

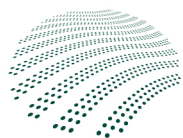


NATIONAL
REMEDiation
FRAMEWORK

Remediation Action Plan Development

Guideline on regulatory considerations

August 2019



CRC CARE

*A safer, cleaner
environmental future*

Cooperative Research Centre for Contamination Assessment and Remediation of the Environment, National Remediation Framework

August 2019

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Note on the National Remediation Framework

This document is one component of the National Remediation Framework (NRF). The NRF was developed by CRC CARE to enable a nationally consistent approach to the remediation and management of contaminated sites. The NRF is intended to be compatible with the National Environment Protection (Assessment of Site Contamination) Measure.

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CRC for Contamination Assessment and Remediation of the Environment

National Remediation Framework

Guideline on regulatory considerations

Version 1.0: August 2019

National Remediation Framework

The following guideline is one component of the National Remediation Framework (NRF). The NRF was developed by the Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE) to enable a nationally consistent approach to the remediation and management of contaminated sites. The NRF is compatible with the *National Environment Protection (Assessment of Site Contamination) Measure* (ASC NEPM).

The NRF has been designed to assist the contaminated land practitioner undertaking a remediation project, and assumes the reader has a basic understanding of site contamination assessment and remediation principles. The NRF provides the underlying context, philosophy and principles for the remediation and management of contaminated sites in Australia. Importantly it provides general guidance based on best practice, as well as links to further information to assist with remediation planning, implementation, review, and long-term management.

This guidance is intended to be utilised by stakeholders within the site contamination industry, including site owners, proponents of works, site contamination practitioners, local councils, regulators, and the community.

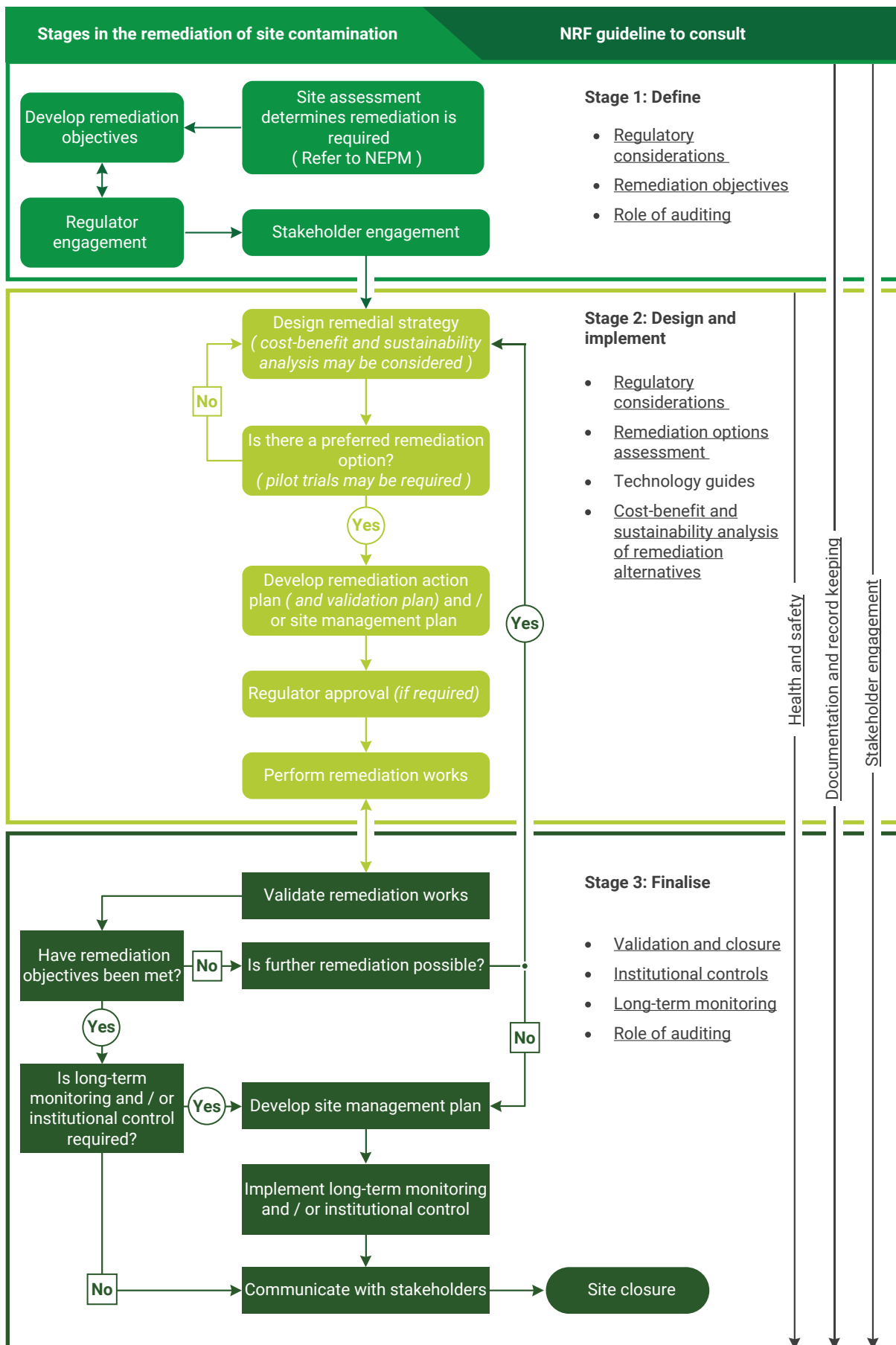
The NRF is intended to be consistent with local jurisdictional requirements, including state, territory and Commonwealth legislation and existing guidance. To this end, the NRF is not prescriptive. It is important that practitioners are familiar with local legislation and regulations and note that **the NRF does not supersede regulatory requirements**.

The NRF has three main components that represent the general stages of a remediation project, noting that the remediation steps may often require an iterative approach. The stages are:

- define
- design and implement, and
- finalise.

The flowchart overleaf provides an indication of how the various NRF guidelines fit within the stages outlined above, and also indicates that some guidelines are relevant throughout the remediation and management process.

It is assumed that the reader is familiar with the ASC NEPM and will consult other CRC CARE guidelines included within the NRF. This guideline is not intended to provide the sole or primary source of information.



Executive summary

It is important that the regulatory and audit requirements for remediation are considered prior to design or implementation of a remediation plan, to ensure compliance with the requirement of the appropriate regulatory agencies before any remediation has commenced. The accredited/appointed auditor, if an auditor is involved, has an important role in reviewing the feasibility of the remediation plan before remediation commences. Regulatory documents and guidelines for each jurisdiction will assist practitioners in understanding the overarching regulatory and audit requirements applicable in the remediation process.

There are common elements in the overall approach to the remediation of site contamination in terms of (table 1):

- regulatory framework
- principles of environmental protection
- responsibility for administering regulatory requirements
- supporting guidance available for remediation and management process
- auditor involvement
- notification of contamination and triggers for remediation
- setting remediation objectives/goals/targets
- remediation process
 - remediation action plan and site management strategies
 - management and disposal of waste material
 - validation
 - sign-off
- occupational health and safety, and
- post remediation considerations
 - ongoing management and monitoring, institutional controls.

Practitioners should consult with the appropriate regulatory bodies and jurisdictional websites to ensure the most recent legislation and guidelines are referred to when undertaking remediation of site contamination. Legal advice should be sought where necessary to confirm the legal requirements pertaining to particular circumstances.

Abbreviations

ACT	Australian Capital Territory
ANZECC	Australian and New Zealand Environment and Conservation Council
ASC NEPM	<i>National Environment Protection (Assessment of Site Contamination) Measure</i>
CRC CARE	Cooperative Research Centre for Contamination Assessment and Remediation of the Environment
CSM	Conceptual site model
EMP	Environment management plan
EPA	Environmental Protection Agency/Authority
EPP	Environment protection policy
HSEP	Health, safety and environment plan
NHMRC	National Health and Medical Research Council
NRF	National remediation framework
NSW	New South Wales
NT	Northern Territory
NZS	New Zealand Standard
OH&S	Occupational health and safety
QLD	Queensland
RAP	Remediation action plan
ROA	Remediation options assessment
SA	South Australia
SAQP	Sampling and analysis quality plan
SEPP	State environment protection policy
SMP	Site management plan
TAS	Tasmania
VIC	Victoria
WA	Western Australia

Glossary

Audit	An independent review by an appointed auditor of the assessment and/or remediation work carried out by environmental consultants and to provide independent expert opinion regarding any potential impacts to human health and/or the environment relating to site contamination, and the suitability of land for its intended use.
Auditor	Individuals acting under statute is to carry out reviews of the assessment and/or remediation work carried out by environmental consultants and to provide independent expert opinion regarding any potential impacts to human health and/or the environment relating to site contamination, and the suitability of land for its intended use (ASC NEPM sch. 9)
Beneficial use	A particular value or use of the environment or any element or segment of the environment which: • is important for a healthy ecosystem • is conducive to public benefit, welfare, safety, health or aesthetic enjoyment which requires protection, or • is declared in state or territory environment protection policy to be a beneficial use. Definitions for beneficial use or environmental value may differ among jurisdictions (e.g. may include additional considerations for environmental harm as defined in jurisdictional legislation).
Certified practitioner	An accredited professional active in the private sector of contaminated land assessment and/or remediation. Two relevant schemes may be recognised in the land industry – CenvP and CPSS CSAM.
Concentration	The amount of material or agent dissolved or contained in unit quantity in a given medium or system.
Conceptual site model (CSM)	A representation of site-related information including the environmental setting, geological, hydrogeological and soil characteristics together with the nature and distribution of contaminants. Contamination sources, exposure pathways and potentially affected receptors are identified. Presentation is usually graphical or tabular with accompanying explanatory text.
Contaminant	Any chemical existing in the environment above background levels and representing, or potentially representing, an adverse risk to human health and/or

	environment, and/or any other environmental value.
Contaminated site or land	A generic term referring to any land (including soil, surface water, groundwater and soil vapour) that is affected by substances that occur at concentrations above background or local levels and which represent, or potentially represent, a risk to human health and/or the environment, and/or any other environmental value. It is not necessary for the boundaries of the site contamination to correspond to the legal ownership boundaries.
Environment(al) protection authority/agency (EPA)	The government agency in each state or territory that has responsibility for the enforcement of various jurisdictional environmental legislation, including some regulation of site contamination.
Environmental value	See Beneficial use.
Exposure	The concentration or amount of a particular chemical that reaches a target organism, or system, or population in a specific frequency for a defined duration.
Groundwater	Water stored in the pores and crevices of the material below the land surface, including soil, rock and fill material.
In-situ	A Latin phrase that translates literally to on-site or in position. It refers to remediation that is performed on the contamination while it is in place, without excavating soil.
Offsite	Physical area outside of the site boundary. Includes air, soil, water and groundwater, both above and below ground.
Onsite	Physical area inside the site boundary. Includes air, soil, water and groundwater, both above and below ground.
Practitioner	Those in the private sector professionally engaged in the assessment, remediation or management of site contamination. For example, these include consultants, auditors and certified practitioners.
Proponent	A person who is legally authorised to make decisions about a site. The proponent may be a site owner or occupier or their representative.

Remediation	Remediation is taking steps towards remedying something, in particular of reversing or stopping environmental damage. It may be action designed to deliberately break the source-pathway-receptor linkage in order to reduce the risk to human health and/or the environment to an acceptable level.
Remediation objective	A site-specific objective that relates solely to the reduction or control of unacceptable risks associated with one or more pollutant linkage.
Residual contamination	Concentrations of the contaminants of concern remaining following completion of remediation.
Risk	The probability that in a certain timeframe an adverse outcome will occur in a person, a group of people, plants, animals and/or the ecology of a specified area that is exposed to a particular dose or concentration of a specified substance, i.e. it depends on both the level of toxicity of the substance and the level of exposure. Risk differs from hazard primarily because risk considers probability.
Risk assessment	A process intended to calculate or estimate the risk to a given target organism, system, or sub-population, including the identification of attendant uncertainties, following exposure to a particular contaminant, taking into account the inherent characteristics of the agent of concern as well as the characteristics of the specific target system (ASC NEPM 1999, sch. B6).
Site	A parcel of land (including ground and surface water) being assessed for contamination, as identified on a map by parameters including lot and plan number(s) and street address. It is not necessary for the site boundary to correspond to the lot and plan boundary, however it commonly does.
Site contamination	A site that is affected by substances that occur at concentrations above background or local levels and which are likely to pose an immediate or long-term risk to human health and/or the environment. It is not necessary for the boundaries of the site contamination to correspond to the legal ownership boundaries.
Site management plan (SMP)	Contains information on the necessary management required to manage ongoing issues as a site (usually following remediation activities).

Stakeholder	An individual, group, organisation or other entity that may be interested in, or affected by, the remediation and management of a contaminated site. Depending on specific site circumstances, stakeholders may include residents, site owners, public health officials, government regulatory authorities, media, businesses working on site, and environmental or other action/interest groups, as well as site owners and people working on the project. Stakeholders may or may not be directly involved in the project but do include all those who may have knowledge of or views about the project. Not all stakeholders are necessarily decision makers.
Sustainability	Generally, refers to achieving a balance between meeting the needs of the present without compromising the ability of future generations to meet their own needs. In specific reference to the remediation of site contamination, sustainability refers to achieving an acceptable balance between the impacts of undertaking remediation activities and the benefits those activities will deliver in terms of the environmental, economic and social indicators relevant to the site.

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1. Introduction

The purpose of this guideline is to provide an overview of the regulatory and audit requirements for remediation, to inform the development of a remediation plan, remedial works and site validation, and sign off. It also includes consideration of auditor requirements in remediation. The involvement of an auditor is often required as part of the jurisdictional statutory process, and the auditor has an important role in reviewing the feasibility of the remediation plan before remediation commences. It is important that the regulatory and audit requirements for remediation are considered prior to design or implementation of a remediation plan, to ensure compliance with the requirement of the appropriate regulatory agencies before any remediation has commenced.

Each jurisdiction has its own requirements, which are specified in various jurisdiction-specific documents, including guidelines. This guideline provides an overview of the key regulatory documents and guidelines for each jurisdiction to assist practitioners in understanding the overarching regulatory and audit requirements applicable in the remediation process. It is intended to be complementary to, and be read in conjunction with, other guidelines of the NRF.

The term jurisdiction has been used throughout this guideline to refer interchangeably to Commonwealth, states and/or territories of Australia. In preparing this guideline a review of relevant policies and guidance documents from nine Australian jurisdictions has been undertaken: Commonwealth, Australian Capital Territory (ACT), New South Wales (NSW), Northern Territory (NT), Queensland (QLD), South Australia (SA), Tasmania (TAS) and Western Australia (WA). As at the time of finalising the NRF, Victoria was in the midst of substantive regulatory reform – with a new environmental protection framework which will affect site contamination matters. The draft environmental protection framework is expected to be released in July 2020. Consequently, it is particularly important to refer to the most up to date information directly from EPA Victoria. For this reason, this guideline contains limited guidance for VIC.

This guideline focuses on the regulatory requirements for remediation of site contamination. An initial survey of state, territory and international frameworks on the remediation and management of site contamination, including their legal basis, was completed in CRC CARE (2012). In developing the guideline existing practice documents relating to regulatory and auditor requirements have been reviewed and synthesised, building on the information provided in CRC CARE (2012). An overview of requirements in each state and territory is provided in **appendices A–I**, together with jurisdiction contact details and a summary of the comment approach to remediation regulatory requirements.

This guideline is not intended to provide a definitive and comprehensive outline of regulatory requirements. Instead, this guideline provides a broad overview of the requirements in each jurisdiction that can relate to the remediation of site contamination. It is recognised that legislation and guidance vary across each jurisdiction and is updated on a regular basis. Many of the jurisdictions are currently in the process of updating key guideline documents, as noted in the relevant sections, and this guideline may not outline current requirements.

Practitioners should consult with the appropriate regulatory bodies and jurisdictional websites to ensure the most recent legislation and guidelines are referred to when undertaking remediation of site contamination. Legal advice should be sought where necessary to confirm the legal requirements pertaining to particular circumstances.

In Australia, regulation of activity related to site contamination, including assessment and remediation, is legislated at a state and territory level. The polluter pays principle is generally adopted for liability and responsibility for the remediation and management of a contaminated site. If liability cannot be imposed on the polluter, each jurisdiction has legislative powers to issue notices to other appropriate persons.

2. General approach to site contamination assessment and remediation in Australia

There is currently no overarching, cohesive guidance in Australia for the remediation of site contamination. The *National Environment Protection (Assessment of Site Contamination) Measure 1999 (amended 2013)*, herein referred to as ASC NEPM provides for the assessment of site contamination, but specifically excludes remediation, except for placing assessment works in the context of future remediation and site management. Despite this, because of the intrinsic link between contamination assessment and remediation, many of the jurisdictions reference specific principles presented in the ASC NEPM.

Each jurisdiction provides a set of principles that underpin the management of site contamination. While the wording may vary, there is generally a common intent to the main principles that applies to all jurisdictions across Australia. These primary principles were summarised in CRC CARE (2012), and underpin the NRF, as shown in figure 1.

They include:

- precautionary principle
- prevention
- risk management during remediation and site management
- options hierarchy
- sustainability, and
- national/international obligations.

Readers are directed to the *NRF Introduction to the National Remediation Framework* for more information on the principles, and the philosophy that underpins the NRF.

