



INFORMATION BULLETIN

RESPONSE TO COMMENTS – DRAFT BEST PRACTICE REQUIREMENTS FOR LANDFILLS RECEIVING CATEGORY C PRESCRIBED INDUSTRIAL WASTE

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INTRODUCTION

The *Industrial Waste Management Policy (Prescribed Industrial Waste)* ('the policy') allows Category C prescribed industrial wastes that pose a low hazard or exhibit offensive aesthetic properties to be managed at a 'best practice municipal landfill' ('BPML').

Landfill requirements are set out in the *Waste Management Policy (Siting, design and management of landfills)* ('WMP(Landfills)') and EPA publication 788, *Best practice environmental management: Siting, design, operation and rehabilitation of landfills* ('BPEM').

In May 2006 EPA Victoria released the draft *Best practice requirements for landfills receiving category C prescribed industrial waste* (EPA publication 1040) for public comment. This draft set out EPA's requirements for landfill cell design and management practices considered to be 'best practice' for landfills receiving Category C wastes.

EPA received 10 written submissions in response to the draft, as well as feedback from information sessions and discussions with individual stakeholders. The Prescribed Industrial Waste Advisory Committee (PIWAC), established to assist EPA with implementation of the policy, also provided advice during the development of the draft and in finalising the guidelines.

This document summarises the received written submissions, together with EPA's response to these submissions. Comments received during information sessions were also considered. EPA has now finalised the *Best practice guidelines for landfills receiving Category C prescribed industrial waste* (EPA publication 1208) ('the guidelines').

SUMMARY OF PUBLIC COMMENT AND EPA RESPONSE

In finalising the guidelines, EPA has amended the requirements of a BPML in light of various issues raised in submissions. Comments of an editorial nature or addressing other aspects of the policy implementation program have been noted, although

they have not been specifically addressed in this document.

Written comments are referenced by a number in square brackets, where the number refers to the corresponding submission listed at the end of this document. The feedback received has been summarised and presented under the following sections:

1. General comments
2. Rural issues
3. Siting
4. Landfill design
5. Construction quality assurance plan
6. Waste disposal
7. Waste receipt
8. Monitoring
9. Community involvement
10. Financial assurance
11. Management of landfills currently receiving Category C wastes
12. Other comments.

1. GENERAL COMMENTS

From the written submissions and other feedback received from information sessions and workshops, there were varying points of view expressed.

There was general support for the objective of the guidelines to improve design and management practices of landfills accepting Category C waste in order to reduce risk to the environment. However, not all of the requirements were supported. There were also a number of concerns raised by rural landfill operators about the cost implications of implementing the requirements and the fact that many of them accepted only small volumes of Category C waste.

Other key concerns raised in submissions were regarding requirements for composite liners in rural areas, a double composite liner and a double leachate collection system for immobilised waste and the restrictions on co-disposal with immobilised waste. These and other issues have been addressed in the sections below.

2. RURAL ISSUES

Summary of comment. Rural stakeholders suggested that consideration be given to rural landfills that accept small volumes of prescribed industrial waste, since there is lower risk to the environment [2][7][8][10]. One stakeholder also suggested that there should be some recognition of the vastly different water table conditions across the state [10]. Some rural submissions also suggested that, if landfills were forced to comply with the requirements (e.g., leachate collection system [2], or using an environmental auditor [10]), they would no longer accept prescribed industrial waste due to the increased cost of compliance. It was suggested that this may result in waste generators illegally dumping their waste. [2][7].

Response to comment. EPA acknowledges that rural landfills provide an essential service in the regional areas, and where low volumes of Category C waste are accepted at landfills, the risk posed to the environment by Category C waste is low. EPA recognises that due to additional cost of BPML compliance, consideration should be given to rural landfills accepting low volumes of Category C waste. EPA notes that the majority of Category C received by many of the rural landfills is Category C contaminated soil¹ and asbestos. Accordingly, the guidelines have been amended in the landfill design section to allow landfill operators to use alternative measures to 'best practice', provided they can demonstrate 'at least an equivalent environmental outcome to that provided by the suggested measure'. In considering alternative measures, consideration will be given to the volumes and types of wastes accepted, and the hydrogeological and meteorological features of the site. The waste receipt and monitoring sections have also been amended to include consideration of the risk posed to the environment, plus the volumes and types of waste accepted when determining the frequency and scope of the audit reports.

