End of Waste Code

Biosolids (ENEW07359617)

Waste Reduction and Recycling Act 2011
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 ................................................................................................. 4
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 ................................................................................................................... 10
8. Definitions ............................................................................................................................... 15
Appendix A — General obligation for all persons ...................................................................... 17
1. Explanatory Statement

This End of Waste (EOW) code for biosolids 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 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 that point. 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 with an exception of what is permitted under the requirements and conditions of this EOW code in accordance with the NSW Guidelines requirements.

2.2 Resource versus Waste

A waste that is considered a resource under an EOW code is considered a resource only for the purpose of the use(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, approved under an EOW code, is also 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 use 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 which includes the resource users.

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.

---

1 The value of a penalty unit is stated in the Penalties and Sentences Regulation 2015 (Qld).
3. Period of this EOW code

This EOW code takes effect from **01 January 2019** and remains in force until it is cancelled, amended or suspended[^2].

This EOW code for biosolids is prepared as an interim arrangement for the continuous use of biosolids as a resource following expiry of the General Beneficial Use Approval for biosolids that was effective until 31 December 2018. The draft EOW code for biosolids, for which public submissions closed on 29 November 2018, received a significant number of submissions. As such, this EOW code will be amended to reflect the consideration of submissions received during the public consultation period.

4. Waste to which this EOW code applies

This EOW code is limited to **biosolids** that meet the criteria in **Table 1 - Approved resource** of this EOW code. 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[^3] 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.

5.2.3 Prior to operating under this EOW code, a **person** who intends to use the approved **resource** must notify the **chief executive** by giving a notice in the approved form[^4] that the person intends to become a **resource user** for this EOW code.

[^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.
[^4]: The approved form, **Notification of use of a resource** is available on the Queensland Government website at [www.qld.gov.au](http://www.qld.gov.au), using the publication number (ESR/2018/4552) 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 meets the stated criteria in **Table 1 – Resource quality criteria** for the approved use in accordance with this EOW code.

(6.2) **Table 1 – Resource quality criteria**

<table>
<thead>
<tr>
<th>Resource</th>
<th>Criteria</th>
</tr>
</thead>
</table>
| Biosolids | 1. Generated from sewage treatment plants within the State of Queensland and licensed under the Environmental Protection Act 1994 (EP Act) for the relevant activity with total daily peak design capacity of >1500 equivalent persons.  
2. **Biosolids** meet the quality characteristic requirements for one or more of the classifications in **Table 2 – Biosolids classification requirements**. |

(6.3) **Table 2 – Biosolids classification requirements**

<table>
<thead>
<tr>
<th>Biosolids classification</th>
<th>Biosolids quality characteristics</th>
</tr>
</thead>
</table>
| Unrestricted use         | 1. The quality of the resource meets the following requirements:  
 a) Maximum contaminant limit (MCL) in column ‘Grade A’ of **Table 3 – Maximum contaminant limits**; and  
 b) At least one pathogen reduction requirement and one vector reduction requirement for ‘Stabilisation Grade A’ of **Table 4 - Biosolids stabilisation requirements**  
 c) Enteric viruses <1PFU per 4 grams (total dry weight)  
 d) Helminth ova <1 per 4 grams (total dry weight)  
 e) E-coli <100 MPN per grams (dry weight)  
 f) Faecal coliforms <1000 MPN per gram (dry weight)  
 g) Salmonella species – ND |
| Restricted use 1         | 1. The quality of the resource must meet the following requirements:  
 a) MCL in column ‘Grade B’ of **Table 3 – Maximum contaminant limits**; and  
 b) At least one pathogen reduction requirement and one vector reduction requirement for ‘Stabilisation Grade A’ of **Table 4 - Biosolids stabilisation requirements**  
 c) Enteric viruses <1PFU per 4 grams total dry weight  
 d) Helminth ova <1 per 4 grams total dry weight  
 e) E-coli <100 MPN per gram dry weight  
 f) Faecal coliforms <1000 MPN per gram dry weight  
 g) Salmonella species – ND |
| Restricted use 2         | 1. The quality of the resource must meet the following requirements:  
 a) MCL in column ‘Grade C’ of **Table 3 – Maximum contaminant limits**; and  
 b) At least one pathogen reduction requirement and one vector reduction requirement for ‘Stabilisation Grade B’ of **Table 4 - Biosolids stabilisation requirements** |

