Review of the National Environment Protection (Assessment of Site Contamination) Measure

Summary of Submissions received in relation to the Issues Paper for the Review of the Assessment of Site Contamination NEPM

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1 INTRODUCTION

Twenty three submissions were received in response to the *Review of the Assessment of Site Contamination NEPM Issues Paper*. A list of submitters is found in Appendix 1. The submissions consisted of:

- fifteen from industry and consultants
- four from state government agencies
- three from the federal government agencies and
- one from local government.

This document summarises the key issues raised in submissions relating to each of the three options. It outlines a number of alternative options that were put forward in submissions.

This document also includes a brief response to the key issues raised in the submissions.

2 SUMMARY OF SUBMISSIONS

2.1 NEPM EFFECTIVENESS

Issue 1

Does the NEPM provide an adequate basis for a nationally consistent approach to sound environmental practice in the assessment of site contamination? Please give reasons / explanation for your views.

Submissions

The majority of submissions (1, 7, 9, 12, 14, 15, 17, 19, 22, 23) support the NEPM as a reasonably consistent approach, but with qualifications. Four submissions (1, 6, 16, 11) did not support the NEPM as a reasonably consistent approach. Four submissions (6, 14, 19, 21) raised the inconsistency of implementation between jurisdictions.

A number of submissions raised the need to be able to update the NEPM regularly to accommodate new technologies and research (9, 12, 14, 19).

Some submissions (9, 17, 23) raised the need for national guidance on the management and remediation of site contamination.

Response

Clearer text is needed on the application of the NEPM.

While not within the scope of the NEPC Act, remediation issues could be dealt with in the future under other national processes or by variation of the NEPC Act.

Issue 2

Are there other indicators that jurisdictions could use to demonstrate the effectiveness of the NEPM?

Given the performance measurement difficulties how can the NEPM be better evaluated for effectiveness?

Submissions

One suggestion was to quantify economic gains by the community through use of the NEPM (7)

Response

While a cost-benefit analysis could be useful, there is not an obvious practical means by which this could be achieved without detailed site-specific studies and resources.

Submissions

Two submissions (12, 19) suggested that statistics on the use of site-specific acceptance criteria be developed in accordance with the NEPM. These two submissions (12, 19) noted that in NSW significant risk of harm assessments (regulatory decision) should not be provided as evidence of implementation of the NEPM.

Response

In NSW, the provision of significant risk of harm assessments is a legislative requirement and includes consideration of the NEPM.

Submissions

Three submissions (12, 19, 22) suggested that collection of data on the frequency of assessment processes where defects have been identified following planning approvals based on those assessments. This submission also suggested that audits of representative sites in each jurisdiction are evaluated for compliance and effectiveness of the NEPM.

Response

Consideration could be given by jurisdictions to reporting auditing compliance with the NEPM.

Submissions

One submission (23) did not consider that NEPC annual reporting was useful to demonstrate the effectiveness of implementation of the NEPM unless the reporting was against new practical and cost-effective performance measures. One submission (14) raised the implementation activities listed in the NEPC annual report did not capture the full gamut of contaminated land assessments as many responsibilities are now devolved to local authorities.

One submission (14) suggested that training/accreditation programs for auditors and consultants could as an indicator of the effectiveness of the NEPM. One submission (22) suggested that jurisdictional guidelines be reviewed for consistency with the NEPM.

Response

Jurisdictions should consider improvements to training programs and a review of guidelines.

Issue 3

Are the current jurisdictional resources available for implementing the NEPM adequate to meet the goal of the NEPM?

Submissions

Six submissions (1, 7, 11, 12, 19, 23) raised that there should be sufficient resources to implement the NEPM. Some submissions (1, 11, 12, 19) raised that there should be technical competency in jurisdictions sufficient to implement the NEPM.

Response

Submissions did not supply specific examples of the impact of inadequate resourcing, or how additional resourcing would improve outcomes of implementing the NEPM. It is acknowledged that adequate public-sector technical resources need to be maintained to enable the proper interpretation and guidance to industry on site contamination assessment issues.

Issue 4

How might the current system be modified to improve efficiencies for government and the private sector, while maintaining the effectiveness of the NEPM?

Submissions

Some submissions (12, 19, 23) raised the need for a mechanism to update the NEPM quickly and efficiently (e.g. minor variations to update references, use of a web-based tool) to take account of new technologies or research.

Response

The NEPM has been made under the NEPC Act. The NEPC Act requires that changes to the NEPM be made by a variation process. As new information is made available, an interim review could be undertaken with specific terms of reference.

2.2 INVESTIGATION LEVELS

Issue 5

What guidance, if any, should be provided for the use of investigation levels in site assessments and in the conduct of risk assessment? For example, how can the misuse of investigation levels as clean–up criteria be avoided?

Submissions

Most submissions (1, 3, 5, 6, 8, 10, 11, 14, 15, 16, 19, 20, 22, 23) agreed that there was misuse of the guidelines. Some submissions (4, 7, 8, 12, 19, 22, 23) raised that further guidance was needed on the identification of investigation levels and their implementation to avoid misuse. Some submissions (7, 11, 14) raised the need for further communication to stakeholders.

One submission (14) raised that EILs are often adopted as remediation criteria rather than determining site-specific criteria based on risk assessment results. One submittor (16) raised that conspicuous statements should be incorporated into the NEPM to warn that investigation

levels should not be used as remediation criteria. Two submissions (9, 12) raised that process charts or decisions trees are needed to emphasise the correct use of EILs and HILs. Some submissions have suggested that clean-up validation criteria against various land-use scenarios may help to avoid misuse of investigation levels.