EPA considers illegal disposal or dumping a serious offence, and this reinforces the need to keep rural facilities accessible. EPA will continue to take action, in accordance with its Enforcement policy, under the *Environment Protection Act 1970* ('the Act')

3. SITING

Summary of comment. One submission [6] highlighted that most existing landfills could not comply with the requirement to deposit wastes at least two metres above the long-term undisturbed depth to groundwater. This submission also suggested that this

¹ EPA has amended the *Environmental Protection (Prescribed Waste) Regulations 1998*. As a result, from 1 July 2007, "Category C (Contaminated soil)" has replaced "Contaminated soil (low-level)".

requirement should apply to new sites and that existing landfills depositing waste less than two metres above the water table should phase out this practice. Another submission [4] suggested that an exemption be granted for those landfills that can successfully manage leachate for groundwater protection in cells located below the water table.

Response to comment. The guidelines have been amended to better reflect the WMP (Landfills), which states that all new landfills be established two metres above the long-term undisturbed depth to groundwater. Where operators are unable to satisfy this requirement, they must satisfy the EPA that additional design management practices will be implemented.

4. LANDFILL DESIGN

4.1 Asbestos

Summary of comment. One submission [6] suggested that landfill receiving only asbestos should meet the requirements of a type 2 landfill but does not need to meet siting criteria as it relates to groundwater.

Response to comment. The BPEM states that a type 3 landfill may accept solid inert waste, and this cell design is appropriate for asbestos. The wording in the guidelines has been amended to clarify this requirement. If other wastes placed in the same cell as asbestos present a higher risk to underlying groundwater than asbestos, then a higher level of cell design appropriate to the higher risk waste is required.

Although the BPEM does not require a type 3 landfill to be two metres above the long-term undisturbed depth to the groundwater, the WMP (Landfills) does require this criterion to be met by all new landfill sites, irrespective of landfill type. The WMP (Landfills) requirements prevail where there are inconsistencies with the BPEM.

4.2 Food processing and low-hazard prescribed industrial waste, Category C contaminated soil

Summary of comment. Comments on design requirements for different Category C wastes varied. A composite liner for landfills receiving Category C contaminated soil was not supported by one rural submission [3], especially since many sites have natural clays that provide protection to the environment. Another submission [6] agreed with the cell design for food processing, low-hazard prescribed industrial wastes and Category C contaminated soil proposed in the draft guidelines. Another rural operator [7] expressed concern that the abalone and scallop industries may face reduced profitability or viability if they are required to pay significantly increased waste disposal costs. It was also suggested

that EPA publication 448.1, *Classification of Wastes*, be reviewed to enable hazard classification of soils [4].

Response to comment. The BPEM indicates that, for a type 2 landfill, a composite liner is the 'best practice' standard. The guidelines state that landfill operators can propose alternative measures provided they can demonstrate an equivalent environmental outcome to the suggested measures. The guidelines have been amended to include consideration of the hydrogeological and meteorological features of the site when considering alternative cell designs.

EPA has revised publication 448 to reclassify low-level contaminated soil as Category C contaminated soil and updated contaminant concentration threshold limits to be in line with those contaminants listed in *Guidelines for hazard classification of solid prescribed industrial wastes* (EPA publication 996). Both publications enable all prescribed industrial wastes to be classified as Category A, B or C.

4.3 Immobilised waste

Summary of comment. Two submissions [5][9] proposed that the immobilised waste category be subdivided further according to immobilisation technique: encapsulated, chemically fixed or stabilised. It was suggested that this may provide flexibility for operators, if EPA permits some Category C immobilised waste subcategories to be co-disposed with wastes in a type 2 landfill.

The requirement for double composite lined cells and double leachate collection was not supported by one submission [5]. Another submission [6] agreed that Category C immobilised waste should be placed in cells more robust than other Category C wastes, but suggested that the double composite liner may be excessive (except perhaps for landfills less than two metres above the water table).