ND = Not detected NS = Not stated PFU = Plaque-forming unit MPN = Most probable number

Under this EOW code, it is the **registered resource producer**’s responsibility to ensure the quality of the **resource** has been determined before providing it to the **user**. It is the user’s responsibility to ensure that biosolids are of a quality that is suitable for the land application use they will be undertaking.
### Table 3 – Maximum contaminant limits

<table>
<thead>
<tr>
<th>Quality characteristic</th>
<th>MCL (dry mass) in mg/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Grade A</td>
</tr>
<tr>
<td>Arsenic</td>
<td>20</td>
</tr>
<tr>
<td>Cadmium</td>
<td>3</td>
</tr>
<tr>
<td>Chromium (total)</td>
<td>100</td>
</tr>
<tr>
<td>Copper</td>
<td>100</td>
</tr>
<tr>
<td>Lead</td>
<td>150</td>
</tr>
<tr>
<td>Mercury</td>
<td>1</td>
</tr>
<tr>
<td>Nickel</td>
<td>60</td>
</tr>
<tr>
<td>Selenium</td>
<td>5</td>
</tr>
<tr>
<td>Zinc</td>
<td>200</td>
</tr>
<tr>
<td>Total Organic Fluorine*</td>
<td>0.39</td>
</tr>
<tr>
<td>DDT/DDD/DDE</td>
<td>0.5</td>
</tr>
<tr>
<td>Aldrin</td>
<td>0.02</td>
</tr>
<tr>
<td>Dieldrin</td>
<td>0.02</td>
</tr>
<tr>
<td>Chlordane</td>
<td>0.02</td>
</tr>
<tr>
<td>Heptachlor</td>
<td>0.02</td>
</tr>
<tr>
<td>HCB</td>
<td>0.02</td>
</tr>
<tr>
<td>Lindane</td>
<td>0.02</td>
</tr>
<tr>
<td>BHC</td>
<td>0.02</td>
</tr>
<tr>
<td>PCBs</td>
<td>ND**</td>
</tr>
</tbody>
</table>

**Notes:**

* Where TOF analysis is not available, the sum of oxidisable precursors (Total oxidisable precursor assay, i.e., TOPA C4 – C14) plus perfluoroalkyl sulfonates (PFBS, PFHxS, PFOS, PFOSA, PFDcS) is taken to be a surrogate for TOF

**Not detected at a limit of detection of 0.2 mg/kg

### Table 4 – Biosolids stabilisation requirements

<table>
<thead>
<tr>
<th>Pathogen Reduction Process</th>
<th>Vector Attraction Reduction Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stabilisation Grade A</td>
<td></td>
</tr>
</tbody>
</table>

Biosolids have been treated using one of the following methods:

1. Thermally treated biosolids
   a) **Biosolids** > 7% solids with temperature at least 50°C. The equation for the time -temperature requirement is:
   \[
   D = \frac{(131,700,000)}{(10^{0.1400t})}, \text{ where}
   \]
   \[D = \text{time required in days, } t = \text{temperature in degrees Celsius.}
   \]
   This option includes pasteurisation at 70°C for 30 mins;
   b) **Biosolids** > 7% solids. This option includes composting at 55°C for 3 consecutive days.
   c) **Biosolids** > 7% solids that are small particles heated by contact with either warmed gases or an immiscible

1. Mass of volatile solids in the **biosolids** have been reduced by a minimum of 38%.

2. **Anaerobically digested biosolids** which do not meet requirement 1 above must have no more than 17% further volatile solids reduction when incubated under anaerobic conditions in a bench scale reactor for an additional 40 days at 30-37°C.

