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Australia – evolution in contaminated site assessment and sustainable remediation

Peter Nadebaum
GHD Pty Ltd
Peter.nadebaum@ghd.com

Main new developments:

- Revised national guidance on assessment
- PVI guidance
- National Remediation Framework
- CRC CARE
- ALGA
- SuRF ANZ



National Environment Protection (Assessment of Site Contamination) Measure 2013 - amendment

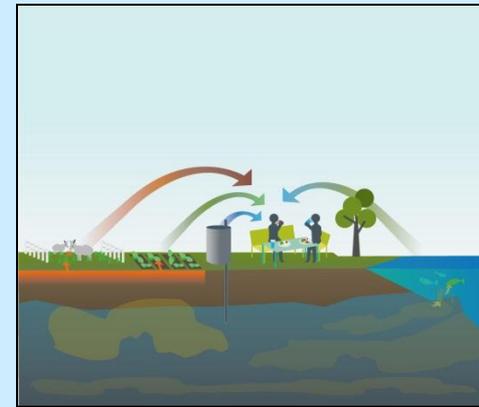
- Legislation of the Environment in Australia



- Comprehensive revision over several years
<http://www.comlaw.gov.au/Details/F2013C00288/Html>

Tier 1 screening criteria

- Health investigation levels (various land uses)
 - Range of chemicals
 - Petroleum hydrocarbons
 - including vapour criteria, biodegradation, exclusion distances
 - Chlorinated solvents
- Ecological investigation levels
 - More advanced approach (species effect)
 - Soil properties
- Asbestos
- Groundwater – various uses (drinking, aquatic, stock, swimming pool)
- Water
- Sediment



National Remediation Framework for Australia



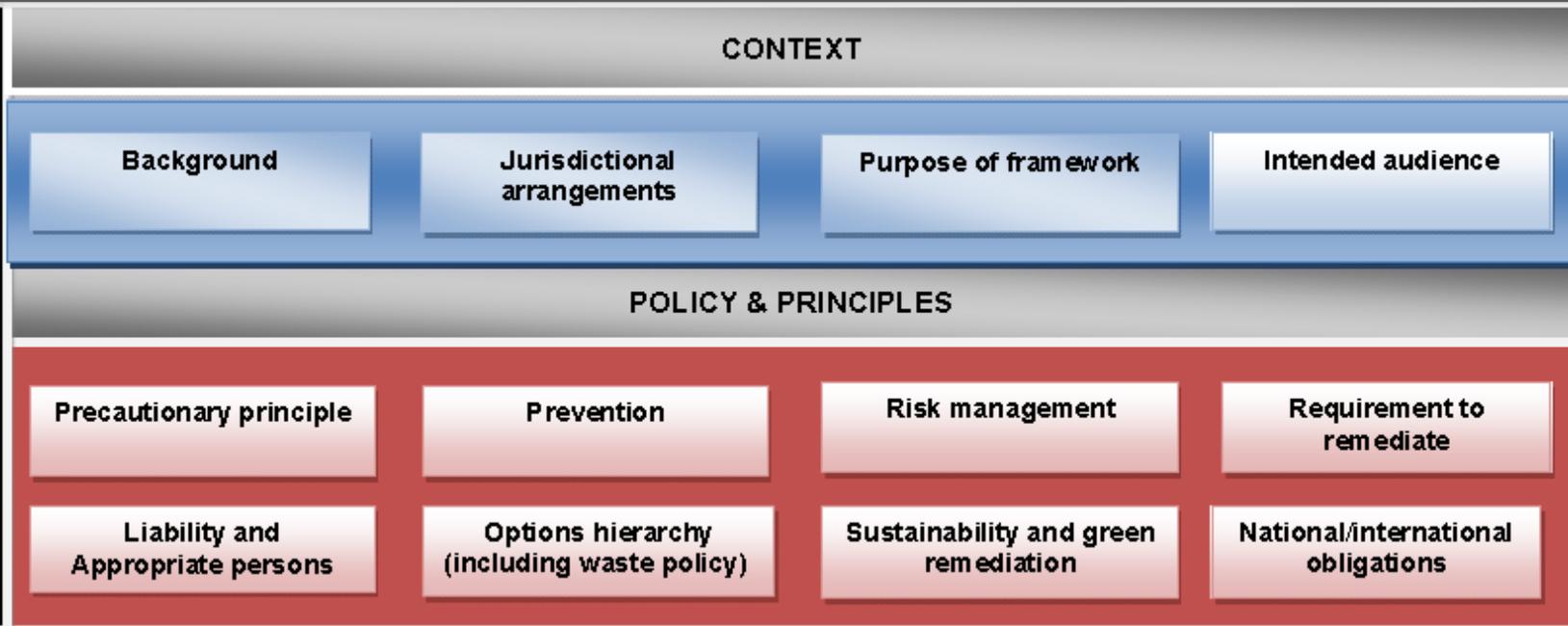
- Being coordinated, managed and supported by the Cooperative Research Centre: [CRC CARE](#) - Australia's premier research organisation in contaminated land and groundwater
- Formally supported by the environmental regulators of Australia
- Essential that the Framework be developed by an independent entity (not by industry)
- Steering group comprises regulatory agencies, industry, and industry associations ([ALGA](#) and [ACLCA](#))
- Majority of research work and drafting being carried out by CRC CARE project team
- Amalgam of existing State policy and guidance + new guidance on matters where there is no guidance

