

29 November 2020

[CLM.Consultation@epa.nsw.gov.au](mailto:CLM.Consultation@epa.nsw.gov.au)

Environment Protection Authority  
Locked Bag 5022,  
Parramatta NSW 2124

**RE: ASBG's Submission on draft Sampling Design Parts 1 & 2:**

The Australian Sustainable Business Group (ASBG) welcomes the opportunity to comment on the draft Contaminated Land Guidelines:

- [Sampling Design Part 1](#) - Application
- [Sampling Design Part 2](#) - Interpretation

ASBG is a leading environment and energy business representative body that specializes in providing the latest information, including changes to environmental legislation, regulations and policy that may impact industry, business and other organisations. We operate in NSW and Queensland and have over 100 members comprising of Australia's largest manufacturing companies and other related businesses.

ASBG welcomes the upgrade to the 1995 Sampling Design Guidelines, to bring it up to date with current and future requirements for application to contaminated land assessment and related activities, especially waste stockpile management.

Overall the draft Sampling Guidelines are a significant more detailed over the 1995 Guidelines. While providing considerable text book approaches to statistical assessments of land contamination sampling the Part 1 drifts into setting prescriptive approaches based on conservative assumptions of background contamination levels. As a consequence ASBG finds document a curious mix of a broad how to approach, which is then circumvented by a prescriptive process based on one risk assessment outcome. ASBG members consider the document too inflexible to be a Guideline. An alternative is to remove the prescriptive elements and changing its status to a Technical Note and not a Guideline.

In addition, there is scope for the drafts to assist in assessing wastes in stockpiles, either from contaminated land remediation or from other processes. This is due to the lack of details in the Waste Classification Guidelines and the large amount of wastes that can be generated from contaminated land remediations.

**Need For Flexibility**

A more flexible approach based on risk assessment is required for determining better sampling plans. ASBG is concerned that section 5.2 establishes a minimum sampling density based on conservative assumptions of existing contamination levels. Essentially table 2 is based on one risk scenario, which does not reflect the range of risk profiles occurring. By setting a prescriptive grid size circumvents the ability to use the statistical

assessment processes the rest of the document describes. An example of this prescriptive approach is seen in s5.2.3 it states:

*The minimum number of sampling points **required** for a systematic sampling program has been calculated for a range of site areas in Table 3. [Number of sampling locations based on grid size]*

Table 3 is based on Table 2 *Systematic sampling and grid size land use*. ASBG considers that table 2 assumes the site is likely to be contaminated past commercial or industrial activity. However, this is not always the case, such as the development of rural land used for cropping or grazing to residential land. As a consequence, having Table 2 as a requirement prevents the use of risk screening to identify the history and likely change in land use sensitivity.

Table 2 also ignores some sensitive commercial land use. Table 2 appears based on the [Assessment of Contaminated Sites NEPM](#) land classification system. However, this can miss certain sensitive land uses. For example, under NSW Planning laws child day care centres can be located in commercial zones. Additionally, the Department of Planning's [Draft State Environmental Planning Policy \(Educational Establishments and Child Care Facilities\) 2017](#) primary purpose of this SEPP is to *introduce new standard definitions and provisions that permit centre-based child care in more land use zones*. This also includes General Industrial Zones IN1 and Light Industrial IN2. The goal is to provide cost-effective Child Care Facilities (CCF) near employment lands. This SEPP has not been released yet, but even the current permissions for child care makes table 2 flawed. So arguably the most sensitive land use, child day care centres are not properly represented in table 2.

Given many using this Guideline are not fully knowledgeable on the statistical methods it offers, ASBG considers the Guideline should contain a set of different standard scenarios representing the risk level of contamination to the proposed land use. Here a number of different table 2s, at least 3 preferably 5, can be provided with the purpose of providing default grid spacing's. As an example these could be based on the following increasing risk scenarios:

1. Rural land or green field sites being developed into various land uses
2. Existing residential land being developed
3. Existing commercial/industrial land being developed – low risk of existing contamination
4. Existing commercial/industrial land being developed – medium risk of existing contamination
5. Existing commercial/industrial land being developed – high risk of existing contamination

In doing the above, the use of the tables should only be used as a default where there is insufficient resources to undertake statistical assessment justifying the sampling regime used. Such an approach should assist regulators and professionals alike as then one can either choose from a set of default criteria or use a more specifically justified method which is documented with the sampling plan. For this to work the applier of the Sampling guidelines will need to:

- Demonstrate the risk profile of the land
- Be able to choose the appropriate default system of grid sizes based on the risk profile, or
- Develop their own grid and sampling plan based on the statistical processes in the Sampling plan and document this

***Recommendation 1: The Sampling Guidelines to remove prescriptive approaches for a sampling plan replacing this with a choice of either a default approach or a fully worked plan.***

***Recommendation 2: The Sampling Guidelines replace table 2 it with a series, at least 4 default types of existing land uses based on the risk profile of existing land.***

**Recommendation 3: Use the term ‘sensitive land use’ to replace residential to ensure sensitive uses on commercial or even industrial land are also considered.**

### **Application for Waste Assessment**

The Sampling Design Guidelines are made to assist contaminated-land consultants, site auditors, regulators, planning authorities, landholders, developers, and members of the public who have an interest in the outcomes of the assessment and management of contaminated land. While the trust is towards contaminated land, use of the Sampling Guidelines is also often applied to stockpiles of contaminated materials and waste material. The need to assess and audit waste management has become a major additional requirement of Contaminated Site Auditors<sup>1</sup>.