Response
These views are supported.

Issue 6
Should investigation levels be developed for other substances, not already listed in the NEPM, and how should the priority be set for developing investigation levels for these substances?

Submissions
Most submissions (1, 3, 6, 9, 13, 14, 16, 21, 22) agreed that investigation levels should be developed for other substances that are not listed in the NEPM. Specific substances were suggested including volatile organic compounds (6, 7, 9, 20, 23), total petroleum hydrocarbons (20), individual PAH compounds (14, 20) POPs (14, 21), PBDEs (21) and carcinogens (20).

One submission (7) suggested that the priority should be set based on the prevalence and toxicity of substances found on contaminated sites.

Response
These will be considered and appropriate recommendations made in the review report.

2.2.1 Ecological Investigation Levels (EILs) – Schedules B(1) and B(5)

Issue 7
What are the difficulties, if any, in applying the interim urban EILs in site assessment and management strategies?

Submissions
A number of submissions (3, 6, 14, 16) raised the difficulty in applying interim urban EILs in the urban environment. One submission (1) raised that a methodology for the derivation of EILs in needed. Some submissions (1, 8, 14, 22, 23) suggested that the framework for EILs will need to consider practical application, environmental values to be protected, off-site movement of contaminants and background levels.

Response
These views are supported.

Issue 8

Should consideration be given to revising the framework for setting EILs so that they can be made specific for certain land uses? For example:

- in the absence of specific sensitive ecological receptors, would it be appropriate to have different EILs applied to urban environments for normal landscaping, residential use and public open spaces and to other land uses such as rehabilitated mine sites?

Submissions

Some submissions (3, 6, 7, 9, 14, 16, 22, 23) agreed that the framework should be revised. Some submissions (1, 11, 14) did not support the revision of the framework.

Some submissions (4, 14, 21) raised that the framework for EILs should consider the environmental values to be protected. One submission (19) submission raised the need for a decision tree.

Response

The mixed response from submittors is indicative of some of the complexities of EILs. However, there was more support for revising the framework and the review process will examine the options.

Issue 9

What approach should be used to derive EILs and how can relevant research on soil contaminants since 1999 be better utilised in site assessment? For example, should the approach be consistent with the SSD model for deriving the WQG 2000, or other internationally accepted approaches?

Submissions

Seven submissions (4, 7, 9, 1, 23, 12, 13) supported the SSD approach. Submissions (7, 9, 11) raised that there was a need for a review of international approaches before deciding on the Australian approach. One submission (19) raised that the EIL methodology should be validated with Australian data. Some submissions (13, 23) considered that the food-web methodology was not a practical approach.

Response

These views are supported. The review process will examine the options.

Issue 10

What improvements could be made to the NEPM Schedule B(5) guideline on Ecological Risk Assessment to reflect developments in this area since 1999?

Submissions

Three submissions (3, 6, 16) raised that improvements could be made through a series of baseline studies. One submission (4) raised the need for a methodology for site-specific trigger values. One submission (4, 6, 7) raised the practical application of the methodology. Two submissions (12, 19) supported the generic overview of the framework on ERA to be included in the NEPM.

Response
These views are supported. The review process will examine the options.

2.2.2 Health-Based Investigation Levels (HILs) – Schedule B(7a)

Issue 11

Is the current methodology for deriving HILs adequate? For example:

- what should be the methodology used to develop HILs?
- should all existing HILs be reviewed to ensure consistency and to take account of current knowledge?
- should the health investigation level guideline be developed in conjunction with the national health advisory bodies?

Submissions
Eight submissions (1, 4, 11, 7, 12, 19, 20, 23) described the current methodology for deriving HILs as adequate. Three submissions (3, 6, 16) felt they could be improved by incorporating bioavailability of the different substances for which HILs have been developed. Should HILs be reviewed, eleven submissions (3, 4, 6, 7, 9, 11, 14, 16, 22, 23) were supportive. Nine submissions (3, 4, 6, 7, 9, 11, 14, 16, 22) felt that national health advisory bodies should be involved in the development of the HIL guideline.

In discussing the methodology to be used to develop HILs, three submissions (3, 6, 16) advocated the RBCA approach. Two submissions (7, 23) supported approaches which were consistent with published enHealth health risk assessment guidelines. One submission (9) referred to internationally–accepted risk-based approaches and current research.

Response
During the review of the NEPM, the suggestions of submittors will be considered.

Issue 12

What other guidance, if any, could be provided about the exposure settings applicable to each of the HIL scenarios? What guidance, if any, should be provided on the application of HILs taking into account exposure settings?

Submissions
Three submissions (3, 6, 16) raised the consideration of different soil types. Four submissions (12, 1, 19, 20) felt that there was a need to either develop criteria for exposure scenarios B and C or remove them if none were to be provided. Two submissions (7, 14) discussed how a clear understanding, through educational approaches, of the HIL development processes would improve their application.

Response
During the review of the NEPM, the suggestions of submittors will be considered.

2.2.3 Groundwater Investigation Levels (GILs)

Issue 13

Should the GILs in the NEPM be revised utilising the NWQMS 2000 and Australian Drinking Water Guidelines 2004 or are there alternative methods that would be more appropriate to determine investigation levels specific to groundwater (GILs)?

Submissions

The majority of submissions (3, 4, 6, 16, 13, 19, 14, 1, 9, 23, 22) supported the review of the GILs to be consistent with the most current guidelines.

