



SITE CONTAMINATION: ATTENTION LANDOWNERS AND DEVELOPERS!

Is your land contaminated?

If you own land or plan to develop land, you need to consider if it could be contaminated.

The soil, surface water and groundwater could be contaminated with chemicals if the land

- has been used for industrial purposes;
- has been used for the disposal or intensive use of chemicals;
- has been used for dumping waste; or
- contains fill brought in from an unknown location.

For a list of some of the industries associated with contamination, see table below.

Contamination may be a risk to human health or the environment, depending on a number of factors:

- type of chemical or waste;
- concentration of chemical or waste;
- extent of the contamination;
- impact that it has on the environment and living things; and
- amount of contact people may have with the contamination now and in the future.

Is the land a risk or non-risk site?

If the land is contaminated but the contamination is not a current threat to human health or the environment, the land is considered to be a non-risk site. In this case, it may not be necessary to clean up the contamination.

However, you need to be aware that the land could become a risk site if circumstances change - for example, if contaminated industrial land is changed to residential land.

When a site is used for industrial purposes, people are usually only on site during working hours and may not have direct contact with soil or water.

Residents, however, will have greater exposure to contamination. Children are highly vulnerable to toxins and may play in or even eat contaminated soil. Residents could grow vegetables or raise animals, which may also build up contaminants in their bodies.

If the contamination is a current threat to human health or the environment, the land is a risk site and you will need to take action as soon as possible.

What do I do if I think it could be a risk site?

You will need to have the site assessed for contamination if

- the site has been identified as potentially contaminated and could be a current threat to human health or the environment; or
- there is a plan to change the land use of potentially contaminated land which could result in a threat to human health or the environment (for example industrial land changing to residential).

Every site is different, but in general you should

1. Liaise with the Environment Protection Agency to be sure you are taking the appropriate action for your site.
2. Arrange a preliminary investigation in line with the *National Environment Protection (Assessment of Site Contamination) Measureⁱ*. The investigation should
 - set data quality objectives;
 - establish a site history;
 - detail the proposed use;



- review local geology and hydrogeology;
 - include a detailed site inspection;
 - establish a sampling strategy and pattern for soil and groundwater contamination; and
 - be undertaken by a suitably qualified environmental practitioner with technical expertise and experience in the assessment of site contamination. To choose an environmental practitioner, see below.
3. No further action is likely to be required if the preliminary investigation shows
 - the site is not contaminated; or
 - concentrations of contaminants are too low to cause any impact to human health or the environment.
 4. If contamination is confirmed or suspected, you will most likely need to engage an independent Environmental Auditor (Contaminated Land) recognised by the Environment Protection Agency. The auditor will provide an independent audit report and certificate or statement of audit to you. You can use these documents to provide evidence to the Environment Protection Agency about the current condition of the site.
 5. Further investigation and clean up might be needed before the auditor can confirm that the site is suitable for its proposed or current land use.

How can I avoid delays?

If you wait until the time of an application to the Development Consent Authority to address possible site contamination, it could cost you considerable time. Investigating, assessing and cleaning up or managing site contamination may be required at the rezoning, subdivision or development stages.

To avoid delays, it is a good idea to prepare for a change of land use by taking steps on a voluntary basis ahead of time.

Who pays?

Costs incurred in the investigation, assessment, clean up and auditing of sites are the responsibility of the owner, occupier or developer as appropriate to the site.

Dealing with contamination prior to the changing of land use can avoid undue risk and expense.

Can I remove contaminated soil?

Contaminated soil must not be removed from the site without notifying and gaining approval from the Environment Protection Agency. Moving contaminated soil to another location without permission may contravene section 12 of the *Waste Management and Pollution Control Act 1998*.

Industries associated with site contamination

This list, adapted from the *Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites and the Queensland Environment Protection Authority's Notifiable Activities*, is not exhaustive but is included for guidance.

The use of a site for one of these purposes does not necessarily mean the site is contaminated or needs to be cleaned up. Each site must be assessed to determine whether it is contaminated and whether it presents a risk. Other types of industries, activities and land uses may also cause site contamination.