Two submissions suggested alternatives to the composite liner system, including the use of a geomembrane, geosynthetic clay liner (GCL) and clay [4][6], and replacing the secondary leachate collection system with a geosynthetic layer [6]. One submission [6] advocated the use of a separation geotextile above the leachate collection layer to prevent fine particulate build-up in the leachate collection media and suggested that different wastes may have different leachate collection media requirements. It was also suggested that the leachate collection system may not be required, especially for landfills that are located below the water table [4].

One submission [6] suggested removing the reference to '2 mm thick HDPE' as other thicknesses may provide the same or better outcome, based on performance requirements.

Response to comment. The guidelines have been developed in accordance with the policy, which defines the hazard categories as C(1) and C(2), and so there is

no scope to amend this definition. The proposed new hazard categories and subcategories are outside the scope of these Guidelines and relate to the hazard classification framework. However, the guidelines do deal with the management of Category C waste at BPMLs. The proposed subcategorisation of Category C immobilised waste has limitations. Stating specific immobilisation techniques does not allow for new immobilisation technologies, which may not fit into these categories. Also, it does not recognise that, under EPA publication 996, an 'immobilised waste classification' is not just based on the immobilisation process. The classification is also based on the waste characterisation and other supporting data.

Category C immobilised waste requires a greater level of control to protect human health and the environment than other Category C wastes since it still contains levels of contaminants in the Category B range, although the contaminant leachability is significantly reduced to a lesser hazard.

Rather than be prescriptive in the design, EPA has provided suggested measures and will consider alternative designs that provide at least an equivalent environmental outcome. The '2 mm thickness' for HDPE was removed from the guidelines to allow for alternative thicknesses that could provide the same environmental outcome. The guidelines also allow for other approved geomembranes to be used.

4.4. Landfill Cap

Summary of comment. Two submissions [5][9] did not support the requirement for the seepage through the landfill cap to be no more than 75 per cent of seepage through the basal liner. One submission [6] suggested that the 75 per cent seepage rate is probably not achievable for cells designed to accept Category C immobilised waste.

Response to comment. The requirement to limit the seepage through the cap to less than 75 per cent of seepage through the base is a requirement of the BPEM and it ensures that the landfill does not have a net inflow of water. This can be achieved through materials used in the cap, slope of the cap to encourage water to drain away and the effects of evapotranspiration. EPA recognises that a cap seepage of 75 per cent of the seepage through the liner may be difficult to achieve for cells designed to accept Category C immobilised waste, due to the already low seepage rate through the double composite (or equivalent) base liner system. The guidelines have been amended so that the cap seepage requirement is 75 per cent of the 'primary' or upper liner.

5. CONSTRUCTION QUALITY ASSURANCE PLAN

Summary of comment. It was suggested by one submission [6] that the technical specifications for cell design are equally as important as the construction quality assurance plan and that the guidelines should address the technical specification aspect.

Response to comment. The construction quality assurance (CQA) plan section in the guidelines has been amended to include: 'An environmental auditor appointed under the *Environment Protection Act 1970* must prepare an environmental audit report that reviews the approved plans and specifications and confirms that the landfill cell has been constructed in accordance with this approved CQA plan.'

6. WASTE DISPOSAL

Summary of comment. Two submissions [5][9] argued that Category C immobilised waste should be co-disposed with putrescible waste to help buffer the pH of the landfill leachate as the putrescible waste decomposes. A rural operator [8] stated that it would not be efficient or practical to have a separate cell. On the other hand, one submission [6] did support the requirement for Category C immobilised waste not to be co-disposed with putrescibles.

Response to comment. For buffering of the landfill leachate pH, an optimum ratio of immobilised waste to putrescible waste would have to be maintained, as well as a suitable method of dispersion, which may not be practical or achievable. There is a need for a higher level of environmental protection of groundwater from Category C immobilised waste. Low-hazard prescribed industrial waste and Category C contaminated soil can be co-disposed with Category C immobilised waste, provided EPA assesses these as compatible. For example, some acidic wastes may not be compatible with immobilised wastes due to the increased risk of contaminant mobilisation. Putrescible wastes cannot be co-disposed with Category C immobilised waste since putrescibles can produce a slightly acidic leachate, which could remobilise contaminants such as metals. Adhering to this co-disposal restriction provides a higher level of protection to the environment. In addition, a new table has been inserted in the guidelines to clarify which Category C waste types can be co-disposed.