Response

It is anticipated that the GILs will be updated with the NWQMS 2000 and the ADWG 2004.

Issue 14

What further guidance should be provided to assist a nationally–consistent approach to the use of GILs in groundwater assessment?

Submissions

Two submissions (6, 9) stated that further guidance should be provided on the application of GILs to ensure that they are used as investigation levels at the point of extraction and as response levels at the point of use. Two submissions (12, 1) suggested guidance be restricted to the provision of the framework without tabulation of GILs or a less prescriptive framework. One submission (7) suggested the establishment of a mechanism for an expert review process to refine the use of GILs.

Response

The application of GILs is a matter for jurisdictions to implement. Consideration could be given to provision of further guidance to clarify the use of GILs.

2.3 SPECIFIC SUBSTANCES

2.3.1 Total Petroleum Hydrocarbons (TPH) – Schedule B(1).

Issue 15

Is there a need for nationally adopted investigation levels for TPH in soils and waters, and by what process should they be developed?

Submissions

In commenting on this issue, the majority of submissions (including 3, 4, 6, 7, 8, 9, 11, 13, 14, 16, 19, 20 and 23) supported the adoption of nationally-endorsed Investigation Levels for Total Petroleum Hydrocarbons. Submissions 7 and 12 highlighted that there are already Investigation Levels for non-volatile fractions, but not for volatile fractions. Submissions 1 and 12 highlighted the existence of Guideline Values adopted in NSW, although submission 1 commented on the apparent inconsistency between these, guidelines used in Qld and the NEPM.

No submission argued that these Investigation Levels weren't required.

Several submissions advocated the adoption as Investigation Levels of criteria already developed. These included:

- those from the TPH Working Group — Submissions 3, 6, 16
- unspecified "overseas health (only) values" — Submission 14
- those under development by ISO TC / 190 — Submission 14
- Indoor Vapour Intrusion Model — Submission 23

Other submissions commented on the approach to be used in developing Investigation Levels without specifying any existing set of guideline values. These included:

- sensitive species distribution approach — Submission 4
- consideration of relevant international research and risk-based standards…suitably adapted to Australian conditions — Submission 9
- screening level guidelines based on low cost total analysis methods with fractionation between aliphatic and aromatic — Submission 12
- derivation based on aliphatic and aromatic fractionation — Submission 12
- appropriate research to fill knowledge gaps and stakeholder consultation — Submission 13
- consideration of factors other than health (including volatility, flammability and aesthetics. A tiered approach. — Submission 16

In keeping with the comments about fractionation of TPH, Submission 13 stated that a more careful definition of TPH is required. [See Issues Paper discussion of Issue 18]

Response
TPH is a very complex issue and the NEPM review will need to consider the practicality of developing a validated model or adopting an existing set of investigation levels.

Given the level of response to this issue, the review will consider this a priority issue.

Issue 16

Are there guidelines levels currently being used for the assessment of TPH in soils and waters which could usefully be adopted in the NEPM as interim levels, in order to give national consistency in site assessment?

Submissions
Several submission suggested guideline levels, already developed, which could be used, as detailed below.

- those from the TPH Working Group — Submissions 3, 6, 16
- USEPA or the Dutch Guidelines — Submissions 4, 13
- Queensland EPA — Submission 11
- Industry-derived TPH guidelines, AIP, Australian Oil Industry Guidelines — Submissions 9,12, 13

- NSW EPA — Submission 23
- Western Australian — Submission 13
- Turzcynowicz, Fifth National Workshop on the Assessment of Site Contamination — Submission 14

Response
This information will be useful during the possible development of a national approach on this issue.

Issue 17

What are the issues involved with the adoption of an interim set of HILs/EILs for TPH/aliphatic and aromatic hydrocarbons? For example:

- are the impacts of these compounds sufficiently well understood to justify such an approach?
- which set(s) of levels would be chosen for consideration?

Submissions
Notwithstanding the submissions on Issue 16, two submissions (1, 9) argued against the adoption of an interim set of guidelines, preferring to see long term solutions developed straight away.

Some submissions (3, 6, 16) contended that the impacts of TPH/aliphatic and aromatic hydrocarbons are well understood to justify an interim set of HILs/EILS. One submission (7) stated there are sufficient toxicology and indoor measurement data to indicate that TPH's present a serious issue to human health.

A number of submissions identified fractionation of aliphatic and aromatic hydrocarbons as an important issue, and that there was a need to extend the range of MAH's for which Investigation Levels are available to include those beyond the BTEX group (7, 12, 13, 19). One submission (15) recognised that various components of TPH have different environmental health impacts, and this needs to be accounted for. One submission (1) argues for Investigation Levels relevant to the components of common mixtures such as kerosene, diesel and aviation fuels. One submission (12) refers to the inclusion of toxicologically relevant compounds in lists of Investigation Levels.

One submission (7) highlights that the toxic effects of these compounds seem well understood, but that only one exposure scenario has been properly modelled in the Australian context.

Recommendations on the adoption of specific criteria reflected the comments made in response to Issue 16, as discussed above.

Response
This information will be considered during the possible development of a national approach on this issue.

Issue 18

What are the possible benefits of differentiating TPH fractions, based on aliphatic and aromatic hydrocarbons, and developing new measurement methodologies? By what mechanism(s) could such methodologies be developed?