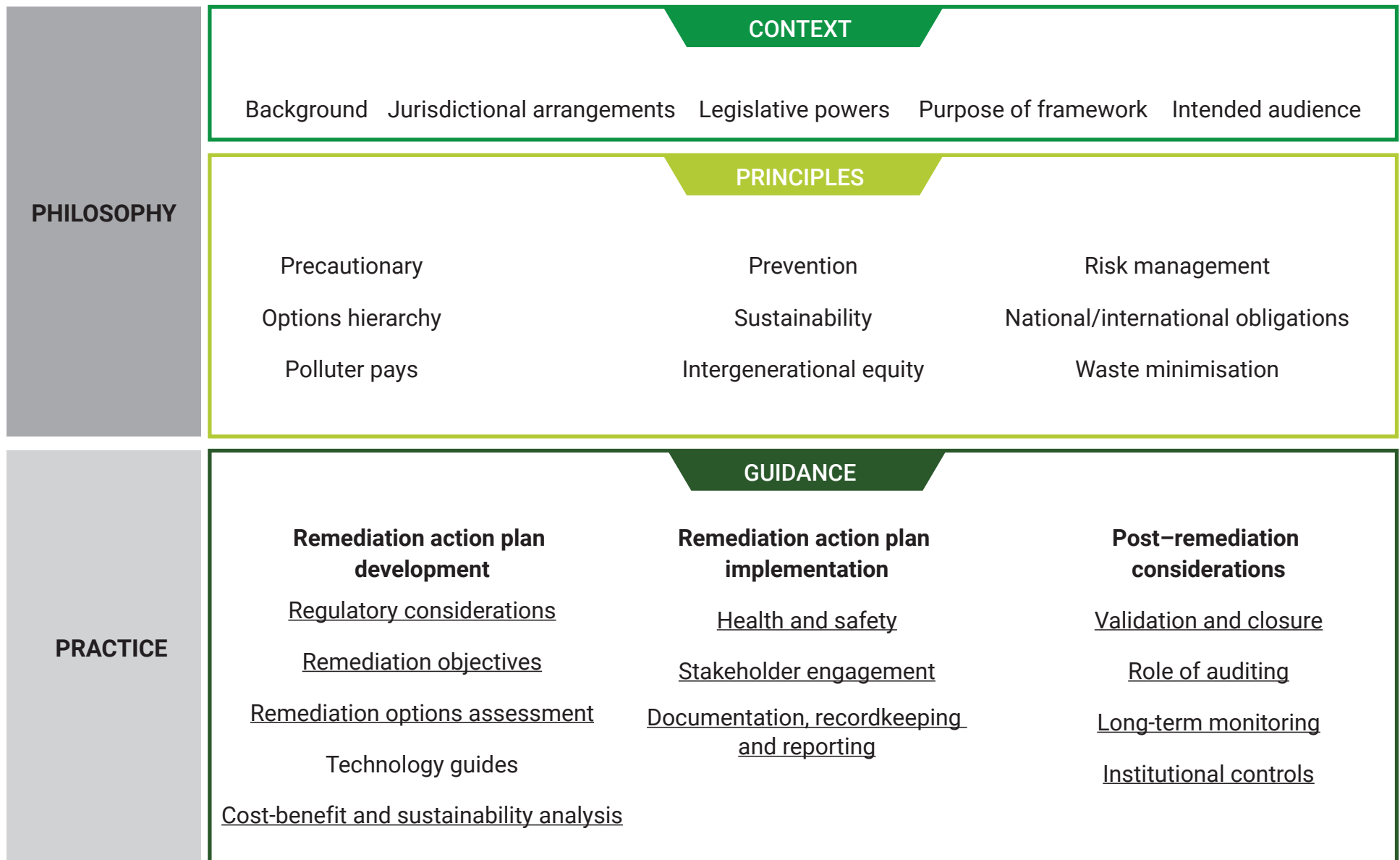


Figure 1. Schematic of the framework for remediation and management of site contamination

2.1 Contamination assessment

The ASC NEPM provides an overview of the general process for assessment of site contamination, shown in figure 2. Further detail on each component in the flow chart is provided in other Schedules of the ASC NEPM. The process outlined in the ASC NEPM is applicable to all jurisdictions across Australia. Applications must also consider environmental quality objectives that may apply under local jurisdictions.

Assessment of site contamination as outlined in the ASC NEPM is typically undertaken in a staged manner, commencing with a preliminary site investigation and limited sampling (if required). A detailed site investigation is then carried out to obtain a better understanding of the site contamination status, and to develop and refine a conceptual site model (CSM) that describes how the contamination may affect various receptors. The CSM must be continually updated as new information comes to light. This iterative process is critical in establishing a technically sound and cost-effective remediation and/or management strategy.

The assessment and remediation of site contamination should be undertaken by specialised practitioners. Schedule B9 of the ASC NEPM provides guidance on the competencies and experience that are essential for practitioners (auditors, third-party reviewers, etc.) who conduct site contamination assessments. This information is also applicable to remediation of site contamination.

There are two relevant certification schemes recognised in site contamination industry in Australia by some jurisdictions:

- Environment Institute of Australia and New Zealand (EIANZ) Certified Environmental Practitioner (Site Contamination) Scheme (CEnvP (SC)), and
- Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) certification.

Some jurisdictions require the appointment of a certified practitioner in preparing and/or reviewing and/approving reports submitted to Environmental Protection Agencies (EPAs).

2.2 Remediation process

The ASC NEPM indicates that remediation may occur at several points during the site assessment process, as shown in figure 2. The process for remediation outlined in the ASC NEPM is generic, as the steps required after it has been determined that remediation is required to manage site risks are outside the scope of the ASC NEPM, and thus it does not consider the complexities that can arise in remediating and managing site contamination. In practice, the order in which assessment, remediation and management of contamination are undertaken can vary depending on the risk posed by the contamination.

If the site assessment shows that the site is contaminated and requires remediation, then a remediation action plan (RAP) and/or site management plan (SMP) should be developed by an environmental practitioner. The terminology adopted for these plans varies across each jurisdiction, but the overall process is consistent. Jurisdiction-specific terminologies for RAP include clean-up plan (CUP) or site remediation plan

(SRP). Instead of SMP, environmental management plan (EMP) may be used in some jurisdictions.

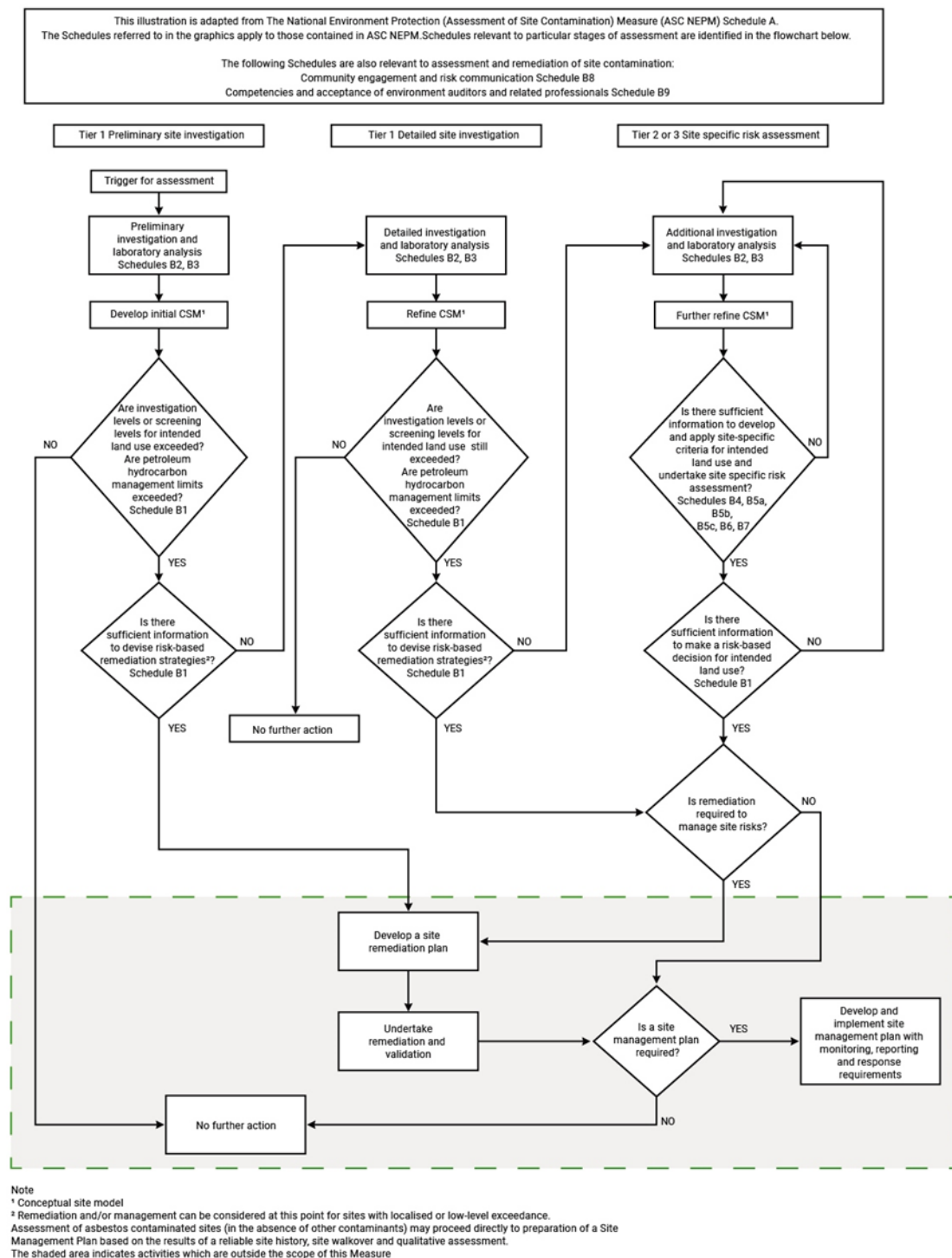


Figure 2: Site contamination assessment and remediation flow chart, from ASC NEPM schedule A

Typically, the intent of a RAP is to specify how remediation of identified contamination will be undertaken, and the required endpoints (remediation objectives). In some instances, remediation of a site may not be practicable, and it might be possible to manage the contamination in such a way that risk to receptors (onsite and offsite) is reduced to an acceptable level. In this instance a SMP will be developed, as shown in figure 2. It is important to note that in practice there can be some overlap and variability

in the use and intent of a RAP and SMP. For example, an SMP might be developed after site remediation to manage residual contamination. In the context of this document, as a generalised approach it has been assumed a RAP applies to the remediation of a site, and an SMP is developed to manage residual contamination on an ongoing basis. Readers are directed to the NRF [Guideline on documentation, record keeping and reporting](#) for more detailed information on the inclusions for RAPs and SMPs.

In developing the RAP and/or SMP, the practitioner will need to determine the remediation objectives, required monitoring and validation criteria. It is important that all parties, including stakeholders, environmental practitioner, auditor (if appointed) and regulatory agency agree on these measures before remediation can commence. Reaching an early agreement on these parameters is important in avoiding time delays and potential cost implications once remediation commences. If, following remediation there is residual contamination at a site, this may be managed through further monitoring, management and/or institutional controls (as determined by the regulator) that would be documented in a SMP. Readers are directed to the NRF [Guideline on establishing remediation objectives](#) for more detailed information.

Most jurisdictions have a provision, and frequently a requirement, for an audit. Requirements are jurisdictional-specific. For example, audits may need to be completed for sites suspected or known to be contaminated (onsite and/or offsite) where there is a potential, or actual risk to human health and the environment. In the context of site contamination, an audit is an independent review by an appointed auditor of a site contamination practitioners' activities to ensure the work complies with current regulations and guidelines for that jurisdiction and meets the standard appropriate for the proposed land use. For more information on audits readers are directed to the NRF [Guideline on the role of auditing](#), and to local jurisdiction websites and guidance.

Although each jurisdiction has specific regulatory requirements, there are common elements in the overall approach to the remediation of site contamination. This guidance has been structured around these elements:

- regulatory framework
- principles of environmental protection
- responsibility for administering regulatory requirements
- supporting guidance available for remediation and management process
- auditor involvement
- notification of contamination and triggers for remediation
- setting remediation objectives/goals/targets
- remediation process
 - remediation action plan and site management strategies
 - management and disposal of waste material
 - validation

- sign-off
- occupational health and safety, and
- post remediation considerations
 - Ongoing management and monitoring, institutional controls.

It is recognised that within each of these elements there may be other sub-elements specific to each jurisdiction that will require consideration. It is therefore important that in undertaking remediation, reference is made to the most recent jurisdiction specific information.

A flow chart outlining how the various elements link together and an overview of the process in all jurisdictions is provided in figure 3. Each element in the flow chart is then expanded upon throughout this guideline. The order in which each step shown in figure 3 will be undertaken can depend on site-specific requirements, driven by the nature of the contamination, immediate or future risk posed by contamination, protected environmental values, commercial and regulatory drivers, and so forth. Sites identified as being high risk may require immediate action and an intensive response, with multiple aspects completed in quick succession or simultaneously (e.g. immediate management of contamination to reduce risk to an acceptable level in the short term, intensive assessment with remediation taking place in parallel). Conversely, for sites where unacceptable levels of contamination have been identified but which do not pose an immediate risk to human health or the environment or other land, it may be practicable to undertake assessment and develop remediation and/or management strategies over the longer term. Each site must be assessed on a case-by-case basis, and agreement reached regarding the requirements for remediation with the regulator and stakeholders.

Regulatory requirements that are common to most remediation scenarios are outlined in section 3.1 which provides an overview of these elements and commonalities or differences between jurisdictions. Regulatory requirements for remediation in each jurisdiction are provided in **appendices A to I**. **Appendix I** includes federal airports.

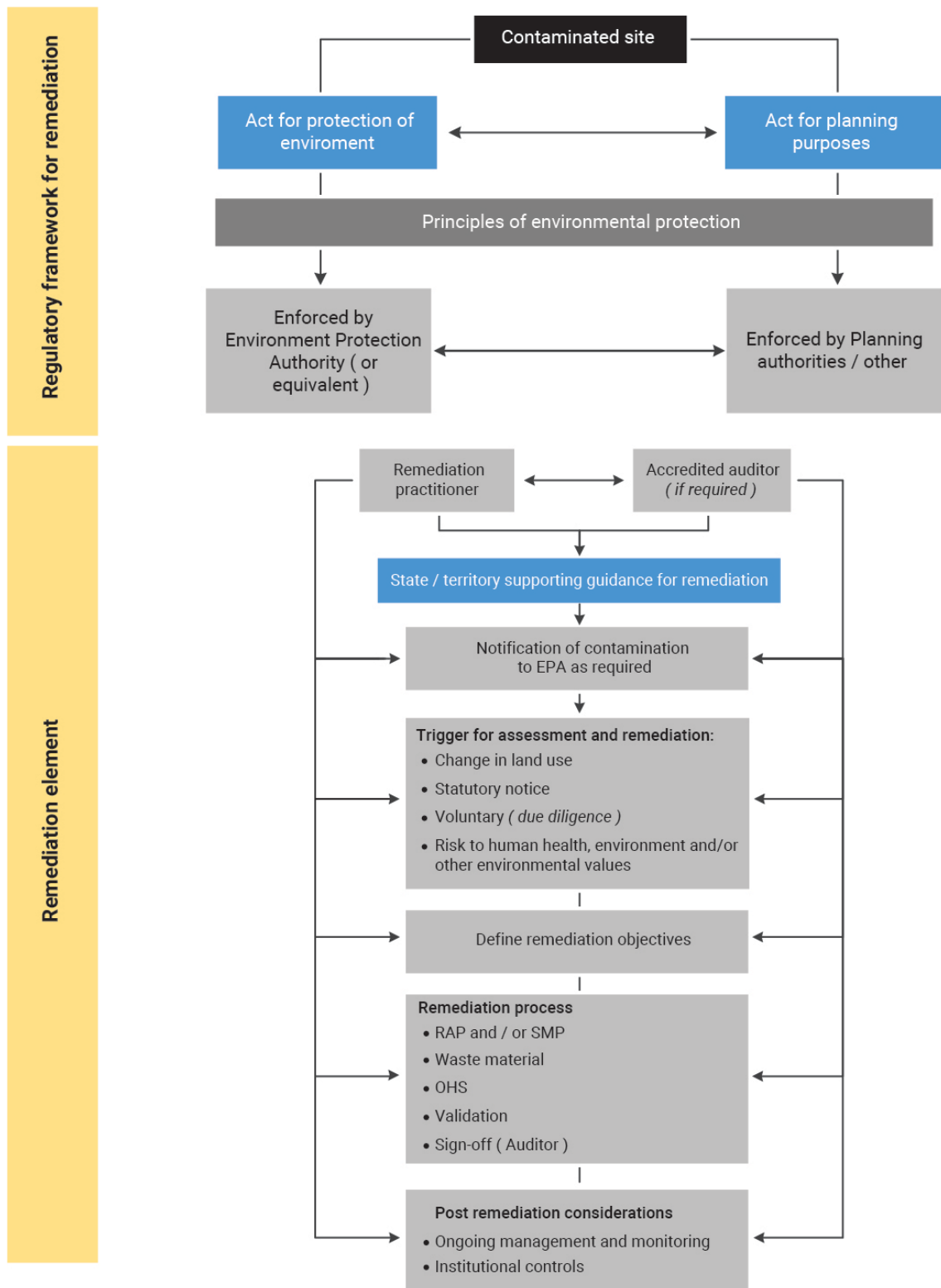


Figure 3: Interaction between regulatory framework and remediation management

3. Commonalities and differences between jurisdictions

In compiling a summary of the regulatory requirements for remediation applicable in each jurisdiction, several common elements and differences were identified. An overview of these observations is provided within section 3. It is not intended that this overview provide a definitive statement on requirements, as the regulatory requirements and guidance may be modified over time. Additionally, each jurisdiction has very specific requirements (or absence of requirements) that are not directly comparable. Attempting to identify all the differences and undertaking a detailed analysis of what may constitute an ideal regulatory framework is beyond the scope of this guidance.

Important note to readers: As at the time of finalising the NRF, Victoria was in the midst of substantive regulatory reform – with a new environmental protection framework which will affect site contamination matters. The draft environmental protection framework is expected to be released in July 2020. Consequently, it is particularly important to refer to the most up to date information directly from EPA Victoria.

