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RemTech EU, 21 September 2020



OUTLINE

- National policy drivers
 - From assessment to remediation regimes
- National Remediation Framework
 - Available! <u>www.remediationframework.com.au</u>
 - Overview of the framework





REMEDIATION DRIVERS: SUSTAINABLE DEVELOPMENT

Urban renewal/urbanisation

- legacy sites petroleum / manufacturing / landfill / railways
- population pressures
- infill development
- 60-80% of contaminated sites

Community awareness

- increasing accountability for industry and regulators
- higher operating standards

Improved efficiency and effectiveness

economic, social and environmental benefits





POLICY DRIVERS FOR HARMONISATION: THE NATIONAL REMEDIATION FRAMEWORK

Why harmonise...?

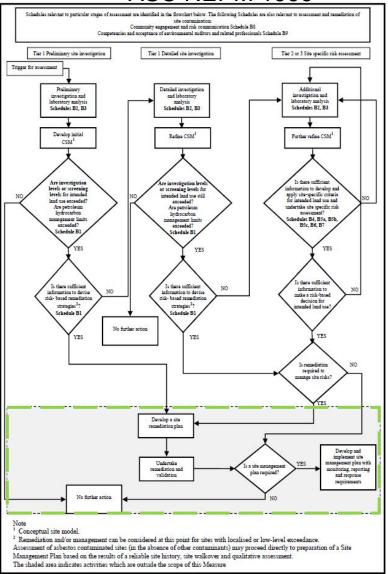
- uniformity can be difficult to be achieve
- 'harmonisation'
 - goal is to find commonalities
 - identify critical requirements that need to be retained
 - provide a common standard





MOVING FROM ASSESSMENT TO REMEDIATION

ASC NEPM 1999



- Tiered risk-based assessment process
- More detailed assessment is required based on information needed to minimise uncertainties and understand the risk in order to determine if remediation and / or management of the site is required.
- Lists human and ecological screening levels, and allows for the development of site-specific risk criteria



MOVING FROM ASSESSMENT TO REMEDIATION

NRF 2019 ASC NEPM 1999 Stages in the remediation of site contamination NRF guideline to consult Schedules relevant to particular stages of assessment are identified in the flowchart below. The following Schedules are also relevant to assessment and remediation of site contamination: Community engagement and risk communication Schedule BS
Commetencies and acceptance of environmental miditors and related professionals Schedule B9 Site assessment Stage 1: Define determines remediation is Tier 1 Preliminary site investigation Tier 1 Detailed site investigation Tier 2 or 3 Site specific risk assessment · Regulatory (Refer to NEPM considerations Trigger for assessment · Remediation objectives · Role of auditing Detailed investigation Additional Stakeholder engagement investigation and and labora investigation and laboratory analysis Schedules B2, B3 Schedules B2, B3 Schedules B2, B3 Develop initial Further refine CSM Stage 2: Design and Refine CSM CSM implement Regulatory considerations Is there sufficient Are investigation levels or screening levels for intended land use still · Remediation options levels or screening levels for intended formation to develop and apply site-specific criteria for intended land use and assessment land use exceeded Are petroleum hydrocarbon undertake site specific risk · Technology guides Are petroleum dules B4, B5a, B5b Cost-benefit and management limits exceeded? Schedule B1 B5c, B6, B7 sustainability analysis of remediation alternatives YES YES Yes there sufficien Is there sufficient s there sufficient information to devis information to devise make a rick-hased strategies²? strategies²? standed land no Schedule B1 Schedule B1 No further action YES YES YES Stage 3: Finalise Validate remediation works · Validation and closure Have remediation Develop a site No → Is further remediation possible? bjectives been met · Institutional controls · Long-term monitoring Yes Develop and · Role of auditing No implement site agement plan with Undertake monitoring, reporting plan required? validation (Yes)→ Develop site management plan No further action required? nplement long-term monitoring and / or institutional control ² Remediation and/or management can be considered at this point for sites with localised or low-level exceedance.
Assessment of asbestos contaminated sites (in the absence of other contaminants) may proceed directly to preparation of a Site Management Plan based on the results of a reliable site history, site walkover and qualitative assessment. The shaded area indicates activities which are outside the scope of this Measure Communicate with stakeholders Site closure