3. **Aerobically digested biosolids** which do not meet requirement 1. above must have no more than 15% further volatile solids reduction when incubated under aerobic conditions in a bench scale reactor for an additional 30 days at 20°C.
liquid. The temperature should be at least 50°C for at least 15 seconds using the equation above. This option includes biosolids in contact with a hot gas stream in a rotary drier or biosolids dried in a multiple-effect evaporator system.

d) **Biosolids** < 7% solids and less than 30 minutes contact time. Use equation 1 for contact times > 15 seconds and < 30 minutes.

e) **Biosolids** < 7% solids and > 30 minutes contact time at 50°C or higher use equation (2) below:

\[
D = \frac{50,070,000}{10^{0.1400t}}
\]

This option includes thermophilic **aerobic digestion**.

2. **High pH—high temperature process**

The pH of the **biosolids** product is to be raised to greater than or equal to pH 12 and remain above pH 12 for 72 hours. During at least 12 hours of the 72-hour period, temperature of the **biosolids** product has to be greater than 52°C. After 72 hours **biosolids** product must be air dried to a solids content of more than 50%.

3. **Biosolids** from unknown processes

For **biosolids** where the history of processing is not known, the product will be subject to a program of testing for the microbiological parameters contained in Table 2.

### Stabilisation Grade B

<table>
<thead>
<tr>
<th>1. Anaerobic digestion</th>
<th>One of the vector attraction reduction requirements from Stabilisation A above or one of the following requirements:</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Aerobic digestion</td>
<td><strong>Process Option (for Stabilisation B only)</strong></td>
</tr>
<tr>
<td>3. Air drying</td>
<td>1. At least 20 days continuous or intermittent extended aeration including aerob digestion time followed by six (6) months storage of <strong>biosolids</strong> in a lagoon or equivalent process.</td>
</tr>
<tr>
<td>4. Composting</td>
<td><strong>Barrier Options (for Stabilisation B only)</strong></td>
</tr>
<tr>
<td>5. Lime stabilisation</td>
<td>2. <strong>Biosolids</strong> will be injected below the surface of the land.</td>
</tr>
<tr>
<td>6. Extended aeration</td>
<td>3. <strong>Biosolids</strong> applied to the land surface must be incorporated within six hours of application on the land.</td>
</tr>
</tbody>
</table>

(6.6) The **registered resource producer** must ensure that the classification of the **resource** has been determined according to the **biosolids** quality characteristics stated in *Table 2 - Biosolids classification requirements*.

(6.7) Prior to the initial supply of the **resource** to a **resource user** and following any variation of the quality of the supply, the **registered resource producer** must make the resource user aware in writing of the classification of the resource.
Monitoring and analysis undertaken to determine the classification of the resource must be conducted with samples taken at least every 120 dry tonnes of the resource to be used.

Where the composition of the resource has changed or is likely to change, more frequent monitoring must be conducted to sufficiently detect the extent of any change.

Any monitoring to determine the quality of the resource must be carried out on samples that are representative of the resource to be used.

The registered resource producer must record details of the following:

- the determination of the classification of resource as required by Requirement 6.6 of this EOW code;
- results of ongoing sampling and characterisation; and
- a written agreement between the registered resource producer and resource user to use the resource in accordance with the requirements and conditions of this EOW code.

All analyses undertaken as a part of this EOW code must be carried out by a laboratory that has NATA certification, or an equivalent certification, for such analyses.

Sampling and analysis conducted as a requirement of this EOW code must be undertaken by an appropriately qualified person.

The registered resource producer must keep the following records each time the resource is provided for use:

- origin of the resource;
- date of delivery of the resource;
- destination of the resource;
- contact details for the person receiving the resource; and
- quantity of the resource supplied (in tonnes).