A key conclusion from this review of jurisdictional requirements is that the regulatory framework underpinning remediation of contamination across Australia is complex, and highly specific at a jurisdiction level.

It is essential that the most up to date information is sought from the appropriate regulator, and each site considered on a case by case basis.

3.1 Regulatory framework for remediation

Each state and territory have the following general legislative framework relating to remediation of contaminated land:

- At least one Act that specifically legislates for the management and protection of the environment. NSW and WA have developed Acts specifically for site contamination.
- An Act that provides for the planning and development process.

VIC and SA have developed subordinate legislation in the form of State environment protection policies (VIC) or Environment protection policies (EPPs) (SA) which provide details of the requirements of the relevant Acts under which they are created. ACT has also developed EPPs, however in the ACT EPPs are not statutory documents. QLD EPPs prescribe environmental values and associated quality objectives.

3.2 Principles of environment protection

All jurisdictions refer to the principles of sustainable development. Though the wording differs between jurisdictions, the inherent meaning is generally consistent. The principles are listed at the beginning of section 2 within this guideline and are expanded upon within the *NRF Introduction to the National Remediation Framework*.

3.3 Responsibility for administering regulatory requirements

Each jurisdiction has an EPA or equivalent – Department of Environment and Science (DES) in QLD and Department of Water and Environmental regulation (DWER) in WA – established under a state/territory Act. These environmental protection agencies have the responsibility of administering the environmental legislation. Planning authorities typically administer the requirements of the planning Acts, working closely with the EPAs.

3.4 Supporting guidance available for remediation and management process

The number of guidelines, and the style and information in these guidelines varies significantly across jurisdictions. Relatively little information specifically related to remediation is available in QLD, ACT, TAS and NT. For NSW, WA, VIC and SA there is substantially more guidance provided and the requirements for remediation of a site are outlined in publicly accessible documents. In QLD, environmental quality objectives apply across all activities rather than being specific to land contamination.

3.5 Auditor involvement

Environmental legislation in all jurisdictions refer to an audit. There are jurisdiction-specific requirements. For example, the requirement to audit can apply to sites (onsite and/or offsite) suspected or known to be contaminated where there is a potential, or actual risk to human health and the environment, for an audit to be completed. An audit (in the context of contaminated land) is essentially a third-party review by an appropriately accredited person, of the assessment, remediation and validation works undertaken at a contaminated site. The auditor will provide a statement (or certificate in VIC and report in WA) of audit, specifying the auditor's opinion as to whether the site is suitable for any use, its current, or proposed future use, and any management or further remediation actions that may be required.

While the audit process is followed in all jurisdictions, ACT, TAS and NT do not accredit auditors, but rather allow for the engagement of auditors accredited in other jurisdictions to complete contaminated land audits.

3.6 Notification of contamination

VIC is the only jurisdiction in which there is no statutory requirement to notify the EPA of site contamination (note aforementioned regulatory reform). It does require that pollution of sites is prevented and managed –the new environment protection framework will further influence this. All other jurisdictions have a mechanism within the environmental legislation that requires notification of known or suspected site contamination.

3.7 Triggers for remediation

At times, the primary trigger in all jurisdictions for an environmental assessment, and remediation and audit (if required) is a change in land use to a more sensitive use. This is generally enacted under the relevant planning legislation. Planning authorities play a key role in this process. The process takes different forms in different jurisdictions.

Other situations in which the need for assessment and remediation may be required is when the regulator is made aware of site contamination and requires action to be taken, or if a site owner/occupier voluntarily undertakes an investigation (e.g. for due diligence, sale, development approval requirement or as a contractual requirement).

Once contamination and the need for remediation and/or management has been identified, the process followed will vary depending on the level of the risk posed by the contamination, and site-specific drivers (e.g. stakeholder and regulatory requirements). Actions may range from further assessment to better characterise the source, nature and extent of contamination, the harm caused or threatened and provide for development of more targeted remediation and/or management strategies, or development of a RAP and/or SMP. Ultimately however, where contamination exists such that remediation is required, the next step in the remediation process is generally to derive remediation objectives to facilitate the development of a remediation strategy or action plan. Depending on the remediation objectives, a remediation process will need to be planned, including the critical step of a remediation options assessment (ROA).

3.8 Remediation objectives

The level of advice provided on setting remediation objectives is variable, with most jurisdictions allowing for a risk-based approach to develop site specific remediation objectives for onsite contamination. Where contamination has moved offsite, prescribed objectives may apply to protected environmental values. Often it will be an auditor who would review and approve the adopted remediation objectives. In some instances, (e.g. TAS, VIC) the regulatory body will provide guidance and/or approval on the remediation objectives (and/or RAP).

It is noted in the ASC NEPM that the human health and ecological investigation levels are not to be used as remediation goals, and this is recognised in several guidance documents. However, in practice the ASC NEPM investigation levels are often used as clean-up/remediation targets, because the assumptions on which the investigation levels are based can have general applicability for protection of certain land uses and there may not be a reason for varying from them. Remediation will need to consider land use scenarios outside the four generic land uses (A, B, C and D) where relevant to the contamination and setting e.g. contaminants that affect agricultural use.

The terminology used in each jurisdiction can vary. For the purposes of this document, remediation objectives refer to the beneficial uses (or environmental values) that are to be protected and the contaminant concentrations for soil, soil vapour, surface water and groundwater that correspond to achieving this protection. Where appropriate the jurisdiction-specific terminology has been adopted. Refer to the NRF [Guideline on establishing remediation objectives](#).

3.9 Remediation process

The overall remediation process followed in each jurisdiction is generally consistent; in summary:

- Contamination of soil and/or water (surface or groundwater) is identified through a site assessment process. A CSM is developed to understand the extent and magnitude of the contamination, pathways by which receptors may be affected, and the risk posed by the contamination. Assessment of contamination is typically undertaken in accordance with the requirements of the ASC NEPM (and *Australian Water Quality Management Strategy*).
- A RAP and/or SMP (terminology may vary in jurisdictions) is prepared, depending on site-specific requirements. Depending on the risk posed by contamination, remediation may not be practicable/warranted, and implementation of site management strategies (documented in a SMP) may be sufficient to reduce contamination risks to an acceptable level.
- Where the site is subject to regulatory oversight, an auditor and/or the regulatory agency may review and endorse the RAP and/or SMP.
- Remediation works are undertaken to reduce the risk posed by contamination to human health and/or the environment to an acceptable level.
- Validation sampling works are carried out.
- If residual contamination remains at the site a SMP may be required to manage ongoing risks associated with the contamination.

High-level guidance is provided in most jurisdictions (e.g. NSW, SA, WA, TAS, NT, QLD) with respect to developing a RAP and/or SMP and the remediation process, with varying levels of detail. In all jurisdictions an auditor (if involved) would typically review and endorse RAPs and SMPs prior to any necessary consideration and approval by a regulatory agency. The guidance provided in each jurisdiction is continually being updated; therefore, it is important that practitioners consult regulator websites for specific requirements.

3.9.1 Waste material

All jurisdictions require that contaminated soil is classified and disposed of in accordance with state/territory-specific guidelines and legislation (including a waste hierarchy). Most jurisdictions treat contaminated soil as controlled/prescribed waste, which can only be transported and disposed of at appropriately licensed facilities.

For more detailed information on handling waste material during remediation readers are directed to the NRF [Guideline on validation and closure](#).

3.9.2 Occupational health and safety

VIC, SA and WA specifically address occupational health and safety (OH&S) requirements at a high level in various guidance documents. NT, QLD, NSW, ACT and TAS do not reference OH&S in relation to site contamination. All jurisdictions require compliance with an overarching health and safety Act.

For more detailed information on health and safety considerations during remediation readers are directed to the NRF [Guideline on health and safety](#) for general information, and to the individual *Technology guides* for more specific information.

3.9.3 Validation

Following remediation of contamination, validation (in most cases involving sampling and analysis) will be carried out to show that soil and/or water (typically groundwater) remediation has been successful and has resulted in soil and/or water contaminant concentrations that meet the site specific remediation objectives, and the risk posed by contamination to human health and/or the environment has been reduced to an acceptable level. Guidance on the requirements for validation varies considerably across the jurisdictions. Generally, where a site is subject to an audit, it is expected the auditor would review and endorse or verify a validation report.

For more detailed information on validation readers are directed to the NRF [Guideline on validation and closure](#).

3.9.4 Auditor sign-off

Where the site is subject to audit, an audit certificate or statement or report is issued by the auditor. Such a statement will vary with the jurisdiction and the particular site requirements but will generally conclude whether the site is suitable for its current and/or proposed future use, or whether the assessment and remediation process has followed acceptable practice and the conclusions can be relied on. This may be the endpoint of the remediation process.

Where the site is not subject to audit or regulatory oversight, the remediation and validation report may constitute the endpoint of the remediation process, subject to regulatory approval.

In some instances where contamination remains at the end of the remediation process and is acceptable because of a management plan or other constraints on use of the site, if the site use or requirements for management change (e.g. proposal to change land use to a more sensitive use), it may become necessary to undertake a further assessment, remediation and audit process to ensure that the site is suitable for the new situation.

For more detailed information on audits readers are directed to the NRF [Guideline on the role of auditing](#).

3.10 Post remediation considerations

If residual contamination poses, or may pose a risk to the current or proposed future use of the site, ongoing monitoring or management requirements may be specified and detailed in a SMP which has been reviewed and endorsed or agreed to by relevant parties (e.g. auditor, environmental protection agencies, the planning authority, and the organisation(s) or person(s) responsible for implementing the SMP).

For more detailed information on post-remediation considerations readers are directed to the NRF [Guideline on implementing long-term monitoring](#) and [Guideline on implementing institutional controls](#).

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Appendix A – Regulatory summary: ACT

Key resources

Entity	ACT Environment Protection Authority
Acronym	ACT EPA
Website	www.accesscanberra.act.gov.au/app/answers/detail/a_id/3149/~environment-protection

Regulatory framework

Environment Protection Act 1997 (EP Act ACT)

In 1999 provisions specifically related to contaminated sites were inserted into the *EP Act ACT*. These provisions have enabled the assessment, remediation and audit of contaminated sites that pose a significant risk of harm to human health or a risk of serious or material harm to the environment.

Specific provisions of the *EP Act ACT* relating to contamination include:

- meaning of contaminated land
- register of contaminated sites
- duty to notify existence of contaminated land
- assessment and remediation of contamination
- audit of contaminated land assessment and remediation, and
- costs of assessment and remediation.

Contaminated Sites Environmental Protection Policy (November 2009) (Contaminated Sites EPP)

The *Contaminated Sites EPP* supports the contaminated sites provisions of the *EP Act ACT*. In the ACT EPPs made under the *EP Act ACT* are not legally binding in themselves; they are statements of policy, guidelines and explanations of legal requirements.

The *Contaminated Sites EPP* is intended to provide guidance as to how the *EP Act ACT* and *Environment Protection Regulations 2005* apply to contaminated land. It provides guidance relating to the assessment and remediation (including management) and audit of contaminated land, aiming to minimise the risk of adverse impacts of contaminated land on the environment or human health. The objectives of the *Contaminated Sites EPP* are to:

- provide information to the community
- detail how the EPA will regulate contaminated land
- minimise the risk of adverse impacts of land contamination on the environment and human health within the ACT and elsewhere

- ensure that the approved land use (or uses) can be conducted without contamination presenting, or being likely to present a significant risk of harm to human health or a significant risk of material or serious environmental harm
- establish a process for assessing and, where appropriate, remediating contaminated land which presents, or is likely to present, a significant risk of harm to human health or a significant risk of material or serious environmental harm
- establish a process of independent audit of the assessment and remediation of contaminated land, and
- ensure that the ACT meets its national obligations and plays its part in Australia meeting its international obligations under national and international agreements relating to contaminated land.

The *Addendum – Contaminated Sites Environment Protection Policy* July 2016 formalised the adoption of the ASC NEPM as part of guidance required to be used in the ACT.

Other EPPs

Other EPPs that have relevance to management and remediation of contaminated land include:

- *General Environment Protection Policy, May 2016*
- *Water Quality Environment Protection Policy, April 2008, and*
- *Hazardous Materials Environment Protection Policy, November 2010.*

Planning and Development Act 2007 (PD Act)

The ACT uses an approach to development applications under the *PD Act* that distinguishes between code, merit and impact track developments. Developments in the code and merit tracks are assessed against the assessment code of the territory plan. Impact tracks development applications are considered against the code, an environment impact statement (unless exempt under the *PD Act*) and the statement of strategic directions.

The *PD Act* requires the planning authority to consider certain considerations when deciding application for development approval within the impact track. These considerations include the suitability of the land for its proposed purpose, the likely impact of the proposed development, including the nature, extent and significance of probable environmental impacts.

The *PD Act* requires that an environmental impact statement be completed where a development or proposal:

- involves land registered in the register of contaminated sites, or
- is likely to have a significant adverse environmental impact.

Principles of environment protection

The *EP Act ACT* specifies the following principles that ACT EPA must have regard to the principle of a shared responsibility for the environment, including through:

- acknowledging environmental needs in economic and social decision-making
- public education about and public involvement in decisions about protection, restoration and enhancement of the environment
- the precautionary principle
- the intergenerational equity principle
- the waste minimisation principle, and
- the polluter pays principle.

Responsibility for administering regulatory requirements

The ACT EPA, a public servant, is established under the *EP Act ACT*. The EPA is responsible for administering the *EP Act ACT* and the *Water Resources Act 2007*. The EPA grants environmental authorisations promotes environmental awareness, public and industry education, enters into environmental protection agreements, develops codes of practices with industry, and issues notices, EPOs and a range of other instruments.

Supporting guidance available for remediation and management process

Section 12 of the *Contaminated Sites EPP* refers in general terms to numerous guidelines and references dealing with contaminated land assessment and remediation, but states that, 'currently, there are no guidelines, standards or procedures, other than the ASC NEPM, prescribed under the [*EP Act ACT*] or Environment protection Regulation 2005'. Section 9.2 notes, 'the principle guideline for the remediation and management of contaminated sites in the ACT is the *Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites*, Australian and New Zealand Environment and Conservation Council and the National Health and Medical Research Council, January 1992 (ANZECC & NHMRC)'.

The *Contaminated Sites EPP* refers to other relevant publications and references to be to be used, as appropriate, for contaminated land assessment or remediation in the ACT auditor involvement

Auditors are approved under the *EP Act ACT*. The ACT does not have a scheme for accrediting auditors. Auditors appointed in other jurisdictions are approved under s75 of the *EP Act ACT*. The ACT EPA maintains a list of approved auditors (s75(3) of *EP Act ACT*). The role of auditors is provided in Division 9.2 of the *EP Act ACT*.

An independent audit is required if the EPA has issued an order to assess (under Section 91C of the Act) or remediate (under Section 91D of the *EP Act ACT*) contaminated land. The EPA can also require a person to undertake an audit under Subsection 76(1)(a) of the *EP Act ACT*. This may occur where the EPA wishes to verify a voluntary assessment or remediation of contaminated land, based on either past activities undertaken at a site, or the level of environmental harm. There are specific requirements relating to the assessment, remediation, validation and audit of service station sites in the ACT.

On completion of an audit, the auditor is required to issue a site audit statement (or certificate of environment audit if the auditor is accredited in VIC). Prior to issuing a site audit statement or certificate, the auditor must complete a site audit report which summarises the basis and rationale for the conclusions in the site audit statement. The *Contaminated Sites EPP* requires that the auditor's draft site audit statement and draft site audit report be forwarded to the EPA for review and comment prior to finalisation.

An auditor is required to notify the ACT EPA under s76A of the *EP Act ACT* within seven working days of receiving a request to carry out an audit of contaminated land whether under the *EP Act ACT* or another Act. In the majority of cases the notification is triggered by an audit required as a condition of development consent under the *PD Act 2007*. The EPA is a mandatory referral entity for development proposals under the *PD Act*. All audits notified under section 76A are placed on the register of contaminated sites as detailed in section of the *EP Act ACT*.

Register of contaminated sites

The ACT EPA must keep a register of contaminated sites under s 21A of the *EP Act ACT*. The register must contain particulars of land in relation to an order under section 91C (to assess) and section 91D (to remediate) or section 125 (to manage). It must also include audits required by the EPA under section 76 and audits notified under section 76A.

The *EP Act ACT* details in sections 21A and 21 B how a site is removed from the register and notification requirements. The notification requirements include that the relevant planning authority must be notified of an entry in the register.

Notification of contamination and triggers for remediation

Notification

A person conducting an activity who becomes aware that the land is contaminated in such a way as to present, or be likely to present, a significant risk of harm to human health, or a risk of material or serious environmental harm must notify the Environment Protection Authority as soon as possible under section 23A of the *EP Act ACT*. There are significant penalties for failure to notify.

Triggers for assessment and remediation

The need for an assessment is usually triggered by a change in lease purpose or land use where potentially contaminating activities have occurred at a site. Assessment is generally undertaken voluntarily by the lessee or developer who will benefit from the

redevelopment of the site (*Contaminated Sites EPP*). Site specific requirements for assessment, remediation (if required) and independent audit of a site are included in the development approval granted by the ACT Planning and Land Authority normally based on advice from the ACT EPA as a mandatory referral entity

Compliance and enforcement

Section 6 of the *Contaminated Sites EPP*, details the EPA's general approach to compliance and enforcement, consistent with the duty in section 2 to administer the *EP Act ACT* and give effect to its objects and principals, will be:

- First, to seek to work in partnership with business and the community as co-regulators and educators.
- Secondly, to warn.
- Thirdly, to take non-criminal statutory action such as authorisation variations and issuing environment protection orders, together with on-the-spot fines as appropriate and requiring compulsory environmental audits.
- Finally, to consider suspension or cancellation of an authorisation, or referral to the Director of Public Prosecutions (DPP) for a decision on prosecution, or both, as appropriate.

The EPA encourages a voluntary approach to contaminated land assessment and remediation. Generally, the EPA will use enforcement instruments available under the *EP Act ACT* only where no resolution to the problem can be reached through the co-operative approach. The *EP Act ACT* imposes penalties on persons who contravene an order without reasonable excuse.

