



Environmental Protection Authority

Guidance for the Assessment of Environmental Factors

(in accordance with the
Environmental Protection
Act 1986)

Guidance Statement for Remediation Hierarchy for Contaminated Land

No. 17

July 2000

Western Australia

FOREWORD

The Environmental Protection Authority (EPA) is an independent statutory authority and is the key provider of independent environmental advice to Government.

The EPA's objectives are to protect the environment and to prevent, control and abate pollution. The EPA aims to achieve some of this through the development of environmental protection Guidance Statements for the environmental impact assessment (EIA) of proposals.

This document is one in a series being issued by the EPA to assist proponents, consultants and the public generally to gain additional information about the EPA's thinking in relation to aspects of the EIA process. The series provides the basis for EPA's evaluation of, and advice on, development proposals subject to EIA. The Guidance Statements are one part of assisting proponents in achieving an environmentally acceptable proposal. Consistent with the notion of continuous environmental improvement and adaptive environmental management, the EPA expects proponents to take all reasonable and practicable measures to protect the environment and to view the requirements of this Guidance as representing the minimum necessary process required to achieve an appropriate level of environmental protection.

This Guidance Statement supersedes the 'EPA Policy for EIA No. 17 - A Site Remediation Hierarchy for Contaminated Sites' (Interim Policy) which was released in 1997 for a period of 12 months. The intent of that policy was to put in place a hierarchy of remediation and treatment options that the EPA considered were relevant in relation to the assessment and management of contaminated sites and which proponents and consultants needed to address when submitting proposals for environmental impact assessment. The interim policy has now been in use for 3 years.

From the experiences gained during this period with proposals in relation to contaminated sites, the EPA considers that the scope of this policy will apply to contaminated land only. The intent of this document has not changed and is to provide guidance on the EPA's policy on the hierarchy approach which needs to be considered when preparing proposals to remediate contaminated land. The approach to the assessment and management of contaminated groundwater will be dealt with in a separate guidance statement. The title of the Guidance Statement has been changed to specifically address contaminated land instead of sites, which generally includes contaminated groundwater.

This Guidance Statement has the status of "**Final**" which means it has been reviewed by stakeholders and the public. The EPA has signed off the Guidance Statement and published it although it will be updated regularly as new documents come to hand.

I am pleased to release this document which now supersedes the draft version.



Bernard Bowen
CHAIRMAN
ENVIRONMENTAL PROTECTION AUTHORITY

28 July 2000

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APPENDIX 1 - Guidance Flow Chart

Guidance Statement No. 17

Guidance Statement for Remediation Hierarchy for Contaminated Land

Key Words: Contamination, remediation, hierarchy, contaminated land

1 PURPOSE

- 1.1 Guidance Statements generally are developed by the EPA to provide advice to proponents, and the public generally, about the minimum requirements for environmental management which the EPA would expect to be met when the Authority considers a proposal during the assessment process.

This Guidance Statement is termed “Final”, and thus the EPA expects that proponents will give full attention to the information provided when they submit proposals for assessment.

- 1.2 This Guidance Statement specifically addresses the remediation hierarchy for contaminated land. The hierarchy is based upon the approach proposed in the WA Government Position Paper on ‘*The Assessment and Management of Contaminated Land and Groundwater in Western Australia*’ (DEP 1997). It is also consistent with the approach taken in the *Guidelines for the Assessment and Management of Contaminated Sites* (ANZECC/NHMRC 1992) and *National Environmental Protection (Assessment of Site Contamination) Measure* (NEPC 1999). The Guidance provides information which the EPA will consider when assessing proposals where contaminated land is a relevant environmental factor in an assessment. It takes into account:

- (a) protection of the environment as defined by the *Environmental Protection Act 1986 (WA)* with a focus on human health and the environment; and
- (b) the factor of contaminated land.

- 1.3 This is a Guidance Statement and proponents are encouraged to consider their proposals in the light of the guidance given. A proponent who wishes to deviate from the minimum level of performance set out in this Guidance Statement would be expected to put a well researched and clear justification to the EPA arguing the need for that deviation.

2 THE ISSUE

Contaminated land may pose a threat to human health and the environment, and may have significant planning, economic and legal implications. Many government agencies, including the Department of Environmental Protection, Health Department of Western Australia, the Western Australian Planning Commission and Ministry for Planning, the Water and Rivers Commission and the Department of Land Administration, have important responsibilities in the management of contaminated land. It is important for these agencies to communicate effectively so that decision making, in relation to the assessment and management of contaminated land, is undertaken in a consistent and coordinated manner across relevant agencies.

Over the past decade there has been an increasing recognition of the problems associated with contaminated land. The problem is of special importance in Western Australia because of our reliance on groundwater and the threat posed by land contamination to groundwater quality and public health.