NATIONAL REMEDIATION FRAMEWORK

Purpose

- a nationally consistent approach to contaminated site remediation and management
- with the NEPM a complete set of national guidance for assessment, remediation and management of contaminated sites

Expected outcomes – facilitation of

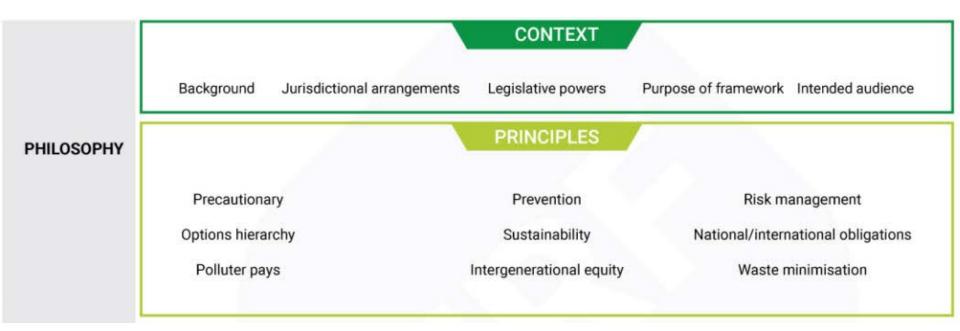
- protection of human health and the environment
- effective and efficient remediation
- net community benefit

Audience

practitioners and regulators



NATIONAL REMEDIATION FRAMEWORK SCHEMATIC







NATIONAL REMEDIATION FRAMEWORK

PRINCIPLES

Precautionary

- a careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment
- an assessment of the risk-weighted consequences of various options

Prevention

avoid future contamination

Risk based

- human health and/or environmental risks commensurate with site use
- underpins environmental management

Options hierarchy

- treatment on-site, then off-site
- <u>containment</u> on-site, then off-site (landfill)

Sustainability:

"... an integrated assessment of the environmental, economic, and social impacts of remedial activities, which meets the needs of the present without compromising the ability of future generations to meet their own needs"

www.crccare.com



NATIONAL REMEDIATION FRAMEWORK **SCHEMATIC**

CONTEXT

Background Jurisdictional arrangements Legislative powers Purpose of framework Intended audience

