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Christine Bell  
Southern Waste Solutions  
143 Nelson Road  
MT NELSON TAS 7000

Dear Christine

## Terminologies used for wastes

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I write in response to your request for advice about terminologies used in relation to wastes, specifically the term 'toxic'.

A 'toxic' substance is generally understood to mean a substance that may harm humans, animals or plants if ingested, inhaled or absorbed.

However, applying this single word label to a substance is a shorthand convenience and simplistically describes something that is actually much more complicated. While condensing complicated descriptions into single words is a reasonable and common tendency, doing so loses a lot of critical information and can lead to misunderstandings.

The single word 'toxic' creates an artificial divide, on one side of which lie substances that are supposedly always non-toxic and on the other side of which lie substances that are supposedly always toxic. In reality, this is not the case at all.

The potential effects of substances on species (including humans) actually lie across a continuous spectrum, determined by many parameters, including chemical characteristics, concentrations, volumes, mode and length of exposure, and the species themselves. For a given substance and species, at one end of the spectrum low concentrations and/or volumes may have no harmful effects while at the other end high concentrations and/or volumes may have severe harmful effects, and in between these two extremes will be a graduated range of effects.

Replacing this continuous spectrum with a simplistic one word label can lead to unwarranted concern about a substance at one end of the spectrum or unwarranted apathy about it at the other one end. Rather than particular substances being inherently toxic, they are toxic in particular circumstances and the task of good environmental management is to prevent those circumstances arising.

For substances that could cause harm, what is important is to avoid being exposed at the concentrations and/or volumes that could cause toxic effects. Avoiding exposure is a control measure that achieves this.

Appropriate control of potentially harmful substances is something that we all do in our everyday lives in our own homes. For example, we all store many substances in our laundries and garden sheds that could simplistically be termed 'toxic'. If our decision was a simplistic toxic or not toxic divide, we would ban these substances from our properties. However, we don't do this - instead we control our potential exposure to them by having them appropriately contained and stored.

These same exposure control principles are used by regulatory authorities to manage waste. Indeed, this is why regulatory authorities use the term 'controlled' wastes rather than 'toxic' wastes. In this case, the simplistic divide is entirely appropriate because on one side of the divide are wastes that do not require special management while on the other side are wastes that do. Provided that controlled wastes are properly managed, they will cause no harm to the community or the environment, just as proper management of laundry and garden chemicals will ensure that those substances will cause no harm to our families.



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### Hobart

GF, Surrey House  
199 Macquarie Street  
Hobart 7000  
GPO Box 94 Hobart  
TAS 7001 Australia  
T (03) 6210 1400  
F (03) 6223 1299

### Offices in:

#### Brisbane

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[www.pittsh.com.au](http://www.pittsh.com.au)  
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With specific reference to the Copping C-cell, it will receive controlled wastes. Some of these wastes could, in theory, cause harm to humans in they were ingested, inhaled or absorbed in sufficient quantities. However, they would only be 'toxic' in circumstances where the ingestion, inhalation or absorption levels were high enough to cause these harms. The C-cell is designed specifically to avoid these circumstances arising in any measure.

The types of controlled wastes that will be allowed to go to the C-cell will be limited to those for which the cell design is suitable. There will be some controlled wastes - for example, nuclear wastes or certain types of solvents - which will not be allowed to go to the cell because they could not be adequately contained by the cell liners (radiation) or because they could harm the liners themselves.

The wastes that will be allowed to go to the cell will be appropriately and adequately contained, thereby controlling their potential exposure to humans and the environment and therefore preventing the circumstances arising where they could have toxic effects.

Yours sincerely



Dr Ian Woodward  
**Principal Environmental Scientist**  
Hobart Office