The registered resource producer must keep records of all requirements, including monitoring requirements, under this EOW code for a period of at least five (5) years and provide the records to the chief executive upon request within 10 business days and in the format requested.

---

6 Resource sampling and analysis should be conducted in accordance with the procedures detailed in the latest version of the NSW Guidelines.

7 In cases where the registered resource producers are the users, the written agreement does not need to be in place.
7. Conditions of use

Approved uses

(7.1) The approved resource is biosolids that comply with the quality criteria listed in Table 1 – Resource criteria and is used for the relevant uses stated in Table 5 – Approved uses and conditions for resource users.

(7.2) The resource user must ensure that the resource is only applied to land as a fertiliser or soil ameliorant for the allowable land application use according to its classification stated in Table 2 - Biosolids classification requirements.

(7.3) The resource may be used for a stated use in Table 5 – Approved uses and conditions for resource users where the resource user complies with all of the relevant conditions for that use.

(7.4) Where the resource is to be used for more than one approved use, the resource user must comply with all conditions for those uses in accordance with Table 5 – Approved uses and conditions for resource users.

(7.5) Table 5 – Approved uses and conditions for resource users

<table>
<thead>
<tr>
<th>Biosolids classification</th>
<th>Allowable land application use</th>
<th>Biosolids quality characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unrestricted use</td>
<td>Home lawns and gardens</td>
<td>1. The quality of the resource meets the following requirements:</td>
</tr>
<tr>
<td></td>
<td>Public contact sites</td>
<td>a) Maximum contaminant limit (MCL) in column ‘Grade A’ of Table 3 - Maximum contaminant limits; and</td>
</tr>
<tr>
<td></td>
<td>Urban Landscaping</td>
<td>b) At least one pathogen reduction requirement and one vector reduction requirement for ‘Stabilisation Grade A’ of Table 4 - Biosolids stabilisation requirements</td>
</tr>
<tr>
<td></td>
<td>Agriculture</td>
<td>c) Enteric viruses &lt;1PFU per 4 grams (total dry weight)</td>
</tr>
<tr>
<td></td>
<td>Forestry</td>
<td>d) Helminth ova &lt;1 per 4 grams (total dry weight)</td>
</tr>
<tr>
<td></td>
<td>Soil and site rehabilitation</td>
<td>e) E-coli &lt;100 MPN per grams (dry weight)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>f) Faecal coliforms &lt;1000 MPN per gram (dry weight)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>g) Salmonella species – ND</td>
</tr>
<tr>
<td>Restricted use 1</td>
<td>Public contact sites</td>
<td>1. The quality of the resource must meet the following requirements:</td>
</tr>
<tr>
<td></td>
<td>Urban Landscaping</td>
<td>a) MCL in column ‘Grade B’ of Table 3 - Maximum contaminant limits; and</td>
</tr>
<tr>
<td></td>
<td>Agriculture</td>
<td>b) At least one pathogen reduction requirement and one vector reduction requirement for ‘Stabilisation Grade A’ of Table 4 - Biosolids stabilisation requirements</td>
</tr>
<tr>
<td></td>
<td>Forestry</td>
<td>c) Enteric viruses &lt;1PFU per 4 grams total dry weight</td>
</tr>
<tr>
<td></td>
<td>Soil and site rehabilitation</td>
<td>d) Helminth ova &lt;1 per 4 grams total dry weight</td>
</tr>
<tr>
<td></td>
<td></td>
<td>e) E-coli &lt;100 MPN per gram dry weight</td>
</tr>
<tr>
<td></td>
<td></td>
<td>f) Faecal coliforms &lt;1000 MPN per gram dry weight</td>
</tr>
<tr>
<td></td>
<td></td>
<td>g) Salmonella species – ND</td>
</tr>
<tr>
<td>Restricted use 2</td>
<td>Agriculture</td>
<td>1. The quality of the resource must meet the following requirements:</td>
</tr>
<tr>
<td></td>
<td>Forestry</td>
<td>a) MCL in column ‘Grade C’ of Table 3 - Maximum contaminant limits; and</td>
</tr>
<tr>
<td></td>
<td>Soil and site rehabilitation</td>
<td>b) At least one pathogen reduction requirement and one vector reduction requirement for ‘Stabilisation Grade B’ of Table 4 - Biosolids stabilisation requirements</td>
</tr>
</tbody>
</table>