Environmental management instruments included under the *EP Act ACT* include:

- **Environmental authorisations:** a form of a licence to conduct an activity which has a significant potential to cause environmental harm, setting out conditions under which the activity must be conducted. Includes the treatment, storage or handling of contaminated soil above certain threshold levels.
- **Environment protection agreements:** formal agreement under part 7 of the *EP Act ACT* between the EPA and a business. Can include an agreement for the assessment, remediation (if required) and independent audit of a site to ensure the site is suitable for the proposed and permitted uses; and
- **Environment protection order (EPO):** issued by EPA under s125 of the *EP Act ACT* where the EPA is satisfied the person has breached the *EP Act ACT* or an environmental authorisation condition. May be issued for a site that is known to be contaminated, but where the land is still suitable for its current use (or another approved use) to permit the current use (or another approved use) pending compliance with certain conditions (e.g. an industrial site that is contaminated above levels suitable for sensitive land use, but below those for the current use).

Setting remediation goals, objectives, clean up targets

No specific advice is provided regarding the setting of remediation goals, objectives or clean up targets. The *Contaminated Sites EPP* provides general advice on determining clean-up standards, defining two broad approaches:

- To decontaminate the site, by bringing the level of contamination back to background levels. This approach preserves the multi-functionality of the land, rendering the site suitable for any future land use.
- To set the standard of clean-up no higher than necessary to be compatible with the intended or permitted uses of the site. This fit for use approach recognises that resources are always limited; and in some circumstances it may not be necessary or desirable for economic, social or environmental reasons to have the site suitable of any use.

An information sheet provided for the assessment and validation of sites contaminating above ground or underground fuel storage tanks refers to the NSW OEH (2011) which states that remediation goals should 'ensure the remediated site will be suitable for the proposed use and pose no unacceptable risk to human health or to the environment'. In practice the ASC NEPM human health and ecological investigation levels are often used to derive the remediation objectives. Site specific remediation objectives may be developed following a risk-based approach in accordance with the ASC NEPM. In this instance an auditor would review and approve the remediation objectives and verify the risk assessment satisfies the requirements of the jurisdiction in which the auditor is accredited. In the ACT as detailed in the *Contaminated sites EPP* all audits are required to be endorsed by the EPA.

Remediation process

Remediation action plan and site management strategies

The *Contaminated sites EPP* outlines the preferred order of options for site remediation and management:

- onsite treatment of the soil so that the contaminant is either destroyed or the associated hazard is reduced to an acceptable level, and
- offsite treatment of excavated soils which, depending on the residual levels of contamination in the treated material, is then returned to site, removed to an EPA approved site for beneficial re-use or removed as waste to an EPA approved landfill.

If in-situ remediation is proposed EPA approval is required.

Specific guidance on when remediation is required and the elements required to be considered are detailed in the *Contaminated sites EPP* (see section 9 of the EPP for further details. Where a site is subject to audit, the auditor would be required to review and approve any remediation documents as part of the audit process (RAP, SMP, etc.), in accordance with the requirements of the jurisdiction in which the auditor is accredited. Where the site is not subject to audit the EPA provides the audit function for the remediation.

The principal guidance in the ACT for the remediation and management of contaminated land is the *Australian and New Zealand Guidelines for Assessment and Management of Contaminated Sites 1992*.

Information sheet 2 *Requirements for the assessment and validation of former service station sites* indicates the RAP and OH&S plan must be reviewed by the auditor, and a copy of the auditor's endorsement of the RAP provided to the EPA before remedial works commence.

Management and disposal of waste material

Waste soil must be managed and disposed in accordance with the requirements outlined in information sheet 4, *Requirements for the reuse and disposal of contaminated soil in the ACT*, November 2018. If material is to be reused onsite, details must be included in the assessment/validation report and submitted to EPA for review and endorsement within 15 working days of completion of the report. If offsite reuse is being considered, approval must be sought from the EPA. The EPA assesses reuse options (including offsite reuse) and disposal of material on a case-by-case basis and no material is to be removed offsite for reuse or disposal without EPA approval.

Information sheet 5 *Requirements for the transport and disposal of asbestos contaminated wastes*, October 2016 provides requirements for transport and disposal of asbestos wastes.

Occupational health and safety

The *Contaminated sites EPP* details that the EPA works with other regulatory agencies such as public health, planning, construction, occupational health and safety, waste management and dangerous goods authorities to ensure an integrated approach. For example, all development applications in the ACT are referred to the EPA and other relevant government agencies for comment.

There is no specific requirements for remediation. The *Contaminated sites EPP* details that for activities involving working with hazardous materials, the *Hazardous material EPP* provides guidance for management of hazardous materials and the *Work health and safety Act 2011* is the relevant Act.

As noted above, Information sheet 2 *Requirements for the assessment and validation of former service station sites* indicates that an OH&S plan must be reviewed by the auditor.

Validation

The *Contaminated sites EPP* details that following remediation it must be proven that remediation goals have been met and remnant contamination does not present an unacceptable risk to human health and/or the environment based on the current or proposed land use, through appropriate sampling of soil, groundwater and/or vapour. Validation of groundwater quality requires ongoing monitoring over a pre-determined period of time.

Where the site is subject to environmental audit, the auditor must review the validation procedures and verify the validation is adequate for the auditor to form an opinion of the suitability of the land for its current or intended use. Where a site is not subject to an audit this function is undertaken by the EPA.

Sign-off

At the completion of an environmental audit the auditor must provide a statement or certificate (if auditor is accredited in VIC) of their opinion on the condition of the site following assessment and remediation (if undertaken). This is with respect to the site's suitability for its proposed and permitted uses (the auditor has to consider all the uses permissible under the territory plan and the crown lease and must detail which if any uses are not permitted).

In accordance with the *Contaminated sites EPP* all audits voluntary or statutory undertaken in the ACT must be endorsed by the EPA. It is also a requirement that all draft audits be provided to the EPA for review prior to finalisation.

Post remediation considerations

Where a site is subject to an environmental audit, and the auditor issues a statement of environmental audit, any ongoing monitoring or management requirements would be specified. The auditor would review and endorse any SMPs for the site and would verify that any further remediation works had been adequately completed. The cessation of any monitoring or management required in a SMP is required to be approved by the auditor and the EPA.

As detailed in the *Contaminated sites EPP*, SMP's must be practical to implement and enforceable.

Where a site is subject to an environmental audit, and the auditor issues a statement of environmental audit, any ongoing monitoring or management requirements must be specified. The auditor must review and endorse any SMPs for the site and would verify that any further remediation works had been adequately completed.

Institutional controls

Following the environmental assessment, remediation and audit of contaminated land there are instances where ongoing site management is required. These management requirements, as detailed in a SMP, may be passive or active and must be implemented to ensure any residual contamination is appropriately managed and does not pose an ongoing and/or unacceptable risk to human health and/or the environment.

For an independently audited site, the auditor must, as a requirement of their accreditation, ensure that any ongoing management plan is reasonably legally enforceable.

This would equally apply to sites audited by the EPA to ensure any ongoing SMP is legally enforceable.

To ensure SMPs are implemented and are legally enforceable they require appropriate institutional controls to be in place. These institutional controls may include conditions within the crown lease and notation on title for a site, entering into an Environmental Protection Agreement (Agreement) under section 38 of the Act with the land custodian or, if necessary, serving of an Environment Protection Order under section 125 (3) of the Act.

By the nature of their redevelopment, sites on leased land subject to ongoing site management requirements can be either managed by a single entity or become unit titled and managed by an owner's corporation represented by the body corporate. Due to the probable large number of owners within unit titled complexes and the possible frequent change of ownership of the individual titles it would be impractical to control these sites using the provisions under the Act listed above, that is, through environmental protection agreements or environment protection orders.

For sites requiring ongoing management which are on unleased territory land, on leased land being managed by an ACT government agency or on leased land subject to interim development (for example, Greenfields developments, multi-unit developments or mixed use developments which are subject to interim development prior to the land's sale and/or the establishment of the body corporate) an Agreement under section 38 of the Act should be entered into between the EPA and the land custodian.

The Agreement will detail the nature of the substances remaining at the site (or offsite), specific site details and the required management measures. The Agreement would include a requirement that the site be managed in accordance with the EPA/auditor endorsed SMP and that management continue until the EPA (and the auditor for independently audited sites) agrees in writing that the SMP is no longer required.

Should the Agreement not be complied with, an Environment Protection Order under section 125 (3) of the Act could be issued on the land custodian to ensure the site continues to be managed appropriately.

For sites where land custodianship falls to business units within the ACT Government Directorates the Agreement would also specify that these management requirements be recorded in the Transport Canberra and City Services (TCCS) Integrated Asset Management System in accordance with its Procedure for the Management of Contaminated Assets version 1.2 dated 31 May 2013 (as updated periodically).

The transfer of responsibility for SMPs subject to an Agreement (or Environment Protection Order) can only occur with the written acceptance of the EPA.

Where the EPA and/or auditor require that leased land be managed in accordance with an ongoing SMP the lessee or sublessee should request, through the ACT Planning and Land Authority, a lease variation.

The variation application should request that the conditions of the site's lease be updated to include a condition that the site be managed in accordance with an EPA/auditor endorsed SMP and that management continue until the EPA (and the Auditor for independently audited sites) agrees in writing that the SMP is no longer required.

Following the variation of the lease the EPA will register a Miscellaneous Application Encumbrance for the site with the ACT Land Titles Office. The application must reference, and include a copy of, the SMP (and the site audit statement for sites subject to an audit by an EPA approved auditor).

Commonly for unit titled sites the responsibility for the SMP initially falls to the developer and then is transferred to the owner's corporation. This is because when a unit's plan is registered the owner's corporation is created and it is automatically responsible for all common property at the site.

To ensure that the owner's corporation (and thus the unit owners) understand their obligations and responsibilities under the SMP the following requirements (or similar) must be met prior to the EPA accepting transfer of the SMP from the developer to the owner's corporation:

- at the inaugural meeting of the owner's corporation a resolution is passed accepting that it (the owner's corporation) is responsible for the requirements of the SMP
- the resolution is provided to all unit owners, and
- the budget for the unit complex makes allowances for the assessment and/or remediation (including monitoring) costs required under the SMP.

It is the EPA's preference that at least some of this budget is provided by the developer for a period of 12 to 24 months from the time of handover.

In the event that the lessee or sublessee does not apply for a lease variation and/or agreement for the transfer of the SMP is not reached between the developer and the owner's corporation the EPA may consider serving an Environment Protection Order under Section 125(3) of the Act on the appropriate person.

Note: sites subject to independent audit requiring ongoing management or sites where an Environment Protection Order under section 125(3) of the Act has been issued will be placed on the register of contaminated sites under section 21A of the Act. These sites can only be removed from the Register following receipt and acceptance by the EPA of advice from an EPA approved auditor that ongoing management of the land is no longer required.

All sites are recorded on the EPA Contaminated sites management database and geographic information system (see section 11 of the EPP for further details).

Appendix B – Regulatory summary: NSW

Key resources

Entity	NSW Environment Protection Authority
Acronym	NSW EPA
Website	www.epa.nsw.gov.au/

Regulatory framework

Contaminated Land Management Act 1997 (CLM Act)

The *CLM Act* focusses on 'investigating and (where appropriate) remediating land that the EPA considers to be contaminated significantly enough to warrant regulation'. The following regulatory tools are available for the EPA under the *CLM Act* 1997:

- s.11 Declarations
- s.10 Preliminary investigation orders
- s.17 Voluntary management proposals
- s.14 Management orders
- s.44 Amendment/repeal notices
- s.28 Ongoing maintenance orders
- s.29 Ongoing maintenance – restrictions and covenants, and
- s.47-57 Site audits.

The *CLM Act* requires the NSW EPA to examine and respond to reports of contamination, and address any contamination that it has reason to believe is significant enough to warrant regulation. The *CLM Act* requires landowners and persons whose activities have contaminated land to notify the EPA of the contamination of land in certain circumstances. Once a site is declared as being significantly contaminated, the contamination can be managed or remediated either through an order issued by the NSW EPA or it can be managed through a voluntary agreement between the polluter and the NSW EPA.

Under the *CLM Act*, the NSW EPA is required to keep a record of current and former sites it regulates or has regulated. Under s.59 of the *CLM Act*, the NSW EPA must inform the councils of land being declared or ceasing to be significantly contaminated land, a management order being served, the NSW EPA approving or withdrawing its approval for a voluntary management proposal or a voluntary management proposal being completed to the satisfaction of the NSW EPA, or an ongoing maintenance order being served or revoked. The local authority must record and make such information available using planning certificates under section 10.7 of the *Environmental Planning and Assessment Act 1979*.

Protection of Environment Operations Act 1997 (POEO Act)

The *POEO Act* is the main piece of NSW environment protection legislation covering water, land, air and noise pollution and waste management. It provides the regulatory framework for environment management including the licensing requirements for certain activities. The activities which require an environment protection licence (EPL) are listed in schedule 1 of the *POEO Act*.

The main features (that may be relevant to contaminated lands) of the *POEO Act* include:

- Protection of the environment policies (PEPs) – instruments for setting environmental standards, goals, protocols and guidelines.
- Environment protection licensing (EPLs) – licensing arrangement relating to air pollution, water pollution, noise pollution and waste management.
- Regulation of non-scheduled activities – in most cases is through local councils. In general, local councils can regulate non-scheduled activities through notice and enforcement powers. However, the EPA is the appropriate regulatory authority for non-scheduled activities undertaken by public authorities, including councils.

The *POEO Act* relates to current activities (including those, which may cause contamination) rather than legacy contamination issues, although managing legacy contamination could conceivably bring aspects of the *POEO Act* into play, particularly when undertaking remediation (e.g. certain remediation works constitute scheduled activities and require an EPL).

Environmental Planning and Assessment Act 1979 (EP&A Act)

The *EP&A Act* applies to site contamination. state environment protection policies (SEPPs) are subordinate legislation under the provisions of the *EP&A Act* and provide details of the requirements of the Act. Under SEPP 55 Managing land contamination: Planning guidelines – Remediation of land (Department of Urban Affairs and Planning and NSW EPA 1998), planning authorities are required to consider, at the development approval and rezoning stage, the potential for contamination to adversely affect the suitability of a site for its proposed use. The policy states that land must not be developed if it is unsuitable for a proposed use because it is contaminated. If the land is unsuitable, remediation must take place before the land is developed.

- SEPP 55 is used to manage land contamination through the planning and development control process. The guidelines provide advice to planning authorities on the early identification of contaminated sites, consideration of contamination in rezoning and development applications, recording and use of information, and ways to prevent contamination and reduce the environmental impact of remediation activities. Note that at the time of writing SEPP 55 is under review.

A revised version of the guidelines is being finalised by the NSW Department of Planning and the NSW EPA to reflect the changes in the underlying regulatory framework since 1998 and to clarify advice.

Principles of environment protection

CLM Act (s9) has regard to the principles of ecologically sustainable development, achieved through implementing the following principles and programs:

- the precautionary principle
- inter-generational equity
- conservation of biological diversity and ecological integrity, and
- improved valuation, pricing and incentive mechanisms.

POEO Act (s3) also refers to the need to protect, restore and enhance the quality of the environment in NSW, having regard to the need to maintain ecologically sustainable development.

The key principles identified in the *EP&A Act* require that the integration of land contamination management into the planning and development process will:

- ensure that changes of land will not increase the risk to health or the environment
- avoid inappropriate restrictions on land use, and
- provide information to support decision making and to inform the community.

Responsibility for administering regulatory requirements

The NSW EPA is the statutory body established under s15 of the *Protection of the Environment Administration Act*. The NSW EPA administers several Acts, including the *POEO Act* and the *CLM Act*. The NSW EPA uses its powers under the *CLM Act* to deal with site contamination that is significant enough to warrant regulation given the site's current or approved use.

The *CLM Act* gives power to the NSW EPA to:

- declare land to be significantly contaminated land
- order a person to undertake a preliminary investigation of land that the EPA suspects to be contaminated
- order a person to take management action in relation to significantly contaminated land
- approve a voluntary proposal to manage significantly contaminated land, and
- direct a public authority to carry out management action in relation to contaminated land.

Local councils deal with less significant contamination under the planning and development framework, including *SEPP No. 55 – Remediation of land* and the *Managing land contamination – Planning guidelines*. In cases where sites are contaminated but do not pose an unacceptable risk under the current or approved use, the planning and development process is used to determine what remediation is required to make the land suitable for a different use

Supporting guidance available for remediation and management process

Section 105 of the *CLM Act* allows the NSW EPA to make or approve guidelines for purposes connected with the objects of the *CLM Act*. These guidelines must be taken into consideration by the NSW EPA whenever they are relevant and by accredited site auditors when conducting a site audit. They are also used by contaminated land practitioners in undertaking investigation, remediation, validation and reporting on contaminated sites. Guidelines made or approved by the EPA include:

- *Guidelines for the vertical mixing of soil on former broad-acre agricultural land (NSW EPA January 1995)*
- *Guidelines for assessing banana plantation sites (October 1997)*
- *Sampling design guidelines (NSW EPA September 1995)*
- *Guidelines for consultants reporting on contaminated sites (NSW OEH August 2011)*
- *Guidelines for assessing former orchards and market gardens (NSW DEC June 2005)*
- *Guidelines for the assessment and management of groundwater contamination (NSW DEC March 2007)*
- *Guidelines on the duty to report contamination under the contaminated land management act 1997 (September 2015), and*
- *Guidelines for the NSW site auditor scheme, 3rd edition (NSW DEC October 2017).*

The ASC *NEPM* and the *ANZECC Water Quality Guidelines* are approved guidelines under the *CLM Act*.

