Model Operating Conditions

Environmental Protection Act 1994

ERA 53(a) – Organic material processing by composting

This document provides advice to potential environmental authority holders on the model operating conditions that will be applied to their environmental authority for environmentally relevant activity (ERA) 53(a).

Contents

Version history

Version	Date	Description of changes
1.00	26 May 2014	Document first published
1.01	24 November 2015	Updated corporate style
1.02	10 December 2015	Minor changes (e.g. adding publication number ESR/2015/1665—previously EM1192)
1.03	8 June 2016	Updated corporate style
1.04	3 July 2017	Updated reference from *Sustainable Planning Act 2009* to *Planning Act 2016*.
2.00	07 September 2017	Condition numbers updated to reflect the DES condition library numbering (Connect conditions). Minor amendments made to some conditions for consistency with other model conditions.
2.01	29 September 2017	Minor formatting changes.
2.02	25 June 2018	Document rebranded to align with machinery of government changes.
3.00	29 November 2018	Updated for Environmental Protection (Waste ERA Framework) Amendment Regulation 2018.
3.01	08 October 2019	Updated to reflect the Environmental Protection Regulation 2019 remake
4.00	09 July 2021	Updated to reflect Composting Recognised Entity Report
4.01	23 February 2024	Document rebranded to align with machinery of government changes.
4.02	27 March 2024	Minor updates to the explanatory notes for the feedstock management conditions (conditions G22 to G24) to include a reference to the Organic Feedstock Odour Rating Assessment Report (Arcadis, March 2023). Updated finished compost quality characteristic limits for PFAS. Other minor changes and corrections.

Context

This document provides advice to potential environmental authority holders on the model operating conditions that will be applied to their environmental authority for environmentally relevant activity (ERA) 53(a) - Organic material processing by composting.

Key terms and/or phrases used in this document are defined in the definitions section and bolded throughout this document.

For each condition **you** will find guidance on the intent and how to comply. These sections provide basic information on the reason for inclusion of a condition and what compliance may or may not look like. **You** may find this information helpful in managing your **activity** to ensure that **you** remain in compliance with your approval conditions. However, this additional information will not form part of your final approval conditions and is provided in this document as guidance only. **You** must decide on the level of risk associated with your **activity** and ensure that the **measures** implemented are appropriate to manage the environmental outcome or particular requirement set out within each condition of your approval.

Critical Evaluation of Composting Operations and Feedstock Suitability Report

In response to a Queensland Government commitment to commission an independent report to review environmental authority waste acceptance criteria for composting operations, the **administering authority** engaged Arcadis Australia Pty Ltd to deliver the Critical Evaluation of Composting Operations and Feedstock Suitability Report[1] (the Report). The Report includes recommendations to better regulate the composting industry within Queensland. The Report has been used to inform updates to this document.

Best Practice Environmental Management Guideline

The Report has also been used to inform the development of a Best Practice Environmental Management Guideline (the Guideline) for ERA 53(a) (ESR/2021/5670).[2] This Guideline will be used as a reference document for the regulation of ERA 53(a) operations. The Guideline will also assist operators in designing and operating composting facilities to better manage the risk of **environmental harm** and to achieve environmental outcomes in accordance with the *Environmental Protection Act 1994* (EP Act).

[1] Available online at https://environment.des.qld.gov.au/
[2] Available at www.qld.gov.au using the publication number ESR/2021/5670 as a search term.

1 Introduction

The EP Act provides for the granting of environmental authorities for organic material processing **activities** by composting (i.e. ERA 53(a)) or anaerobic digestion (i.e. ERA 53(b)).

These model operating conditions provide a framework of conditions that will apply to site specific applications for an environmental authority to carry out ERA 53(a) in the State of Queensland.

In giving an approval under the EP Act for ERA 53(a), the **administering authority** must comply with the relevant regulatory requirements set out in the Environmental Protection Regulation 2019 and must have regard to the standard criteria contained in the EP Act. The **administering authority** considers the regulatory requirements in the context of information about the environmental impacts of a project, provided through application documentation for an environmental authority.

All environmental authorities must be issued to a legal entity. Where the applicant is a company, details of the Australian Company Number (ACN) must be provided. Environmental authorities for ERA 53(a) will state the lots on plans, and the specific and distinct area/s where composting activities are authorised.

Conditions in your environmental authority will generally state what is and what is not permitted as part of the **activity**. They will relate to the operation of the **activity** and also cover rehabilitation requirements. Where **you** also require a development permit for your **activity** under the *Planning Act 2016,* your development approval may include conditions dealing with **land**-use issues.

An environmental authority approves the carrying out of an **activity** and does not approve any **environmental harm** unless a condition stated by the authority specifically states that an action or event can occur.

The **administering authority** may amend the model operating conditions to ensure that they are current and appropriate (although conditions in your approval will only change in the circumstances provided for by the EP Act).

2 How to use this guideline

New project applications

These model operating conditions provide a framework of conditions for new environmental authorities for ERA 53(a). The model conditions are not mandatory.

As the model operating conditions provide a framework only, conditions can be modified to suit the particular operation. Additional conditions can be applied at the discretion of the **administering authority** to address risks that are specific to a particular operation or a particular site (e.g. where specific **environmental values** may be impacted). Also, if a particular model operating condition does not apply to an operation, then it will not form part of the conditions placed on the environmental authority.

The applicant can also request the addition of conditions or removal of model conditions to tailor the environmental authority to their particular operation. These requests are to be made through the site-specific application for an environmental authority supported by a justification for the change requested.

In some circumstances, payment of financial assurance may also be required. If financial assurance is required, it will be stated as an additional condition on the environmental authority.

Amendments

Where **you** apply for an amendment, negotiation with **you** should take place before the original conditions are amended to reflect the model operating conditions. An amendment application is not an opportunity for the **administering authority** to impose these model operating conditions on an existing project, except to the extent the model conditions are necessary or desirable as related to the amendment applied for or **you** seek to adopt the model operating conditions.

3 Obligations under the EP Act

At all times **you** must meet your obligations under the EP Act. The following information is provided to help **you** understand some of the key environmental obligations under the EP Act which may relate to the operation of your **activity**. This is not an exhaustive list of all of the environmental obligations. Environmental obligations which **you** must comply with include:

1. General environmental duty—s. 319
2. Duty to notify **environmental harm**—ss. 320-320G.

General environmental duty

A person must not carry out any **activity** that causes, or is likely to cause, **environmental harm** unless the person takes all reasonable and practicable **measures** to prevent or minimise the harm. This is a person's general environmental duty.

You have the responsibility to work out what **you** need to do to make sure that **you** manage your environmental risk and achieve the outcomes set out in your environmental authority.

Failure to comply with the general environmental duty is not, itself, an offence. However, causing an **environmental nuisance** or causing serious or material **environmental harm** is an offence unless:

- **you** can prove that the **environmental harm** was not unlawful; or
- the act was done while carrying out an **activity** that is lawful and **you** have complied with the general environmental duty.

Duty to notify of environmental harm

The duty to notify requires a person to give notice where serious or material **environmental harm** is caused, or there is a risk of such harm and that harm is not authorised by the **administering authority**.

For more information on the duty to notify requirements, including who must be notified, how and when to notify, refer to the Guideline The duty to notify of **environmental harm**[3] (ESR/2016/2271).

[3] Available at www.qld.gov.au using the publication number ESR/2016/2271 as a search term.

4 Offences under the legislation

This section sets out some of the offences that **you** should be aware of as **you** are carrying out your **activity**. If **you** commit one of these offences, **you** could be fined, prosecuted, or required by the **administering authority** to take a particular action. This list does not include all environmental offences provided for by legislation.

If **you** do commit an offence while carrying out your **activity**, the **administering authority** will consider enforcement action in accordance with its enforcement guidelines.

Contravention of a condition of an environmental authority

It is a legal requirement that **you** comply with the conditions in your environmental authority. **You** must also ensure that anyone operating under the environmental authority also complies with the conditions. Examples of this include contractors visiting the site temporarily or transport operators loading and unloading materials on site, and all staff employed at the site. Multiple people may be prosecuted if an offence is committed.

If **you** think that **you** have contravened a condition of your environmental authority, it is your responsibility to correct the problem and bring yourself back into compliance with the condition. **You** should not wait for the **administering authority** to tell **you** what to do. **You** may also be legally required to contact the **administering authority** by the conditions in your environmental authority and the duty to notify requirements under the EP Act.

Enforcement actions for a contravention of a condition of an environmental authority vary from penalty infringement notices (PIN) through to the issuing of statutory notices—such as an environmental evaluation, transitional environmental program or an environmental protection order. In serious cases the **administering authority** may initiate court proceedings for a court order to be issued or prosecute those responsible for the contravention.

Causing material or serious environmental harm

Material **environmental harm** has the meaning as defined in s. 16 of the EP Act. In summary, material **environmental harm** is **environmental harm** that costs more than $5,000 to clean up, or that causes (or has the potential to cause) more than $5,000 worth of damage to property.

Serious **environmental harm** has the meaning as defined in s. 17 of the EP Act. In summary, it is harm that is irreversible; has a high impact or widespread effects to the environment; is caused to an area of high conservation significance; or causes clean-up costs or property damage worth more than $50,000. Material and serious **environmental harm** excludes **environmental nuisance**.