7. WASTE RECEIPT

Summary of comment. One submission highlighted difficulties in ensuring Category C contaminated soil that is accepted at landfills has been correctly categorised [1]. The requirement to resample Category C contaminated soil was regarded as not being

practical [1][3], and it was suggested that the paperwork provided by the generator should be relied upon [3]. A suggestion was made by one respondent to provide further guidance on the number of waste conformance testing samples required [6]. Another submission [4] generally supported environmental auditors reviewing waste receipt procedures, but suggested that landfills that have an ISO14001-certified environmental management system (EMS) be deemed to satisfy the audit requirement. A rural operator [7] did not support the requirement to have a weighbridge, due to additional costs and very small volumes of waste. Another submission [1] suggested alternatives to the works approval process to allow temporary approval for best practice landfills to accept prescribed industrial waste.

Response to comment. EPA has released *Soil sampling guideline (Off-site management and acceptance to landfill)*, publication number 1178. EPA has reviewed publication 448, *Classification of Wastes* to update and align the hazard categories with EPA publication 996. The revised EPA publication 448 enables soils to be classified as Category A, B or C (contaminated soil), according to the contaminant criteria listed in the tables.

One of the areas to be considered in a site-specific environment improvement plan (EIP) is waste acceptance. The BPEM objective is 'to ensure that only appropriate wastes are deposited at the landfill' and the required outcome is 'an assurance by the landfill operator that the waste received at the site is able to be accepted'. One suggested measure is to 'conduct random inspections and sampling of waste loads'. The purpose of random sampling is to confirm a hazard category of the waste, to provide landfill operators with confidence that they are only accepting wastes that their landfill is licensed and designed to receive, and that the correct landfill levy and disposal fees are collected. Random sampling should be considered as an integral part of waste receipt practices. The sampling and testing requirements will be conducted on an audit basis, so not all loads will require sampling. Waste can be deposited in the landfill cell while the sample is being processed. EPA will work with operators to develop an appropriate sampling and testing regime based on the wastes and volumes accepted at the landfill.

The requirement for an 'EPA-appointed environmental auditor' has been replaced with an 'independent body' to conduct the audit of waste receipt practices. The guidelines have been amended to allow for the frequency and scope of the audit reports to be agreed between the landfill operator and the EPA, based on risk to the environment plus the volumes and types of waste accepted at the landfill.

EPA agrees that landfills located in districts not listed in Schedule C to the *Environment Protection Act 1970* (the Act) do not require a weighbridge due to low

volumes of Category C waste accepted at these rural landfills. The guidelines have been amended to reflect this more clearly.

Note: the WMP (Landfills) requires that all licensed landfills in the municipalities listed in Schedule C to the Act, which are subject to a levy, are required use a weighbridge. The works approval process is a statutory requirement under the Act. It is an important process for the landfill operators, the EPA and the community, to ensure that proposals have addressed environmental considerations. The guidelines have been amended, in the section covering the management of landfills currently receiving Category C wastes, to clarify when a works approval is required.

8. MONITORING

Summary of comment. One rural operator did not support the use of environmental auditors on a regular basis due to cost [2]. One submission sought clarification on the 'higher level of monitoring' required for immobilised waste [6].

Response to comment. The required outcomes of the BPEM that must be met include 'assurance that the monitoring results are interpreted by an expert in the field' and a report is 'submitted at least annually to EPA'. The BPEM suggests the use of an EPA-appointed environmental auditor to analyse and interpret the monitoring results, as this will provide assurance from an appropriately qualified person. The guidelines have been amended to explain that the frequency and scope of the audit reports will be agreed between landfill operators and the EPA, based on risk to the environment, and volumes and types of waste accepted at the landfill.