It is difficult to estimate the exact number of sites where land is contaminated in Western Australia. In many instances adequate information on former landuse activities was not collected, has not been retained or is not readily available. In other cases land may be contaminated to some extent but is still suitable for its existing use and is not posing a risk to public health or the environment.

The management of contaminated soil and groundwater is becoming more important and more closely scrutinised as the public awareness of the issue increases. One of the major policy areas that needs to be resolved is the selection of remedial actions used in the management of contaminated land.

3 THE GUIDANCE

3.1 Application of the Guidance to Assessment

The Guidance will be applied to any proposal relating to the remediation of contaminated land in Western Australia.

3.2 Guidance for Achieving Desired Outcomes

3.2.1 Measures/methods

To meet the EPA objectives and achieve the desired outcomes, the following principles should be considered and addressed when determining remediation methods or options for the remediation of contaminated land.

Principle 1

Contaminated material shall preferably be either treated on-site and the contaminants reduced to acceptable levels, or be treated off-site and returned for reuse after the contaminants have been reduced to acceptable levels.

Principle 2

Disposal of contaminated material to an approved waste disposal facility or landfill or 'cap and contain' management options will only be considered if:

- treatment of the contaminated material is shown or demonstrated not to be practicable;
- the options to dispose to landfill or 'cap and contain' are undertaken in an environmentally acceptable manner; and
- the risk of disturbance of the contaminant exceeds the risk of leaving it undisturbed and contained on site.

If the proponent's proposal complies with the Guidance, the assessment is likely to be straightforward and rapid. However, should the EPA's preferred option not be proposed, the proponent is required to demonstrate why this is not feasible and why alternative remediation options are acceptable.

Although this Guidance Statement relates to the remediation of contaminated land only, water resource management issues cannot be ignored when determining the remediation option, particularly on the Swan Coastal Plain near Perth where there are extensive groundwater resources that are extremely vulnerable to contamination from surface landuse.

It is extremely important that the levels of contaminants in any soil that is treated and replaced during remediation are sufficiently low to ensure that groundwater will not continue to be contaminated after remediation has ceased. For example, this situation may particularly apply to sites located adjacent to rivers or wetlands, where soil washed off-site may have contaminated the bottom sediments of these water bodies, and may adversely affect the health of benthic ecosystems. It may not be practical to treat and replace this sediment, and dredging and offsite disposal may be the only viable treatment option.

3.2.2 Management System

Where appropriate, the proponent should demonstrate that there is in place an environmental management system which includes the following elements:

- 1 An environmental policy and corporate commitment to it;
- 2 Mechanisms and processes to ensure:
 - 2.1 planning to meet environmental requirements;
 - 2.2 implementation and operation of actions to meet environmental requirements;
 - 2.3 measurement and evaluation of environmental performance; and
- 3 Review and improvement of environmental outcomes.

4 APPLICATION

4.1 Area

This Guidance Statement applies to all applications for remediation of contaminated land throughout the state of Western Australia.

4.2 Duration and Review

The duration of this Guidance Statement is for five years unless some unforeseen circumstances require it to be revised earlier.

5 RESPONSIBILITIES

5.1 Environmental Protection Authority Responsibilities

The EPA will apply this Guidance Statement during the assessment of proposals under Part IV of the *Environmental Protection Act 1986* where contamination of land poses a significant risk to public health and the environment.

5.2 Department of Environmental Protection Responsibilities

The DEP will assist the EPA in applying this Guidance Statement in environmental impact assessment and in conducting its functions under Part V of the *Environmental Protection Act 1986*.

5.3 Proponent Responsibilities

Where proponents demonstrate to the EPA that the requirements of this Guidance Statement are incorporated into proposals, in a manner which ensures that they are enforced and audited, the assessment of such proposals is likely to be assisted.

6 DEFINITIONS AND/OR ABBREVIATIONS (as appropriate)

The following technical terms are used in this document.

acceptable levels - levels at which there are no significant adverse impacts to the environment or human health. Acceptable levels may be determined through site specific health or environmental risk assessment, adopted from recognised criteria or be agreed criteria with agencies which have legislative powers in the area of impact.

contaminant – an undesirable impurity potentially harmful to human health or the environment.

contaminated - in relation to land or underground water, means where a substance is present in, on or under that land, or in the underground water, at concentrations that presents, or has the potential to present, a risk of harm to human health or environmental value.

management - the actions taken to remove or reduce to acceptable levels an adverse impact or the risk of adverse impact on human health or the environment.

remediation – action taken to eliminate, limit, correct, counteract, mitigate or remove any contaminant, or the negative effects on the environment or human health of any contaminant.

treatment - the actions taken to remove or reduce to acceptable levels contaminants

7 LIMITATIONS

This Guidance Statement has been prepared by the Environmental Protection Authority to assist proponents and the public. While it represents the contemporary views of the Environmental Protection Authority, each proposal which comes before the Environmental Protection Authority for environmental impact assessment will be judged on its merits. Proponents who wish to deviate from the Guidance provided in this document should provide robust justification for the proposed departure.

