GROUNDWATER QUALITY RESTRICTED USE ZONE

Publication 862

July 2002

Site contamination is reasonably common in Victoria as a legacy of past industrial use and poor waste management practices.

In some cases, the contamination may have seeped down through the soil and rock and affected groundwater. Contamination of groundwater can render it unsuitable for use, or it can affect surface waters where the groundwater discharges to surface water. Contamination of groundwater is relatively common in historical industrial areas (for example, parts of inner Melbourne) and in areas exposed to more diffuse sources (for example, some areas of concentrated use of septic tanks).

Groundwater contamination is of particular concern because it can persist for long periods of time, it can migrate to affect other sites or surface water bodies, and it is typically expensive and time consuming to clean-up.

The *State environment protection policy (Groundwaters of Victoria)* (SEPP) establishes the statutory framework for the prevention and management of contamination of groundwater in Victoria. As part of this the SEPP establishes groundwater quality restricted use zones as a tracking and information tool to be applied when groundwater is not suitable for use due to contamination.

In most cases, contamination of groundwater only affects use of a site where groundwater is abstracted for use.

If management actions are required to make sure that a site is suitable for its use, either a Statement of Environmental Audit (if one has been issued) will make this clear or EPA will have required such action.

WHAT IS THE SIGNIFICANCE OF GROUNDWATER CONTAMINATION?

Groundwater contamination can impact in three ways:

- where groundwater discharges to streams, bays and other surface waters, contamination can affect the ecosystems and beneficial uses in those surface waters, for example swimming;
- contamination of groundwater can affect the land (examples include vapours from petrol contamination of groundwater moving back up through the soil); or
- where a bore or well is installed and groundwater is pumped out for use, for example irrigation of domestic gardens, contamination can make the groundwater unsuitable for that use.

Where EPA is aware of groundwater pollution, it will work to ensure each of these impacts is adequately managed. If a site has been subject to an audit, the

audit will provide reliable information about the condition of groundwater, whether it affects use of the site, and whether there is a need to restrict the use of groundwater.

The significance of groundwater pollution depends on the nature of the contamination, whether people are likely to use groundwater (reflecting individual preferences, land use and the nature of groundwater for example available yield and salinity of the groundwater) and the location and sensitivity of surface waters.

The use of groundwater varies immensely across Victoria. In some areas there is little use of groundwater, either because there is sufficient surface water resources or because of the nature of the aquifers in which groundwater is found. Much of the groundwater in Melbourne's northern and western suburbs, for example, is deep and found in rock and hence it is expensive to install a bore. Further, the water is usually too salty to be used for drinking or garden watering. In other areas, use of groundwater is extensive – some towns are supplied from groundwater, many rural homes have access for garden watering, and groundwater is used to water stock. In the southeast suburbs of Melbourne groundwater is relatively commonly used for domestic garden watering and watering golf courses.

In some cases, contamination may make the groundwater unsuitable for a use which the groundwater would otherwise be suitable for, for example stockwatering, but because of the location, for example an inner urban area, that pollution may not have any practical effect on use of a particular site.

In any case, information will be made available about the condition of groundwater and its suitability for use, enabling people to make their own decision about whether, in practical terms, the pollution of groundwater affects them.

MANAGING AND CLEANING-UP POLLUTED GROUNDWATER

Pollution of groundwater needs to be cleaned-up or otherwise managed. EPA's requirements in relation to the clean-up and management of pollution of groundwater are set out in the Information Bulletin *Clean-up and Management of Pollution of Groundwater* (EPA Publication 840).

In some cases it is not practicable [1] to clean-up groundwater so that the groundwater is suitable for all beneficial uses (within a reasonable time). In these situations, EPA will:

1. generally identify a groundwater quality restricted use zone[2] as a means of tracking the presence of pollution and the restriction on the use of groundwater;
2. require pollution of groundwater to be cleaned up to the extent that is practicable. This may include management of the residual pollution in a manner commensurate to the risk posed;

[1] When determining the practicability of groundwater clean-up, EPA considers the risk posed by the pollution now and in the future together with the various constraints on clean-up, be they technical, logistical or financial.

[2] A groundwater quality restricted use zone is defined in the SEPP as follows:

An area the Authority identifies in accordance with Clause 19 as having an existing level of contamination of groundwater that precludes one or more beneficial uses that would otherwise apply to that groundwater.