Causing environmental nuisance

Environmental harm includes **environmental nuisance**. **Environmental nuisance** includes 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. For activities that need an environmental authority, the most common causes of **environmental nuisance** are dust, noise and odour.

Depositing a prescribed contaminant in waters

Prescribed water contaminants include a wide variety of **contaminants** from inert substances such as earth, clay, gravel and sediment to substances such as chemicals, **contaminants** with a high or low pH, construction and building waste, industrial waste, animal matter, oil and sewage. For a full list of **prescribed water contaminants** see Schedule 10 of the Environmental Protection Regulation 2019.

It is your responsibility to ensure that **prescribed water contaminants** do not enter a waterway, roadside gutter or stormwater drain. This includes making sure that the **prescribed water contaminants** are not left in a position where they could enter one of those places. **You** also need to ensure 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 on site to reduce the risk of water contamination.

5 Model operating conditions for ERA 53(a)

Authorised activities	
G1	**Activities** under this environmental authority must be conducted in accordance with the following limitations: (a) <INSERT e.g., scale, intensity, extent, nature or limitations of the **activity** approved>; and (b) <INSERT e.g., **activities** undertaken on site must be conducted within the designated areas for each **activity**, as specified in Appendix A: Site Plan>; and (c) <INSERT e.g., only the following **feedstock** can be used in the composting process>; and (d) <INSERT for each limitation>; and (e) <INSERT for all relevant **activities** approved>.
	Intent This condition is to set the scale, intensity and limits for the **activity** and will ensure that the level of risk posed by the **activity** according to the submitted application is not exceeded. This condition may also limit a site's operations to only those which are approved under the applicable **land** use approval. For example, if **you** propose to process 7,000 tonnes of organic material by composting in a year and the environmental risks assessed during the application process are based on this total, this condition may stipulate a limit of 7,000 tonnes for the environmental authority. Similarly, site plans denoting operational areas (e.g. **feedstock** receipt and characterisation areas, **feedstock** storage locations, mixing areas, composting area, pasteurised material stockpiles, **leachate** collection system, stormwater drainage) may be referred to within this condition, should the **activity** need to be conducted within a specific area on site in order to minimise the risk of **environmental harm** to a specific **environmental value,** or to minimise the potential for odours or airborne **contaminants** to cause **environmental nuisance** to any **sensitive** or **commercial place**. This condition may also impose limitations on the **feedstock** that can be used to conduct the **activity** to prevent or minimise **environmental harm** (including **environmental nuisance**). Conditions imposed on a composting facility to specify a subset of **feedstock** that may be used at the site are sometimes referred to as waste acceptance criteria. Waste acceptance criteria may prescribe: • **Feedstock** type; and/or • Monitoring requirements; and/or • Storage requirements; and/or • Mixing and processing requirements.
	How to comply **You** must conduct the **activity** within the stipulated limits that the condition sets out. **You** must not conduct the **activity** outside the limit that this condition sets out, even if the threshold for the **activity** or the **activity** by definition is broader than this condition. If your environmental authority includes waste acceptance criteria, **you** must only use

	feedstock that complies with the criteria. **You** must be aware of the **feedstock** planned to be used on site and have a system in place for selecting potential new **feedstock**, before **you** make your application for an environmental authority. The appropriateness of a **feedstock** for a composting facility is dependent on the capacity of a facility to manage risk factors embodied in the raw materials and to achieve acceptable environmental performance outcomes, including product quality. Should **you** wish to have flexibility in particular aspects of the **activity**, for instance the ability to move operational areas around the site or increase product tonnage over time, **you** need to outline this within your application so that the environmental risks of the **activity** can be properly assessed at the time of application. If at any time it is unlikely that **you** can continue conducting the **activity** within the limits stipulated within this condition, **you** must apply to amend your environmental authority to change this condition.
G2	**Prohibited material** or **feedstock** containing **prohibited material** must not be used in composting.
	Intent This condition ensures that material that is not suitable for composting or has a very high risk of contamination cannot be used in the manufacture of compost or soil conditioner products.
	How to comply **You** must not use **prohibited material** or **feedstock** containing **prohibited material** in composting. **You** must also take all reasonable and practicable **measures** to prevent **feedstock** contaminated with **prohibited material** from being accepted and reduce the risk of incidental contamination of otherwise lawful **feedstock**. For example: • Advising **generators** of what **feedstock** can be lawfully used and what **feedstock** is **prohibited material**; and • Requesting quality assured representative test results from **generators**; and • Completing visual checks for visible physical **contaminants**.
General environmental protection	
G3	All reasonable and practicable **measures** must be taken to prevent or minimise **environmental harm** caused, or likely to be caused, by the **activities**.
	Intent This condition ensures that all of the **activities** and all operational and management actions are undertaken: • In a way which does not cause or threaten to cause **environmental harm**: or • Minimises the **environmental harm.** Where there is harm that is authorised by the EA, the condition requires all reasonable and practicable **measures** to be taken to minimise that harm. Where harm is not authorised by the EA, the condition requires: • All reasonable and practicable **measures** to be taken to prevent that harm; and

	• All reasonable and practicable **measures** be taken to minimise harm where unauthorised harm occurs (e.g. by accident).
	How to comply **You** must ensure that all actions taken, including the manner in which equipment is utilised, to undertake the **activity** are conducted in a way that prevents the risk of **environmental harm**. For example, if **you** are storing chemicals on site, **you** must store them in a way that minimises the chance of any release of these chemicals to the environment. This may include things like storing the chemicals away from busy trafficable areas where they are more likely to be punctured or knocked over, keeping the chemicals in an appropriately bunded area and complying with any best practice or Australian standards relevant to chemical storage such as Australian Standard (AS) 1940:2017 (The storage and handling of flammable and combustible liquids) or the most recent or replaced version of that standard
G4	The **activity** must not be carried out unless the required **financial assurance** is held by the **administering authority** for the **activity**.
	Intent Condition G4 allows a condition to be imposed on an environmental authority requiring the provision of financial assurance before **activities** commence on site. Financial assurance is a type of financial security provided to the Queensland Government by the holder of an environmental authority. The decision to require financial assurance is discretionary and is based on a consideration of the following matters: • The degree of risk of **environmental harm** being caused, or that might reasonably be expected to be caused, by the relevant **activity**; and • The likelihood of action being required to rehabilitate or restore and protect the environment because of **environmental harm** being caused by the **activity**; and • The environmental record of the holder. The Guideline Financial assurance under the *Environmental Protection Act 1994*[4] provides further information about when financial assurance may be required and how the quantum will be determined.
	How to comply **You** must provide the required amount of financial assurance in the form required by the **administering authority** before commencing **activities** on site.
G5	Any contravention of a condition of this environmental authority must be reported to the **administering authority** as soon as practicable, and within 24 hours of becoming aware of the contravention.
G6	**Records** of any contravention of this environmental authority must be made including full details of the contravention, all investigations, and any subsequent actions undertaken.

[4] Available at www.qld.gov.au using the publication number ESR/2015/1758 as a search term

	Intent Conditions G5 and G6 ensure that all instances of non-compliances are promptly made known to the **administering authority**, even those considered to be minor in nature. This notification will help capture non-compliances that may result in nuisance, or ongoing minor non-compliances which may pose longer term risks to the environment. This will allow action to be taken as necessary to protect the environment. The record keeping requirement will ensure that these non-compliances are documented.
	How to comply **You** must report any contravention of a condition of your environmental authority to the **administering authority** as soon as practicably possible and within 24 hours of becoming aware of the contravention. This should be done by contacting the Pollution Hotline on 1300 130 372. When reporting through the Pollution Hotline **you** will be asked to provide details of the contravention (e.g. time, date, place, cause, actions taken, monitoring, evidence that the contravention has not caused **environmental harm**) and this information will be forwarded to the department's relevant regional office the following business day. By reporting **you** will have complied with the notice requirements under this condition, even if the regional office is made aware of the issue after 24 hours. When reporting through the Pollution Hotline **you** should also consider if the contravention is an **emergency** pollution incident, in which case **you** should request that the issue be escalated by requiring the department's attendance. Depending on the contravention, the **administering authority** may require further detail in a follow up email which can be sent to the Pollution Hotline email address, PollutionHotline@des.qld.gov.au. **You** are required to keep **records**, including full details of the release or event, any potential environmental risks resulting from the release and any actions taken to rectify the event. To demonstrate that **you** have met your general environmental duty in relation to this condition, **you** may want to consider the following options: • Report possible contraventions to the **administering authority** as soon as **you** are made aware of them, even if **you** are unsure if a condition of the environmental authority has been contravened; and • Ensure communication systems or procedures are in place to allow staff members to communicate contraventions to site managers quickly.
G7	All **records** required by the conditions of this environmental authority must be provided to the **administering authority** upon request by the time and in the format requested.
	Intent This condition ensures that the **administering authority** can: • Access all **records** required by the conditions of this environmental authority; and • Request that the **records** are provided in a specified format and by a specified time.
	How to comply If requested by the **administering authority**, **you** must provide the requested **records** by the

