End of Waste Code

Foundry Sand (ENEW07359617)

Waste Reduction and Recycling Act 2011
## Version history

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Description of changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00</td>
<td>01 January 2019</td>
<td>Commencement of EOW code</td>
</tr>
</tbody>
</table>

Prepared by: Waste and Contaminated Land Assessment, Department of Environment and Science

© State of Queensland, 2018

The Queensland Government supports and encourages the dissemination and exchange of its information. The copyright in this publication is licensed under a Creative Commons Attribution 3.0 Australia (CC BY) licence.

Under this licence you are free, without having to seek our permission, to use this publication in accordance with the licence terms.

You must keep intact the copyright notice and attribute the State of Queensland as the source of the publication.

For more information on this licence, visit [http://creativecommons.org/licenses/by/3.0/au/deed.en](http://creativecommons.org/licenses/by/3.0/au/deed.en)

If you need to access this document in a language other than English, please call the Translating and Interpreting Service (TIS National) on 131 450 and ask them to telephone Library Services on +61 7 3170 5470.

This publication can be made available in an alternative format (e.g. large print or audiotape) on request for people with vision impairment; phone +61 7 3170 5470 or email <library@des.qld.gov.au>.

November 2018
Contents

1. Explanatory Statement ............................................................................................................. 4
2. Guidance ................................................................................................................................... 4
   2.1 Resource use versus Activity ............................................................................................ 4
   2.2 Resource versus Waste ...................................................................................................... 4
   2.3 Failure to comply .............................................................................................................. 4
   2.4 Lawfulness of the activity ............................................................................................... 5
3. Period of this EOW code ........................................................................................................ 5
4. Waste to which this EOW code applies ................................................................................. 5
5. Person to whom this EOW code applies .............................................................................. 5
   5.1 Registered resource producers of the resource .............................................................. 5
   5.2 Resource users ................................................................................................................. 5
6. Registered resource producer requirements ....................................................................... 6
7. Conditions of use ..................................................................................................................... 8
8. Definitions ............................................................................................................................... 10
Appendix A — General obligation for all persons .................................................................... 12
1. Explanatory Statement

This End of Waste (EOW) code for foundry sand has been issued by the Queensland Government in accordance with section 159 of the *Waste Reduction and Recycling Act 2011* (WRR Act).

This EOW code states when a waste becomes a resource and any relevant requirements and/or conditions for its use. It supports the vision of Queensland’s Waste Strategy, which is defined in the WRR Act, for Queensland to become a national leader in avoiding unnecessary consumption and waste generation by adopting innovative resource recovery approaches and managing all products and materials as valuable and finite resources.

If the waste is not being used in accordance with the relevant requirements and/or conditions of this EOW code, or another type of permit that allows for its use, it is considered a waste and must be disposed of appropriately at a facility that is lawfully able to receive the waste.

2. Guidance

2.1 Resource use versus Activity

An EOW code states when a waste stops being a waste following any necessary processing or treatment. A waste becomes a **resource** when it has been determined to meet the requirements of an EOW code. It may be necessary to treat or process the waste prior to and/or in order to meeting those requirements. An Environmental Authority (EA) under the *Environmental Protection Act 1994* (EP Act) is required where an activity being undertaken triggers the threshold for any environmentally relevant activity (ERA). This means that treating or processing the waste to meet the resource quality criteria under the EOW code may require an EA under the EP Act if the activity meets the threshold for an ERA.

2.2 Resource versus Waste

A waste that is considered a **resource** under an EOW code is a resource only for the purpose of the uses(s) approved in an EOW code. In the event a resource does not meet the requirements of the EOW code and/or is not used in accordance with the EOW code, it is deemed to be a waste and must be managed in accordance with waste management requirements under the EP Act and the WRR Act, and their subordinate legislation.

A resource which is approved under an EOW code, is deemed to be a waste when it is disposed of at a waste disposal facility, or if it is deposited at a place in a way that would, apart from its use approved under an EOW code, constitute a contravention of the general littering provision or the illegal dumping of waste provision under the WRR Act.