Asbestos management is covered under *POEO Act*, *EP&A Act* and workcover legislation. Guidance on assessment and management of asbestos in soils has been developed by the NSW Heads of Asbestos Coordinating Authorities (HACA). The guidance applies principally to the legacy of poor historical on-site management of asbestos materials and not to the illegal disposal or landfilling of waste generated offsite. The guidance includes:

- *Managing asbestos in or on soil (Workcover NSW 2014), and*
- *How to deal with asbestos 'fibro' in soil at home (Safework NSW 2014).*

Auditor involvement

The NSW site auditor scheme is administered by the NSW EPA under part 4 of the *CLM Act 1997*. Auditors can be engaged to independently review investigation, remediation and validation work conducted by contaminated land practitioners to ensure the methodologies used by practitioners and the interpretation of data is

consistent with current NSW EPA regulations and guidelines. Auditors then make a judgement on the suitability of a site for a particular land use or the appropriateness of the investigation/remedial action plan or validation report. The audit culminates in the issue of a site audit statement (SAS) which outlines the conclusions of a site audit, and a site audit report (SAR) that summarises the information reviewed by the auditor, and the basis for the conclusions reached in the statement. Site auditors can also provide conclusions about the suitability of a site for a proposed land use.

The NSW EPA requires all reports submitted to it to be prepared or reviewed and approved by a certified practitioner. The EPA recognises the EIANZ certified environmental practitioner (site contamination) scheme (CEnvP (SC)) and Certified professional soil scientist contaminated site assessment and management certification (CPSS CSAM).

Notification of contamination and triggers for remediation

Section 60 of the *CLM Act* requires that the NSW EPA is notified of contamination. The *Guidelines on the duty to report contamination under the contaminated land management Act* (NSW EPA 2015) provides information on key aspects of the duty to report contamination for both community and industry. The NSW EPA also maintains a hotline telephone number for reporting pollution which includes contaminated sites. The details of the informer via the hotline are treated as confidential where the informer provides information in relation to the enforcement or administration of the environmental laws. With permission, details may be given to the local council or other regulatory authority if the incident reported is within their jurisdiction.

The NSW EPA has a range of tools at its disposal under the *CLM Act* and the *POEO Act* to direct parties to investigate, remediate or manage contaminated sites.

The NSW EPA can also issue penalty notices and prosecute parties for failure to comply.

Site auditors are accredited under the *CLM Act*, which contains comprehensive provisions regarding the accreditation of auditors and the activities of auditors. However, neither the *CLM Act* nor the *POEO Act* or *EP&A Act* explicitly require the use of a site auditor. The NSW EPA, local council, or other parties can request a site audit and then only an accredited site auditor can carry out the site audit. The *CLM Act* only explicitly provides the EPA with powers to require a site audit in association with a management order (s.16 *CLM Act*).

The EPA has discretion to choose which tools to use when regulating a contaminated site. This may be through the *CLM Act* or through a licence under the *POEO Act* (if the site is otherwise licensed). Otherwise, EPA may be satisfied that the issue is being dealt with adequately by the appropriate regulatory authority (usually council) under the planning process.

Significantly contaminated sites can be regulated via approved voluntary management proposals, rather than management orders. Voluntary management proposals are where a person submits a proposal to the NSW EPA for the management of a significantly contaminated site (a voluntary management proposal), which the NSW EPA can approve

Setting remediation objectives/goals/targets

The NSW OEH (2011) states that remediation goals should 'ensure the remediated site will be suitable for the proposed use and pose no unacceptable risk to human health or to the environment'. In practice the ASC NEPM human health and ecological investigation levels are often adopted as remediation objectives. Site specific remediation objectives may be developed following a risk-based approach in accordance with the ASC NEPM. In this instance an auditor would review and approve the remediation objectives, verifying the risk assessment satisfies the requirements in NSW DEC (2006).

Remediation process

Remediation action plan and site management strategies

NSW DEC (2006), references the ANZECC 1992 guidelines for the preferred order for implementation of soil remediation and management (onsite treatment, offsite treatment to reduce contaminant concentrations followed by return of soil to the site, removal of contaminated soil to an approved site or facility, consolidation and isolation of the soil onsite (containment)). The *Guidelines for the NSW site auditor scheme* (NSW DEC 2017) refer to the hierarchy in section 6(16) of schedule B1 of the ASC NEPM (onsite treatment, offsite treatment, consolidation/isolation of the soil (containment), disposal offsite to an approved facility). If remediation is likely to cause a greater adverse effect than leaving the site undisturbed, remediation should not proceed.

Guidelines for the NSW site auditor scheme (NSW DEC 2017) also provides information regarding a range of soil and groundwater remediation technologies and management options.

Guidelines for consultants reporting on contaminated sites (2011) provides general guidance on what a RAP should include. A checklist is provided for practitioners writing a report, which includes further detail about requirements for a RAP.

Management and disposal of waste material

Contaminated soil should be classified in accordance with the NSW EPA *Waste classification guidelines* (NSW EPA 2014b) and managed or disposed of according to the requirements of the *POEO Act*. Documentary evidence is required to confirm that any disposal of off-site soil is done in accordance with the RAP.

Occupational health and safety

While there is no specific requirement for health and safety in the environmental legislation there is relevant OH&S legislation that will need to be considered when investigating and remediating contaminated sites.

Validation

General guidance as to validation requirements is provided in the *Guidelines for the NSW site auditor scheme* and the *Guidelines for consultants reporting on contaminated sites*. Validation must confirm statistically that the remediated site complies with the remediation objectives set for the site. The validation report must assess the results of

the post-remediation testing against the remediation objectives stated in the RAP. If targets have not been achieved, reasons must be stated and additional site work proposed to achieve the original RAP objectives.

Sign-off

The auditor scheme provides for an issue of an SAS. The SAS must be consistent with and limited to the scope of the site audit. On occasion a SAS might certify that a site is suitable for a particular use. If further remedial work is undertaken on the site to allow a more sensitive use, a new site audit may be required if the planning authority requires confirmation that the new land use is suitable.

Post remediation considerations

Ongoing management and monitoring

Where full clean-up of a site is not feasible, or onsite containment of contamination is proposed, an ongoing monitoring program may be required. *Guidelines for consultants reporting on contaminated sites* (NSW OEH 2011) requires that the monitoring program should be documented, providing the monitoring strategy, parameters to be monitored, locations, frequency and reporting requirements.

Guidelines for assessment and management of groundwater contamination (NSW DEC 2007) provides information on the management and clean-up of polluted groundwater.

Guidelines for the NSW site auditor scheme (NSW DEC 2017) is also relevant.

Refer to Ongoing Maintenance Orders and provisions for restrictions and positive covenant on title in the CLM Act, and the provisions applicable to remediation under the EP&A Act.

Appendix C – Regulatory summary: NT

Key resources

Entity	NT Environment Protection Authority
Acronym	NT EPA
Website	ntepa.nt.gov.au

Regulatory requirements for remediation

Regulatory framework

Waste Management and Pollution Control Act 1998 (WMPC Act)

The *WMPC Act* provides for the protection of the environment through encouragement of effective waste management and pollution prevention and control practices and for related purposes. It requires assessment of site contamination to be conducted in accordance with ASC NEPM. The *WMPC Act* aims to:

- protect, and where practicable to restore and enhance the quality of, the territory environment by:
 - preventing pollution
 - reducing the likelihood of pollution occurring
 - effectively responding to pollution
 - avoiding and reducing the generation of waste
 - increasing the reuse and recycling of waste
 - effectively managing waste disposal
- encourage ecologically sustainable development, and
- facilitate implementation of national environment protection measures made under the *National environment protection council (Northern Territory) Act* (NT Government 2012).

The NT EPA is reviewing the *WMPC Act* and is currently considering feedback received in response to an issues paper released in September 2014.

Planning Act 1999 (PA NT)

The *PA NT* provides for and regulates planning and development on zoned land in the NT. It requires consideration of potential site contamination in development decisions, to ensure that land is fit for its proposed use.

Principles of environment protection

- Refer to the *WMPC Act* (above).

Responsibility for administering regulatory requirements

Northern Territory Environment Protection Authority (NT EPA) is established under the *Northern Territory environment protection authority Act* and administers several Acts, including the *WMPC Act*. NT EPA also has input into the development process under the *PA NT*.

NT EPA manages the assessment of site contamination for sites that threaten to pose serious or material environmental harm, or harm to human health. This is achieved through an integrated framework shared between the NT EPA and the Department of Lands, Planning and the Environment (DLPE). DLPE leads the process through land use planning and approvals, with input requested from the NE EPA.

Supporting guidance available for remediation and management process

The NT EPA is in the process of developing a guideline for the assessment and management of contaminated land, the *Draft Northern Territory Contaminated Land Guideline*, September 2016 (NT EPA 2016). This is due to be finalised. The guideline describes the legislative and policy context for the assessment and remediation of contaminated land in NT, and provide information to site owners, occupiers, contaminated land auditors and practitioners regarding the requirements for assessment, remediation and management of contaminated land in the NT. Specific information is include relating to remediation, which refers to principle 16 of the ASC NEPM.

NT EPA *Framework for contaminated sites assessment, remediation and audit involving planning applications under the planning act in the Northern Territory* (29 February 2016) provides an overview of the assessment and remediation process triggered through planning applications.

NT EPA refers to ANZECC 2000 and the ASC NEPM for information on assessing environmental harm.

Auditor involvement

NT does not have an auditor accreditation scheme, but instead approves auditors accredited under the NSW Site auditor scheme or Victorian environmental auditor scheme to undertake environmental audits in the NT. Auditors must comply with the jurisdictional requirements where their primary accreditation is held.

The requirement for audit is triggered by change in land use, and/or sensitive use subdivision, and/or NT EPA determining evidence of site contamination. An environmental audit is then required as condition of a development permit. The environmental auditor will issue a certificate or statement of environmental audit, specifying the 'fitness of a site, in terms of risk to human health or the environment, for current or proposed uses and may include conditions specific to a proposed land use'. The requirement for an audit is detailed in a notice in writing (e.g. letter) or as part of a

regulatory instrument (approval, licence or pollution abatement notice), which will specify the terms and scope of the audit, the reasons for it, and any other relevant matters.

An audit may also be undertaken on a voluntarily basis. The results of a voluntary environmental audit are privileged (s54 *WMPC Act*).

If a statement of environmental audit includes conditions relating to the ongoing management of the site, the NT EPA may include these in a pollution abatement notice.

The NT EPA maintains a register of sites (Contaminated land and environmental audit results) that have undergone assessment and/or environmental audits, and any certificates or statements issued for a site.

Notification of contamination and triggers for remediation

S12 of the *WMPC Act* requires that a person that conducts and activity that causes or is likely to cause pollution must 'take all measures that are reasonable and practicable to:

- S12(c) prevent or minimise the pollution or environmental harm, and
- S12(d) reduce the amount of the waste'.

EPA considers reasonable and practicable measures to include notifying the NT EPA when becoming aware that land is potentially contaminated, and ensuring contaminated land is assessed, managed and remediated in accordance with the *Contaminated land guideline* (NT EPA 2016).

The requirement for a site contamination assessment, and if required remediation, may be triggered by the NT EPA if it has grounds for believing that a site is contaminated:

- As a direction under S(72) (m) of the *WMPC Act*, which states that an authorised officer (a person appointed by the NT EPA), may 'require a person to treat a contaminant or waste, or to take specified measures in relation...a...premises, by a specified method and within a specified time, so as to reduce environmental harm'.
- A pollution abatement notice issued under s77 of the *WMPC Act*, which is issued to an owner or occupier of land that is polluted. It may include a range of requirements, including taking remedial action to return polluted land as far as possible to specified condition that the NT EPA thinks appropriate for the protection of the environment or the use of the land (*WMPC Act* s79(1)(d))
- An environmental audit program in accordance with s48 of the *WMPC Act* (including a site contamination assessment and an environmental audit undertaken by a person qualified under s68 of the *WMPC Act*).

Assessment and remediation of a potential site contamination can also be triggered under the planning application process. If a site is to be redeveloped for certain purposes (e.g. a more sensitive use) under the *Planning Act* a planning application must be submitted to the Department of Lands, Planning and the Environment (DLPE). The NT EPA will then determine whether there is the potential for the site to be

contaminated. If there is a potential for contamination, the planning authority will issue a condition on the development permit requiring completion of an environmental audit.

Setting remediation objectives/goals/targets

There is no specific guidance on setting remediation objectives. Typically, the objective will be to protect relevant environmental values (e.g. for soil, groundwater, surface water) at the site. Relevant human health and ecological investigation levels specified in the ASC NEPM will be adopted, or site-specific objectives developed using a risk-based approach. An environmental auditor would generally approve the adopted remediation objectives.

Remediation process

Remediation action plan and site management strategies

The *Draft NT contaminated land guideline* provides a high-level overview of the remediation process, with reference to the hierarchy provided in principle 16 of the ASC NEPM.

Guideline for the preparation of an environmental management plan (NT EPA May 2015) provides general information for the development of an EMP which could be tailored to a contaminated site.

Management and disposal of waste material

No specific guidance provided for disposal of contaminated soil or water.

Occupational health and safety

No specific requirements provided for occupational health and safety.

Validation

The *Draft contaminated land guideline* indicates that validation must prove that remediation has met the remediation goals, and that residual contamination does not pose an unacceptable risk to human health or the environment based on the current or proposed land use. Appropriate sampling of soil, vapour, groundwater or other water surfaces must be undertaken. Validation of groundwater requires ongoing monitoring over a specified timeframe.

Sign-off

Upon completion of an environmental audit the NT EPA reviews the final audit report and statement of environmental audit and provides advice to the DLPE as to whether the development permit condition has been met, and whether there are any ongoing monitoring requirements or restrictions to use of the site.

Post remediation considerations

Ongoing monitoring

If the statement of environmental audit requires ongoing management of residual contamination, a site environmental management plan (SEMP) must be developed by the development permit holder.

NT EPA then issues a pollution abatement notice (PAN) under s77 of the *WMPC Act* to regulate the ongoing management of residual contamination. The NT EPA registers the PAN on the land title.

Appendix D – Regulatory summary: QLD

Key resources

Entity	Queensland Department of Environment and Science
Acronym	QLD DES
Website	www.des.qld.gov.au/

Entity	Department of State Development, Manufacturing, Infrastructure and Planning
Acronym	QLD DSDMIP
Website	www.dsdmip.qld.gov.au

Regulatory framework

Environment protection Act 1994 (EP Act QLD)

The *EP Act QLD* is the primary legislation applicable for managing environmental matters in QLD. It aims to protect the environment with a focus on ecologically sustainable development. Provisions in chapter 7, part 8 of the *EP Act QLD* specifically relate to contaminated land, which are based on a risk management approach that requires contaminated land to be assessed in relation to its land use and in accordance with the ASC NEPM. It includes provisions for a site classification system, an environmental management register (EMR) and a contaminated land register (CLR).

The *EP Act QLD* was last amended in 2015 under the *Environmental protection and other legislation amendment Act 2014 (EPOLA Act 2014)* with the amended *EP Act QLD* coming into force on 30 September 2015.

Environment protection policies (EPPs)

EPPs are guidelines developed under the *EP Act QLD* in relation to specific aspects of the environment, including air, noise and water.

Environmental protection regulation 2008

The *Environmental protection regulation 2008*¹ covers a broad range of matters including environmental impact assessment, environmental relevant activities (ERAs), and numerous other environmental management requirements. Most relevant to contaminated land are the requirements for suitably qualified persons (SQP) and auditors, and prescribed criteria which auditors must consider when evaluating reports and plans.

The *Environmental protection regulation 2008* has been amended numerous times since its creation, the most recent changings coming into effect 8 July 2016². On 28 October 2014 the *EPOLA Act 2014* came into effect, which amends the *EP Act QLD* to

¹ www.legislation.qld.gov.au/LEGISLTN/CURRENT/E/EnvProtR08.pdf

² www.ehp.qld.gov.au/management/env-policy-legislation/policy-legislation-changes.html

improve the efficiency of the development approval process for contaminated land sites through the use of approved auditors³.

Planning Act 2016

The *Planning Act 2016* (*Planning Act*) provides a framework to integrate planning and development assessment so that development and its effects are managed in a way that is ecologically sustainable and for related purposes. The *Planning Act* is supported by the *Planning Regulation 2017* (*Planning Regulation*).

Development of land listed on the EMR or CLR is assessed under the *Planning Act* under certain triggers only (i.e. material change of use to a more sensitive land use or a development including an underground basement). The triggers indicate a requirement for assessment to determine the potential for significant risks to human health and the environment from the proposed land development in the form of a site suitability statement. Additionally, any actions that need to be taken to ensure the contamination present on the land is remediated and/or appropriately managed.

The planning system comprises two main aspects – plan making and development assessment. Local government are the key enablers of planning and development through preparation of legally binding planning schemes that are prepared in consultation with the local community and signed off by the Planning Minister⁴.

Principles of environment protection

The object of the *EP Act QLD* (part 2, s.3) 'is to protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends (ecologically sustainable development).'

In accordance with the *EP Act QLD* (division 2, subdivision 1, s8), the environment includes:

- a) ecosystems and their constituent parts, including people and communities
- b) all natural and physical resources
- c) the qualities and characteristics of locations, places and areas, however large or small, that contribute to their biological diversity and integrity, intrinsic or attributed scientific value or interest, amenity, harmony and sense of community, and
- d) the social, economic, aesthetic and cultural conditions that affect, or are affected by, things mentioned in paragraphs (a) to (c).

The purpose of the *Planning Act* (chapter 1 s.3(1)) 'is to establish an efficient, effective, transparent, integrated, coordinated, and accountable system of land use planning, development assessment and related matters that facilitates the achievement of Ecological sustainability.

Chapter 1 s.3 of the *Planning Act* defines ecological sustainability as 'a balance that integrates:

³ www.ehp.qld.gov.au/management/env-policy-legislation/policy-legislation-changes.html#previous_changes

⁴ planning.dilgp.qld.gov.au/planning/our-planning-system

- a) the protection of ecological processes and natural systems at local, regional, state, and wider levels
- b) economic development
- c) the maintenance of the cultural, economic, physical and social wellbeing of people and communities.'