	time and in the format specified in the request.
G8	All information and **records** required by the conditions of this environmental authority must be kept for a minimum of five years.
	Intent This condition ensures that all documentation held in relation to the environmental authority is available if required by the **administering authority**. This may be necessary to identify or resolve any environmental issues which may arise from the ongoing operation of the **activity**.
	How to comply All information and **records** required to be kept by the conditions of your environmental authority must be kept for at least five years. This includes monitoring reports, details of releases and any other necessary information **you** must keep to comply, and to evidence compliance with the conditions. The **administering authority** can require this information to be provided upon request under the provisions of the EP Act. If electronic data is provided through systems such as the Wastewater Tracking and Electronic Reporting System (WaTERS), data will need to be provided in the required electronic format.
G9	All plans required by the conditions of this environmental authority must be: (a) Developed and endorsed in writing as being compliant with the conditions of this environmental authority by an **appropriately qualified person**; and (b) Implemented in accordance with the requirements stated within the plan; and (c) In effect at all times during the carrying out of the **activity**; and (d) Re-endorsed in writing as being in compliance with the conditions of this environmental authority by an **appropriately qualified person** at least annually; and (e) Provided to the **administering authority** upon request in the time requested.
	Intent This condition will ensure that plans which are required under the conditions of this environmental authority are developed by an **appropriately qualified person** who has taken sufficient ownership of the content of the plan. It also ensures the plan requirements are implemented while carrying out of **activity** and that all plans are reviewed at least annually to ensure they are regularly kept up to date with current practices relevant to the **activity** and that the **administering authority** can request access to the plans.
	How to comply Plans required under the conditions of this environmental authority must be developed by an **appropriately qualified person** and endorsed in writing by that person as being compliant with the conditions of this environmental authority. **You** must implement the requirements within the plans upon commencing the **activity** and the plans must stay in effect at all times during the carrying out of the **activity**.

	You must have an **appropriately qualified person** review the plans at least annually and have that person re-endorse the plan in writing as being compliant with the conditions of this environmental authority. If requested by the **administering authority**, **you** must provide the **administering authority** with a copy of the plan by the specified time.
G10	All testing and monitoring required by the conditions of this environmental authority: (a) Must be carried out in the manner specified by this environmental authority; and (b) Must be carried out on samples that are representative of the material being tested; and (c) Must be carried out using monitoring devices that are calibrated and maintained according to the manufacturers' specifications; and (d) For testing required by a laboratory, must be carried out by a laboratory that has National Association of Testing Authorities (NATA) accreditation for such analyses; and (e) Must be carried out, interpreted and recorded by an **appropriately qualified person**; and (f) For **finished compost** monitoring required by condition G28, must be carried out in accordance with the test methods listed for the relevant parameters in AS 4454:2012 (Composts, soil conditioners and mulches) or, if a more recent version or replacement of that standard has been released, in accordance with the more recent or replaced standard; and (g) For determining odour emissions from an **air filtration system**, and for taking odour measurements in the ducts or stack of an **air filtration system**, must be carried out in accordance with the test methods in AS 4323.1:1995 (Stationary source emissions Selection of sampling positions) or, if a more recent version or replacement of that standard has been released, in accordance with the more recent or replaced standard; and (h) For monitoring odour emissions from an **air filtration system** surface area, must be carried out using the **"Witch's hat" odour sampling method**; and (i) For odour concentration, analysed from air samples from the ducts or stack of an **air filtration system** in accordance with AS 4323.3:2001 (Stationary source emissions – Part 3: Determination of odour concentration by dynamic olfactometry) or, if a more recent version or replacement of that standard has been released, in accordance with the more recent or replaced standard; and (j) For PFAS monitoring, must: i. use analysis techniques that achieve lowest practicable limits of reporting (LOR <0.5 µg/kg solids; LOR <0.001 µg/L for liquids) and maximise extraction of PFAS from samples; and ii. comply with recommendations in the PFAS National Environmental Management Plan (NEMP)[5] Version 2.0 or more recent editions adopted by the Queensland Government; and iii. incorporate paired standard and Total Oxidisable Precursor (TOP) Assay analysis to determine PFAS concentrations and must include at least the PFAS

[5] The PFAS NEMP is available online on the Australian Government Department of Agriculture, Water and Environment website at https://www.environment.gov.au/

	types that are limited by this environmental authority (condition G28); and iv. incorporate quality assurance checks for Total Oxidisable Precursor (TOP) Assay[6]; and v. give due regard to any advice from the **administering authority** concerning improvements in analysis techniques for the feedstocks accepted; and vi. For leachability, be undertaken using the Australian Standard Leaching Procedure (ASLP) with an unbuffered leach solution.
	Intent The requirements outlined in this condition ensure that testing and/or monitoring is conducted properly and that the results are reliable. Where listed or referred to, the most recent version of all relevant guidelines, Australian standards, or other documents relating to the testing or monitoring must also be adhered to.
	How to comply **You** must ensure that all testing and monitoring undertaken on site is conducted in accordance with all relevant requirements outlined in the condition. Depending on the specific testing or monitoring being undertaken, some requirements may not be relevant. The relevance of a requirement to the testing or monitoring being undertaken may be identified by reference to: • A specific condition in the environmental authority which requires the testing or monitoring. • A specific testing or monitoring parameter. For example, requirement (g) is relevant when monitoring odour emissions from an **air filtration system** surface area. When undertaking testing or monitoring for PFAS: • Quality assurance **measures** for Total Oxidisable Precursor (TOP) Assay must be complied with; and • Analysis techniques must achieve lowest practicable limits of reporting and maximise extraction of PFAS from samples; and • Any advice from the **administering authority** concerning improvements in analysis techniques must be considered. When identifying an **appropriately qualified person** to carry out, interpret and record testing and/or monitoring, **you** must check the qualifications and experience of the person and satisfy yourself that they are qualified to carry out the testing and/or monitoring. This could include industry accredited courses, recognised competency or training **records**. Any testing and/or monitoring should be carried out in accordance with relevant standards as listed in the condition. Testing and monitoring include sampling and analysis and also extends to the handling, transportation and verification of the samples. In addition, the information gathered must be interpreted and recorded by an **appropriately qualified person**. The testing, monitoring, interpretation and recording need not all be undertaken by the same person, provided they

[6] Refer to recommendations in the Australasian Land & Groundwater Association (ALGA) funded TOP Assay reliability study (Ventia 2019). Ventia (2019) Improving Measurement Reliability of the PFAS TOP Assay. Australasian Land and Groundwater Association Report 20 June 2019, 1-96pp

	are each separately appropriately qualified.
G11	Chemicals and/or fuels in containers of greater than 15 litres capacity must be stored within a **secondary containment system**.
	Intent This condition will ensure that chemicals and fuels are contained in an adequate manner which prevents the risk of **environmental harm**.
	How to comply Containment systems should be bunded, impervious, and large enough to contain a potential spill and covered wherever possible to prevent ingress of rain that may fill up containment bunds. AS 1940:2017 (The storage and handling of flammable and combustible liquids) or the most recent or replaced version of that standard sets out the requirements for safe storage and handling of fuel and should be considered when designing and building fuel storage areas on site.
G12	A weather station must be installed, operated, calibrated and maintained on site which continuously and electronically records: (a) Rainfall (mm/day); and (b) Wind speed (km/hour); and (c) Wind direction (cardinal direction, e.g. north-easterly); and (d) Air temperature (degrees Celsius); and (e) Relative humidity (%).
G13	The weather station required by condition G12 must be installed in compliance with the Australian/New Zealand Standards: (a) AS/NZS 3580.1.1: 2016 (Methods for sampling and analysis of ambient air – Guide to siting air monitoring equipment) or, if a more recent version or replacement of that standard has been released, in accordance with the more recent or replaced standard; and (b) AS 3580.14:2014 (Methods for sampling and analysis of ambient air – Meteorological monitoring for ambient air) or, if a more recent version or replacement of that standard has been released, in accordance with the more recent or replaced standard.
	Intent Meteorological data collected on site can be extremely useful when responding to complaints and planning site operations to minimise odour impacts. Conditions G12 and G13 ensure that meteorological data is being collected and recorded on site.
	How to comply **You** must correctly install and ensure effective operation of a weather station.
G14	A visible and legible sign must be located on the front fence or adjacent to the entrance of the site stating:

	(a) Words to the effect 'To contact the operator of this facility please refer all communication via the following contact details;' and (b) The name of the environmental authority holder; and (c) A business hours and after hours telephone number; and (d) An email address for the environmental authority holder.
	Intent This condition ensures that enquiries and complaints are directed to the environmental authority holder in the first instance, to enable the holder to take proactive **measures** to resolve the matters giving rise to the complaint.
	How to comply **You** must affix a sign on the front fence or adjacent to the entrance of the site to ensure enquiries or complaints about the **activity** can be made to the holder of the environmental authority. The sign should be of a sufficient size to be visible and legible.
G15	The following details must be recorded for all environmental complaints received: (a) Date and time the complaint was received; and (b) If authorised by the person making the complaint, their name and contact details; and (c) Nature and details of the complaint including date and time the complaint was received; and (d) Investigations carried out in response to the complaint as required by G16; and (e) The results of investigations; and (f) **Measures** taken under G17.
	Intent This condition ensures that a minimum level of **record** keeping is carried out in relation to complaints received. This will help to identify whether there is an operational issue causing **environmental nuisance** that **you** need to address. This requirement applies to recording any complaints received, including those that may eventually be established as frivolous, vexatious or based on mistaken belief.
	How to comply **You** must keep **records** of all complaints received including at least the details required by this condition.
G16	An investigation must be undertaken into all environmental complaints within 5 business days of receiving the complaint, or a longer period agreed to in writing by the **administering authority,** to determine: (a) The potential circumstances and actions on site that may have contributed to the basis of the complaint; and (b) Reasonable **measures** that could be implemented to address the basis of the complaint.
G17	**Measures** identified under G16(b) must be taken within:

	(a) Four weeks of the investigation required by G16 being finalised; or (b) A longer period agreed to in writing by the **administering authority**.
	Intent Conditions G16 and G17 ensure that environmental complaints received for the site are investigated and **measures** are taken in a timely manner to resolve the potential circumstances and actions on site that may have contributed to the basis of the complaint.
	How to comply If an environmental complaint is received, **you** must carry out investigations within 5 business days of receiving the complaint, or a longer period agreed to in writing by the **administering authority** that: • Consider the potential circumstances and actions on site that may have contributed to the basis of the complaint; and • The **measures** that are required to resolve the potential circumstances and actions on site that may have contributed to the basis of the complaint. All **measures** that are required to resolve the potential circumstances and actions on site that may have contributed to the basis of the complaint, must be taken within four weeks of the investigation being finalised. If a longer period of time is required to take the **measures**, **you** must seek approval in writing from the **administering authority**. A request for a longer period to take **measures** will need to be supported by evidence that the **measures** cannot be taken within four weeks of the investigation being finalised.
G18	Written procedures must be developed and documented upon commencement of the **activity** that: (a) Identify all potential risks to the environment from the **activity**, including during and outside routine operations, during closure and in an **emergency** (e.g. fire); and (b) Identify **measures** to prevent or minimise the potential for **environmental harm** for each of the potential risks identified; and (c) Establish an inspection and maintenance program for plant and equipment including calibration and servicing that is in accordance with manufacturer's instructions; and (d) Establish a staff training program on obligations under this environmental authority and the *Environmental Protection Act 1994* to be conducted as part of staff inductions and that training be completed at least annually; and (e) Establish processes to review environmental risks, incidents, performance and complaints.
G19	Written procedures required by condition G18 must be: (a) Implemented; and (b) Reviewed at least annually; and (c) Provided to the **administering authority** upon request at the time and in the format requested.

G20	Plant and equipment necessary to comply with the conditions of this environmental authority must be installed, operated and maintained: (a) in a proper and effective manner; and (b) in accordance with any written procedures developed under condition G18 for the plant and equipment.
G21	**Records** must be kept of all persons trained under condition G18(d) and the date they received the training.
	Intent Conditions G18, G19, G20, and G21 ensure procedures are established and implemented which detail how **you** will manage the environmental risk associated with carrying out the **activity** on the site including during and outside routine operations, during closure and in an **emergency**. Condition G19 also ensures that the **administering authority** can readily access an operator's written procedures. While operators will seek to develop their written procedures in the format which is the most suitable to their operation, the **administering authority** requires the ability to specify the format that written procedures are provided in, to ensure that the procedures are not only contained in specialist systems that the **administering authority** cannot access.
	How to comply An environmental risk assessment of the **activity** must be carried out. Much of this work will have been carried out when complying with section 125(1)(l) of the *Environmental Protection Act 1994*. This assessment should identify the environmental risks that need to be managed and the control **measures** that need to be employed. For example, **you** may identify the risk of spontaneous combustion from the **composting material** due to the following factors: • Types of **feedstock** and associated biological activity; • Moisture content; • Dry pockets within the **composting material**; • Large well insulated piles; • Non-uniform mix of materials; • Limited air flow; and/or • Time for temperature to build up. To manage these risks a management system should be documented and implemented that includes: • Monitoring **composting material** for hotspots, vents, smoke or burning smells; and • Ensuring temperature monitoring equipment is inserted deep into the compost pile; and • Ensuring adequate ventilation by turning the material at an appropriate frequency; and • Maintaining an appropriate moisture content within the material to release heat; and

	• Avoiding the development of large piles. As another example, **you** may identify risks from **vectors** and **declared pest species** on site. In particular, sites with exposed storages of rapidly biodegradable organics may attract significant numbers of birds. Birds can be a source of noise and may spread food waste, litter and **weed** seeds beyond the boundary of the site. To manage these risks a management system should be documented and implemented that includes: • Reducing the time from when **feedstock** is delivered to when it is introduced into the composting process; and • Storing rapidly biodegradable organics in moisture, pest and **vector** proof containers; and • Deterring and eradicating **vectors** and **declared pest species** identified on site; and • Erecting physical barriers including fences or movable litter screens at the site to prevent windblow litter leaving the site; and • Staff undertaking regular clean-ups to remove litter. Identification of the potential environmental risks from an **emergency** will require consideration of what constitutes an environmental **emergency** incident or near miss for the composting activities. An example of a protentional environmental risk may be flooding and other natural events, or equipment failure. **You** must have written operational procedures that detail how and when to calibrate equipment to ensure they are regularly serviced and maintained in accordance with the manufacturers' recommendations. This includes all equipment, such as on site vehicles and monitoring equipment. Written operational procedures should form the basis for staff training during activities such as induction programs, on the job mentoring and 'toolbox talks.' Environmental performance must be reviewed at least annually however the frequency of review should be dependent on the risk of the **activity**. For example, if the **activity** has the potential to cause dust and the site is near a sensitive receptor such as a residential area, a dust monitoring program could be implemented and reviewed every three months to ensure it is adequate. This review could include conducting an audit of compliance against the environmental authority. For further guidance on conducting a risk assessment refer to SA/SNZ Handbook 89-2013, "Risk management – Guidelines on risk assessment techniques" or the most recent or replaced version of that Handbook.
Feedstock management	
G22	A **Feedstock** Management Plan must be developed for the **activity** and implemented, which includes: (a) Methods for characterising all **feedstock** and determining its odour rating by reference to: i. "Odour Rating" in Schedule 1—Odour: *Table 1 – Odour rating of composting feedstock*; or

	ii. If the **feedstock** is not listed in Schedule 1—Odour: *Table 1 – Odour rating of composting feedstock*, the "Organic Feedstock Odour Rating Assessment" available on the department's website. (b) **Feedstock** storage requirements based on the odour ratings and physical compositions of each type of **feedstock**; and (c) **Feedstock** processing requirements based on the odour ratings and physical compositions for each type of **feedstock**; and (d) Procedures for the sampling and testing the Carbon (C) and Nitrogen (N) of any **feedstock** accepted on the site to inform the **C:N ratio** of composting material; and (e) Procedures to assess whether the **feedstock** received at the site is suitable for the processing techniques being used; and (f) Procedures to assess potential **feedstock** received at the site to determine whether it is lawfully able to be used as a **feedstock**, including under the conditions of this environmental authority; and (g) Procedures for rejecting unsuitable and/or unlawful **feedstock**; and (h) Procedures for reporting unlawful waste delivery to the **administering authority**.
G23	**Feedstock** must not be used for the **activity** unless it is assessed in accordance with the **Feedstock** Management Plan required by condition G22.
G24	The following **records** must be kept for all **feedstock** received and anything which is rejected as **feedstock** under the **Feedstock** Management Plan required by condition G22: (a) **Generator** and/or **transporter** of the **feedstock** including their contact details; and (b) Time and date **feedstock** was received at the site; and (c) Description of **feedstock**; and (d) Weight or volume of **feedstock**; and (e) **Feedstock** odour rating as assessed under the **Feedstock** Management Plan required by condition G22; and (f) Details of any samples taken (including sample ID, laboratory holding time, storage method and storage location); and (g) Measurements, observations and characterisation results of **feedstock**; and (h) The name of any person undertaking any measurements, observations or characterisation of **feedstock**.
	Intent Conditions G22, G23 and G24 ensure that operators analyse and understand their **feedstock** composition, the suitability of the **feedstock** for the processing techniques being used and the risks associated with particular **feedstock**. It is the responsibility of the operator to ensure that the **feedstock** received on site can be effectively managed, is suitable for use in composting and will not negatively impact compost quality or the environment. By managing **feedstock** in accordance with conditions G22 and G23, operators will have a system in place to assess and reject unsuitable and unlawful **feedstocks.** Condition G24 ensures that critical details are recorded about **feedstocks**.

