any of these obligations may result in a \$300 fine, an Environment Protection Order, and/or prosecution.

Clause 17 of the Water Quality Policy states that a person must not discharge or deposit a pollutant listed in Schedule 4 of the Policy into any waters or onto land where it might enter any waters. The pollutants listed in Schedule 4 that relate to well drilling and associated activities include:

- soil, clay, gravel or sand
- rubbish
- washdown water from cleaning vehicles, plant or equipment
- cleaning agents
- oil, grease, and lubricants
- detergents and their by-products.

Mitigation measures

Lagoons and settling ponds

Wastewater and polluted groundwater can be contained by constructing a temporary lagoon of adequate size, protected from stormwater by banks or drains. The wastewater drained into such a lagoon can be disposed of by evaporation in summer, or thinly spread onto a grassed area where it cannot flow into the stormwater system or a watercourse. Continuous transfer pumping can reduce the size of the lagoon. If this is not possible because of site restrictions or winter rain, the wastewater must be contained and removed to another site approved by the Environment Protection Authority (telephone 8204 2004; fax 8204 9393).

On-site detention ponds suitable for large volumes of wastewater can be used to allow all suspended solids to settle before any clear liquid is released, provided there are no other toxic substances in the solution that have been added during the drilling process – for example, mineral oil, foaming agent or chlorate.

Filtering devices—suitable only for small volumes

Hay bale filters and sedimentation fences can be used to remove suspended solids to reduce turbidity in the receiving waters, but may not be effective in reducing salinity or heavy metals present in any expelled groundwater or wastewater.

Equipment washdown

Drilling rigs and equipment should only be washed down inside a wastewater capture area or on a grassed area free from waterlogging or flooding. The washdown area should be level (less than 5% slope), and not within 50 metres of the bank of any watercourse or naturally occurring sinkhole.

Operators using high-pressure water cleaners should also refer to the EPA Guideline *Pressure water-blasting activities and wastewater management*.

Containment of other residues

All residues generated by the grouting of bore casing should be prevented from entering any waters. Concrete mixers, pumps and equipment must be washed down within the wastewater containment area or at a suitable designed and operated washdown facility. The residues of chlorination and acid must not be allowed to enter a watercourse.

If an operator identifies potential contamination whilst undertaking well drilling, such as odorous, discoloured or stained soil, odorous groundwater, sludge, slag or other wastes, there may be further measures necessary to mitigate the effects than those listed above. Contact the EPA for further information.

Noise controls

Any well drilling operations or activities emitting noise that causes, or is likely to cause, any adverse effect on the amenity value of an area should only take place between 7 a.m. and 6 p.m. Monday to Saturday, or between 9 a.m. and 7 p.m. on Sundays or public holidays.

It is important to ensure that all practicable steps are taken to minimise the adverse effect that the noise may have on the amenity value of an area. This responsibility includes not only the noise emitted from the drill and pumps but also associated noise sources, such as radios or vehicles.

Exemptions and permits to discharge

A permit for discharging wastewaters directly, or indirectly, into a watercourse may be authorised by the relevant catchment water management board and/or the Environment Protection Authority after it has been determined that the discharge meets the water quality criteria for the receiving waters, as set out in the Water Quality Policy.

Currency of these guidelines

These guidelines offer advice to assist with compliance with the general environmental duty and specific environmental policies. They are subject to amendment and any persons relying on the information should check with the EPA to ensure that it is current at any given time.

FURTHER INFORMATION

Legislation

Legislation may be viewed on the Internet at: www.parliament.sa.gov.au/dbsearch/legsearch.htm

Copies of legislation are available for purchase from:

Government Information Centre
Lands Titles Office, 101 Grenfell Street
Adelaide SA 5000

Telephone: 13 23 24
Internet: shop.service.sa.gov.au

For general information please contact:

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