2.3 Failure to comply

Any **person** operating under this EOW code must comply with the relevant requirements and conditions of the EOW code. It is an offence to not comply with the relevant requirements and conditions, carrying a maximum penalty of 1665 penalty units for an individual and 8325 penalty units for a corporation\(^1\).

Please refer to Appendix A of this EOW code for general obligations for all persons operating under this EOW code, which includes the **resource users**.

---

\(^1\) The value of a penalty unit is stated in the Penalties and Sentences Regulation 2015 (Qld).
2.4 Lawfulness of the activity

The issuing of this EOW code for the use of the resource does not warrant or imply the lawfulness of the activity under all legislation, or that approvals necessary under other legislation have or will be approved. It is the responsibility of the registered resource producer and resource user to identify and obtain all other approvals necessary for the relevant activities.

3. Period of this EOW code

This EOW code takes effect from 01 January 2019 and remains in force until it is amended, cancelled or suspended by the chief executive.

4. Waste to which this EOW code applies

This EOW code is limited to foundry sand sourced from ferrous foundry operations.

This waste becomes a resource when the requirements and conditions under this EOW code are met.

5. Person to whom this EOW code applies

5.1 Registered resource producers of the resource

5.1.1 Prior to operating under this EOW code, the producer of the resource must register with the chief executive by giving a notice in the approved form that the person intends to become a registered resource producer for this EOW code.

5.1.2 A registered resource producer for this EOW code must comply with the stated registered resource producer requirements.

5.2 Resource users

5.2.1 The resource user must only use the resource for a purpose allowed under this EOW code

5.2.2 The resource user must comply with the stated conditions of use.

---

2 If an EOW code is to be amended, cancelled or suspended, the chief executive will provide an opportunity to make written submissions by providing a proposed action notice to the registered resource producers; and publishing the proposed action notice on department's website for anyone interested.

3 The approved form, Registered Resource Producer for an EOW code, is available on the Queensland Government website at www.qld.gov.au, using the publication number (ESR/2018/4082) as a search term.
6. Registered resource producer requirements

(6.1) The registered resource producer must not use, sell or give away the resource unless it:
   a) meets the quality criteria in Table 1 – Resource quality criteria for the approved use stated in Table 2 – Approved uses of the resource;
   b) is recovered from the moulds used in the hot casting of only ferrous metals including iron, and steel comprised of sand and fine sand rejects from sand recovery systems; and
   c) does not have characteristics contained in List 2: Characteristics of controlled wastes, of Schedule A of the Movement of Controlled Waste NEPM (such as, being flammable or emitting flammable gases, liable to spontaneous combustion, oxidising, containing organic peroxides, poisonous, infectious, corrosive, toxic or giving off toxic gases or being ecotoxic).

(6.2) Table 1 – Resource quality criteria

<table>
<thead>
<tr>
<th>Quality criteria</th>
<th>Total maximum concentration (mg/kg)</th>
<th>Bound applications</th>
<th>Unbound applications and Manufacturing of compost, mulch and soil conditioner</th>
<th>Unrestricted use and Manufacturing of general purpose soil</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic (As)</td>
<td>100</td>
<td>40</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Cadmium (Cd)</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Chromium (Cr) III</td>
<td>400</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Chromium (Cr) VI</td>
<td>100</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Copper (Cu)</td>
<td>600</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Lead (Pb)</td>
<td>150</td>
<td>150</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Mercury (Hg)</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Nickel (Ni)</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Selenium (Se)</td>
<td>20</td>
<td>20</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Silver (Ag)</td>
<td>40</td>
<td>40</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Zinc (Zn)</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>Phenols (non-halogenated)</td>
<td>100</td>
<td>100</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Phenols (halogenated)</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Benzene</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Fluoride</td>
<td>450</td>
<td>450</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Triethylamine (TEA)*</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
*Triethylamine (TEA) is to be monitored when TEA is used in the foundry process. It is not a requirement to monitor TEA for the resource produced from foundries that do not use TEA in their process.

The resource must not have any properties nor contain any other contaminants at concentrations which may cause environmental harm when used in accordance with this EOW code.