ND = Not detected            NS = Not stated     PFU = Plaque-forming unit      MPN = Most probable number
### Written Procedure

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
</table>
| (7.6)   | The use of the resource must be undertaken in accordance with the written procedures that:  
  a) identify potential risks of environmental harm from using the resource during routine operations and emergencies;  
  b) establish and maintain control measures that minimise the potential for environmental harm; and  
  c) ensure that reviews of environmental performance are undertaken at least annually. |
| (7.7)   | Storage  
  The resource must not be stored on application sites for a period exceeding 30 days. |
| (7.8)   | The resource must be stored in areas located outside the buffer distances stated in Table 7 - Minimum buffer zones to sensitive receptors. |
| (7.9)   | All areas used to store the resource must be bunded so that overland flow of stormwater is excluded from either entering or leaving the bunded area. |
| (7.10)  | Water that is collected within bunded storage areas must be irrigated to the resource application area in a manner that prevents release to waters. |
| (7.11)  | Site suitability  
  The suitability of each resource application area must be assessed by an appropriately qualified person before each application. |
| (7.12)  | The suitability assessment required by Condition 7.11 must include:  
  a) An assessment of the existing soil nutrient and contaminant levels and determination of the assimilative capacity of the soil in accordance with the NSW Guidelines;  
  b) A determination of the soil pH level at depths 0 – 10 cm and 0 – 45 cm in accordance with the soil sampling procedure given in NSW Guidelines;  
  c) A determination of the groundwater (standing water level) during both wet and dry seasons; and  
  d) An assessment of seasonal climate and flood risk. |
| (7.13)  | The details of any assessment undertaken in accordance with Conditions 7.11 and 7.12 must be provided on request to the chief executive within 10 business days. |
| (7.14)  | The resource must not be applied to land that:  
  a) has a soil pH of less than 3.5(CaCl₂ method);  
  b) has groundwater (standing water level) located lesser than 3 metres below the surface (during either wet or dry seasons);  
  c) has a surface rock outcrop of greater than 10% of the area to which the resource is applied. |
| (7.15)  | Consultation about the application of the resource must be conducted with any landholders or occupiers of the neighbouring land where the resource application is to occur. |

---

8 Resource application must be avoided within the identified exclusion period for identified flood risk area.
Land application of the resource

(7.16) The application of the resource to land must be conducted at an agronomic loading rate determined in accordance with the latest version of the NSW Guidelines, taking into consideration the limits for the parameters listed in Table 6 - Maximum allowable soil contaminant concentrations.

(7.17) The application of the resource to land must not result in soil contaminant concentrations exceeding the limits for the parameters listed in Table 6 - Maximum allowable soil contaminant concentrations.

(7.18) The resource must be spread on land at a uniform rate and incorporated into the soil within 36 hours of spreading.

(7.19) Any excess biosolids (following application) are considered to be regulated waste, and must be taken to a location lawfully able to accept the material, and must not be stored or re-applied to the application areas of each site.

(7.20) The following records must be kept for each resource application:
   a) details of the land on which the application occurs (e.g. GPS locations of the farms and blocks);
   b) date and time when the resource is applied;
   c) the calculated application rate at which the resource is to be applied; and
   d) the actual application rate.