Overall approach

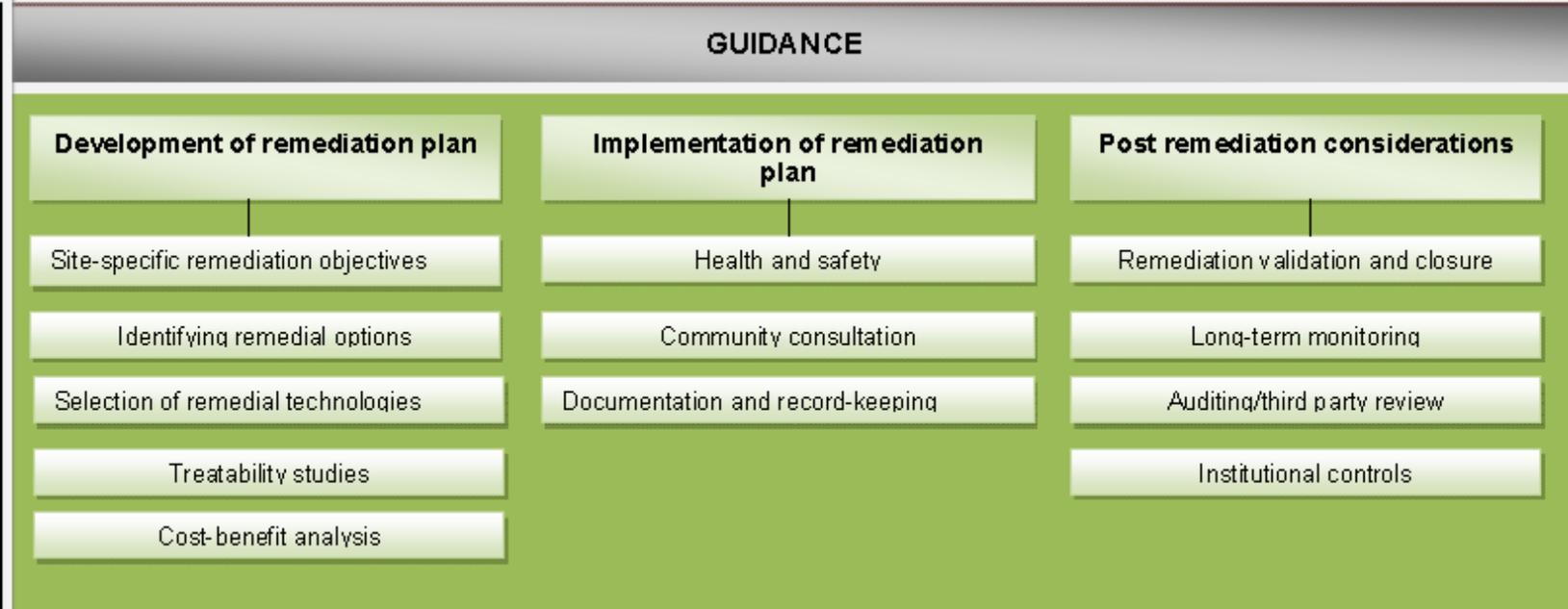
- Site-based, not regulator mandated, approach:
 - Remedial solution usually determined by the proponent with reference to regulatory policy with oversight by a third party auditor
 - Usually the regulatory agency does not mandate a final solution or a treatment method
- **Performance objective: must protect human health and the environment**
 - “Beneficial uses” of land, groundwater, surface water and air
 - Other principles, policies, guidance must be considered
- This allows a flexible risk-based approach, involving either source treatment, or pathway or receptor control
- Enables greater decision making by the site owner and minimises liability to regulatory agencies

