Planning guidance: Managing the risk of contamination at shooting ranges

EPA VICTORIA | Environment Protection Authority Victoria

VICTORIA State Government

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Planning guidance

Purpose

This guidance provides information to land use planners on the potential land contamination risks associated with shooting ranges, and how these risks may be appropriately considered.

What is this guidance for?

When planning permit applications, planning scheme amendments, or planning scheme reviews include consideration of an existing, proposed, or former shooting range, it is important to consider the risk of contaminated land.

A range of potential contaminants are common at shooting ranges, but lead has the greatest potential to harm human health and the environment, including land, surface water and groundwater.

This guideline includes advice on:

- the risks of lead contamination from shooting ranges
- how to assess new shooting range applications
- how to assess existing or former shooting ranges
- where to obtain further assistance and guidance in the consideration of shooting ranges.

What shooting range contamination risks require consideration?

Shooting ranges pose a significant risk for land contamination from lead. This is due to the spent-lead projectiles.

Land contamination can occur directly or indirectly, and can be disseminated in the environment the following ways:

- Direct pathways:
  - Lead projectiles can travel beyond site boundaries after the discharge of a firearm.
- Indirect pathways:
  - Surface water – dissolved lead or fine particles of lead can move onto other land areas downstream, or into waterways and groundwater.
  - Wind – fine particles of lead dispersed through lead impacted soil dust.

People may be harmed by lead through the following means of exposure:

- accidental ingestion
- drinking contaminated water
- consumption of meat or dairy products from animals that have grazed on contaminated land.

Even exposure to small amounts of lead over time may result in lead poisoning. Young children and pregnant women are particularly vulnerable to the health effects of lead. There is no known safe level of exposure.

Some land uses are particularly sensitive to the risk of contamination from shooting ranges. These are:

- residential land uses
- agricultural land uses (cropping and grazing)
- recreational land uses (ovals, swimming pools, walking trails etc.)
- child care centres and schools.

Consideration should also be given to nearby buildings or structures of any sort, frequented by people or animals.

Further information

Contact EPA on **1300 372 842** (1300 EPA VIC) or **epa.vic.gov.au**

Detailed information is available online in *Guide for managing contamination at shooting ranges* (EPA publication 1710) at epa.vic.gov.au/publications

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Interpreter

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Figure 1. Shooting range stop butt and firing area.

Planning for new shooting range permit applications

Shooting range layouts and the location of potential contamination is dependent upon the type of firearm used, and in respect to shotgun ranges, the category of range.

Rifle and pistol shooting ranges: Firearms use at these ranges include rifles or pistols. Firearms are discharged at the firing point and aimed at a targeted area. Usually a stop butt or bullet trap is situated behind the target area that may capture over 99% of spent projectiles. See figure 2 for a visualisation of where direct contamination may occur in a rifle and pistol shooting range.

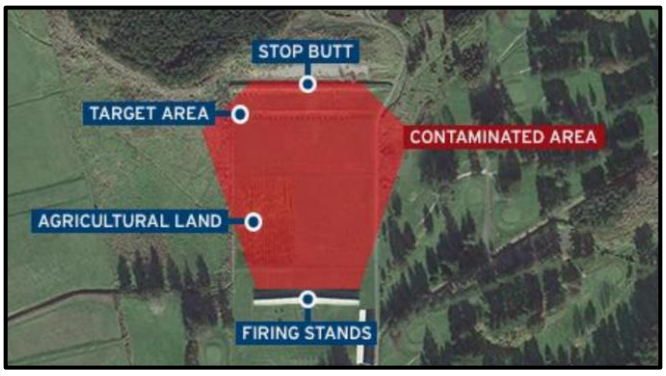

Figure 2. Potential for rifle and pistol shooting range direct contamination spread

Shotgun shooting ranges: Firearms are discharged from either fixed or multiple firing points. The potential for lead contamination is spread over a wider area than rifle and pistol ranges. Shot is smaller, more numerous and particularly susceptible to indirect contamination pathways. See figure 3 for a visualisation of where direct contamination may occur in a shotgun shooting range.

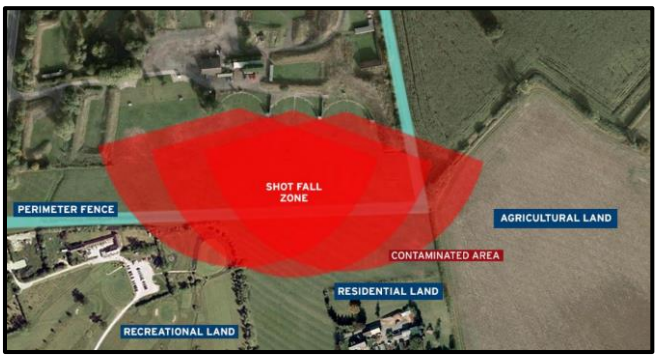

Figure 3. Potential for shotgun shooting range direct contamination spread

Controls for lead contamination in new shooting ranges: There are a multitude of ways that the risk of lead contamination originating from shooting ranges may be minimised. Strategies include water management, vegetative management, range design, barriers, traps, and management plans amongst others. *For additional information on controls for lead contamination for new ranges, please refer to* Guide for managing contamination at shooting ranges *(EPA publication 1710).*

Planning for existing or former shooting ranges

The potential for contaminated land must be a consideration when shooting ranges and surrounding land are proposed for development or redevelopment. Closed or former shooting ranges should be subject to the same considerations, particularly considering the risk of legacy contamination.

Approved shooting ranges in Victoria are required to have an identified and documented range danger area (RDA). This is a requirement of the Victoria Police and identifies those areas of land where projectiles are expected to land. The RDA presents a useful tool to begin to identify potentially contaminated areas.

However, contamination originating from shooting ranges is complex. Multiple indirect and obscure pathways can spread contamination to land well beyond the boundary of the subject site. In addition, historical shooting ranges may be difficult to identify and been progressively redeveloped over time.

Contamination from shooting ranges must be taken seriously. In considering potential land contamination, assessment must not be limited to the subject site but also extend to proposals for adjoining land and the subsequent proposed land uses.

Land use zoning common to shooting ranges

In rural areas, it is commonplace for shooting ranges to adjoin or be surrounded by primary producing land. Shooting ranges can be located within agricultural zones such as Farming Zones or Rural Zones. In urban areas, shooting ranges are most frequently enclosed within buildings.