	How to comply **You** must develop and implement a **Feedstock** Management Plan that includes the information listed in condition G22. The **Feedstock** Management Plan must include that all **feedstock** will be assessed to determine its odour rating by reference to: • Schedule 1—Odour: *Table 1 – Odour rating of composting feedstock*; or • Where Schedule 1—Odour: *Table 1 – Odour rating of composting feedstock does not apply,* the **Feedstock** Management Plan odour rating process. **You** may refer to the Organic Feedstock Odour Rating Assessment Report (Arcadis, March 2023)[7] to support the **Feedstock** Management Plan odour rating process. **You** must assess **feedstock** in accordance with the **Feedstock** Management Plan and determine its suitability for composting. To assess **feedstock** suitability prior to the **feedstock** being received, **you** may consider requesting a certified report or other adequate information from the provider about that **feedstock**. Where relevant, information obtained should include representative sampling and analysis to characterise the chemical, physical and biological nature of the **feedstock,** as well as the potential for human toxicity or ecotoxicity. A risk assessment is particularly important in identifying process parameters and controls, including **contaminants** that might inhibit the composting process, and thereby determining the appropriateness of the proposed treatment method. **You** must keep the **records** required by condition G24 for each load of **feedstock** received at the site. **You** must also keep the **records** required by condition G24 for material which has been sought to be delivered as **feedstock** but which is rejected. The **records** should be created as soon as possible after receiving the **feedstock** on site.
Compost management	
G25	A Compost Process Plan must be developed to achieve **pasteurisation** and minimisation of odour impacts of composting materials, which includes: (a) Composting process parameters for the **feedstock** and processing techniques being used on site, which includes process parameters for: i. **C:N ratio**; and ii. Porosity or bulk density; and iii. Moisture content; and iv. pH; and v. Oxygen content; and vi. Temperature range; and (b) Information to support the appropriateness of the composting process parameters with regard to the **feedstock** and processing techniques being used on site; and (c) Methods and frequencies for monitoring **composting material** to assess that the composting process parameters are being met; and

[7] This report is available on the department's website at https://environment.des.qld.gov.au/.

	(d) At a minimum, annual reviews of the effectiveness of the composting process parameters at achieving pasteurisation and minimising odour impacts.
G26	**Composting material** must comply with composting process parameters identified in the Compost Process Plan required by condition G25.
G27	The following **records** must be kept for all monitoring undertaken to assess that the composting process parameters are being met: (a) **records** of any analysis, measurements or observations of **composting material** and the name/s of the person/s undertaking the assessment; and (b) **records** of any samples taken (including sample ID, laboratory holding time, storage method and storage location).
	Intent Conditions G25, G26 and G27 ensure that operators identify composting process parameters for their operation and monitor **composting material** to asses that these parameters are being met. Failure to adequately control composting process parameters can rapidly lead to adverse environmental and public health impacts and poor product quality. • Maintaining an optimal **C:N ratio** is a key factor in minimising the potential for odour formation. High **C:N ratio** mixes (low on nitrogen) will take longer to mature and increase the risk of odour formation in the **composting material**. Low **C:N ratio** mixes (excessive nitrogen) can lead to loss of nitrogen as odorous ammonia gas. If an operator can demonstrate that they use consistent **feedstocks** and **feedstock** mixes, it may not be necessary to monitor the **C:N ratio** of each individual composting mix which is prepared. • The porosity of the mix (the proportion of free air space in the voids) determines how freely fresh air can move through the pile. Low porosity mixes can lead to anaerobic conditions which increases the potential for **offensive** odours to be generated. Bulk density can be used as a surrogate for porosity (there is a linear relationship). • Moisture can affect the porosity of the mix. Moisture fills the pore spaces in the composting potentially impeding air flow leading to anaerobic conditions. However, it is also important to ensure that moisture content is not allowed to drop too low as microbial activity virtually stops if the moisture content drops below about 30%. • Acidic conditions (low pH) are common in the initial phase of composting due to formation of organic acids. However, prolonged low pH conditions can lead to increased releases of volatile organic compounds. High pH conditions can facilitate the release of odorous ammonia gas. • Oxygen levels of 5% within the mix is generally considered to be the minimum threshold for ‘aerobic’ composting, though above 10% is preferable. • Temperature is an important characteristic to monitor during the composting phase. The ideal range for thermophilic decomposition is around 45°C to 60°C, while 55°C is considered the minimum to achieve pasteurisation. Higher temperatures can increase the volatility of odorous compounds and there is a direct relationship between temperature and odour emissions up to around 65°C.

<table>
<tr><td></td><td>Assessing the technical details that specifically apply to your activity is important. This is also why condition G9 requires all plans, such as the Compost Process Plan, to be developed by an appropriately qualified person.</td></tr>
<tr><td></td><td>How to comply
You must ensure that an appropriately qualified person develops your Compost Process Plan, that it includes the information listed in condition G25 and that it otherwise complies with the requirements of condition G9.
You must monitor composting material to assess that the composting process parameters identified for your operation are met. Monitoring must be undertaken by an appropriately qualified person in accordance with condition G10.
You must keep the records required by condition G27 for all monitoring undertaken to assess that the composting process parameters are being met.</td></tr>
<tr><td>G28</td><td>All finished compost must be monitored for the quality characteristics and at the frequency listed in Table 2 – Finished Compost Quality Characteristic Limits.
Table 2 – Finished Compost Quality Characteristic Limits
<table>
<tr><th>Quality Characteristic</th><th>Quality Characteristic Limit</th><th>Minimum Monitoring Frequency</th></tr>
<tr><td>pH</td><td>≥5.0</td><td rowspan="20">One composite sample consisting of at least five individual grab samples must be collected before the earlier of the following occurring (measured from when the most recent composite sample was taken);
(a) 90 days having passed; or
(b) 300 dry solid tonnes (dst) of finished compost being produced</td></tr>
<tr><td>Electrical conductivity</td><td>≤10 (dS/m)</td></tr>
<tr><td>Arsenic</td><td>≤20 (mg/kg)</td></tr>
<tr><td>Cadmium</td><td>≤1 (mg/kg)</td></tr>
<tr><td>Chromium (total)</td><td>≤100 (mg/kg)</td></tr>
<tr><td>Copper</td><td>≤150 (mg/kg)</td></tr>
<tr><td>Lead</td><td>≤150 (mg/kg)</td></tr>
<tr><td>Mercury</td><td>≤1 (mg/kg)</td></tr>
<tr><td>Nickel</td><td>≤60 (mg/kg)</td></tr>
<tr><td>Selenium</td><td>≤5 (mg/kg)</td></tr>
<tr><td>Zinc</td><td>≤300 (mg/kg)</td></tr>
<tr><td>DDT/DDD/DDE</td><td>≤0.5 (mg/kg)</td></tr>
<tr><td>Aldrin</td><td>≤0.02 (mg/kg)</td></tr>
<tr><td>Dieldrin</td><td>≤0.02 (mg/kg)</td></tr>
<tr><td>Chlordane</td><td>≤0.02 (mg/kg)</td></tr>
<tr><td>Heptachlor</td><td>≤0.02 (mg/kg)</td></tr>
<tr><td>HCB</td><td>≤0.02 (mg/kg)</td></tr>
<tr><td>Lindane</td><td>≤0.02 (mg/kg)</td></tr>
</table></td></tr>
</table>

	BHC	≤0.02 (mg/kg)
	PCBs	Not detected
	E.coli	<100 (MPN/gram)
	Faecal coliforms	<1000 (MPN/gram)
	Salmonella sp.	Not Detected in 50 grams (dry weight equivalent)
	PFOS + PFHxS	2 (µg/kg)
	PFOA	1 (µg/kg)
	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFNA, PFDA, PFUnDA, PFDoDA, PFTrDA, PFTeDA, 4:2 FTS, 6:2 FTS, 8:2 FTS and 10:2 FTS (above LOR)	3 (µg/kg)
	Sum of PFOSA (or FOSA), N-MeFOSA, N-EtFOSA, N-MeFOSE, N-EtFOSE, N-MeFOSAA and N-EtFOSAA (above LOR)	1 (µg/kg)
	PFAS leachability	To be kept to minimum practicable (µg/L)
	Glass, metal, rigid plastics	≤0.5 (% dry matter weight/weight)
	Plastics – light, flexible, film	≤0.05 (% dry matter weight/weight)
	Viable plant propagules	Not detected

G29	**Finished compost** must comply with the quality characteristics limits listed in *Table 2– Finished Compost Quality Characteristic Limits*.
	Intent Conditions G28 and G29 ensure that **finished compost** is safe for use and will not pose a risk of **environmental harm** when applied to **land**.
	How to comply **You** must monitor the **finished compost** for the quality characteristics listed in *Table 2 – Finished Compost Quality Characteristic Limits*. Monitoring must be undertaken per 300 dst or every 90 days, whichever is more frequent. This monitoring frequency may be modified in site-specific conditions when taking account of site-specific risks.

	Monitoring samples must be collected from the most recently produced batch of **finished compost** product and comply with the requirements in condition G10, including being monitored by an **appropriately qualified person**.
Protecting acoustic values	
N1	Noise generated by the **activity** must not cause **environmental nuisance** to any **sensitive** or **commercial place**.
	Intent This condition will ensure that noise caused by or resulting from the **activity** does not cause **environmental nuisance**. Sites that are of a higher risk of generating noise should be subject to a site-specific noise impact assessment with resultant site-specific noise emission limits to apply to sensitive receptors prescribed in the environmental authority by the **administering authority**.