Overall framework

PHILOSOPHY



PRACTICE



Principles for remediation

- **Risk-based**
 - Fundamental underpinning of Australian environmental regulation
 - Clean up for proposed site use (not all uses)
 - Control risks arising from remediation
- **Precautionary**
 - Should not postpone remediation because of uncertainty
- **Prevention**
 - Avoid future contamination
- **Liability** (dependent on State legislation)
 - First: polluter; second: owner/occupier (dependent upon on State, this can sometimes be transferred to third parties)

Principles, cont'd

- **Selecting remedial options**
 - Prefer treatment to achieve acceptable levels
 - Containment (off site, on site) possible if
 - Treatment not practicable
 - Outcome is environmentally acceptable
 - Risk of disturbance is greater than if contained
 - Limited environmental impact.
- **Sustainability**
 - Yes – “Ecologically Sustainable Development “ defined in State legislation
 - Integrate both long and short term economic, environmental, social and equity considerations
 - Involve community in issues that affect them
 - Recognise global dimension, need for strong economy, international competitiveness



SuRF ANZ (Australia and New Zealand):

- Championing Sustainable Remediation in Australia and New Zealand – input to the National Remediation Framework – some 500 members
- Developed a “Framework for Sustainable Remediation” in 2011
 - Closely modelled on the SuRF UK Framework
- Currently groups actively working on:
 - A revision to the SuRF ANZ Framework
 - Town planning considerations
 - Metrics and tools
 - Case examples
 - Education/information/conferencing
 - Input to ISO
- <http://www.surfanz.com.au/>

Practice Guidance

First - Identified topics that need to be addressed:

- Developing remedial action plan
 - Set objectives
 - Conceptual Site Model, develop remediation strategy
 - Identify and select remedial technologies
 - Prepare remedial action plan
- Implementation
 - Health and safety
 - Community consultation
 - Documentation and record keeping
- Post remediation
 - Validation, auditing and closure
 - Monitoring
 - Institutional controls

Practice Guidance, cont'd

Second - identify Australian and international guidance:

- Identified more than 100 documents – ranked applicability to topic areas
- This included only National and English language documents.

Now – developing written guidance:

- Some topics more straightforward:
 - Technical information on methods (international resources)
 - Worker health and safety
 - Community consultation
 - Documentation and record keeping
 - Monitoring (principles, not prescription)
 - Auditing (allow State audit systems)

Practice Guidance, cont'd



Some topics more involved:

- Decision making on remedial options
- How to apply risk-based and sustainability considerations
- How to involve stakeholders
- How to guide validation and closure
- Role of institutional controls (varies from State to State)

CRC will be commissioning work to develop these

- Needs to consider/incorporate existing State policy and practice
- State environmental regulatory agencies and town planning agencies will be involved.

Practice Guidance, cont'd



Probably the biggest issue to resolve:

- What level of clean up, how do you provide guidance on this, how to make decisions?
 - What environmental values are to be protected and how do you determine what is acceptable and not acceptable?
 - Intergenerational equity
 - Residual contamination, containment, risk
 - Institutional controls
 - Financial assurances
- Outcome may be in terms of principles, considerations, process and methods – allow development of site-specific solutions rather than seeking a “one solution fits all”
- Guidance must reflect State policy and practice

Comment

- ICCL: The next stage in the evolution of management of contaminated sites is now well advanced:

Sustainable Remediation

- But:
 - Really **Sustainable Risk-Based Land Management**
 - **Risk reduction** is the primary purpose
 - Risk must be acceptable to **stakeholders**

 - **Learn from others** – innovation occurring!
 - Think of the **Business Case!**



Questions?



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