Resource monitoring

Prior to providing the resource to a resource user, the registered resource producer must develop a resource characterisation report that:

a) identifies the source of the waste including how it is generated (including sands generated from different processes within the foundry);

b) identifies the constituents of, or inputs to the waste stream (including any binders, catalysts or other additives that may contain contaminants such as Triethylamine (TEA));

c) determines whether the composition of the resource will be consistent or variable with time; and

d) characterises the initial batch of waste based on the detailed assessment undertaken and the quality criteria listed in Table 1 - Resource quality criteria.

If the source of the waste is determined to be consistent and inputs do not change, the registered resource producer must conduct sampling and characterisation at least on an annual basis to confirm the waste still matches initial characterisation.

Where the composition of the resource has changed or is likely to change, additional monitoring of the quality criteria in Table 1 – Resource quality criteria must be conducted which is sufficient to detect and characterise the extent of any change\(^4\), until such time that results demonstrate the material is compliant with Table 1 - Resource quality criteria.

Any determination of the suitability or characterisation of the resource (including ongoing sampling) must be made by an appropriately qualified person.

All analysis required under this EOW code must be carried out by a laboratory that has NATA certification, or an equivalent certification, for such analyses.

Information to be provided

The registered resource producer must make the following available to any person to whom they provide the resource each time the resource is provided for use:

a) confirmation in writing that the resource being supplied is compliant with the requirements of this EOW code;

---

\(^4\) Such additional monitoring should occur if there have been significant changes or modifications to the process or processing equipment.
b) a current certificate of analysis for the quality of the resource for at least the quality criteria in Table 1 – Resource quality criteria; and

c) Safety Data Sheet for the resource.

Records

(6.10) The registered resource producer must maintain the following records each time the resource is provided for use:

a) quantity of the resource

b) quality criteria of the resource (at least for parameters listed in Table 1 – Resource quality criteria);

c) date of dispatch of the resource; and

d) destination of the resource (including the name and address of the resource user).

(6.11) The registered resource producer must:

a) keep records of all requirements under this EOW code for a period of at least five (5) years; and

b) provide the records to the chief executive upon request and in the format requested.

7. Conditions of use

Approved uses

(7.1) The approved resource is foundry sand that complies with the quality criteria listed in Table 1 – Resource quality criteria and is used for the purpose stated in Table 2 – Approved uses of the resource.

(7.2) Table 2 - Approved uses of the resource

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Description of approved use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bound applications</td>
<td>The resource must only be used in manufacturing processes and applications which encapsulate or chemically transform and incorporate the resource into a final product that complies with relevant Australian Standards for that product. Final products for the purpose of this EOW code are limited to:</td>
</tr>
<tr>
<td></td>
<td>a) Bitumen and asphalt;</td>
</tr>
<tr>
<td></td>
<td>b) Brick and paver products;</td>
</tr>
<tr>
<td></td>
<td>c) Cement clinker products; and</td>
</tr>
<tr>
<td></td>
<td>d) Concrete products</td>
</tr>
<tr>
<td>Unbound applications</td>
<td>The use is limited to the following applications on standard areas:</td>
</tr>
<tr>
<td></td>
<td>a) Fill in construction projects;</td>
</tr>
<tr>
<td></td>
<td>b) Pipe bedding;</td>
</tr>
<tr>
<td></td>
<td>c) Road base materials; and</td>
</tr>
</tbody>
</table>
| Compost, mulch and soil conditioner manufacturing | The use is limited to the manufacturing of the following:  
   a) **Compost, mulch, and soil conditioners** that meet the requirements of AS4454\(^5\); and  
   b) **General purpose soil** that meet the requirements of AS4419\(^4\). |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Unrestricted use</td>
<td>The <strong>resource</strong> can be used unrestrictedly where the final product complies with the relevant Australian Standard for that product.</td>
</tr>
</tbody>
</table>

(7.3) Where the **resource** is to be used for more than one approved use stated in *Table 2 - Approved uses of the resource*, the **resource user** must comply with all conditions for those uses.

### Records

(7.4) For each **load** of the **resource** received, the **resource user** must keep the following **records**:

- a) quantity of the resource;
- b) date of receipt; and
- c) name and address of the **person** who supplied the resource.