(7.21) Table 6 – Maximum allowable soil contaminant concentrations

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Maximum allowable soil contaminant concentration (mg/kg dry weight of soil)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>20</td>
</tr>
<tr>
<td>Cadmium</td>
<td>1</td>
</tr>
<tr>
<td>Chromium (total)</td>
<td>100</td>
</tr>
<tr>
<td>Copper</td>
<td>100</td>
</tr>
<tr>
<td>Lead</td>
<td>150</td>
</tr>
<tr>
<td>Mercury</td>
<td>1</td>
</tr>
<tr>
<td>Nickel</td>
<td>60</td>
</tr>
<tr>
<td>Selenium</td>
<td>5</td>
</tr>
<tr>
<td>Zinc</td>
<td>200</td>
</tr>
<tr>
<td>Total Organic Fluorine*</td>
<td>0.005</td>
</tr>
<tr>
<td>DDT/DDD/DDE</td>
<td>0.50</td>
</tr>
<tr>
<td>Aldrin</td>
<td>0.02</td>
</tr>
<tr>
<td>Dieldrin</td>
<td>0.02</td>
</tr>
<tr>
<td>Chlordane</td>
<td>0.02</td>
</tr>
</tbody>
</table>

9 The agronomic loading rate should be no greater than the lower of the nitrogen limited biosolids application (NLBAR) or the contaminant limited biosolids application rate (CLBAR) according to NSW Guidelines as of 12 December 2018.
### End of waste code

Biosolids (ENEW07359617)

<table>
<thead>
<tr>
<th>Substance</th>
<th>Concentration (mg/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heptachlor and heptachlor epoxide</td>
<td>0.02</td>
</tr>
<tr>
<td>Hexachlorobenzene</td>
<td>0.02</td>
</tr>
<tr>
<td>Lindane</td>
<td>0.02</td>
</tr>
<tr>
<td>Benzene hexachloride</td>
<td>0.02</td>
</tr>
<tr>
<td>PCBs</td>
<td>Not detected**</td>
</tr>
</tbody>
</table>

**Notes:**

* Where TOF analysis is not available, the sum of oxidisable precursors (Total oxidisable precursor assay, i.e., TOPA C4 – C14) plus perfluoroalkyl sulfonates (PFBS, PFHxS, PFOS, PFOSA, PFDcS) is taken to be a surrogate for TOF.

**Not detected at a limit of detection of 0.1mg/kg.

### Buffer distances

**Note:**

- **Flat** refers to the situation where the sensitive receptor is at the same point on the slope as the biosolids application area.
- **Downslope** refers to the situation where the sensitive receptor is at a lower point on the slope than the biosolids application area.
- **Upslope** refers to the situation where the sensitive receptor is at a higher point on the slope than the biosolids application area.

#### Table 7 - Minimum buffer zones to sensitive receptors

<table>
<thead>
<tr>
<th>Sensitive Receptor</th>
<th>Minimum buffer distance (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flat (&lt;3% or &lt;2°)</td>
<td>Downslope (&gt;3% or &gt;2°)</td>
</tr>
<tr>
<td>Flat (&lt;3% or &lt;2°)</td>
<td>Downslope (&gt;3% or &gt;2°)</td>
</tr>
<tr>
<td>Surface waters</td>
<td>50</td>
</tr>
<tr>
<td>Farm dams</td>
<td>20</td>
</tr>
<tr>
<td>Drinking water bores</td>
<td>250</td>
</tr>
<tr>
<td>Other bores</td>
<td>50</td>
</tr>
<tr>
<td>Farm driveways, forest roads &amp; fence lines</td>
<td>5</td>
</tr>
<tr>
<td>Native forests &amp; other significant vegetation types</td>
<td>10</td>
</tr>
<tr>
<td><strong>Animal enclosures</strong>, property boundaries or land used for food production</td>
<td>25</td>
</tr>
<tr>
<td>Occupied dwelling</td>
<td>50</td>
</tr>
<tr>
<td>Residential zone</td>
<td>250</td>
</tr>
</tbody>
</table>

#### Application timeframes

**Note:**

- **The resource** must not be applied to land within the timeframes stated in **Table 8 - Land use and harvesting timeframe restrictions**.