	How to comply
	To comply with this condition, **you** will need to identify and manage the potential sources of noise from your site if there is potential for **environmental nuisance** to occur.
	This condition sets out (through the definitions of **sensitive** and **commercial place**) where nuisance must not occur. Depending on the application, the definitions for **sensitive place** and **commercial place** may be altered to ensure that the appropriate definitions apply based on the location and surrounding uses of the particular site. For example, where a composting operation is approved within an industrial area with other noisy industries, the **commercial place** component of this condition might be removed.
	The following list identifies some of the ways that emissions can be managed:
	• Consider the location and design of noise generating activities on site to minimise the potential for noise. For example:
	  ○ Avoid constructing tracks or roads on severe gradients or where speed changes are required
	  ○ Route on site roads as far away from **sensitive places** as possible
	  ○ Minimise the distance that materials need to be moved by conveyors or trucks
	  ○ Minimise the height from which materials are dropped into storage bins or trucks
	  ○ Avoid placing staff lunch areas or vehicle queuing areas near noise-**sensitive places**
	  ○ To help determine if neighbours might be impacted by noise, engage an acoustic consultant to conduct a noise impact assessment before commencing a new noise generating operation.
	• Avoid work involving noise at times when it is most likely to cause **environmental nuisance**, such as night time, Sundays or public holidays.
	• Switch off equipment when not in use and/or limit the hours of operation.
	• Select the quietest machinery and equipment available and find quieter processes or ways of performing tasks (e.g. investigate whether there are suitable alternatives to reversing alarms on vehicles, and select vehicles with low noise emissions).

	• Install appropriate acoustic screens or noise reduction barriers. • Ensure that roads have a suitable and well-maintained surface and limit the amount, type, times and speed of vehicle movements. • Start plant and vehicles sequentially rather than all at the same time. • Investigate whether it is possible to fit noise reduction features onto equipment (e.g. noise absorbent panelling or rubber lining). • Use existing screens or features to advantage and if the noise is directional point the source away from noise-sensitive locations). • Use enclosures around noisy plant such as pumps or generators. • Ensure that plant, vehicles and acoustic screens or other noise mitigation devices are properly maintained. • Ensure that each staff member is aware of their responsibilities to reduce noise emissions, and how this can be achieved. • Periodically monitor noise at the **sensitive places** impacted by the **activity** to ensure that noise mitigation strategies are effective. • Undertake monitoring, at a sufficient frequency, to demonstrate that the **activity** is not causing or likely to cause **environmental harm**. This may include background monitoring of a sufficient period to demonstrate a background level, taking into consideration natural and seasonal variations. Choose monitoring parameters that are relevant to the potential environmental impacts of the **activity**. • Engage the community by holding consultation and stakeholder engagement forums. This list is not exhaustive, and each holder of the environmental authority is responsible for working out which **measures** are necessary to adequately manage the risk from the **activity.**
Protecting air values	
A1	Other than as permitted within this environmental authority, odours or airborne **contaminants** must not cause **environmental nuisance** to any **sensitive** or **commercial place**.
	Intent If there are, or could be, multiple potential odour sources e.g., an industrial area, consider replacing ‘at a sensitive place or commercial place’ with ‘at and beyond the boundary’. The intent of this condition is to ensure that odours or **contaminants** released to air as a result of the **activity** do not cause **environmental nuisance**. **You** must not cause unreasonable interference or likely interference with the qualities of the air environment that are conducive to protecting an **environmental value** including, but not limited to: • Health and biodiversity of ecosystems; and • Human health and wellbeing; and • Public amenity such as the aesthetics of the environment (including the appearance of buildings, structures and other property). Unreasonable interference might include creating an unhealthy, **offensive** or unsightly condition because of your release. While **environmental nuisance** is subjective and cannot always be defined by placing limits on **contaminant** releases, **you** may consider the air

	quality objectives within Schedule 1 of the *Environmental Protection (Air) Policy 2019* to help determine if your release is likely to cause an **environmental nuisance**. Not all **contaminants** likely to cause **environmental nuisance** are listed within the *Environmental Protection (Air) Policy 2019*. **Contaminants** may include, but are not limited to, odour, aerosols, fumes, particles, smoke, steam or dust. They may be visible or not. The most common **environmental nuisance** complaints resulting from releases to air relate to odour and dust.
	How to comply To comply with this condition, **you** will need to identify and manage the potential sources of odour and other air **contaminants** from your site if there is potential for **environmental nuisance** to occur. This condition sets out (through the definitions of **sensitive** and **commercial place** or at the boundary where the condition limits the impacts to 'at and beyond the boundary') where nuisance must not occur. The following list identifies some of the ways that emissions can be managed: • Limit the amount of exposed soil on site (e.g. seal road surfaces, trafficable areas, holding areas and parking areas). • Stabilise areas of exposed soil (e.g. mulching and spreading cleared vegetation, re-establishing ground cover, establishing a cover crop, undertaking progressive rehabilitation of disturbed ground). • Use water sprays or dust suppressants on unsealed areas and stockpiles, keep stockpiles to low heights, align them parallel to the predominant wind direction to reduce the surface area exposed to prevailing winds, and cover dust generating areas including trucks transporting material offsite. • Enclose equipment or activities which produce dust or emissions. • Consider the wind speed and direction prior to undertaking work that is likely to generate dust and reschedule work if wind is likely to transport **contaminants** to a **sensitive** or **commercial place**. • Design, create and maintain wind breaks. • Do not burn any wastes such as surplus **feedstock, feedstock** packaging or litter. This list is not exhaustive, and **you** are responsible for working out which **measures** are necessary to adequately manage the risk from your **activity**.
A2	An Odour Management Plan must be developed prior to the **activity** commencing which includes: (a) Identification of all odour sources, and potential odour sources at the site, including odours and potential odours generated from the **activity**; and (b) A requirement that odour investigations be completed by an **appropriately qualified person**; and (c) An analysis of routine and non-routine processes and operating conditions that could result in, and potentially result in, odour emissions; and (d) **Measures** to avoid the generation and minimise the impacts of odours; and

	(e) At a minimum, annual reviews of the effectiveness of the **measures**.
	Intent This condition ensures that operators develop a plan to manage odour emissions that may result from the carrying out of the **activity**.
	How to comply **You** must develop an Odour Management Plan that details the **measures** that will be undertaken and provides for a review of the effectiveness of the **measures**. The following list identifies some example techniques for how odour emissions could be managed: • Keeping stockpiles of **bulking agents** or high carbon material so that these materials are available to immediately mix with or cover deliveries of odorous **feedstock** • Mixing putrescible **feedstock** materials immediately into the compost process, if not pre-treated or dried • Implementing a management strategy for turning open windrows to prevent anaerobic conditions which is determined by an experienced operator through site trials and measurements • Minimising turning events for open windrows, especially during the first 7-10 days of composting, with only the minimum turning required to support pasteurisation and moisture redistribution • Applying a biofilter to mitigate odour from open windrows in the early stages of composting. A simple biofilter may be achieved by applying a thick layer or blanket of **finished compost** (unscreened or oversize fraction) and/or pure green waste mulch over the windrows once they are initially formed • Ensuring that the biological balance of certain odour generating systems is not disturbed • Promptly cleaning up spilled odorous materials • Installing adequate odour control equipment • Scheduling activities for times when they will have least impact (e.g. avoid undertaking odour-generating activities such as turning windrows of compost at times when it is windy and the odour might carry to a **sensitive** or **commercial place**). This list is not exhaustive, and **you** are responsible for working out which **measures** are necessary to adequately manage the risk from your **activity**.
Protecting land values	
L1	Other than as permitted within this environmental authority, **contaminants** must not be released to **land**.
	Intent This condition ensures that **contaminants** are not released to **land**, other than as specifically permitted through the conditions of the environmental authority to ensure that **environmental values** of **land** are protected, and the land does not become **contaminated land**.

	How to comply **Land** includes characteristics of the landscape, such as the topography or vegetation and ecosystems that it supports, as well as the chemical and physical properties of soils. Impacts are typically associated with the release (intentional or otherwise) of **contaminants** from the **activity** to **land**, or **land** disturbance caused by the **activity**. **You** must not release **contaminants** to **land**, either directly or indirectly unless the release of **contaminants** is authorised by another condition. This will require **you** to take **measures** to minimise the potential for spills to occur both on site and offsite. **You** also must not irrigate waste water or **leachate** to **land** or allow any release involving **contaminants**, including contaminated stormwaters to **land**. The following list identifies some of the ways that releases of **contaminants** to **land** can be prevented: • Providing bunding for containers containing liquid **contaminants** • Providing covering for any **contaminants** stored on the site • Containing contaminated stormwater on site • Removing **contaminants** from contained stormwater prior to release offsite • Only using hard surfaced areas of the site for storing **contaminants** • Leak detection systems, high level alarm systems and regular maintenance of infrastructure • **Emergency** procedures and contingency plans for accidental **contaminant** releases • Maintaining adequate freeboard for contaminated water storages. This list is not exhaustive, and **you** are responsible for working out which **measures** are necessary to adequately manage the risk from your **activity**.
L2	Erosion and sediment control **measures** must be installed and maintained to: (a) Allow stormwater to pass across the site in a controlled manner and at non-erosive flow velocities; and (b) Minimise the duration that disturbed soils are exposed to the erosive forces of wind, rain, and flowing water; and (c) Minimise soil erosion; and (d) Minimise sedimentation of contour drains, drainage lines, channels and waterways; and (e) Minimise adverse impacts to **land**, **waters** or properties downstream to the activities (including roads).
	Intent This condition ensures that **measures** are in place to address the risks of erosion and sediment release to **waters**.
	How to comply **You** must undertake a site-specific assessment to determine the risks of erosion and sediment release to **waters** as a consequence of activities on site. **You** must then implement **measures** which are commensurate to the site-specific risk of erosion, and risk of sediment release to **waters**.