PHILOSOPHY

PRINCIPLES

Precautionary Prevention Risk management

Options hierarchy Sustainability National/international obligations

Polluter pays Intergenerational equity Waste minimisation

GUIDANCE

Remediation action plan development

Regulatory considerations

Remediation action plan implementation

Health and safety

Remediation objectives Stakeholder engagement

Documentation, recordkeenillo and report Remediation options assessment

Cost-benefit and sustainability analysis

Technology guides

Long-term monitoring

Post-remediation considerations

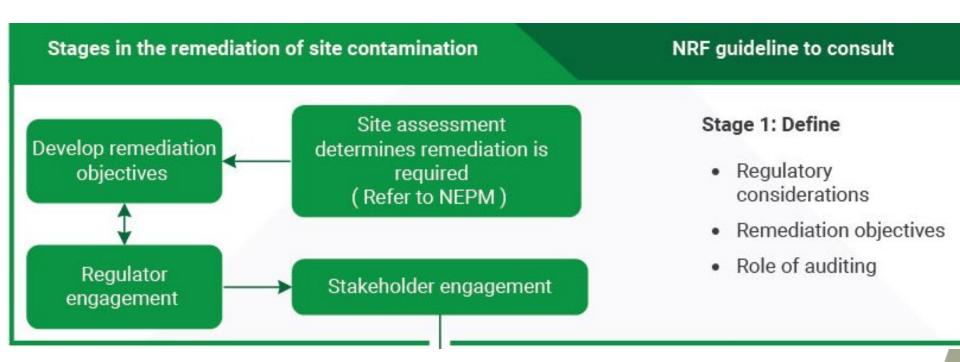
Validation and closure

Role of auditing

Institutional controls

PRACTICE



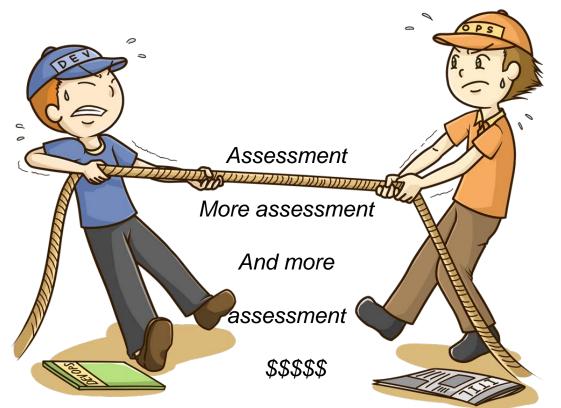


Stage 2: Design and implement

Stage 3: Finalise



Importance of remediation objectives...



Conservatism!

Issue:

- overremediation
- unsustainable

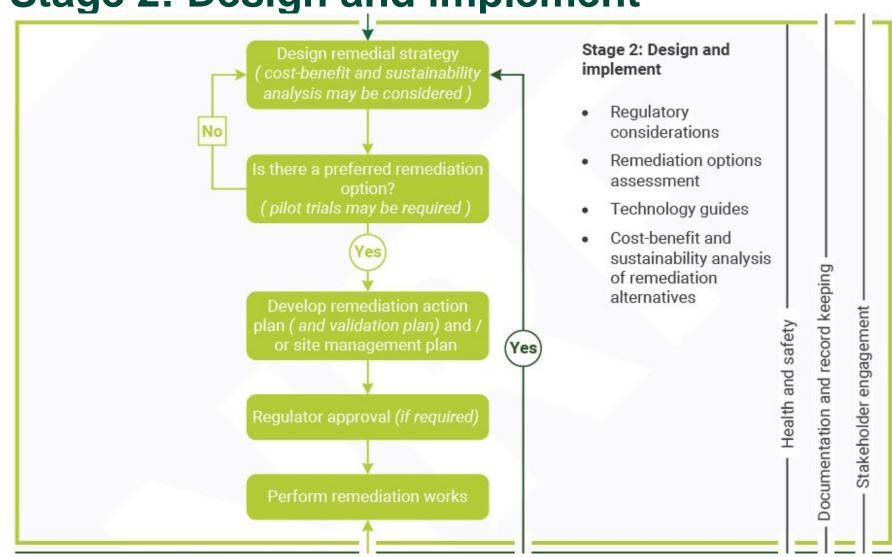
Certainty!