(7.5) All **records** required by the conditions of this EOW code must be kept by the **resource user** for a period of not less than five (5) years and provided to the **chief executive** upon request and in the format requested.

### Notification

(7.6) Any breach of a condition of this EOW code must be reported to the **chief executive** as soon as practicable within 24 hours of becoming aware of the breach. **Records** must be kept including full details of the breach and any subsequent actions taken.

---

\(^5\) The **chief executive** is currently in the process of undertaking a project that will review the suitability of feedstock in compost manufacturing. When the project is finalised, the outcome of this project may influence the uses approved by this EOW code.
8. Definitions

Words and phrases used throughout this EOW code in bold are defined below. Where a definition for a term used in this EOW code is sought and the term is not defined within this EOW code the definitions provided in the Waste Reduction and Recycling Act 2011 or the Environmental Protection Act 1994 shall be used.

‘appropriately qualified person’ means a person who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis on performance relating to the subject matter using the relevant protocols, standards, methods or literature.

'AS4419' means Australian Standard 4419 Soils for landscaping and garden use (2003), or its most recent version.

'AS4454' means Australian Standard 4454 Composts, soil conditioners and mulches (2012), or its most recent version.

‘chief executive’ means the Department of Environment and Science or its successor.

'compost' has the meaning in AS4454 and is the organic product that has undergone controlled aerobic and thermophilic biological transformation through the composting process to achieve pasteurisation and reduce phytotoxic compounds, and achieved a specified level of maturity required for compost.

‘contaminants’ (as defined in Section 11 of the Environmental Protection Act 1994), unless authorised under this EOW code means —
   a) a gas, liquid or solid; or
   b) an odour; or
   c) an organism (whether alive or dead), including a virus or parasite; or
   d) energy, including noise, heat, radioactivity and electromagnetic radiation; or
   e) a combination of contaminants.

‘daily cover’ means the soil to cover the waste at a landfill used in accordance with waste coverage requirements under the environmental authority for the landfill facility.

‘environmental harm’ means environmental harm as defined in Chapter 1 of the Environmental Protection Act 1994.

‘general purpose soil’ has the meaning in AS4419 being a material consisting of natural soil, a blend of sand and organic material or a blend of sand, natural soil materials and organic materials, which is suitable for the culture of plants usually grown in domestic gardens and landscaped areas.

‘load’ means the volume of resource put in or on something for conveyance or transportation, carried at one time. A truck and trailer carrying the resource is considered as one load as well as multiple bins travelling by rail. Where the resource is transported via conveyor systems, information should be recorded on a daily basis until the transfer ceases.

‘Movement of Controlled Waste NEPM’ means the National Environment Protection (Movement of Controlled Waste between States and Territories) Measure, as varied in 2012, or the most recent version.

‘mulch’ has the meaning in AS4454 and is any organic product (excluding polymers that do not degrade, such as plastics, rubber and coatings) that is suitable for placing on soil surfaces.

‘NATA’ is the National Association of Testing Authorities.

‘person’ means an individual or a corporation.

‘records’ include breach notifications, written agreements, analysis results, monitoring reports and monitoring programs required under a requirement or a condition of this EOW code.
‘registered resource producer’ means a person who has registered with the chief executive as a resource producer for the resource to be used under this EOW code.

‘resource(s)’ means foundry sand sourced from foundry operations that meet the resource quality criteria stated in Table 1 – Resource quality criteria of this EOW code.

‘resource user(s)’ means a person who uses the resource for the use approved under this EOW code and in such a manner which does not cause any environmental harm, and includes the producer who uses the resource.

‘Safety Data Sheet’ means a document containing data regarding the properties of the resource which provides users information on handling or working with that substance in a safe manner; and includes information such as physical data toxicity, environmental characteristics, health effects, first aid, reactivity; and storage, disposal, protective equipment and spill handling procedures. The Safety Data Sheet must be compliant with Safe Work Australia’s code of practice for production of Safety Data Sheet.

‘soil conditioner(s)’ has the meaning in AS4454 and is any composted or pasteurised organic product suitable for adding to soils. This also includes products termed ‘soil amendment’, ‘soil additive’, ‘soil improver’ and similar, but excludes polymers that do not biodegrade, such as plastics, rubber and coatings.