L3	An area that has an **impervious barrier** to subsoil and **groundwater** must be used when conducting any of the following: (a) receiving, mixing and storing feedstock; and (b) processing and storing **composting material**; and (c) collecting and storing **leachate** or stormwater runoff from **disturbed areas**.
	Intent This condition requires impervious storage and operational areas for those materials that have the potential to cause **environmental harm** to subsoil, surface water **groundwater**.
	How to comply The following areas must be impervious to prevent subsoil and **groundwater** contamination: • Areas used for receiving, mixing, storing and processing **feedstock**; and • Areas used for active composting; and • Areas used for collecting **leachate**; and • Areas used for storing **leachate**. The appropriate design of the impervious area will be determined by: • The nature of the materials being contained for example, some materials can infiltrate through concrete; and • The properties of the earth between the ground surface and **groundwater** (such as permeability, fractures or bedding planes in surface rock, vulnerability to subsidence and structural instability, acid sulfate soils); and • The characteristics and properties of **groundwater** (such as depth, rate of recharge, hydraulic conductivity); and • Whether the area is covered; and • Structural support required for equipment, machinery and vehicles. An acceptable **impervious barrier** required for areas where the activities listed in condition L3 are carried out, might range from a compacted earth area which is sufficiently graded and bunded, through to a concrete hard stand area for containing liquids. Composting pads, **leachate** collection and storage areas must have a **leachate** barrier system of adequate thickness (i.e., at least 600 mm with an in-situ permeability (K) of less than 10^{-9} ms^{-1}) or asphalt or reinforced concrete pad capable of supporting any machinery or equipment. Any area used for directing and collecting **leachate** should be adequately sloped to maximise runoff and reduce pooling and infiltration. **You** must be able to demonstrate with sufficient information, that considers site specific factors like soils and **feedstocks**, that the design, construction and use of the impervious area/s prevent the infiltration of **contaminants** to subsoil and **groundwater**.
Rehabilitation	
R1	Upon completion of the **activity, land** that has been disturbed by the **activities** conducted under this environmental authority must be rehabilitated in a manner such that: (a) There is no visual evidence of erosion or sedimentation occurring; and

	(b) The potential for **environmental nuisance** caused by dust is minimised; and (c) The quality of water, including seepage, released from the site does not cause **environmental harm**; and (d) The quality of water in any residual water body does not have the potential to cause **environmental harm**; and (e) The landform is in **stable condition**; and (f) **Land** is re-profiled to a level consistent with surrounding landform except where agreed to in writing with the landowner; and (g) **Land** is re-profiled to original contours and established drainage lines except where agreed to in writing with the landowner; and (h) **Land** is vegetated with groundcover which is not a **declared pest species**, and which is established and actively growing, except where agreed to in writing with the landowner.
	Intent This condition outlines the rehabilitation standards expected by the department for the site, or any part thereof, which is no longer being used to conduct the **activity**. The condition ensures that rehabilitation is undertaken to achieve a safe, non-polluted and non-polluting landform upon completion of the **activity**. The condition stipulates the reasonable and practical rehabilitation **measures** required to prevent the likelihood of **environmental harm**. In some instances, sites may require very specific rehabilitation requirements. For example rehabilitation requirements related to their **land** use approval (usually in relation to the final **land** use, design and vegetation). These sites will have site specific conditions developed by the assessing officer in relation to rehabilitation.
	How to comply Once **you** have stopped conducting the **activity** on the site **you** must rehabilitate the **land** in the manner stated. Some ways to comply with this condition include: • Ensuring a rehabilitation plan is developed and implemented by an **appropriately qualified person** • Remediating contaminated **land** • Re-establishing surface drainage lines • Re-instating the top layer of the soil profile • Establishing groundcover to ensure that erosion on site is minimised • Undertaking rehabilitation in a manner such that any actual and potential acid sulfate soils in or on the site are either not disturbed, or submerged, or are treated to prevent and/or minimise **environmental harm** • Progressively monitoring the rehabilitation and undertaking maintenance to ensure that the site will achieve a safe, non-polluting landform. If **you** wish to cease the **activity** and surrender your environmental authority, **you** will be required to submit a surrender application including a final rehabilitation report and compliance statement. Where no suitable native vegetation species for the location have been established and sustained for earthen surfaces, **you** will need to include information within your report about why this action is not beneficial to the end **land** use for the site for

	consideration by the **administering authority**.
Protecting water values	
WT1	Other than as permitted within this **environmental authority**, **contaminants** must not be released to **waters**.
	Intent This condition ensures that **contaminants** are not released to **waters**, other than as specifically permitted through the conditions of the environmental authority.
	How to comply Other than as specifically authorised within your environmental authority, **you** must not release **contaminants** to **waters**. This includes, but is not limited to, surface waters, stormwaters, **groundwaters**, tidal waters, the bed and banks of **waters** and the ocean.
WT2	Any stormwater which filters through composting piles or stored **feedstock** must be managed as **leachate**.
	Intent This condition ensures that stormwater is managed as **leachate** where the stormwater has filtered through composting piles or stored **feedstock** due to the risk of contamination.
	How to comply If **you** accept **feedstock** other than green waste for composting, **you** must manage any stormwater which filters through composting piles or stored **feedstock** as **leachate**.
WT3	**Stormwater** Stormwater must be managed to: a) prevent stormwater from being contaminated by the activity; or b) direct stormwater that is contaminated by the activity to stormwater treatment and retention measures.
WT4	**Stormwater treatment and retention measures** must have capacity to retain stormwater runoff from disturbed areas generated by a rainfall event up to and including a **24-hour rainfall event with an Annual Exceedance Probability (AEP)** of *[insert site-specific AEP]*.
WT5	Stormwater may only be released to waters where: (a) beneficial reuse of contained stormwater runoff on site is not viable; and (b) the release is necessary to maintain stormwater retention capacity required by condition WT4; and (c) there are no **contaminants** present that will, or that are capable of causing **environmental harm**.
	Intent Conditions WT3, WT4 and WT5 ensure that stormwater runoff from **disturbed areas** generated by storm events is retained on site and reused beneficially for the **activity** wherever possible. A release of this water is authorised under condition WT5, but only

	subject to conditions including that there be no risk of **contaminants** being present or at concentrations which may cause **environmental harm** to the receiving environment. This condition manages the risk of stormwater that is also is potentially contaminated by, or has become, **leachate**, being released offsite and causing **environmental harm**.
	How to comply **You** must manage stormwater to prevent stormwater from being contaminated by the activity or direct stormwater that is contaminated by the activity to stormwater treatment and retention measures. Stormwater treatment and retention measures must have capacity to retain stormwater runoff from disturbed areas generated by a rainfall event up to and including a 24-hour rainfall event with an Annual Exceedance Probability (AEP) as specified by the condition. This stormwater must be re-used beneficially on site (e.g., within the composting process to maintain windrow moisture content). Most composting sites across Queensland will be considered a high erosion hazard site and soil erosion is expected. Best practice stormwater management **measures** should be implemented to prevent **environmental harm** or assist **you** to meet your general environmental duty. These include, but are not limited to: • Stormwater should be diverted away from or around **disturbed areas** where possible. • Stormwater basin(s), also commonly referred to as sediment basins, should be installed and maintained to collect stormwater runoff from all **disturbed areas** of the site(s) approved as part of the environmental authority application, and areas in which any earthen material is stored. • A stormwater basin must be operated in such a manner that the required design capacity of the **upper settling volume** is available for capture and storage of stormwater runoff from the next rainfall event as soon as possible. • Any stormwater basin should have a spillway. The stormwater basin and the spillway should be designed, constructed and effectively armoured to convey anticipated flows. • Any stormwater basin should also be designed and maintained with a **sediment storage zone** equal to 50% of the **upper settling volume**. It is important that this volume is not exceeded as it will cause a corresponding reduction in the basin's stormwater retention capacity. • Erosion protection and sediment control **measures** should be installed for all stages of the **activity** to minimise erosion and the release of sediments. • Areas of disturbed or exposed soil should be managed through revegetation and/or use of other stabilisation techniques to minimise the loss of sediment. • All concentrated stormwater flows (including 'clean' stormwater and 'dirty' stormwater) should have concentrated flow paths, such as drainage lines, diversion drains, channels and batter chutes (where applicable) designed, constructed, effectively armoured and maintained to convey the runoff from events up to and including the ARI of a one-in-ten critical duration storm event without causing water

