



# Resource Sheet 4

## Assess and implement remediation options

### Key considerations

<b>Remediation options</b>	<p>Remediation can be broadly considered as an action, or combination of actions taken to mitigate the risks associated with contamination. Remediation can range from administrative procedures (such as procedural changes), to engineering controls (such as fencing and signage) through to elimination (such as active removal or treatment of contamination).</p> <p>In consultation with stakeholders (including the person responsible for the contamination if a third party) and an experienced environmental consultant, determine the most appropriate remedial strategy to address the contamination. The strategy can be documented within a remedial action plan (RAP), environmental management plan or other management action. The strategy should also carefully consider the safety, environmental and social impacts of performing the remediation.</p>
<b>Regulation</b>	<p>Remediation works may be regulated by the EPA under the <i>Contaminated Land Management Act 1997</i> or by the appropriate planning authority during redevelopment of the land.</p> <p>Consideration should also be given to any approval requirements under the <i>Protection of the Environment Operations Act 1997</i> (such as an Environment Protection Licence) or the <i>Work Health and Safety Act 2011</i> (such as WorkCover permits for asbestos removal).</p>
<b>Implementation</b>	<p>Appoint an experienced company, typically a 'Remediation Contractor' to implement the remedial action plan.</p> <p>Ensure the person carrying out the remediation is suitably qualified, and consider requirements for formal certification under an EPA-recognised scheme.</p>
<b>Site validation</b>	<p>Clean up the site to set validation criteria based on the proposed/current land use.</p>
<b>Information management</b>	<p>Information collected during the remediation works should be managed in a centralised system to maintain corporate knowledge.</p>
<b>Stakeholders</b>	<p>Active communication with stakeholders including the local community should be performed prior to, and during remediation.</p>

## Guidelines

Source	Resource
CRC CARE	<p><b>Technical reports</b></p> <p>CRC CARE's technical report series comprises a number of reports that address the technical aspects of the management and remediation of particular contaminants and remediation approaches.</p>
US EPA*	<p><b>Remediation Technologies</b></p> <p>The US EPA website lists a range of tools and resources to assist in contaminated site remediation.</p>
US FRTR*	<p><b>Federal Remediation Technologies Roundtable</b></p> <p>Provides a range of resources for the remediation of contaminated sites including a tool for screening potentially applicable technologies for a remediation project, Decision Support Tools and a list of current publications.</p>
NSW EPA	<p><b>Guidelines for the NSW Site Auditor Scheme</b>, 2nd edition (April 2006)</p> <p>These guidelines apply to individuals seeking to be accredited as site auditors in NSW, to those already accredited, and other people with an interest in contaminated sites – such as consultants and local councils. The guidelines introduce the NSW Site Auditor Scheme, and outline the process for accreditation and renewal of accreditation, conducting site audits and contamination assessment, remediation and management.</p>
NSW EPA	<p><b>Guidelines for the Assessment and Management of Groundwater Contamination</b> (March 2007)</p> <p>The guidelines outline a best-practice framework for assessing and managing contaminated groundwater in NSW. The guidelines focus on groundwater pollution arising from point source contamination rather than on broad-scale groundwater issues arising from diffuse sources.</p>
National Environment Protection Council	<p><b><i>National Environment Protection (Assessment of Site Contamination) Measure 1999</i></b> (April 2013)</p> <p>The National Environment Protection Measure consists of a policy framework for the assessment of site contamination, Schedule A (Recommended General Process for the Assessment of Site Contamination) and Schedule B (Guidelines).</p> <p>Schedule B guidelines include:</p>

- Guideline on Investigation Levels for Soil and Groundwater;
- Guideline on Site Characterisation
- Guideline on Laboratory Analysis of Potentially Contaminated Soils
- Guideline on Site-specific Health Risk Assessment Methodology
- Guideline on Ecological Risk Assessment;
- Guideline on Methodology to Derive Ecological Investigation Levels in Contaminated Soils
- Guideline on Ecological Investigation Levels for Arsenic, Chromium(III), Copper, DDT, Lead, Naphthalene, Nickel and Zinc
- Guideline on the Framework for Risk-based Assessment of Groundwater Contamination
- Guideline on Derivation of Health-based Investigation Levels
- Guideline on Community Engagement and Risk Communication
- Guideline on Competencies and Acceptance of Environmental Auditors and Related Professionals.

#### **ANZECC**

Published by ANZECC and the Agriculture and Resource Management Council of Australia and New Zealand, Paper No. 4 (October 2000)

#### **Australian and New Zealand Guidelines for Fresh and Marine Water Quality**

The document:

- outlines the important principles, objectives and philosophical basis underpinning the development and application of the guidelines
- outlines the management framework recommended for applying the water quality guidelines to the natural and semi-natural marine and fresh water resources in Australia and New Zealand
- provides a summary of the water quality guidelines proposed to protect and manage the environmental values supported by the water resources
- provides advice on designing and implementing water quality monitoring and assessment programs
- has been revised using data, relevant literature, and other information available to at least 1996.

#### **WorkCover NSW**

#### **Managing asbestos in or on soil (March 2014)**

This guide provides general guidance on the assessment and management of asbestos in soil. The guidance provided in this document applies principally to legacies from poor historical onsite management of asbestos materials, and not to illegal disposal or landfilling activities related to waste generated offsite.

**WorkCover NSW**

**How to deal with asbestos 'fibro' in soil at home (January 2014)**

This resource details advice on safely dealing with asbestos present in the home and when the services of a specialist asbestos removalists should be sought.

\*Note: The NSW EPA has not formally endorsed any particular remediation guidance published by the US EPA or US FRTR.

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