Submissions

Four of the submissions mentioned the greater toxicity of aromatic hydrocarbons compared to aliphatic (7, 13, 14, 23), and there was a recognition that differentiating TPH fractions would allow for a better understanding of the risks posed by petroleum components as contaminants (3, 6, 9, 13, 16). In addition, one submission (23) stated that differentiation would allow appropriate threshold criteria to be applied and one submission (19) suggested that it may assist in understanding bioavailability.

Four submissions (3, 6, 9, 16) suggested that the CRC CARE was the appropriate avenue for developing the necessary methodologies.

One submission (7) pointed out that international working groups have provided guidance on analytical differentiation methodologies which was put forward during TPH HIL development work in 1998. One submission (6) referred to a method for differentiating between TPH fractions based on solvent exchange. This had been put forward by the TPH Working Group.

Response

This issue will need to be considered carefully as it may have a significant economic impact on site assessments.

2.3.2 Fuel components – Schedule B(1)

Issue 19

Under what circumstances should fuel additives and their degradation products be assessed at fuel storage sites? Should a small number of indicator additives be identified which can be used as initial screening substances for the presence of additives in the subsurface?

Submissions

Seven submissions (1, 3, 6, 13, 16, 19, 23) raised that fuel additives and their degradation products should be assessed where the site history reveals or suspects they have been used, stored or disposed of at the site being investigated. For example, at sites where imported fuel is being used (3, 6, 16). One submission (23) felt that a specific GCMS scan should be the preferred approach as it is likely to pick up contaminants of concern. Two submissions (7, 14) raised the issue that there is a lack of data on the subject to answer the question and suggested further research and a needs analysis be conducted.

Three submissions (3, 6, 16) raised that a risk assessment should be done on different additives to assess whether there is potential human health or ecological risk at the levels at which they are added in fuel.

Response
This information will be considered during the possible development of a national approach on this issue. Given this issue is linked with fuel products, it is appropriate that it be considered with petroleum hydrocarbon issues.

Issue 20
Should investigation levels for fuel additives be developed for soils and groundwaters / surface waters?

Submissions
Most submissions (3, 16, 16, 7, 11, 13, 14, 23, 1) gave qualified support to the development of ILs for fuel additives based on a needs analysis and risk assessment. One submission (23) clarified that investigation levels should be developed for fuel additives if they are "risk drivers".

Response
Further development should be considered when addressing the comments raised at issue six. Given this issue is linked with fuel products, it is appropriate that it be considered with petroleum hydrocarbon issues.

2.3.3 Aspects of assessing asbestos impacts - Schedule B(2)

Issue 21
Should the NEPM provide more information and guidance relating to the investigation and assessment of asbestos issues? For example:

- what specific information and guidance should be provided in the NEPM?
- would guidance on methods of qualitative assessment of asbestos be useful?

Submissions
Seven submissions (3, 6, 15, 16, 17, 19, 20) suggested that the NEPM should provide more information and guidance relating to the investigation and assessment of asbestos issues.

Four submissions (3, 6, 14, 16) suggested that such guidance could include a methodology for qualitative assessment. One submission (7) suggested that a quantitative method would be valuable.

Five submissions (7, 11, 12, 19, 23) suggested that the guidance provided by any of enHealth, ACLCA and / or NOHSC should be referenced within the NEPM.

Three submissions (1, 13, 16) suggested that an HIL could be developed while three (12, 19, 23) felt that it would be inappropriate or too difficult to develop an HIL. One of these (23) called for more research to enable an HIL to be developed. Two submissions (14, 20) called for case studies of asbestos assessment to be included in the NEPM.

Response
This is a complex issue. Given that there was greater support for incorporating existing guidelines in the NEPM than there was for or against the development of an HIL, it is

considered appropriate to review existing guidance with a view to incorporation or reference in the NEPM.

2.3.4 Persistent Organic Pollutants (POPs)

Issue 22

Should HILs be developed for those persistent organic pollutants which currently do not have a HIL? Should EILs and GILs also be developed for these substances?

Submissions

Submissions were generally supportive of developing HILs for POPs which currently do not have one. Seven (3, 6, 11, 14, 16, 17, 21) felt that HILs should be developed, although five submissions (3, 6, 11, 14, 16) however, felt that this would not be appropriate for dioxins. Six (3, 6, 11, 13, 14, 21) felt that EILs and GILs should also be developed or based on existing standards (15, 16). Five (7, 12, 14, 15, 16) felt that HILs or GILs/EILs should only be developed as required or when POPs were likely to present at a site.

One submission (23) felt that POP compounds for which no HIL exists were found infrequently at contaminated sites and HIL development was a low priority.

Three submissions (1, 12, 19) called for a prioritisation of those POPs requiring HILs/GILs/EIs and indicated that development of ILs may require changes to the standard methodology.

Response

These will be considered in conjunction with comments raised under issue 6 and appropriate recommendations made in the review report.

Issue 23

Under what circumstances should dioxins be considered in the assessment of site contamination?

Submissions

The majority of submissions raised that dioxins should be considered once the information about the site history indicated that previous activities have the potential to lead to dioxin contamination. Information considered to be relevant was both general (1, 3, 6, 16, 11, 12, 23) and specific (14).

Four submissions (3, 6, 7, 16) mentioned the need for information on background levels of dioxins and two (12, 19) suggested that the NEPM should include an information collection, attainment or implementation program that would requires jurisdictions to collect information on the occurrence of site contaminants such as dioxins.