‘standard areas’ means land use including residential, parks, recreational play fields, open spaces and commercial and industrial sites, excluding waters and the bed and banks of waters.

‘waters’ includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, artificial watercourse, bed and bank of any watercourse, dams that are not fit for purpose, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater and any part-thereof.

-END-
Appendix A — General obligation for all persons

This appendix is not intended to provide a comprehensive assessment of all obligations under Queensland law. It provides some general information and persons are encouraged to familiarise themselves with all requirements related to their specific operation.

**Responsibilities under the **Environmental Protection Act 1994**

All persons within the State of Queensland must also meet their obligations under the *Environmental Protection Act 1994*, and the regulations made under that Act.

**General environmental duty**

Section 319 of the *Environmental Protection Act 1994* states that we all have a general environmental duty. This means that we are all responsible for the actions we take that affect the environment. We must not carry out any activity that causes or is likely to cause environmental harm unless we take all reasonable and practicable measures to prevent or minimise the harm. To decide what meets your general environmental duty, you need to consider:

- the nature of the harm or potential harm
- the sensitivity of the receiving environment
- the current state of technical knowledge for the activity
- the likelihood of successful application of the different measures to prevent or minimise environmental harm that might be taken
- the financial implications of the different measures as they would relate to the type of activity.

It is not an offence not to comply with the general environmental duty. However, maintaining your general environmental duty is a defence against the following acts:

(a) an act that causes serious or material environmental harm or an environmental nuisance

(b) an act that contravenes a noise standard

(c) a deposit of a contaminant, or release of stormwater run-off, mentioned in section 440ZG.


**Some relevant offences under the Environmental Protection Act 1994**

**Causing serious or material environmental harm (sections 437–39)**

Material environmental harm is when the harm is not trivial or negligible in nature. Serious environmental harm is harm that is irreversible, of a high impact or widespread, or that is caused to an area of high conservation value or special significance. Damages, or costs required to rehabilitate the environment, of over $5000 constitutes material environmental harm and damages, or costs required to rehabilitate the environment, of over $50,000 constitutes serious environmental harm.

Serious or material environmental harm excludes environmental nuisance.
Causing environmental nuisance (section 440)

Environmental nuisance is unreasonable interference with an environmental value caused by aerosols, fumes, light, noise, odour, particles or smoke. It may also include an unhealthy, offensive or unsightly condition because of contamination.

Depositing a prescribed water contaminant in waters (section 440ZG)

Prescribed water contaminants include a wide variety of contaminants listed in Schedule 9 of the Environmental Protection Regulation 2008.

It is your responsibility to ensure that prescribed water contaminants are not left in a place where they may or do enter a waterway, the ocean or a stormwater drain. This includes making sure that stormwater falling on or running across your site does not leave the site contaminated. Where stormwater contamination occurs you must ensure that it is treated to remove contaminants. You should also consider where and how you store material used in your processes onsite to reduce the chance of water contamination.

Placing a contaminant where environmental harm or nuisance may be caused (section 443)

A person must not cause or allow a contaminant to be placed in a position where it could reasonably be expected to cause serious or material environmental harm or environmental nuisance.

Some relevant offences under the Waste Reduction and Recycling Act 2011

Littering (section 103)

Litter is any domestic or commercial waste and any material a person might reasonably believe is refuse, debris or rubbish. Litter can be almost any material that is disposed of incorrectly. Litter includes cigarette butts and drink bottles dropped on the ground, fast food wrappers thrown out of the car window, poorly secured material from a trailer or grass clippings swept into the gutter. However, litter does not include any gas, dust, smoke or material emitted or produced during, or because of, the normal operations of a building, manufacturing, mining or primary industry.

Illegal dumping of waste (section 104)

Illegal dumping is the dumping of large volumes of litter (200 litres or more) at a place. Illegal dumping can also include abandoned vehicles.

Failure to comply with EOW code (section 158)

A registered resource producer for an EOW code must not use, sell or give away the resource unless the registered resource producer complies with the requirements of the EOW code relating to the resource.

A person, other than a registered resource producer, must not use a resource in a way, or for a purpose, that does not comply with an EOW code for the resource.