The auditors have been screened by EPA through a rigorous process, to ensure that they are suitably qualified to conduct the audit. The use of EPA-appointed environmental auditors gives assurance to the operator, EPA and the community that the audit is thorough, as it is carried out by a qualified person. The Act enables the auditor to conduct an 'environmental report' of risk of harm and of environmental condition. There is also some flexibility for the auditor to define the scope of the audit.

The words 'higher level of monitoring' have been replaced with 'additional monitoring' in the guidelines to highlight that further monitoring may be required for Category C immobilised waste, since it has potential to pose a higher risk to the environment than other Category C wastes.

9. COMMUNITY INVOLVEMENT

Summary of comment. One submission [6] suggested that this section be reviewed to clarify who the landfill

operators must consult with and states that making annual reports available publicly should be sufficient.

Response to comment. The BPEM suggests involving the community in the planning stages of screening potential sites, and in reporting. EPA has listed potential stakeholders in the guidelines, but each landfill operator should determine the stakeholders most likely to have an interest in its own site operations. A community liaison committee meeting provides a forum to engage the community, rather than simply making a report public. The guidelines have been amended to suggest that a community liaison committee be established only 'where there is sufficient community interest'.

10. FINANCIAL ASSURANCE

Summary of comment. One submission [6] questioned why a greater financial assurance is required for landfills receiving Category C immobilised waste, since the immobilisation process and the stringent cell design should reduce overall risk and therefore financial assurance requirements. It was suggested that greater guidance be provided for financial assurance since EPA publication 777, *Determination of financial assurance*, does not deal with prescribed industrial waste landfills.

Response to comment. Financial assurance has three components: remedial action, site rehabilitation and site aftercare. The statement in the guidelines about providing a greater financial assurance for landfills accepting Category C immobilised waste has been removed. The current practice for determining financial assurance for prescribed waste landfills is via a risk-based method. Contact EPA for further information.

11. MANAGEMENT OF LANDFILL CURRENTLY RECEIVING CATEGORY C WASTES

Summary of comment. One submission [6] suggested that, to prevent inequities in the landfill market, strict timelines to implement requirements for existing landfills should also be enforced.

Response to comment. EPA held an additional information session with Landfill Victoria and through the discussion it became evident that further clarification for existing landfills was required on the transition period to meet the BPML requirements. It was clear that all new landfills must comply with the BPML guidelines.

Existing landfill operators can continue to accept Category C waste that they are licensed to accept. To accept new Category C waste streams, operators need to submit a works approval for assessment.

The best practice requirements for landfill cells designed to accept any Category C waste must be implemented for any new cell that is constructed after the release of the guidelines. All new landfill caps of existing cells must also meet best practice requirements.

The EIP, including site management practices and procedures, must be reviewed, updated and implemented in line with best practice requirements at the next EIP review or within 12 months of the release of the guidelines – whichever is sooner.

12. OTHER COMMENTS

Comment. One submission [5] suggested the use of reagent water rather than class 3(b) leaching fluid in the Australian Standard Leaching Procedures (ASLP) tests.

Response to comment. Class 3(b) leaching fluid is specified in EPA publication 996 for the ASLP tests, which are used to determine the leachable concentration of contaminants and, hence, the hazard category of a waste. This is a conservative test, as it covers both acidic and alkaline conditions. EPA believes that it is appropriate to continue to use a conservative test as specified in the Australian Standard.

Comment. One submission [6] suggested that the BPEM be reviewed.

Response to comment. EPA recognises that publications require updating from time to time and has committed to update the BPEM in due course.

LIST OF SUBMISSIONS

The following submissions were received in response to the *Draft best practice requirements for landfills receiving C prescribed industrial waste*. Personal details have been withheld in accordance with the *Information Privacy Act 2000*.

1. Hanson Landfill Services Pty Ltd.
2. Horsham Rural City Council.
3. Buckland Gross Pty Ltd.
4. SITA Australia Pty Ltd.
5. Landfill Victoria.
6. Golder & Associates Pty Ltd.
7. East Gippsland Shire Council.
8. Rural City of Wangaratta.
9. Boral Landfill and Waste.
10. Grampians Regional Waste Management Group.