Two public comments on the Draft National Action Plan for Dioxins, related to investigation levels and using indicator substances in lieu of direct dioxin analysis, economic issues and use of available international data, were referred to the review team after the close of submissions on the issues paper.

"For contaminated sites, a single investigation level could cause unnecessary investigation and actions for industrial site. There should be encouragement to use 'indicators' pointing to potential dioxin contamination. If this is not included, then the potential is that just about every land transfer will call for dioxin analysis; a totally unnecessary cost burden on the community."

"In determining levels for soils, water and sediment, conventional derivation protocols and techniques should be used, however, data may already be available overseas to derive these trigger levels. The methodology will need to be transparent and available to the general public and need to take into account background levels of exposure from other sources."

Response

No submission suggested that formal Investigation Levels be developed or adopted. The consensus of submissions was that dioxins should only be considered on a site-specific basis. Under the National Dioxins Program, a tolerable monthly intake has been developed and adopted by NHMRC and this can be used in conducting site-specific human health risk assessments.

Issue 24

Would it be appropriate to develop a protocol and guidance for investigations to identify the likelihood of the presence of dioxins before requiring that they be measured? For example, assessing the presence of indicator substances of concern.

Submissions

Eight submissions (3, 6, 11, 14, 16, 19, 20, 21) indicated that it would be appropriate to develop such a protocol, while two (1, 12) explicitly stated that it was not appropriate. Within the submissions not supporting the proposition, it was felt that there were already established processes for site assessment which, if properly implemented, would enable the likelihood of dioxin contamination to be assessed.

Three submissions (14, 15, 21) supported the use of specific indicator or screening substances. However, two submissions (7, 23) suggested a more cautious approach. Submission 23 referred to relevant site experience where it was found that there was not a strong correlation between the actual presence of dioxins and a series of well-recognised markers.

Response

The suggestions of submittors will be considered during the review of the NEPM.

2.3.5 Assessment of Impacts from Volatile Substances – Schedule B(7a) & B(7b)

Issue 25

Should the NEPM provide more information and guidance on assessment of the impacts and risks from volatile substances, given the rapid developments in this field of science? If so, what further information and guidance should be provided in the NEPM?

Submissions

Most submissions (1, 3, 6, 7, 9, 11, 12, 13, 14, 16, 20, 22, 23) called for more guidance and models on the assessment of impacts and risks from volatiles. There were additional comments (14, 9) also made on the analytical approaches and field methods to be employed in risk assessment. Two submissions (7, 23) raised the need for a validated model on the movement of volatiles into buildings in Australian conditions.

Response

These views are supported. The review process will examine the options. Final guidance on these issues will depend on the availability of validated models and the practicability of their application.

Issue 26

How could mixtures and possible synergistic and antagonistic effects be specifically considered when deriving HILs? Should these also be considered when deriving EILs and GILs?

Submissions

Four submissions suggested that it would be extremely difficult to consider mixtures or synergistic and antagonistic effects in the derivation of ILs (3, 6, 16, 19).

Three submissions (4, 12, 19) suggested that the direct toxicity measurements were an appropriate means to measure the effect of mixtures as referred to in the ANZECC / ARMCANZ (2000) documents (4, 23) and one (14) suggested that there might be suitable biomarkers to use for this purpose.

Two submissions (7, 14) suggested that a review of the literature was required to establish current best practice.

Three submissions (1, 12, 13) felt that this issue could be dealt with within the current HRA methodology with two (1, 13) suggesting that probabilistic modeling would be required. Another suggestion (1, 22) was that the integrated toxicity of several commonly found mixtures was already available.

Response

This issue will be considered in the prioritisation of the overall review. However, many submissions pointed out the practical difficulties with this approach and it is acknowledged that further work will need to be undertaken before useful information can be incorporated into the derivation of investigation levels.

2.3.6 Carcinogenic substances

Issue 27

Do we need specific guidance for risk assessment of carcinogens in site assessment? If so, what guidance should be provided?

Submissions

Most submissions (1, 3, 6, 9, 11, 16, 20, 17, 23) felt that more specific guidance is needed for risk assessment of carcinogens in site assessment including development of HILs (17).

Several submissions (7, 11, 12, 19, 20, 23) called for an evaluation of existing methodologies to establish which could be best applied in Australia. Two suggested the NEPM reference the enHealth approach to toxicity assessment (12, 19)

One submission (6) called for the NEPM to include a number for what is an acceptable risk.

Response

This issue is important for contaminated sites, but its resolution is more appropriately managed by enHealth / NHMRC. Any decision from these bodies will be considered for incorporation into the NEPM.

2.4 SITE ASSESSMENT

2.4.1 Data Quality Objectives and Poor Quality Site Investigations, including Lack of Vertical Delineation and characterisation of Contamination – Schedule B(2)

Issue 28

Is more guidance required on the application of DQO processes?

Submissions

Eight submissions (1, 3, 9, 10, 11, 16, 18, 23) raised that more guidance was needed on the application of DQO processes. Two submissions (14, 22) commented that further guidance was not needed. Two submissions (12, 14) raised that the NEPM approach to DQO should be linked with the AS4482.1. One submission (23) raised that NEPC may consider adopting the DQO section of the Draft Guidelines for the NSW Site Auditor Scheme into the NEPM.

Response

There is a general consensus that improvements to DQO processes would be appropriate. This issue will be considered for development during the review.

Issue 29

What further guidance should the NEPM provide on the collection of field parameters? For example, would it be useful if the guidance is provided in the form of checklists?