Responsibility for administering regulatory requirements

The *EP Act QLD* is administered by the QLD DES. QLD DES administers the EMR and CLR, assesses SMPs, appoints contaminated land auditors, responds to pollution incidents/notifications of contaminated land, and provides guidance about the regulation of contaminated land.

The *Planning Act* is administered by the Department of State Development, Manufacturing, Infrastructure and Planning (DSDMIP).

Supporting guidance available for remediation and management process

Guidance available with relevance to remediation of contaminated land includes:

- *The duty to notify for contaminated land, version 1* (QLD DEHP 2015a)
- *Listing and removing land on the land registers, version 1.01* (QLD DEHP 2015b), and
- *Queensland auditor handbook for contaminated land* (QLD DES 2018)⁵, comprising six modules (updated 23 July 2018)

Other resources are provided on the QLD government website⁶.

Auditor involvement

The auditor for contaminated land prepares an auditor's certification for a contaminated land investigation document (CLID). All other work involved with investigating the contaminated land and preparing the CLID is undertaken by one or more SQPs. The auditor may, and indeed should, review the site investigations undertaken by the SQP as they progress. However, the auditor may only comment on the quality or suitability of the SQP's work. The auditor may not direct the work of the SQP.

A CLID may include some, or all, of a site investigation report, validation report, or draft SMP. A CLID must include a site suitability statement that states the uses or activities for which the land is suitable.

The auditor for a project independently checks and certifies that the CLID adequately and accurately presents the facts about the contaminated land, its surrounding area, and the environmental harm that might be caused by the contamination if certain uses or activities occur. When the auditor's certification also relates to a draft site

⁵ www.qld.gov.au/environment/pollution/management/contaminated-land/auditor-handbook/

⁶ www.qld.gov.au/environment/pollution/management/contaminated-land/resources/

management plan, the auditor also checks that the proposed objectives, methods and measures stated in the plan are appropriate for the proposed uses or activities. The auditor can only certify the contaminated land investigation document if it complies with the content requirements that are stipulated in ss.389(1) and 389(2) of the *EP Act QLD*. *Module 6: Content requirements for contaminated land investigation documents, certifications and audit reports* of the *Queensland auditor handbook for contaminated land* explains how the requirements may be met (QLD DES 2018).

The auditor also prepares an audit report and provides it with the certification. In the audit report, the auditor explains and justifies how they arrived at their decision to certify the CLID and its site suitability statement. The auditor also explains and justifies the appropriateness of any draft SMP. The government then relies on the auditor's certification to determine what would be suitable uses or activities on the land and whether or not the land should be listed on, or removed from, the EMR or CLR.

Each auditor must be able to call on other experts to provide support and advice when they, the auditor, are not an expert in any of the matters that are relevant to a particular contaminated land investigation document.

The *Queensland auditor handbook for contaminated land* is divided into six modules that deal with different aspects of applying to become an auditor and performing an auditor's functions. The content of the six modules of the auditor handbook is:

- **Module 1 – introduction to the auditor handbook** outlines the structure and content of the handbook, gives a brief overview of the legislation that regulates their functions, and provides advice on where to find additional information about contaminated land auditors.
- **Module 2 – auditor application requirements** explains how to apply to become an auditor in QLD, either as a new applicant or by mutual recognition of an approval from another state, and explains how to apply to renew an auditor's existing approval.
- **Module 3 – assessment of auditor applications** describes the separate assessment processes for an auditor's first-time application, renewal application, or mutual recognition application and provides new applicants with advice on how to prepare for the examination and interview.
- **Module 4 – code of professional conduct** sets out how an auditor must conduct their functions, lists the legally binding expectations for an auditor's professional behaviour and lists the obligations for how they administer their work.
- **Module 5 – auditor's functions** describes what an auditor does, and how they do it, provides information about how auditors interact with those who own or investigate contaminated land and gives an overview of how the government oversees the performance of auditors.
- **Module 6 – content requirements for contaminated land investigation documents, certifications and audit reports** provides advice about the required content of a contaminated land investigation document, an auditor's certification, and an audit report.

QLD DES approves contaminated land auditors under chapter 12, part 3A of the *EP Act QLD*.

Notification of contamination and triggers for remediation

Notification of contamination

The *EP Act QLD* (s320) requires that an owner or occupier, auditor, or local government has a duty to notify the administering authority of a contaminating event, a change in the condition of land, or a notifiable activity being carried out. In the case of uncertainty, the risk need only be reasonably likely to cause serious or material environmental harm to warrant notification.

There is a duty to notify environmental harm by any person who becomes aware that land contamination may cause or threaten serious or material environmental harm as the result of an event occurring during conduct of an activity, within the timeframe outlined in the *EP Act QLD* (chapter 7, part 1, division 2).

Triggers for remediation

Part 2, division 1 (s 321) of the *EP Act QLD* provides that an environmental evaluation (audit or investigation) can be issued by QLD DES to determine:

- the source, cause or extent of environmental harm being caused, or likely to be caused to the land (or surrounding land), by the activity or event, and
- the need for an SMP for the land or the land to be remediated.

Alternatively, under chapter 7, part 5B, QLD DES may issue a clean-up notice to a prescribed person believed to be responsible for a contamination incident.

A site will be listed on the EMR if a notifiable activity has been or is being carried out at the site or is contaminated land (s371). A listing on the EMR for a notifiable activity does not mean the site is contaminated or needs to be cleaned up or is not suitable for its current land use. This will depend on the nature, extent and risks posed by any contamination.

As per s372 sites may be listed on the CLR if:

- a) 'the land is contaminated land, and
- b) it is necessary to take action to remediate the land to prevent serious environmental harm.'

Remediation may be carried out following a trigger (described above), as a requirement to support the site suitability statement (land use) or voluntarily.

Setting remediation objectives/goals/targets

There is no specific guidance on setting remediation objectives/goals/targets. The validation report (a type of contaminated land investigation document) must describe the remedial goals, and set criteria that will be used to evaluate whether the goals are achieved. The criteria must be consistent with the ASC NEPM, QLD's *Environment protection (water) Policy 2009 (EPP (Water))*, and any other applicable standards and technical guidance. The *EPP (Water)* established under the *EP Act QLD*, is used to determine water quality objectives (WOQs) and environmental values (EVs) attributed

to natural waters within the state. EVs should be maintained or improved. The assessment must include the potential impacts on all relevant environmental values that might occur when the contamination has been remediated to the extent practicable.

EP Act QLD (s389 2b (iv)) endorses use of the ASC NEPM ‘...a CLID must include a statement of the following matters ... the extent to which the assessment of the land is in accordance with the contaminated land ASC NEPM.’

The relevant guidelines should be considered to ensure that the targets are consistent with the site suitability and listing/removal status⁷.

Remediation process

There are no prescriptive legislative tools detailing remediation processes. Remediation would be carried out following a trigger (described above) or voluntarily.

In addition to site investigation reports, validation reports and SMPs are CLIDs and require auditor review prior to submission (with an auditor’s report) to QLD DES.

Management and disposal of waste material

Onsite remediation of contaminated soil is considered best practice, and offsite treatment or disposal should only be carried out when on-site remediation is not practicable. Disposal permits (issued by QLD DES) are required for removal or treatment of contaminated soil from land which is on the EMR or CLR. Disposal permits are issued on a case by case basis.

Occupational health and safety

No specific requirements for remediation of contaminated sites. State legislation to protect workers applies.

Validation

Validation reports are CLIDs (s387) and must be prepared by an SQP (s564), in accordance with s564 of the *EP Act QLD*. If any contamination has been remediated on the land, describe the remediation in detail in a validation report. The validation report must analyse the options that were available for remediating the land, and explain why the preferred option was chosen. The validation report must also describe how the validation criteria were developed and explain why the criteria were considered appropriate for the site’s particular circumstances. The validation report must describe the contamination levels recorded on the land before and after the work was carried out (see s. 389(1)(h) of the *EP Act QLD*) and compare the contamination levels to the remediation objectives and validation criteria that were used to evaluate the effectiveness of the remediation. The report must describe how the residual contamination levels were validated and demonstrate that the methods were appropriate and statistically robust. Also, the validation report must assess any residual risks to human health and all environmental values as a result of the remediated state of the land.

⁷ www.der.wa.gov.au/your-environment/contaminated-sites/61-contaminated-sites-guidelines

Validation sampling must be adequate for the SQP and the auditor to certify that the site suitability statement relating to the current status of the land is accurate.

Sign-off

A CLID must, by law, include a site suitability statement of the uses or activities for which the land is suitable (see s. 389(2) of the *EP Act QLD*). The suitably qualified person first prepares the contaminated land investigation document and then bases the site suitability statement on its findings. A site suitability statement cannot be submitted to the QLD DES unless it is certified by an auditor.

The auditor also prepares an audit report and provides it with the certification. In the audit report, the auditor explains and justifies how they arrived at their decision to certify the contaminated land investigation document and its site suitability statement. The auditor also explains and justifies the appropriateness of any draft SMP. The government then relies on the auditor's certification to determine what would be suitable uses or activities on the land and whether or not the land should be listed on, or removed from, the EMR or CLR.

Only sites that are suitable for unrestricted land use will be eligible for removal from the relevant land register. Any site that requires ongoing management through a site management plan due to residual risks will remain on the relevant land register. That is because, while the ASC NEPM encourages a risk-based approach to manage residual contamination, the only tool currently available under QLD legislation to manage residual risks is to list the land on one of the registers.

Post remediation considerations

Ongoing site management

In some cases, it is not necessary or practical to remove all contamination from a site. In many instances contaminants may be present at a site. Where hazardous contamination is to remain on a site, or the site is to remain on the EMR, it may be more practical and present less environmental and/or human health risk for contamination to be safely managed on site under specific conditions in a SMP (s387, s391). A SMP may restrict certain activities and land use, and include ongoing groundwater monitoring as part of the conditions.

A draft SMP must be supported by a site investigation report and/or validation report that substantiates the management objectives of the plan. QLD DES will need the supporting report when deciding whether to approve the draft SMP. Specific requirements for the preparation and submission of a draft SMP are detailed in ss.391–395 inclusive of the *EP Act QLD*. Section 389(1)(i) of the *EP Act QLD* specifies that the plan must include all the following information:

- the proposed objectives to be achieved and maintained under the plan
- the proposed methods for achieving and maintaining the objectives, and
- the proposed monitoring and reporting compliance measures for the land.

A CLID must include a statement whether the objectives, methods and measures proposed in the plan are appropriate.

Appendix E – Regulatory summary: SA

Key resources

Entity	South Australia Environment Protection Authority
Acronym	SA EPA
Website	www.epa.sa.gov.au/

Regulatory framework

Environment Protection Act 1993 (EP Act SA)

The *EP Act SA* is SA's principal legislation for the protection of the environment, including land, air and water. The *EP Act SA* has undergone several revisions since 1993. The most significant revision pertaining to site contamination was the *Environment protection (site contamination) amendment Bill* which was passed in November 2007. This bill added provisions to the *EP Act SA* in relation to site contamination including defining the responsibility for site contamination, established the site contamination audit system and gave the EPA powers to deal with site contamination.

The *EP Act SA*:

- Establishes the EPA, defines its purpose, function and provides powers to meet and enforce its authority including licensing and penalties.
- Allows for the creation of EPPs to secure the objectives of the *Act*.
- Defines the general duty to the environment, specifically *EP Act SA* (s25(1)) states, 'a person must not undertake an activity that pollutes, or might pollute, the environment unless the person takes all reasonable and practicable measures to prevent or minimise any resulting environmental harm.'
- Defines the party responsible for pollution (polluter pays principle), a way of measuring environmental harm and the associated penalties and the definition of site contamination.

Environment protection policies (EPPs)

EPPs are established under s28 of the *EP Act SA*, to secure the objectives of the *Act*. EPPs developed under the *EP Act SA* relevant to remediation of contaminated land and site contamination include:

- *Environment protection (air quality) policy* (SA Government 2016)
- *Environment protection (waste to resources) policy* (SA Government 2010), and
- *Environment protection (water quality) policy* (SA Government 2015).

Development Act 1993 (DA SA)

The *DA SA* is the primary legislation for the establishment of the framework of the planning and development system within SA and is administered by the Department of Planning, Transport and Infrastructure (DPTI). The *DA SA* does not currently have any

specific statutory provisions pertaining to site contamination and deals with site contamination in the planning process (primarily in proposed zoning changes and development of contaminated sites) in a relatively informal manner. The *Development (site contamination) variation regulations 2018* (under DA SA) is currently being developed/finalised.

Principles of environment protection

The objects of the *EP Act SA* include the principles underpinning the approach to remediation and management of site contamination in SA. In summary these are:

- to promote the principles of ecological sustainable development, and
- to ensure that all reasonable and practicable measures are taken to protect, restore and enhance the quality of the environment having regard to the principles of ecologically sustainable development.

Responsibility for administering regulatory requirements

The SA EPA is SA's independent environment protection regulator. It administers the *EP Act SA*, regulations and policies, as well as developing and implementing guidelines and codes of practice.

Planning authorities are responsible for ensuring that a site is suitable for its intended use and does not pose an unacceptable risk to human health or the environment based on the current, or proposed use of the site.

Supporting guidance available for remediation and management process

Documents relevant to remediation of contaminated land include:

- *Guidelines for the assessment and remediation of site contamination* (SA EPA 2018)
- *Guideline for the assessment of background concentrations* (SA EPA 2018)
- *Site contamination policy: Certification of practitioners* (SA EPA 2018)
- *Site contamination: regulatory and orphan site management framework, 2017*, and
- *Guidelines for the site contamination audit system* (SA EPA 2015).

Auditor involvement

The audit process involves an independent review of the assessment and/or remediation of site contamination. It is undertaken by an auditor, who is accredited by the SA EPA as a site contamination auditor. Section 3(1) of the *EP Act SA* defines a site contamination audit as a review carried out by a person that:

- a) examines assessments or remediation carried out by another person in respect of known or suspected site contamination on or below the surface of a site, and
- b) is for the purpose of determining any one or more of the following matters:
 - i. the nature and extent of any site contamination present or remaining on or below the surface of the site
 - ii. the suitability of the site for a sensitive use or another use or range of uses, and
 - iii. what remediation is or remains necessary for a specified use or range of uses.

Site contamination audits are undertaken for one or more of the following reasons:

- To satisfy the requirements of the planning process pursuant to the *DA SA*.
- To satisfy the requirements of the *EP Act SA*, such as a condition of a site contamination assessment order or remediation order.
- Part of an agreement based on a voluntary site contamination assessment proposal (VSCAP) or voluntary site remediation proposal (VSRP).
- A condition of an environmental authorisation, environment improvement program, environmental performance agreement or works approval.
- For other purposes not specified in by legislation, such as due diligence.
- The result of an audit is the completion of a site contamination audit report and site contamination audit statement. The audit report documents the auditor's opinion and audit outcomes relating to the site and must be prepared in accordance with legislative requirements and guidelines issued by the SA EPA. The auditor may specify conditions in the report which must be implemented to protect human health and the environment under the current or proposed land use.
- The SA EPA retains all audit reports and statements completed in SA on the Public Register, and form 1 and section 7 statements or property interest reports. Reports on the Public Register are publicly available on request.
- Section 15 of *Guidelines for the site contamination audit system* (SA EPA 2015), provides details on the role of the auditor in reviewing remediation options assessments (ROAs) and remediation and validation reports (RVRs), endorsing site remediation plans (SRPs) and site management plans (SMPs).

Notification of contamination and triggers for remediation

Notification of site contamination

Section 83A of the *EP Act SA* stipulates that the SA EPA must be informed in writing by an owner, occupier, site contamination practitioner or site contamination auditor as soon as reasonably practicable after becoming aware of the presence of site contamination that affects or threatens underground water (SA EPA 2008). Further guidance on the notification requirements is provided in *Guidelines for the assessment and remediation of site contamination* (SA EPA 2018).

Section 103Z of the *EP Act SA* requires the site contamination auditor to notify the SA EPA within 14 days of commencement of an audit and within 14 days of termination prior to completion of the audit. Upon completion of a site contamination audit, the auditor must provide the SA EPA and person who commissioned the audit with a copy of the site contamination audit report (SCAR) and provide the local council with a copy of the site contamination audit statement (SCAS).

There is no requirement to notify the EPA until site contamination that affects or threatens groundwater has been identified. For listed hazardous circumstances provided in s5.2 of the *Guidelines for the assessment and remediation of site contamination* (SA EPA 2018), it is recommended that the EPA be notified by the practitioner within provided timeframes.

Triggers for remediation

Statutory measures by which SA EPA may enforce the assessment and remediation of a contaminated site include:

- **Site contamination assessment order** (SCAO) (s103H of *EP Act SA*) may be issued by the SA EPA in the event that the SA EPA is satisfied that site contamination exists at a site, or suspects that site contamination exists at a site due to a potentially contaminating activity occurring or previously taking place there. A SCAO will detail:
 - requirements for assessments to be carried out regarding the determination of the nature and extent of any site contamination on or below the surface of the site and, if the SA EPA determines, on or below the surface of land in the vicinity of the site, and
 - a requirement for a written report of the assessments to be submitted to the EPA in a form within a set period.
- **Site remediation order** (s103J of *EP Act SA*) issued in the event that the SA EPA is satisfied that site contamination exists at a site, and considers that remediation of the site is required, taking into account current or proposed land uses. Requirements may include:
 - remediation of the site within a set period
 - preparation of a plan of remediation to the satisfaction of the EPA, in accordance with specified requirements
 - compliance with such a plan to the satisfaction of the EPA
 - environmental authorisation for the remediation site, or any other action to be taken in respect of its remediation, on the EPA's behalf by authorised officers or other individuals authorised by the EPA
 - a written report of the remediation to be submitted to the EPA in a form within a set period
 - a person with suitable qualifications be appointed or engaged to:
 - prepare a plan of remediation
 - prepare a written report of the remediation

- carry out the remediation or other activities associated with the remediation, and
- a site contamination audit to be carried out and a report to be submitted to the EPA within a specified period consultation with owners or occupiers of land in the vicinity of the site.