8 REFERENCES/BIBLIOGRAPHY (As appropriate)

Australian and New Zealand Environment and Conservation Council and National Health and Medical Research Council (ANZECC and NHMRC), 1992. *Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites*.

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Final Guidance	July 2000
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Status

Signed-off by the EPA.

Citation

This document can be cited as the Guidance Statement for Remediation Hierarchy for Contaminated Land

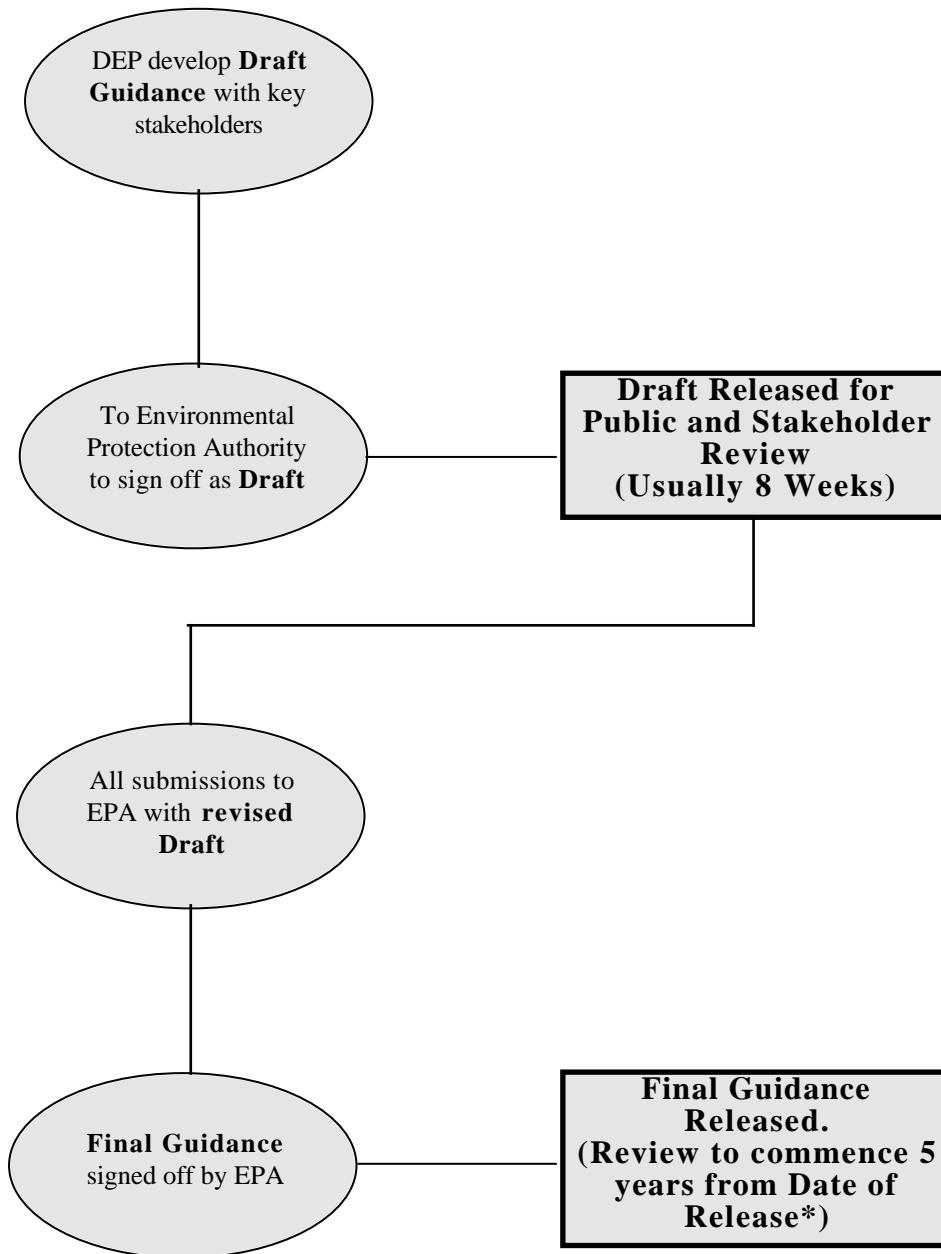
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Appendix

Generic Flow Diagram for the Guidance Statement Process



* Guidance may be reviewed earlier if circumstances require it.