Submissions
Four submissions (3, 6, 10, 16) raised that further guidance on the collection of field parameters should be provided. The majority of submissions (1, 3, 6, 7, 8, 9, 10, 11, 20, 23) agreed that checklists would be useful and some cited Australian Standards and US EPA publications as examples. Four submissions (11, 12, 18, 19) raised that the NEPM should concentrate on guidance on principles rather than prescribing specific tools such as checklists.

Response
The review will consider giving relevant guidance on this issue.

Issue 30
What guidance should be provided so that vertical and lateral delineation and characterisation of contamination can be satisfactorily achieved?

Submissions
Three submissions (3, 6, 16) raised that vertical and lateral delineation of contamination should be conducted to establish a 'criteria' boundary. A number of submissions (12, 19, 1, 20) suggested that reference to existing guidelines should be included. Other submissions (13….) supported the need for guidance. One submission (14) sought guidance on the maximum general depth at which most contaminants will not pose a health risk for typical land uses. Three submissions (1, 12, 19) raised the DQO process as a means to achieve improved outcomes on this issue.

Response
The review will consider giving relevant guidance on this issue.

2.4.2 Groundwater assessment – Schedule B(2) & B(6)

Issue 31
Should further guidance be provided on the technical aspects of groundwater assessment, and if so, what should be the scope and content of this guideline?

Submissions
Ten submissions (3, 16, 7, 6, 9, 11, 23, 12, 19, 13) supported the provision of further guidance on the technical aspects of groundwater assessment. One submission (14) recommended further interaction with Standards Australia. Seven submissions (3, 6, 16, 12, 1, 19, 18) suggested that this be done by reference to or incorporation of existing guidance.

Response
Some of the submissions contained detailed information about the desirable requirements. These comments will be useful in reviewing the current guidelines.

2.4.3 Assessment of fuel storage sites – Schedule B(2)

Issue 32

Is it appropriate to develop additional guidance for sites with fuel storage uses, given that generic guidance already exists under the NEPM such as sampling design, data collection, and assessment of groundwater contamination?

Submissions

Six submissions (3, 6, 11, 16, 14, 13) supported the need for additional guidance for sites with fuel storage. Six submissions (9, 12, 1, 18, 19, 23) did not support the need for additional guidance. One submission (7) suggested that evaluation and assessment of the limitations of current techniques should be undertaken prior to deciding on providing further guidance. One submissions (12) suggested jurisdictions could develop their own guidance if they did not consider the current guidance adequate.

Response

There are differing views on the provision of specific guidance. This issue will be considered in the prioritisation of the overall review.

Issue 33

Should a guideline specify protocols for the assessment of sites involving fuel storage? For example:

- what standard sampling approaches should be used that will enable proper assessment of current and former tank areas, in ground pipework and bowser areas?
- what should be the linear separation of samples in open pits and at what depths below surface should they be taken?
- how should soil stockpiles be sampled and managed to prevent environmental harm?

Submissions

Five submissions (3, 6, 13, 16, 17) supported specific protocols, whereas one submission (19) did not support a descriptive approach.

Sampling

Three submissions (3, 6, 16) supported a prescriptive standard sampling approach. One (22) suggested adopting national best practice. One (23) suggested that good record keeping on the part of site occupiers would enhance the development of appropriate sampling strategies based on the information.

Linear separation

One (23) submission referred to the NSW service station guidelines. Four (3, 6, 16, 22) suggested that this was too site specific to be able to prescribe guidelines.

Stockpiles

Two submissions (3, 6) provided a formula for sampling per unit volume with composites. One (7) emphasized the importance of relevant stakeholders in making a determination. One (12)

did not think that it was a high priority. Three submissions (13, 22, 23) supported additional guidance for sampling of stockpiles.

Response
There is a number of complex technical issues raised in the submissions and will be considered in greater detail during the review.

2.5 LABORATORY METHODS AND TECHNIQUES

2.5.1 Laboratory methods and techniques – Schedule B(3)

Issue 34

Should the NEPM specify the use of particular analytical procedures and methods or would it be more appropriate to specify performance objectives and outcomes for analytical procedures? For example:

- for which analytes should the procedures be specified?
- should it be limited to those analytes for which there are not already well accepted, acknowledged standard approaches?
- by what process should the methods be specified?
- what would be appropriate indicators on which to base performance objectives?

Submissions
There was a divergence of opinion on the specification of which analytical methods to use. Seven submissions (1, 3, 6, 16, 23 and, in part, 13 and 14) supported this approach, and submission 7 discussed how it could be done. Conversely, three submissions (2, 9, 12,) supported performance-based objectives for laboratory methods and two (6, 13) referred to NATA accreditation as a benchmark which laboratory methods should be able to achieve. One submission (1) also highlighted the need to be able to provide guidance on new methods / methodologies as they are developed.

There was no support for limiting the range of analyses, if any, for which there should be a methodology specified for use.

One submission (12) pointed out that the NEPM is currently lacking a mechanism to enforce or document the use of NEPM-listed analytical methods, or to ensure that performance objectives are being met.

The only process for specifying methods which was mentioned in the submissions was to refer to validated and accredited techniques through Australian Standards, USEPA and other Standard Methods (1, 7,12).

There was limited response to the question of indicators of performance based objectives. Use of NATA accreditation as a benchmark was mentioned by some submissions (see above) and submission 13 commented on the use of inter-laboratory proficiency trials. Submission 23 pointed out that there is insufficient data available on accuracy and precision of commonly used methods to be able to set meaningful objectives.