Abrasive blasting/ disposal of abrasive blasting material
Acid/alkali plant and formulation
Agricultural/horticultural activities including operating premises for aerial spraying
Airports
Asbestos production and disposal

Landfill sites
Lime burner
Metal treatment or coating
Mining and extractive industries
Oil production and storage
Paint formulation and manufacture
Pesticide or herbicide manufacture and formulation



Asphalt or bitumen manufacture	Pest control
Battery manufacture or recycling	Pharmaceutical manufacture and formulation
Chemicals manufacture and formulation	Petroleum or petrochemical industries
Chemical storage	Petroleum product or oil storage
Defence works	Power stations
Drum re-conditioning works	Printing
Dry cleaning establishments	Railway yards
Electrical manufacturing, repairing or disposal (transformers)	Scrap yards
Electroplating and heat treatment premises	Service stations
Engine works	Sheep and cattle dips or spray race operations
Explosives industry	Smelting and refining
Fertiliser manufacture	Tanning and associated trades
Gas works	Waste storage, treatment or disposal
Gun, pistol or rifle range	Wood treatment and preservation
Iron and steel works	

Choosing an environmental practitioner to provide advice, assessment and management of site contaminationⁱⁱ

Investigating site contamination requires technical expertise. The process of choosing a professional and competent practitioner for site contamination work should be similar to the process used when purchasing any professional service.

1. Look up 'environmental consultants' in the telephone directory or refer to the list of consultants held at the Environment Protection Agency.
2. Prepare a short-list of environmental practitioners from the consultancy firms in the directory, from contacts in your industry or business, or from your professional association which may have previously engaged environmental practitioners to do work similar to the work you require.
3. Ask the selected environmental practitioners about their qualifications and project experience, with reference to the details in the next section. Most firms will readily supply information on completed projects and the experience of individual staff members. Clarify if any of the work was performed by subcontractors.
4. Ask each environmental practitioner for a list of past projects and clients you can contact.
5. Check the professional credentials of your chosen environmental practitioner.
6. For any work recommended by the environmental practitioner that is in addition to that specified in the original contract, determine the reason for and processes involved in the additional work.

It may be appropriate for the environmental practitioner to subcontract certain parts of the investigation or clean up work not within their area of expertise. For example, chemical analysis of soil and water samples will often be referred to a NATA registered laboratory. If this is the case, determine who the subcontractors are, what their role is and who will be supervising them.

Qualifications and competencies

Prerequisites

Environmental practitioners must have

- appropriate qualifications;
- experience in management of site contamination;



- knowledge of the *National Environment Protection (Assessment of Site Contamination) Measure 1999*, the Northern Territory's *Waste Management and Pollution Control Act 1998* and associated site contamination policies and regulations;
- understanding of methods to assess and manage site contamination;
- knowledge of the available technologies and processes for treating contaminated soil and groundwater, preferably on-site, and the providers of treatment services in the Northern Territory and interstate;
- knowledge of relevant scientific literature for assessing the impacts of contamination on human health and the environment; and
- an acceptable level of professional liability insurance.

Skills and expertise

A site contamination investigation generally requires skills in and knowledge of

- compilation of historical information;
- site contamination assessment and management;
- soil sampling design and methodology;
- groundwater sampling design and methodology;
- chain of custody of samples;
- quality control/assurance procedures;
- interpretation of chemical analytical data;
- environmental chemistry;
- soil science;
- hydrogeology;
- environmental toxicology;
- assessment of contaminant transport and exposure pathways and risk management; and
- remedial technologies.

Note that if contamination is confirmed, you may need to provide an audit report and certificate or statement of audit for a site. Audits must be carried out by an independent environmental auditor recognised by the Environment Protection Agency. For advice on suitable auditors, contact the Environment Protection Agency.

Where can I go for more information?

If you have any questions, or want the most up-to-date information on managing possible site contamination in the Northern Territory, contact the Environment Protection Agency in **Darwin**, Telephone: 08 8924 4139 or **Alice Springs** Telephone: 08 8951 9201

ⁱ The *National Environment Protection (Assessment of Site Contamination) Measure* (NEPM) was made by the National Environment Protection Council in 1999. Its purpose is to “provide adequate protection of human health and the environment, where site contamination has occurred, through the development of an efficient and effective national approach to the assessment of site contamination”. The NEPM can be viewed or downloaded from www.nepc.gov.au

ⁱⁱ adapted from guidelines issued by the Queensland Environment Protection Authority