3. not approve[3] certain activities within the zone where those activities have the potential to make the condition of groundwater worse; and
4. require the practicability of groundwater clean-up to be periodically reassessed (for example, where a new technology becomes available to make clean-up practicable and the risk posed by the polluted groundwater warrants it, EPA may require further clean-up).

IDENTIFYING A GROUNDWATER QUALITY RESTRICTED USE ZONE

EPA will consider identifying a groundwater quality restricted use zone whenever EPA formally recognises groundwater is polluted. Ordinarily a restricted use zone will be identified when EPA:

- issues a clean-up notice or pollution abatement notice requiring actions relating to pollution of groundwater;
- receives an environmental audit report which indicates that groundwater is polluted; or
- otherwise becomes aware of groundwater pollution and determines that there is a need to maintain a record of the pollution and/or provide information to the public.

It is expected that restricted use zones will be identified progressively. In identifying a restricted use zone, EPA will identify the area affected (or potentially affected) and the uses for which groundwater is considered not to be suitable.

Depending on the circumstances, a restricted use zone may relate to an individual site, a number of sites or a broad area defined by, for example, road boundaries. Irrespective of the manner in which a restricted use zone is identified it should only be considered to be an approximation to the actual extent of groundwater that is not suitable for use now or in the future. In most cases, this reflects limitations in the available sampling and modeling tools. If groundwater quality improves to such an extent that it is no longer polluted, EPA will remove the restricted use zone.

WHAT IS THE SIGNIFICANCE OF A GROUNDWATER QUALITY RESTRICTED USE ZONE?

The intention and purpose of a groundwater quality restricted use zone is to retain information about the condition of groundwater and to ensure such information is made available to those who may be interested in using groundwater.

Where use of groundwater is extremely unlikely, any pollution of groundwater or restricted use zone may have little practical effect on the use of the site. In other areas people who are purchasing or own land may reasonably expect to be able to use groundwater (subject to normal licensing requirements and so forth). It is therefore important that where groundwater is not suitable for use, this information is retained and made available.

The identification of a restricted use zone does not in itself change the requirements for management of groundwater. EPA can require clean-up whenever groundwater is polluted, irrespective of the identification of a restricted use zone. The restricted use zone simply recognises that an area is polluted

[3] Where that activity is subject to Works Approval, for example municipal waste landfill.

and makes clear the requirements that apply – consistent with the intention that a restricted use zone is an information and tracking tool.

The identification of a restricted use zone allows interested parties to determine for themselves the significance of the condition of groundwater and any resulting restrictions on use – in the context of the current or proposed use of the site.

In many cases where a restricted use zone is identified an environment improvement plan addressing groundwater issues will have been prepared (for example, as part of the environmental audit of the site). Such a plan will provide the details of obligations regarding the ongoing management of polluted groundwater.

IS THERE A NEED FOR FURTHER CLEAN-UP WHEN A GROUNDWATER QUALITY RESTRICTED USE ZONE HAS BEEN IDENTIFIED?

EPA will require the practicability of remediation of groundwater to be reassessed periodically. Depending on the level of risk, or restriction on use of the groundwater, this may mean:

1. Re-evaluation of the practicability of clean-up at the time of subsequent redevelopment of the site (that is, at the end of the life of the current or proposed development);
2. Monitoring of groundwater quality with a view to further clean-up as a contingency if monitoring unexpectedly shows an unacceptable impact. Where a site has been subject to environmental audit, the chance of this occurring is greatly reduced;
3. Where a significant risk associated with the groundwater pollution remains, but it is not practicable to remediate, EPA may require a review of the practicability of clean-up, for example, every three to five years to determine whether there has been technological or other advances that would allow clean-up to occur.

INFORMATION ABOUT A GROUNDWATER QUALITY RESTRICTED USE ZONE

When identifying a groundwater quality restricted use zone, EPA will inform the relevant groundwater resource manager and retailer, the relevant local council and where appropriate directly affected landholders.

A listing of restricted use zones will be made available to the public via EPA's website (www.epa.vic.gov.au).

FURTHER READING

Other related information relevant to the management of groundwater includes:

- *State environment protection policy (Groundwaters of Victoria)* – refer particularly to Clause 19 – Groundwater Quality Restricted Use Zone.
- *Clean-up and Management of Polluted Groundwater* EPA Publication 840
- *Environmental Auditing of Contaminated Land* EPA Publication 860