Response
There was an apparent misunderstanding in some of the submissions between specifying the use of a method and defining how a method is to be carried out. The intention of the issues paper was to seek input on the desirability of specifying the use of a method. No submissions provided examples of specific performance-based objectives that could be used. There would be some doubt as to whether NATA accreditation of itself would be a sufficient performance indicator.

The review will consider the uniformity of practice of sample preparation and analytical procedures to ensure consistency of results.

Issue 35

By what mechanism should new analytical techniques in developing areas be incorporated into site assessment work?

Submissions
Two types of responses were received. One group focussed on how these developments might be incorporated into the NEPM, perhaps relying on the idea that the NEPM would specify methods to use. These suggestions included a flexible NEPM with schedules that could be easily updated (3, 6, 16) an annual updating process incorporated in the NEPM (7) or use of the minor variation provisions, or presentation of a series of benchmarks set out in the NEPM (11, 12, 23), such as using NATA or Australian Standards processes.

The second group of submissions focussed on how new methods might be adopted in practice, or "in the field". This group included demonstration of reliability by inter-laboratory proficiency trials and peer review (14), wait until methods are fully validated and become routine (13), leave the decision to site assessors, auditors and State regulators (1) or through a technical committee comprised of members with practical laboratory experience.

Response
For commonly encountered contaminants, the NEPM sets out methods for the analysis of these contaminants. For those contaminants that are encountered less often and are not specified in the NEPM, jurisdictions and regulators may determine the appropriate approved analytical techniques to be used in site assessments. There are a range of mechanisms by which new analytical techniques could be incorporated into site assessment and these will be considered during the review in conjunction with consideration of the comments raised in issue 34.

The NEPM has been made under the NEPC Act. The NEPC Act requires that changes to the NEPM be made by a variation process. The process for a minor variation is quite specific and may not always be practicable. As new information is made available, an interim review could be undertaken with specific terms of reference.

2.5.2 Bioavailability/Leachability – Schedule B(5)

Issue 36

Should the NEPM provide more guidance on measurement of bioavailability and leachability and incorporation of their considerations into health and ecological risk assessments?

Submissions

Ten submissions (1, 3, 6, 8, 9, 11, 16, 14, 20, 22) agreed that more guidance should be provided on measurement of bioavailability and leachability. One submission (13) stated that further guidance was not needed as there are no reliable methods for ascertaining bioavailability. Three submissions (1, 23, 12) suggested that leachability and bioavailability should be considered with other relevant factors within the framework of ERA.

Response

Aspects of measurement can be considered in conjunction with the comments arising out of issue 34 and issue 8.

2.6 COMPETENCIES AND COMMUNICATION

2.6.1 Community consultation – Schedule B(8)

Issue 37

Does the current guideline (Schedule B(8)) supply adequate guidance in relation to risk communication, community consultation and participation? If not, what additional, or more detailed, information could be included.

Submissions

Most respondents (3, 4, 6, 9, 14, 16, 19, 22) considered the current guideline, adequate in relation to risk communication, community consultation and participation. One submission (23) felt that more guidance would be useful. One submission (7) felt that the guideline should be updated to reflect consistency with the enHealth HRA guideline and to accommodate increasing community awareness of site assessment issues.

Two submissions (20, 13) suggested that community consultation is increasingly important and should involve social science professionals and risk communicators and be sensitive to cultural needs and language barriers (14). More guidance could be provided on risk communication, perhaps through a checklist (20).

Response

There is general support that this guideline is adequate. The improvements suggested could be considered during the review process.

2.6.2 Competency of consultants – Guidelines for Competencies and Acceptance of Contaminated Land Auditors and certifiers – Schedule B(10)

Issue 38

Is the current guideline (Schedule B(10)) sufficient to provide an adequate standard of professional overview of site assessment?

What are appropriate methods of measuring and assessing the competencies of contaminated land practitioners?

Submissions

Five submissions (3, 4, 6, 11, 16) stated that the current guideline is adequate to ensure professional overview of site assessment.

Four submissions (1, 3, 6, 16) stated that individual jurisdictions should develop methods for assessing competencies.

Five submissions (7, 19, 20, 22, 23) stated that the current guideline is only an overview and that any methods for assessment of competency should be transparent, impartial and recognise both experience and qualification. The NEPM guidelines, market forces and possibly an accreditation scheme could ensure professional competency of site assessors.

Two submissions (12, 1) suggested that Schedule B(10) be removed from the NEPM. Two submissions (11, 12) raised that the NEPM should ensure that a nationally consistent accreditation system is achieved. This could be based on the Victorian system of accrediting site auditors (14) on Fertcare initiative of the Australian Fertiliser Industry which provides three levels of competency (14) or through relevant professional bodies such as ACLCA (20).

Additional guidance could be provided on the competencies (20) expected of other professionals in the site assessment team (23).

Two submissions (14, 19) raised that independent follow-up audits of competency against agreed criteria should be conducted.

One submission (14) raised that jurisdictional agencies need to be resourced and competent to address the issues of consultant competency.

One submission (14) felt that remediation contractors should have some means of ensuring professional competence.

One submission (19) raised that the NEPM should require jurisdictions to lay down minimum requirements for contaminated land practitioners.

Response

There is general support that this guideline is adequate. The improvements suggested could be considered during the review process. This issue is discussed further in issue 39.

Issue 39

To improve site assessment and reporting standards, should the NEPM provide guidance on the engagement of suitably qualified and experienced contaminated land practitioners? For example, is more guidance needed to specify the qualifications, membership of professional bodies and relevant experience of individual professionals other than auditors in contaminated land?