Eg numeric screening levels, modelling cont. fate and transport

@anderslundsgard



Stage 2: Design and implement

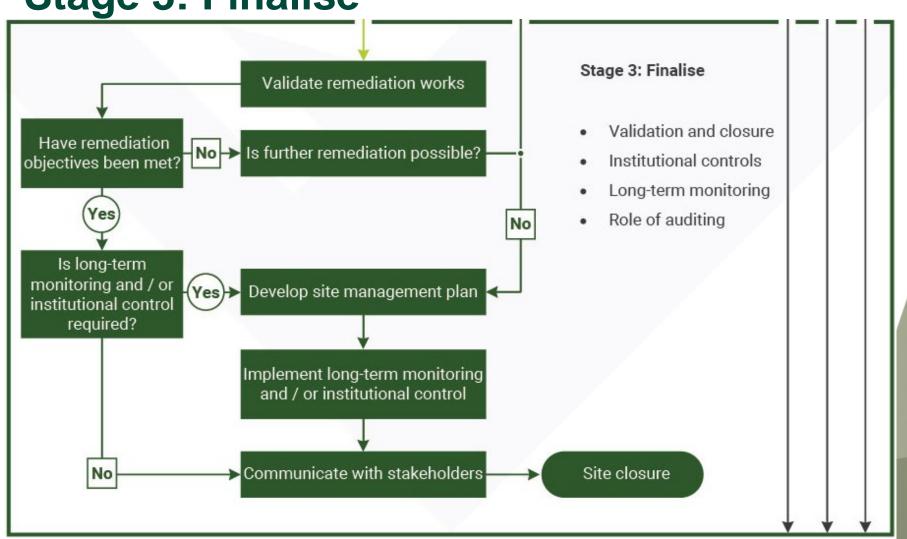


Stage 3: Finalise...

NRF NATIONAL REMEDIATION FRAMEWORK

Stage 2: Design and implement

Stage 3: Finalise



NATIONAL REMEDIATION FRAMEWORK DEVELOPMENT

Guidance

- practical outcomes based "how to …, when to…"
- modular/flexible individual elements may be updated over time

Construction

builds on current guidance and practice

Publication format

- web-based
- www.remediationframework.com.au

National Remediation Framework homepage





HOME ABOUT - HISTORY - NATIONAL REMEDIATION FRAMEWORK - CONTACTUS - Q



NATIONAL REMEDIATION FRAMEWORK OVERVIEW

Australia has long been at the forefront of actively pursuing protection of the environment. The National Environment Protection (Assessment of Site Contamination) Measure (ASC NEPM) has for decades provided a comprehensive and rigorous process for assessing contamination in order to determine whether a site can be regarded as contaminated.

A nationally consistent approach to remediation of contaminated sites has been a priority for Australian environmental regulatory bodies and the industry sector that clean up sites across multiple jurisdictions.

The NRF was developed to complement the ASC NEPM, and together they provide comprehensive guidance for the assessment of site contamination and for the remediation and management of sites that are deemed to be contaminated. In November 2019, it was endorsed as best practice by all jurisdictions through the Heads of EPA (HEPA) forum.

The National Remediation Framework (NRF) wholehearted support in Australia and has also attracted strong international

Remediation projects can often be quite dissimilar, each with their own specific issues. The NRF is unique in its valuable guidance for planning and implementing a wide range of remediation approaches through all stages of the process, regardless of the particular characteristics of any individual site.

The NRF will be of great benefit to practitioners involved in cleaning up and managing contaminated sites, as well as to: regulators. Importantly, it has the support of all stakeholders, having been developed in cooperation with contaminated site. practitioners, owners of contaminated sites and regulators.

Into the future, it is intended that the NRF will be updated regularly to ensure both technical and regulatory currency.

Professor Ravi Naidu. Managing Director and CEO, CRC CARE

MENU

National Remediation

Framework

- What is the NRF?
- Schematic
- . Flowchart
- . Download Guidelines
- News & Updates
- · NRF toolbox
- Useful websites

NEWS + UPDATES

NRF website launched

Read More

NRF Launch date announced!

Read More





CONTACT DETAILS Send us an email



NATIONAL REMEDIATION FRAMEWORK To summarise

The NRF

- provides a **structure** for thinking through remedial strategies
- provides more rigorous approach for considering issues
- systematises practices being applied to sites
- provides a sustainable approach to remediation and management
- provides seamless linkages with the NEPM

The NRF and the NEPM together will provide comprehensive guidance for assessment, remediation and management of contaminated sites in Australia

Heads of EPA endorsement: November 2019

"The NRF is a significant body of work and I congratulate CRCCARE on this considerable achievement to finalise 24 guidelines ...after extensive consultation" - Cheryl Batagol, Chair HEPA, Nov 2019



Thank you



For more information, please feel free to contact me!

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