Contaminated land auditors and consultants alike often must classify wastes according to the EPA’s Waste Guidelines. However, the Guidelines provide limited reference to the accuracy and confidence limits required to properly classify wastes using 95%UCL. Appendix 1 of the Waste Guidelines refers to two Australian Standards:

- *AS 1199.0–2003: Sampling Procedures for Inspection by Attributes – Introduction to the ISO2859 Attribute Sampling System* (Standards Australia 2003)
- *AS 1141.3.1–2012: Methods for sampling and testing aggregates – Sampling – Aggregates* (Standards Australia 2012a) is useful for sampling wastes such as aggregates, foundry sand, furnace slag or mining waste.

The Waste Guidelines then state:

*If unsure of the appropriate sampling or analytical methods for a particular waste, waste generators are strongly encouraged to seek expert help, either from a laboratory that specialises in waste analysis or an appropriately qualified person specialising in such waste management issues, or both. Since most incorrect chemical assessments of waste are due to poor sampling, it is essential that the sampling regime and analytical method used ensure the results are representative of all components and their variability in the waste.*

When faced with a complex stockpile of waste or a distribution of contaminated land where a significant portion will require removal and disposal, the professional generally turns to the Sampling Guidelines to establish a sampling regime. Being an EPA document, it often fills the gap where the Waste Guidelines fail to cover.

Table 4 Section 5.4 in the Guidelines identifies the minimum recommended number of samples for a stockpile. Again this approach assumes a certain level of heterogeneity and for most cases this is reasonable. However, for large homogenous stockpiles this sampling can be excessive. ASBG considers a better approach to call Table 4 a default sampling density, but use of other statistical approaches, such as Students T test to achieve the 95%UCL as clearly described in the Sampling Guidelines also be permitted where appropriate documentation justifies that table 4 is not required.

**Recommendation 4: The Sampling Guidelines acknowledge under its introduction, they can be used where appropriate to establish sampling regimes for the management of wastes and waste stockpiles.**

**Recommendation 5: The Sampling Guidelines clearly state that Table 4 is a default stockpile sampling, but permit alternative sampling plans can be used where they justify a lower sampling density.**

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<sup>1</sup> See s 4.3.7 [Guidelines for the NSW Site Auditor Scheme 3<sup>rd</sup> Edition](#)

Reference to the Waste Guidelines would also be beneficial to link these documents together so they can complement each other. Also beneficial would be the recognition of the need for waste management, including assessment, classification, treatment and or disposal, are often a part of contaminated land management.

### **Stockpile Sampling Difficulties**

A number of members have difficulty in applying the 1995 Sampling guidelines when applied to stockpiles to achieve 95%UCL required to properly classify the stockpile under the Waste Guidelines when access to the entire stockpile presents difficulties.

Solid stockpiles can be physically hazardous; they can be either in piles, loose or in packages such as bulker bags or other types. In some cases the stockpile is unstable and sampling is simply unsafe to obtain a representative set of samples to achieve 95%UCL. Loose material stockpiles can, with weathering, become unstable. Some of these stockpiles are simply too dangerous to access and take internal samples. On occasion there may be legal reasons that representative sampling cannot be taken, such as, if the waste or contamination crosses boundaries etc.

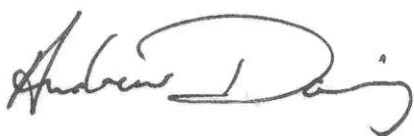
ASBG notes that Hawaii's DoH which covers contaminated land has developed guidelines specifically covering unstable stockpiles<sup>2</sup>. They recommend a progressive sampling approach as the stockpile is removed, as a full set of samples is not possible due to safety and or access issues.

ASBG considers Section 5.4 can include advice on dealing with difficult to sample stockpiles and other areas. The progressive sampling as you approach is one way in which this could be approached.

***Recommendation 6: Permit and provide advice on dealing with limited and or difficult access for sampling, which can include progressive sampling and alternative sampling methods to achieve appropriate statistical confidence levels required for both contaminated land assessment and waste classification.***

Should you require further information, clarification or details on the submission please contact me on 02 9453 3348.

**Yours Sincerely**



**Andrew Doig**

**CEO**

Australian Sustainable Business Group (ASBG)

T. +61 2 9453 3348

F: +61 2 9383 8916

(31 Lady Penrhyn Dr, Beacon Hill NSW 2100)

Email address:

[andrew@asbg.net.au](mailto:andrew@asbg.net.au), [www.asbg.net.au](http://www.asbg.net.au)

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<sup>2</sup> [Guidance for Soil Stockpile Characterization and Evaluation of Imported and Exported Fill Material, State of Hawai'i Department of Health, Hazard Evaluation and Emergency Response Office, Honolulu, Hawai'i: 2017](#)