Setting remediation goals and objectives

Remediation goals

Remediation strategies should address remediation goals (*EP Act SA 1993, SA EPA Guidelines for the assessment and remediation of site contamination 2018*). These goals should:

- eliminate or prevent actual or potential harm to health or safety of human beings that is not trivial, taking account the current or proposed land use
- eliminate or prevent, as far as practicable, actual or potential harm to water that is not trivial, and
- eliminate or prevent, as far as reasonably practicable, actual or potential environmental harm that is not trivial, taking into account the current and proposed land use.

Remediation objectives

The *Guidelines for the assessment and remediation of site contamination* states remediation objectives (further to remediation goals) 'provide the foundation of what remediation will be necessary, including the likelihood for long-term management measures and stakeholder involvement and expectations.' Section 8.2 provides a list of factors that practitioners should consider in this process, such as benefit of remediation options, technical success, logistics, financial and capital considerations, social impacts and risk perceptions, and the risk that the site poses to human health and the environment.

Remediation process

SA EPA's *Guidelines for the assessment and remediation of site contamination* is the key document for understanding the remediation process in SA. A robust scientific site assessment is essential in order to optimise remediation strategies. The ASC NEPM tiered risk-based approach for assessment and section 8 of the SA EPA guideline is expected to assist in establishing remediation goals and objectives. Further, the SA EPA provides specific guidance on conducting remediation options assessments (ROA). ROA should be transparent and well-informed and the options should be well prioritised for addressing harm. Validation of remediation technologies is important during remediation works. The guidelines should be referred to for specific information on remediation strategies, including ROAs, practicality considerations and remediation timeframes.

SA EPA guidelines detail a remediation reporting framework, which includes:

- remediation options assessment (ROA)
- site remediation plan (SRP)
- remediation validation report (RVR), and
- site management plan (SMP).

Management and disposal of waste material

Consideration should be given to:

- *Waste: wastes containing asbestos – removal, transport and disposal* (SA EPA 2017)
- *Guidelines for the classification of waste derived fill* (SA EPA 2013)
- *Environment protection (waste to resources) policy* (SA Government 2010)
- *Standard for the production and use of waste derived fill* (SA EPA 2013), and
- *Current criteria for the classification of waste – including industrial and commercial waste (listed) and waste soil* (SA EPA 2010).

Occupational health and safety

Appropriate work health and safety measures should be in place for any personnel involved in the assessment and remediation of site contamination, in accordance with the *Work health and safety Act* (SA Government 2012). For sites subject to an audit, refer to *Guidelines for the site contamination audit systems* (SA EPA 2015).

Sign-off

A site contamination audit (when an auditor is engaged) will typically conclude at the completion of remediation. The auditor will provide an opinion (depending on the purpose of the audit) on:

- The nature and extent of any site contamination present or remaining on or below the surface of the site – site contamination exists/does not exist at the site.
- The suitability of the site for a sensitive use or another use or range of uses – the audit site is suitable for unrestricted use without any condition, or the site is suitable for restricted use(s) (with or without conditions), or the site is not suitable for the current and/or specified use(s).
- What remediation is or remains necessary for a specified use or range of uses – the audit report must include a condition requiring a subsequent audit to be completed to confirm that the necessary remediation has been satisfactorily completed and the site was suitable for the specified use(s).

Where an auditor is not involved then the EPA will deal with the site through regulation and provide approval that remediation was achieved.

Post remediation considerations

Ongoing management and monitoring

The SA EPA *Guidelines for the assessment and remediation of site contamination* provides guidance on SMPs. An SMP is required where a site requires management following remediation (s9.5).

Groundwater prohibition area (GPA) is an institutional control to be initiated by SA EPA. A GPA provides a regulatory long-term control on the use of groundwater and eliminates the exposure of humans to site contamination that affects or threatens groundwater. In establishing a GPA the EPA must be satisfied that there is site contamination that affects or threatens water, and action is necessary to prevent actual or potential harm to human health or safety.

S103N of the *EP Act SA* allows for a special management area (SMA) to be defined at the discretion of the SA EPA if it has reason to believe that that site contamination of a particular kind exists in a wide area, or in numerous areas, as a result of the same activity or proximate or related activities. The Authority may, by notice in the Gazette:

- a) declare that the area or areas described in the notice may be affected by site contamination described in the notice, and
- b) declare the area or areas to be a special management area or special management areas for the purposes of this section.

Appendix F – Regulatory summary: TAS

Key resources

Entity	Tasmania Environment Protection Authority
Acronym	TAS EPA
Website	epa.tas.gov.au/

Regulatory framework

Environment management and pollution control Act 1994 (EMPC Act)

The *Environment management and pollution control Act 1994 (EMPC Act)* is the primary environment protection and pollution control legislation in TAS. The focus of the *EMPC Act* is to prevent environmental harm from pollution and waste, with the fundamental basis being the prevention, reduction and remediation of environmental harm. The *EMPC Act* establishes the EPA consisting of the Director and the Board. Part 5A of the *EMPC Act* relates specifically to site contamination.

Land use planning and approvals Act 1993 (LUPA Act)

The *LUPA Act* requires that planning schemes are prepared in accordance with state policies (section 20(1)(B)). Therefore planning schemes must contain specific requirements for the assessment of site suitability in relation to known and potential site contamination. Planning authorities considering applications in relation to known or potentially contaminated land may require a site assessment, and/or remediation and/or management measures to demonstrate the site is suitable for its intended use. The Tasmanian *Building Act 2016*, also states that a person must not carry out any building work on land that, in the opinion of the environmental health officer is '...contaminated, unhealthy and not suitable for the purpose until the land is cleaned or remedied...'

The ASC NEPM is given effect in TAS as a state policy under section 12A of the *State policies and projects Act 1993*⁸.

Potentially contaminated land code

The EPA TAS is working with the Tasmanian Planning Commission on a state-wide potentially contaminated land code (the code). EPA TAS advises that, 'the code, when implemented, will become a requirement under all Planning Schemes and Interim Planning Schemes in Tasmania and will define requirements for site contamination assessments and remediation where a planning application is being considered by a Planning Authority in Tasmania'.

Many councils in TAS are already operating under an interim version of the code prior to its state-wide implementation via amendments to local area provisions for each planning scheme.

⁸ epa.tas.gov.au/regulation/contaminated-sites/identification-and-assessment-of-contaminated-land/contaminated-land-and-the-planning-process

Principles of environment protection

The objectives of the environmental management and pollution control system established by the *EMPC Act*, in support of the resource management and planning system (RMPS) objectives are:⁹

- to protect and enhance the quality of the TAS environment
- to prevent environmental degradation and adverse risks to human and ecosystem health by promoting pollution prevention, clean production technology, reuse and recycling of materials and waste minimization programmes
- to regulate, reduce or eliminate the discharge of pollutants and hazardous substances to air, land or water consistent with maintaining environmental quality
- to allocate the costs of environmental protection and restoration equitably and in a manner that encourages responsible use of, and reduces harm to, the environment, with polluters bearing the appropriate share of the costs that arise from their activities
- to require persons engaging in polluting activities to make progressive environmental improvements, including reductions of pollution at source, as such improvements become practicable through technological and economic development
- to provide for the monitoring and reporting of environmental quality on a regular basis
- to control the generation, storage, collection, transportation, treatment and disposal of waste with a view to reducing, minimising and, where practicable, eliminating harm to the environment
- to adopt a precautionary approach when assessing environmental risk to ensure that all aspects of environmental quality, including ecosystem sustainability and integrity and beneficial uses of the environment, are considered in assessing, and making decisions in relation to, the environment
- to facilitate the adoption and implementation of standards agreed upon by the state under intergovernmental arrangements for greater uniformity in environmental regulation
- to promote public education about the protection, restoration and enhancement of the environment, and
- to co-ordinate all activities as are necessary to protect, restore or improve the TAS environment.

Responsibility for administering regulatory requirements

TAS EPA administers the *EMPC Act*. The EPA's purpose is to promote best practice, sustainable environmental management, and to regulate developments and activities that may impact on environmental quality. If site contamination poses a significant risk

⁹ Schedule 1, *EMPC Act*

of harm to human health and/or the environment, or harm is likely to occur, TAS EPA may issue a notice to a person or company.

Planning authorities are responsible for ensuring that a site is suitable for the proposed use or development, either through requesting sign-off from the Director, EPA, or by making an independent decision on whether information provided is appropriate to determine the site is suitable for the proposed use, and that appropriate management controls can be implemented through permit conditions to manage any contamination and associated risks to human health and the environment.

Supporting guidance available for remediation and management process

No specific guidance is available for remediation of contaminated sites. General guidance provided on the TAS EPA website for development of a RAP, validation and monitoring¹⁰. TAS EPA refers to the hierarchy of options provided under principle 16 of the ASC NEPM with acknowledgement that this may vary depending on the type and extent of contamination, media impacted, and risk posed by contamination.

TAS EPA provides the following information bulletins that cover aspects of contaminated land assessment and management:

- *Information bulletin no. 101 – Notification of a contaminated site* (TAS EPA 2012a)
- *Information bulletin no. 105 – Classification and management of contaminated soil for disposal* (TAS EPA 2012b)
- *Information bulletin no. 112 – The site contamination sign-off process* (TAS EPA 2011), and
- *Information bulletin no. 114 – Guide to engaging an ESA consultant* (TAS EPA 2012c).

Auditor involvement

TAS does not currently have an independent auditor scheme, though it generally approves the use of auditors appointed in NSW, SA, VIC, WA or QLD. Auditors must follow the regulations and guidelines where they hold their primary appointment.

As of 1 July 2018, TAS EPA requires that a person certified under the CEnvP (site contamination) or an interstate auditor must be used to conduct (or review) a range of contaminated site assessments¹¹. This includes when works are required by the Director of the TAS EPA to address land or groundwater contamination, as specified in a notice.

¹⁰ epa.tas.gov.au/regulation/contaminated-sites/identification-and-assessment-of-contaminated-land/contaminated-site-assessment

¹¹ epa.tas.gov.au/regulation/contaminated-sites/identification-and-assessment-of-contaminated-land/engaging-a-contaminated-site-assessment-consultant

Notification of contamination and triggers for remediation

Section 74B of the *EMPC Act* requires that if an owner or occupier is aware or should be aware of a site being contaminated they must notify the TAS EPA. Penalties can apply if notification does not occur. Triggers under the planning process that trigger consideration of land contamination and an evaluation of whether a site is suitable for its intended use:

- rezoning to a more sensitive land use
- change of land use to a more sensitive use, or
- development where the associated works may cause the creation of exposure pathways that could result in a risk to human health and the environment during development (TAS EPA 2011).

Notices are typically issued by TAS EPA when it becomes aware of the site through the s74B notification process:

- **Investigation notice** (s74E) issued for the purpose of determining whether land is contaminated, the type and extent of pollutant, the possibility of offsite contamination (land or water), the extent of environmental harm being caused or that may be caused by the pollution, and whether the pollutant is being appropriately managed. May require sampling and analysis of land, water and air, interpretation of data and progress reporting to the Director of the TAS EPA.
- **Remediation notice** (s74F) may be issued 'for the purpose of requiring the taking of action to ensure that persons are protected from harm, and the environment is protected from harm or further harm, that is or is likely to be caused by the relevant pollutant in, on or under that area of land when that area of land is used in accordance with its existing land use or a proposed land use' (s74F(1)). May require actions to reduce concentrations of pollutant (removal, treatment), restrict access (containment, institutional controls) to minimise exposure, progress reporting to the Director, and community consultation.
- **Site management notice** (s74G) issued for the purpose of ensuring the safe management of a contaminated site and pollutant that is polluting it. May require implementation of institutional controls (restricting entry, vacating sites, etc.), 'testing and monitoring for the purpose of detecting any changes in the nature and extent of any risk of harm to persons or environmental harm that is or may be caused by the relevant pollutant in, or under the contaminated site when that site is used in accordance with its existing land use or a proposed land use' (s74G(4)(b)).

Setting remediation objectives

TAS EPA indicates that where it is determined during the sign-off process that remediation is required, the Director of the TAS EPA may issue a notice that will provide guidance on the development of remediation goals.

In practice, typically the human health and ecological investigation levels in the ASC NEPM will form the basis of remediation objectives. Site-specific objectives may be developed using a risk-based process.

Remediation process

Remediation action plan and site management strategies

No detailed guidance available relating to the development of a remediation or management plan. TAS EPA provides a brief outline of the components of a RAP¹²:

- identification of the key stakeholders and responsibilities
- development of remediation goals and clean-up acceptance criteria
- assessment of the remediation options and determination of the preferred remediation option
- documentation of the remediation methodology including any regulatory permit/licensing requirements
- development of an environmental management plan, and
- defining the validation program to demonstrate the successful completion of the remediation, including monitoring.

Management and disposal of waste material

Contaminated soil must be managed in accordance with the *Environmental management and pollution Control (waste management) regulations 2010*. Information bulletin no. 105 provides criteria and sampling methodologies for classifying contaminated soil as one of four categories (fill material, low level contaminated soil, contaminated soil, and contaminated soil for remediation). Typically, all soils other than those classified as fill material must be managed as controlled waste. Transport of controlled waste must only be undertaken by an appropriately licensed waste transport business.

TAS EPA proposes on-site remediation, treatment and/or reuse of soil as preferable to offsite disposal of soil to landfill. Treatment, reuse options and disposal of soil is assessed on and approved on a case by case basis by TAS EPA.

Occupational health and safety

No specific requirements provided

Validation

No specific guidance provided on validation requirements. Typically, sampling is undertaken to confirm the final condition of the site, with results compared against the site clean-up objectives. TAS EPA indicates that validation must prove that remediation has met the remediation goals and residual contamination does not present an unacceptable risk to human health or the environment based on the current or proposed land use¹³.

¹² epa.tas.gov.au/regulation/contaminated-sites/identification-and-assessment-of-contaminated-land/contaminated-site-assessment

¹³ epa.tas.gov.au/regulation/contaminated-sites/identification-and-assessment-of-contaminated-land/contaminated-site-assessment

Sign-off

TAS EPA Information bulletin no. 112 provides details on the sign off process. The site contamination sign-off process is a written endorsement that appropriate assessment of the site has been undertaken by a suitably qualified practitioner, and that it is reasonable to rely on the practitioner's recommendation that the land is suitable for its intended use. The process was established to assist planning authorities in meeting the requirements of *LUPA Act* and the *Tasmanian building Act 2000* (now superseded), in ensuring that land is suitable for its intended use¹⁴. The sign off process is triggered by a request to the Director of EPA TAS by a planning authority. The bulletin is currently under review given the changes imminent under the potentially contaminated land code.

Post remediation considerations

Planning permits may include contamination management measures, such as development and implementation of a soil and water management plan or institutional controls (e.g. fencing, access control).

¹⁴ Information Bulletin 112

Appendix G – Regulatory summary: VIC

Key resources

Entity	Environment Protection Authority Victoria
Acronym	EPA Victoria
Website	http://www.epa.vic.gov.au/

Entity	Victorian Department of Environment, Land, Water and Planning
Acronym	DELWP
Website	https://www.planning.vic.gov.au/

Regulatory framework

As at the time of finalising the NRF, Victoria was in the midst of substantive regulatory reform – with a new environmental protection framework which will affect site contamination matters. The draft environmental protection framework is expected to be released in July 2020. Consequently, it is particularly important to refer to the most up to date information directly from EPA Victoria.

Appendix H – Regulatory summary: WA

Key resources

Entity	Department of Water and Environmental Regulation
Acronym	DWER
Website	dwer.wa.gov.au/

Regulatory framework

Contaminated Sites Act 2003 (CS Act)

The *CS Act* provides the framework for the identification, recording, management and remediation of contaminated sites. The *CS Act* requires mandatory reporting of known and suspected contamination and requires DWER to classify reported sites based on the risk the contamination poses to human health, the environment and environmental values. In most cases, once a site is classified by DWER, action (investigation and/or remediation) is undertaken on a voluntary basis. If voluntary action is not forthcoming, DWER will undertake appropriate enforcement action.

Under the *CS Act*, DWER is required to keep records of all reported known and suspected contaminated sites. Notification of classification is provided to the owner, occupier, relevant public authorities (including planning authorities and Department of Health), the person who reported the site, any other person who, in the opinion of DWER, may be a person responsible for remediation and any other person who, in the opinion of DWER, there is a reason to notify.

The *CS Act* also provides for:

- requirements to inform the parties to a land transaction of the contamination present
- enforcement powers, including investigation, clean up and hazard abatement notices, and
- a hierarchy for determining responsibility for remediation.

The *CS Act* also established an independent statutory body, the Contaminated sites committee (the Committee) which comprises a panel of experts appointed by the Minister for Environment. The role of the Committee is to:

- decide appeals against site classifications
- decide appeals against the issuing and requirements of investigation and clean up notices
- determining responsibility for remediation of sites classified as contaminate/remediation required, and
- receiving and assessing disclosure statements from persons who consider themselves innocent landowners and deciding whether the criteria for exemption certificates have been met (the period for lodging a disclosure statement has expired).

A review was undertaken in 2015, which found that overall the Act was working well. Some minor improvements were identified to increase the effectiveness of the scheme set up by the CS Act to identify, record and remediate site contamination¹⁵.

Environmental protection Act 1986 (EP Act WA)

The *EP Act WA* is, 'an Act to provide for an Environmental Protection Authority, for the prevention, control and abatement of pollution and environmental harm, for the conservation, preservation, protection, enhancement and management of the environment and for matters incidental to or connected with the foregoing.'

DWER is responsible for administering the *EP Act WA*. The functions of the WA EPA include:

- conducting environmental impact assessments
- preparing statutory policies for environmental protection
- preparing and publishing guidelines for managing environmental impacts, and
- providing strategic advice to the Minister for Environment.