---

10 Downslope refers to the situation where the sensitive receptor is at a lower point on the slope than the biosolids application area.

11 Upslope refers to the situation where the sensitive receptor is at a higher point on the slope than the biosolids application area.
### Table 8 – Land use and harvesting timeframe restrictions

<table>
<thead>
<tr>
<th>Land use</th>
<th>Timeframe in which the resource must not be applied</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Human food crops</strong></td>
<td></td>
</tr>
<tr>
<td>Harvested parts do not touch the resource</td>
<td>30 days prior to harvesting</td>
</tr>
<tr>
<td>Harvested parts touch the resource but are above the land surface (e.g. lettuce)</td>
<td>18 months prior to harvesting</td>
</tr>
<tr>
<td>Harvested parts are below the surface of the land (e.g. carrots)</td>
<td>5 years prior to harvesting</td>
</tr>
<tr>
<td><strong>Animal feed &amp; fibre crops</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>30 days prior to harvesting</td>
</tr>
<tr>
<td></td>
<td>30 days prior to grazing by animals</td>
</tr>
<tr>
<td></td>
<td>Poultry and pigs must not be allowed to graze on biosolids application areas.</td>
</tr>
<tr>
<td><strong>Animal withholding</strong></td>
<td>90 days prior to grazing by lactating (including milk for human consumption) and new born animals</td>
</tr>
<tr>
<td><strong>Turf</strong></td>
<td>1 year prior to harvesting</td>
</tr>
<tr>
<td><strong>Public access</strong></td>
<td></td>
</tr>
<tr>
<td>Where there is high potential for public exposure</td>
<td>1 year prior to access</td>
</tr>
<tr>
<td>Where there is low potential for public exposure</td>
<td>30 days prior to access</td>
</tr>
</tbody>
</table>

1. **(7.26)** The resource must not be released directly or indirectly to land, air, or waters in a way that is not in accordance with the conditions of this EOW code and causes or may cause actual or potential environmental nuisance or environmental harm.

2. **(7.27)** The release of noxious or offensive odours, or dust or any other airborne particulate matter must not cause a nuisance at a sensitive place.

3. **(7.28)** Noise generated from the use of the resource must not cause a nuisance at a sensitive place.

4. **(7.29)** All complaints received regarding the use and transport of the resource must be recorded including investigations undertaken, conclusions formed and action taken. This information must be made available on request to the chief executive within 10 business days.

5. **(7.30)** The following records must be kept by the resource user for each load of the resource received:
   a) origin of the resource;
   b) quantity (in tonnes);
   c) date of collection;
   d) date of receipt; and
   e) destination (including the site address and name of the resource user).

6. **(7.31)** All records required by this EOW code must be kept for a period of at least five years and provided upon request to the chief executive within 10 business days.

7. **(7.32)** Notification of emergencies, incidents and exceptions

8. **(7.33)** 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, including full details of the breach and any subsequent actions taken, must be kept and provided to the chief executive upon request and in the format requested.
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 relevant legislation shall be used.

‘aerobic digestion’ means the biochemical decomposition of organic matter in sewage sludge into carbon dioxide and water by micro-organisms in the presence of oxygen.

‘agriculture’ means the current or future use of land for agriculture which includes horticulture, turf and any purpose of husbandry. This includes keeping or breeding livestock, and growing fruit, vegetables, field crops or pastures.

‘anaerobic digestion’ means the biochemical decomposition of the organic matter in sewage sludge into methane gas and carbon dioxide by micro-organisms in the absence of oxygen.

‘animal enclosure’ means an enclosure for intensive husbandry of livestock such as pigs, cattle and poultry; and does not include grazing purposes.

‘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.