Submissions

Three submissions (3, 6, 16) stated the NEPM does not need to provide guidance on the engagement of suitable qualified practitioners. Rather, the NEPM guidelines should be more prescriptive and adopted nationally.

Six submissions (7, 8, 9, 12, 14, 20) stated that guidance should be provided. This could take the form of testing *inter alia* the appropriate qualifications, experience, specialist expertise and specific required competencies for specific types of contaminated sites. The auditors accreditation schemes of NSW and Victoria provide suitable guidance, but are resource intensive (14).

Others (14) felt that guidance should be extended to the engagement of other relevant professionals, remediation contractors (12) and qualified laboratories.

Others (22, 23) felt that market forces would ensure that guidance on engagement would be available, and this process would probably include an industry-run self-accreditation scheme.

Response

To provide further guidance, the options for amending the existing guideline will be considered during the review. This will need to take account of requirements which jurisdictions may place upon auditors to ensure that appropriately-qualified persons are engaged in site assessment.

Issue 40

How can the guideline (Schedule B(10)) become more practical and effective to achieve consistent national professional practice in site contamination assessment and auditing, while considering jurisdictional needs?

Submissions

Three submissions (3,6, 16) felt that Tier I clean-up criteria (and reducing use of auditors) with respect to practitioners should be adopted.

One submission (7) stated that a list of specific areas of expertise should be published.

One submission (11) felt that expertise / experience to task should match and that consideration should be given to a graded system of professional appointments in rural areas where the availability of environmental services are limited.

One submission (12) state that some jurisdictions already have legislative requirements in place. One submission (23) raised the need for a national accreditation scheme for auditors based on Victorian and NSW EPA schemes.

One submission (14) raised the need for ongoing training and workshops.

One submission (14) stated that training/certification should be varied e.g. the Fertcare model on the criteria for a CPSS.

One submission (19) stated that a national code of practice to bring about consistent professional practice should be in place. The NEPC could set up a register for client feedback.

Response
A number of jurisdictions hold regular and frequent information and training sessions for their auditors and contribute to industry-based training sessions. The suggestions for improvement can be considered during the review process.

2.7 OTHER ISSUES

Issue 41
Are there any other issues that should be considered in the review of this NEPM?

Submissions
General
Two submissions (6, 18) raised that Ecologically Sustainable Development principles should be incorporated into the NEPM.

Two submissions (12, 19) raised that research needs and recommendations of the NEPM review should be referred to or taken up by relevant national bodies. One submission (23) suggested the need for further technical guidance development identified during the review process be communicated with the CRC CARE.

Two submissions (14, 20) suggested that the NEPM incorporate some consideration of remediation and management of site contamination.

One submission (17) raised that the NEPM should provide background information on the human health and ecosystem effects of common toxic contaminants. Four submissions (1, 3, 6, 16) felt there was a need for guidance on the valuation of ecosystems.

One submission (1) stated that the NEPM should use, where possible, existing national and international guidance documents.

Seven submissions (1, 3, 6, 7, 12, 16, 19) raised the need for a process to update the NEPM in between major reviews.

Two submissions (9, 11) raised the need for guidance on change management when the NEPM is varied. This should include consideration of the legal and other costs if the variations lead to lower ILs (15).

Two submissions (12, 19) stated that the NEPM should focus on biological effects not contaminant concentrations.

Specific

Two submissions (3, 16) raised the need for guidance on risk levels for different land use scenarios and one submission (14) raised the need for assessment guidance on different land use scenarios.

Three submissions (3, 13, 16) felt there is a need for LNAP L and DNAPL

One submission (13) raised the need for consideration of mass flux criteria as well as concentration in groundwater.

Two submissions (8, 14) raised the need for a national register of contaminated sites.

Two submissions (12, 19) felt there was a need for a central repository for sharing site-specific or scenario-specific criteria e.g. airports (14) and fuel storage sites (14).

Two submissions (12, 19) raised the need to link the NEPM to sediment guidelines.

Two submissions (19, 23) raised the need for consideration of geotechnical matters and should not be considered in isolation.

One submission (19) felt there was a need for guidance on use of innovative technologies for assessment and perhaps remediation.

One submission (1) felt there was a need for guidance on distinguishing between ecological and environmental risk assessment (e.g. native fauna / flora vs livestock).

One submission (20) felt there was a need for a summary document of the NEPM.

Response

These issues have been noted and will be considered during the review.

APPENDIX 1 – LIST OF SUBMITTORS

Submittor Number	Submittor
1	Confidentiality requested
2	Environmental Laboratory Industry Group (ELIG)
3	BP Refinery (Kwinana)
4	CSBP Limited
5	Australian Gas Light Company
6	BP Australia Pty Ltd (North Fremantle)
7	Department of Health (South Australia)
8	Energy Australia
9	The Shell Company of Australia Ltd
10	Shellharbour City Council
11	Lloyd Consulting
12	Australian Contaminated Land Consultants Assoc Inc
13	CSIRO (Adelaide, Waite)
14	Queensland Government Agencies
15	ESAA
16	Chamber of Commerce & Industry Western Australia
17	Australian Property Institute
18	Lane Consulting
19	Department of Defence (Australian Government)
20	Department of Human Services (Victoria)
21	Department of Environment & Heritage (Australian Government)
22	Sydney Harbour Federation Trust
23	New South Wales Government Agencies