With respect to the prevention of contamination, *Part IV environmental impact assessment* and *Part V control of pollution* of the *EP Act WA* are most relevant:

- Part IV refers to environmental impact assessment. Prior to the *Contaminated Sites Act 2003*, conditions imposed on approvals under planning law and the *EP Act WA* Part IV were the only mechanisms available to require possible contamination to be investigated and remediated.
- Part V refers to control of pollution, and in particular causing pollution and unreasonable emissions. This part contains provisions for works approvals and licenses for certain prescribed premises.
- Part VI deals with enforcement and inspections. Inspectors under the *Contaminated Sites Act 2003* may be appointed under s.88 of the *EP Act WA*.
- Part VII identifies when appeals may be made on decisions related to proposal, work approvals licenses and pollution abatement notices. Part VIIA provides for the establishment of a waste avoidance and resource recovery account in a similar way to the contaminated sites management account under the *Contaminated Sites Act 2003*.

In assessing proposals referred to it, the TAS EPA seeks advice from DWER on contamination matters before making its recommendations to the Minister for Environment on the placing of conditions (or before clearing conditions).

The CS Act requires an auditor to be appointed if there is a ministerial condition relating to contamination. The proponent will also need to comply with the reporting and other requirements of the CS Act.

¹⁵ www.der.wa.gov.au/images/documents/your-environment/contaminated-sites/Review-of-contaminated-sites-act.pdf

Planning and development Act 2005 (P&D Act)

Planning has a key role in WA in ensuring that site contamination issues are identified and satisfactorily addressed prior to changes in land use, development and subdivision. DWER and the WA EPA expect that planning processes will require that potentially contaminated sites are investigated and remediated to meet acceptable standards before new development or changes in zoning and land use. In some instances, management requirements will be determined through the environmental impact assessment process under the *EP Act WA*. However, environmental impact assessment is usually limited to sites with major contamination.

Planning authorities¹⁶ can seek advice from DWER on contamination issues at any stage during the planning process. However, where a memorial has been registered on the Certificate of Title, the relevant planning authority must seek and take into account advice provided by DWER. Section 58 (6) of the *CS Act 2003* states that, 'if a memorial is registered under this section in respect of land referred to in subsection (1)(a)(i), then:

- the Western Australian Planning Commission is not to approve under section 135 of the *Planning and development Act 2005* the subdivision of that land, or the amalgamation of that land with any other land, and
- a responsible authority is not to grant approval under a scheme for any proposed development of that land, without seeking, and taking account, the advice of the CEO [of DWER] as to the suitability of the land for the subdivision, amalgamation or development.'

While the *CS Act* is the main mechanism for identifying and managing **known** and **suspected** contaminated sites, the land use planning process remains the most effective mechanism for the identification of and subsequent management of **unknown** contaminated sites. In essence, the land use planning process operates in parallel to the *CS Act*.

At each stage of the planning process, DWER recommends that planning authorities and applicants have regard for potential soil and groundwater contamination.

Proposals, including subdivision and development, likely to have a significant impact on the environment are required to be referred by planning authorities to the EPA (s.38 of the *EP Act*). Region and town planning schemes and their amendments are required to be referred to the EPA for assessment (division 3 of part IV of the *EP Act*).

The EPA has published specific guidance to assist proponents, practitioners and planning authorities: Guidance statement 33, *Environmental guidance for planning and development* (WA EPA 2008)¹⁷.

¹⁶ In WA, planning decisions are administered at three main levels: (1) by the Minister for Planning, (2) by the Western Australian Planning Commission (WAPC) through the Department of Planning (DoP) and (3) by local governments. For the purposes of this discussion they, together with the State Administrative Tribunal and various redevelopment authorities are broadly referred to as planning (decision making) authorities.

¹⁷ edit.epa.wa.gov.au/Policies_guidelines/EAGs/guidance/Pages/2717_GuidanceStatement33-EnvironmentalGuidancefor.aspx

Principles of environment protection

The stated object of the CS Act is 'to protect human health, the environment and environmental values by providing for the identification, recording, management and remediation of contaminated sites in the state. In achieving the objective, the CS Act has regard to the following principles:

- The polluter pays principle – those who generate pollution and waste should bear the cost of containment, avoidance or abatement.
- The principle of full life-cycle costs – the users of goods and services should pay prices based on the full life cycle costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any wastes.
- The principle of waste minimisation – All reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment.

The object of the *EP Act WA* (s4A) is to 'protect the environment of the state', having regard to the following principles:

- the precautionary principle
- the principle of intergenerational equity
- the principle of the conservation of biological diversity and ecological integrity
- principles relating to improved valuation, pricing and incentive mechanism, and
- the principle of waste minimisation.

Responsibility for administering regulatory requirements

The EPA WA is established under part II of the *EP Act WA*. The EPA WA is charged with the development of EPPs (under part III of the *EP Act WA*), and environmental impact assessment of proposals and schemes (under part IV of the *EP Act WA*).

DWER is responsible for the administration of the *EP Act WA* and the CS Act.

Supporting guidance available for remediation and management process

Guidance with relevance to remediation of contaminated land includes:

- *Guidance statement: Regulatory principles Environmental Protection Act 1986, Part V effective and efficient regulation* (WA DER 1986)
- *Environmental guidance for planning and development* (WA EPA 2008)
- *Identification, reporting and classification of contaminated sites in Western Australia* (WA DER 2017). Describes the framework which DWER applies in regulating contaminated sites under the CS Act.

- *Accreditation of contaminated sites auditors, contaminated sites guidelines* (WA DER 2016a)
- *The Western Australian contaminated sites auditor scheme, contaminated sites guidelines* (WA DER 2016b), and
- *Requirements for mandatory auditors' reports, contaminated sites guidelines* (WA DER 2016c).

Auditor involvement

The CS Act allows DWER to accredit contaminated land practitioners as site auditors. Site auditors independently review documents prepared by other practitioners (such as contamination assessment reports, remedial action plans and site validation reports and site management plans) to allow a judgement to be made on the suitability of a site for the current and/or proposed land use or the appropriateness of the investigation/remedial action plan and or validation report. The audit culminates in the issue of a mandatory audit report (MAR) which includes a recommendation of the appropriate site classification for each parcel of land. An owner/occupier/polluter may also choose to involve an auditor on a voluntary basis.

Regulation 31 of the *Contaminated sites regulations* outlines when a mandatory auditor's report is to be provided to DWER. An MAR is required where contamination has moved off-site to affect other properties, where a site is subject to a planning or ministerial condition or regulatory notice and/or at the written request of DWER where there are particular circumstances (e.g. complex technical issues). An owner/occupier/polluter may also choose to involve an auditor on a voluntary basis.

The MAR is submitted to DWER and triggers a reclassification of the site as appropriate. In most cases DWER would conduct a targeted review of the MAR findings when classifying the site and/or clearing a planning or ministerial condition for the site.

DWER conducts detailed reviews of both the MAR and the consultant environmental reports submitted for a site in order to evaluate the quality of the first MAR submitted by an auditor and on a periodic basis to evaluate and maintain the integrity of the audit system.

If requested, the DWER may issue a certificate of contamination audit (CCA), certifying the contamination status of a site. This may involve a re-classification of the site.

This is not part of the audit scheme, although an audit report is required before DWER will consider the application. In practice the vast majority of people have been content with the site classification, and very few applications for a CCA have been lodged.

Notification of contamination and triggers for remediation

Notification of contamination

The CS Act (s11) requires mandatory reporting of known and suspected contaminated sites to DWER by any person who has reasonable grounds to know or suspect that a

site is contaminated. Penalties apply for failing to report a site within the statutory time frames. A known contaminated site must be reported within 21 days of the person becoming aware of the contamination, or as soon as practicable for a suspected contaminated site.

Reported sites are then classified by DWER as one of seven classifications listed in Schedule 1 of the CS Act, and may require action (investigate, monitoring and/or remediate contaminated sites through regulatory notices, if action is not being taken voluntarily) as follows¹⁸:

- report not substantiated (RNS): no further action required, unless required by the planning process
- decontaminated (decon.): no further action required, unless required by the planning process
- not contaminated–unrestricted use (NC–UU): no further action required, unless required by the planning process
- remediated for restricted use (RRU): comply with restrictions on use specified in the classification. Restrictions can vary, but common restrictions include the land use type, excavation, groundwater use and/or or compliance with a site-specific SMP
- contaminated–restricted use (C–RU): comply with restrictions on use specified in the classification and SMP (further remediation can be undertaken on a voluntary basis to allow reclassification of site for more sensitive land use)
- possibly contaminated–investigation required (PC–IR): site assessment in accordance with DWER CSG and the ASC NEPM, or
- contaminated–remediation required (C–RR): remediation in accordance with DWER CSG and the ASC NEPM.

DWER is required under s13(5) to consult with the Department of Health (DoH) prior to classification of a site. A site may be reclassified when new information is submitted to DWER. Reported sites for the classifications for known contaminated sites – CRR, CRU and RRU – are registered on the publically accessible contaminated sites database. Sites classified as PCIR, RNS, Decon. or NCUU are searchable (for a fee) on the contaminated sites register. The notice of classification provides a brief summary of the nature and extent of contamination present at the site. A notice of classification for a site classified as C–RR, C–RU and RRU must specify the restrictions on the use of the site.

Under s58 of the CS Act a memorial is lodged by DWER and registered on the Certificate of title as soon as practicable under the following circumstances, to advise owners, potential owners or occupiers of the contamination status of the land, and to alert planning authorities to the presence of contamination:

- For sites classified as PC–IR, C–RR, C – RU and RRU

¹⁸ Figure 1, *Identification, reporting and classification of contaminated sites in Western Australia* (draft released for consultation).

- sites subject to an investigation notice, clean up notice or hazard abatement notice, and
- sites subject to a charge on the land in favour of the state or public authority nominated by the Minister for Environment.

Triggers for remediation

Notices under the *CS Act* are issued by the Chief executive officer of DWER. The types of notice are:

- **Investigation notice:** to require contamination to be investigated and a remediation plan developed.
- **Clean-up notice:** can require the implementation of an approved remediation plan.
- **Hazard abatement notice:** where it is considered that there is an immediate and serious risk of harm to human health and the environment.

Following issue of a notice, an accredited auditor must be engaged to report to DWER on compliance with the notice.

The recipient of an investigation notice or clean-up notice may appeal the requirements of the notice, however there is no appeal against a hazard abatement notice.

Inspectors appointed under the *EP Act* can be empowered to enforce the provisions of this *Act*.

EP Act WA section 65 allows for the issue of a **pollution abatement notice**, and once issued this may be registered on the Certificate of title. This process is similar to the placement of a Memorial on title under the *CS Act 2003*.

Setting remediation goals, targets and objectives

Guidelines for the assessment and management of contaminated sites (DER 2014) outlines the steps required to develop remediation objectives.

Remediation process

Remediation action plan and site management strategies

Guidelines for the assessment and management of contaminated sites provides details on the remediation process, including three stages:

- development of a RAP: planning the active remedial work and how its success will be evaluated (validated)
- implementation of the RAP and validation, and
- if necessary management of residual contamination via a SMP.

Reference is made to the NRF guidance, and to the hierarchy of options for remediation in the ASC NEPM (principle 16).

Site management measures to be adopted during remediation should be documented in the sampling and analysis quality plan (SAQP), the RAP, or a stand-alone SMP depending on the scale of works. Remediation of the site must not cause further pollution (under part V of the *EP Act WA*).

Management and disposal of waste material

Contaminated material should be classified in accordance with the *Environmental protection (controlled waste) regulations 2004*. If material is determined to be a controlled waste, it must be transported offsite (if required) in accordance with the *Controlled waste regulations*.

Occupational health and safety

WA DER 2014 refers to *Guidance note – occupational safety and health management and contaminated sites work* (WA COSH 2005). Requirements for ensuring the health, safety and welfare of people in the workplace in WA are provided in the *Occupational safety and health Act 1984*, and *Occupational safety and health regulations 1996* (WA).

Section 15 of schedule B2 of the ASC NEPM provides guidance on the protection of human health and the environment during site assessment. DWER has applied this to site management during remediation.

DWER recommends a health, safety and environment plan (HSEP) be developed prior to any site works (including non-intrusive site visit) to address the risks associated with site conditions and potential contaminants and contaminated media. DWER does not assess HSEP documentation, and it does not need to be submitted to DWER (WA DER 2014).

Validation

Validation sampling should be undertaken in order to evaluate whether remediation objectives and remedial targets have been achieved. Sampling should be conducted with consideration of the ASC NEPM Schedule B2 through development of a SAQP.

Remedial activities and the results of validation should be documented in a site remediation and validation (SRV) report (a checklist is provided in *Assessment and management of contaminated sites* (DER 2014)).

For sites classified under the CS Act as contaminated-remediation required an SRV report must be submitted to WA DER in order for DWER to reclassify a site that has been remediated. If residual contamination is present, a SMP might also be required.

Sign-off

On completion of the remediation the site is reclassified to an appropriate classification by DWER. Reclassification can occur either through direct involvement of the DWER or through use of the voluntary and mandatory audit report process, where an auditor provides an opinion on the adequacy of the remediation undertaken and the suitability of the classification proposed by the proponent.

Post remediation considerations

Ongoing management and monitoring

Ongoing management and monitoring may involve the implementation of control measures to mitigate risk by restricting or prohibiting access to or use of a site, and/or containing contamination to prevent exposure of receptors. Under the CS Act, sites where the risks to human health and the environment have been adequately characterised, and where restrictions on the use of the site can protect current and potential future receptors, will be classified as contaminated-restricted use, or remediated for restricted use. The classification will specify the restrictions relevant to the site.

In some instances where DWER does not consider restrictions placed on a site through the classification process would provide adequate protection of site users, DWER will require a site-specific SMP. This must document the required ongoing management procedures to reduce the risk to human health and the environment to an acceptable level, and any ongoing reporting requirements. If ongoing monitoring is required, this must be detailed in an SAQP, which is included in the SMP.

Appendix I – Regulatory summary: Airports in Australia

Major airports in Australia come under Commonwealth control, and many smaller airports come under state control. Some airports are managed jointly.

The following legislation/guidance is relevant for airports in Australia:

- *Airports Act 1996* (Cwth) and *Airport (environment protection) regulations 1997* (Cwth)
- *Air services Act 1995* (Cwth)
- *Environment protection and biodiversity conservation Act 1999* (Cwth)
- *Work health and safety Act 2011* (Cwth)
- *Assessment of Site Contamination ASC NEPM 1999 (as amended 2013)*
- State environmental protection legislation and guidance

These instruments may draw upon guidance developed by third parties such as ANZECC, WHO and CRC CARE.

Federal airports

The *Airports Act* is the only Commonwealth legislation which provides environmental regulatory control for airports, including management of pollution, assessment of contamination, notification, and remediation on Commonwealth airport land. The *Airport (environment protection) regulations 1997* (AEPR) are made under the *Airports Act*.

Site assessments are carried out as per the ASC NEPM, while management has to include consideration of the *Environment protection and biodiversity conservation Act* (which requires assessment of environmental impacts, but does not provide regulatory controls).

The management of contamination that has moved off Commonwealth airport land (e.g. on to state land) is carried out through negotiation with the relevant state.

Airport (environment protection) regulations 1997

The objectives of the *Airport (environment protection) regulations 1997* (AEPR) include:

- a) 'to establish, in conjunction with national environment protection measures made under section 14 of the *National Environment Protection Council Act 1994*, a Commonwealth system of regulation of, and accountability for, activities at airports that generate, or have potential to generate:
 - i. pollution, or
 - ii. excessive noise, and

- b) to promote improving environmental management practices for activities carried out at airport sites.’

The AEPR outlines requirements for the:

- assessment and remediation of contaminated land
- reporting, assessment and remediation of contaminated land at federal airport sites, including:
 - reporting/notification of existing pollution
 - monitoring and assessment of contamination
 - a written record of the environmental condition of the airport and its environmental management be maintained
 - annual and other reporting requirements, and
 - remediation requirements, including development of a remediation action plan, and reporting and implementation of a remediation action plan.

Schedule 2 of the AEPR provides accepted limits for water pollution, based on the Australian and New Zealand Environment and Conservation Council (ANZECC) document *National water quality strategy: Australian water quality guidelines for fresh and marine waters* (1992) (now superseded by *Australian and New Zealand guidelines for fresh and marine water quality volume 1, The Guidelines* (2000) (ANZECC 2000). Schedule 3 provides accepted limits/trigger levels for soil pollution which are based on *Australian and New Zealand guidelines for the assessment and management of contaminated sites* (1992) (ANZECC/NHMRC 1992), which has been superseded by the ASC NEPM.

Where contamination is contained within the airport site boundaries, the AEPR apply. The requirements of the AEPR are enforced by airport environment officers (AEO). Exceedance of accepted limits/trigger levels may lead to the appointment of an independent assessor before detailed site investigation. If pollution is caused at an airport, an AEO can direct, through an environmental remedial order, that remediation of contamination is undertaken. Where contamination extends offsite, the relevant state/territory requirements must also be considered.

A review of the AEPR is currently underway. The first stage of the review comprised a discussion paper (published May 2013), which identified that the criteria used for acceptable levels/trigger levels of contamination had been superseded. It is expected that the new AEPR will be published in early 2019.

Airservices

Airservices is a Commonwealth entity and is subject to Commonwealth legislation and requirements. Thus for Commonwealth airport land, where relevant Commonwealth guidance is available this is applied in the first instance – otherwise the most appropriate alternative guidance is sought, including state-based guidance.

The *Air services Act* specifies a general environmental duty to avoid pollution to the extent reasonable and practicable. It also allows Airservices to establish facilities it

requires to do its regulated job, to the exclusion of environmental or planning laws that might otherwise apply. Airservices tries to accommodate state requirements where these are do not present unreasonable obstacles to the need for and operation of the facility.

State airports

Relevant state legislation provides guidance, requirements and obligations with respect to management of pollution, assessment of contamination, notification, and remediation for airports controlled by the states.



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