‘biosolids’ means treated tank sludges and residues from a municipal sewage treatment plant (also called a waste water treatment plant) including sedimentation tank and clarifier sludges, aerobically and anaerobically digested sludge and filter cake products from those sewage treatment plants.

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

‘composting’ means the aerobic, biological decomposition of the organic constituents of biosolids and other organic products under controlled conditions. The rate of composting is dependent upon a number of factors, but key factors include: moisture content, carbon to nitrogen ratio, aeration, temperature and microbial population.

‘contaminant’ (as defined in Section 11 of the Environmental Protection Act 1994), unless authorised under this approval means —

(a) a gas, liquid or solid; or
(b) an odour; or
(c) an organism (whether alive or dead), including a virus; or
(d) energy, including noise, heat, radioactivity and electromagnetic radiation; or
(e) a combination of contaminants.

‘daily peak design capacity’ for sewage treatment works means the higher equivalent person (EP) for the works calculated using each of the following formulae:

a) \( EP = \frac{V}{200} \), where, \( V \) is volume, in litres, of the average dry weather flow of sewage that can be treated at the works in a day;

b) \( EP = \frac{M}{2.5} \), where, \( M \) is the mass, in grams, of phosphorous in the influent that the works are designed to treat as the inlet load in a day.

‘emergency(ies)’ means a situation where either human health or safety is threatened, or serious or material environmental harm has been or is likely to be caused; and urgent action is necessary to protect the health or safety of persons, or prevent or minimise the harm, or rehabilitate or restore the environment because of the harm.

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

‘nuisance’ means environmental nuisance as defined in Section 15 of the Environmental Protection Act 1994 and means unreasonable interference or likely interference with an environmental value caused by—

(a) aerosols, fumes, light, noise, odour, particles or smoke; or
(b) an unhealthy, offensive or unsightly condition because of contamination; or
(c) another way prescribed by regulation.

‘occupied dwelling’ means a room or suite of rooms occupied on the property receiving biosolids or the adjoining property.

‘person(s)’ means an individual or a corporation.

‘registered resource producer(s)’ means a person who sells or gives away the resource to be used under this EOW code.

‘public contact site(s)’ means land with a high potential for contact by the public, including public parks, fields, cemeteries, plant nurseries and golf courses.

‘regulated waste’ means regulated waste as defined in Section 65 of the Environmental Protection Regulation 2008.

‘release(d)’ of a contaminant into the environment, includes —

(a) to deposit, discharge, emit or disturb the contaminant; and
(b) to cause or allow the contaminant to be deposited, discharged, emitted or disturbed; and
   (i) to allow the contaminant to escape; and
   (ii) to fail to prevent the contaminant from escaping.

‘residential zone’ means land identified in an environmental planning instrument as being predominantly for residential use, including urban, village or living area zones, but excluding rural residential zone.

‘sensitive place’ means —

   c) a dwelling, mobile home or caravan park, residential marina or other residential place; or
   d) a motel, hotel or hostel; or
   e) a kindergarten, school, university or other educational institution; or
   f) a medical centre or hospital; a protected area; a park or garden; or
   g) a place used as an office or for business or commercial purposes and includes the curtilage of any such place; or
   h) a public park or garden.

‘stabilisation’ means the process of biosolids to reduce or eliminate the potential for putrefaction and which, as a result, reduces pathogens, vector attraction and offensive odours.

‘surface water’ means waters excluding groundwater.

‘urban landscapes’ means landscaping undertaken for aesthetic or rehabilitation purposes within an urban environment, and include all public landscaping but not residential areas.

‘resource user(s)’ means a person who has entered into a written agreement with a registered resource producer to use the resource in accordance with the conditions of this EOW code, and includes the registered resource producer who uses the resource.

‘waters’ includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater and any part- thereof.
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 produce, 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.

Approved
13 December 2018

Enquiries:
Permit and Licence Management
Ph: 13 QGOV (13 74 68)
Email: palm@des.qld.gov.au