	contamination; sheet, rill or gully erosion; sedimentation; or damage to structures or property. • The release stormwater must achieve a total suspended solids (TSS) concentration of no more than 50mg/L[8]. • The use of a coagulant of flocculent to treat sediment laden stormwater must not cause harm to receiving **waters**. In situations where **leachate** enters, or has entered, the stormwater basin and **you** need to release retained stormwater for the purposes of dewatering, **you** must ensure that **contaminants** are not present or in concentrations which may cause **environmental harm** to the receiving environment. **You** should be aware of the potential **contaminants** within **leachate** generated by the **activity** based on the **feedstock** which **you** accept and use. If a release of stormwater runoff is required, sampling and analysis of the water quality characteristics by an **appropriately qualified person** should be carried out to confirm that there are no **contaminants** present or at concentrations which may cause **environmental harm**. The *Environmental Protection (Water and Wetland Biodiversity) Policy 2019* (EPP Water) has established **environmental values** and water quality objectives for specific **waters** (see Schedule 1). The EPP Water provides further guidance in determining if your release may cause **environmental harm**. For **waters** not included in Schedule 1, the EPP Water provides a process for determining the **environmental values** and water quality objectives. A condition which sets stormwater quality characteristic release limits and monitoring requirements may be imposed on your approval should the risks posed by your operation warrant it. In particular, high risk **feedstock** and high **environmental values** of the receiving environment may necessitate such stormwater quality release limits. Prior to releasing stormwater all reasonable and practicable **measures** must be taken to minimise the release of **prescribed contaminants**. For example, where a large rainfall event is predicted and there is the possibility of **leachate** overtopping a collection pond and flowing to the stormwater detention pond, **measures** should be implemented to remove and dispose of **leachate** likely to cause **environmental harm** prior to that rainfall event.
WT6	**Leachate** must be collected and stored in: (a) Aerated ponds that maintain **aerobic conditions**; or (b) An enclosed **leachate** tank.
WT7	**Leachate** collection and storage must be designed, installed, operated and maintained by an **appropriately qualified person** to**:** (a) Prevent ponding of **leachate** in any area other than the designated **leachate** collection and/or storage areas; and (b) Prevent the **leachate** directly entering a stormwater basin; and (c) Drain **leachate** away from **composting material**; and

[8] Within the Fitzroy Basin, values may exceed 50mg/L. Reference should be made to the F*itzroy River Sub-basin Environmental Values and Water Quality Objectives Basin No. 130 (part), including all waters of the Fitzroy River sub-basin, September 2011*.

	(d) Drain **leachate** to a collection drain; and (e) Ensure the structural integrity of the impervious barrier is maintained.
	Intent **Leachate** has the potential to be a significant source of odour and water contamination. Conditions WT6 and WT7 aim to ensure **leachate** collection and storage reduces the potential for odours to be generated and for leachate to escape into the environment.
	How to comply An **appropriately qualified person** must design the **leachate** collection and storage methods for the site. **Leachate** collection and storage must be either by: • Aerated ponds that maintain **aerated conditions**; or • An enclosed **leachate** tank. The **leachate** collection method must ensure that all **leachate** is collected on site. The method must be effective so as to achieve the following: • Prevent ponding of **leachate** in any area other than the designated **leachate** collection and storage areas; and • Prevent the reintroduction of **leachate** into **composting material**; and • Prevent the **leachate** directly entering a stormwater basin; and • Drain **leachate** away from **composting material**; and • Drain **leachate** to the collection drain. The ongoing operation and maintenance of the **leachate** collection and storage method must be undertaken by an **appropriately qualified person**.

6 Additional model operating conditions

Feedstock rated "high" or "very high" **Note:** These conditions will apply in addition to the conditions set out in section 5 if **you** accept **feedstock** that is, or contains, "**high"** or "**very high"** odour risk **feedstock** as listed in column "Odour Rating" in Schedule 1—Odour: *Table 1 – Odour rating of composting feedstock*. Conditions GO1 to GO5: • Apply to receiving and processing of **feedstock** that is, or contains, "**high"** or "**very high"** odour risk **feedstock**; and • Do not apply to receiving and processing of **feedstock** rated as "none", "low" and "medium".	
GO1	**Feedstock** with an odour rating of "high" and/or "very high" as listed in column "Odour Rating" in Schedule 1—Odour: *Table 1 – Odour rating of composting feedstocks* must be: (a) Received, stored and initially mixed within an **enclosed system** which is under negative pressure at all times when in use; and (b) Mixed with a **bulking agent** or high carbon material and contained in an **in-vessel system** or **enclosed system** as soon as practicable but at least within 6 hours of receipt; and (c) Processed within an **in-vessel system** or **enclosed system** for a minimum of 21 days or until **pasteurisation** is achieved.
	Intent This condition ensures that appropriate infrastructure and processes are implemented on site to address odour risks when **feedstock** that is, or contains, "**high"** or "**very high"** odour risk **feedstock** are processed on site. The odour rankings in Schedule 1 - Table 1 are derived from the odour contribution potential of the **feedstock**. The control of **feedstock** not only minimises odour and contamination risks during processing but also helps to ensure a safer and higher grade final product. Condition GO1 applies in addition to condition G1. This means that Condition GO1 cannot be used to accept **feedstock** that is limited by condition G1. If is a site is not lawfully able to accept **feedstock** with an odour rating of "high" or "very high" as listed in column "Odour Rating" in Schedule 1—Odour: *Table 1 – Odour rating of composting feedstock* under condition G1, it will not be necessary to impose conditions GO1 to GO5 on the environmental authority. Similar to conditions GO1 to GO5, additional site-specific conditions may be imposed on an environmental authority to address other risks from certain **feedstock**, for example the risks of PFAS contamination in biosolids. Keeping the **enclosed system** facility under negative pressure when in use is necessary to reduce the potential for fugitive odorous or hazardous gases to be released to the environment without being appropriately treated. Depending on the specific **in-vessel system** or **enclosed system** used on site and the

	processes in place for receiving and processing **feedstock**, it may not be necessary for **feedstock** to be mixed with a **bulking agent** or high carbon material before being contained in an **in-vessel system** or **enclosed system**. If this management measure is determined not to be necessary by the **administering authority**, this element of the condition will not be imposed on the environmental authority.
	How to comply If **you** are receiving "**high**" and/or "**very high**" odour risk **feedstock**, **you** must implement the odour management **measures** required by the condition including: • Receiving, storing and initialling mixing **feedstock** within an **enclosed system**; and • Ensuring that the **enclosed system** for **feedstock** receival, storage and initial compost mixing is under negative pressure at all times when in use; and • Mixing **feedstock** with a **bulking agent** or high carbon material and containing the mix in an **in-vessel system** or **enclosed system** as soon as practicable but at least within 6 hours of receipt; and • Processing **feedstock** within an **in-vessel system** or **enclosed system** for a minimum of 21 days or until pasteurisation is achieved.
GO2	Any **in-vessel system** or **enclosed system** must be fitted with an **air filtration system** which must achieve a reduction in odour emissions of at least 90%, using the following equation: $E = 100 – (C_{out} \div C_{in}) \times 100$ Where: • E is the percentage odour control efficiency of the odour control devices • C_{out} is the odour concentration of air exiting the odour control device • C_{in} is the odour concentration of air entering the odour control device.
	Intent As the air in the **in-vessel system** or **enclosed system** will be odorous, it must be treated to remove the odorous emissions before it can be released into the environment. This condition requires that the **air filtration system** installed must continually achieve the minimum treatment efficiency resulting in no release of odorous emissions.
	How to comply **You** must ensure that the **in-vessel system** or **enclosed system** is fitted with an **air filtration system** which achieves a reduction in odour emissions of at least 90%, using the equation outlined in the condition.
GO3	The **air filtration system** must be designed, installed, operated and maintained by an **appropriately qualified person**.
	Intent This condition ensures the **in-vessel system** or **enclosed system** effectively manages the accumulation of odorous and potentially hazardous gases.

	How to comply **You** must ensure that the **air filtration system** fitted to the **in-vessel system** or **enclosed system/s** is designed, installed, operated, monitored and maintained by an **appropriately qualified person**.
GO4	An **Air Filtration System** Efficiency Monitoring Plan must be developed and implemented which includes: (a) Determination of relevant performance parameters (taking into account the optimal performance range as recommended by the manufacturer) that can be used to determine whether the **air filtration system** is working effectively to reduce odour emissions and to prevent **offensive** odours from the **in-vessel system** or **enclosed system**; and (b) Requirements and procedures for daily monitoring of the **air filtration system's** performance to determine whether the relevant performance parameters are being met; and (c) **Measures** that are to be taken within 24 hours of any monitoring result that indicates the **air filtration system** is operating outside the performance parameters or is otherwise causing the release of **offensive** odours; and (d) A **record** keeping system for recording the time, date and results of all monitoring, investigations and **measures** taken to address the operation of the **air filtration system** outside the performance parameters or otherwise due to a release of **offensive** odours.
	Intent Condition GO4 ensures that an **Air Filtration System** Efficiency Monitoring Plan is developed and implemented.
	How to comply **You** must develop and implement an **Air Filtration System** Efficiency Monitoring Plan which includes matters outlined in the condition in accordance with condition G9. The condition allows for the **appropriately qualified person** to determine their own parameters for measuring performance of the required **air filtration system**.
GO5	The efficiency of the **air filtration system** must be operated and monitored in accordance with Efficiency Monitoring Plan prescribed in condition GO4.
	Intent This condition ensures the **air filtration system** is operated and maintained in accordance with the Efficiency Monitoring Plan.
	How to comply **You** must operate and monitor the efficiency of the **air filtration system** in accordance with the Efficiency Monitoring Program prescribed in condition GO4. Monitoring must be undertaken in accordance with general condition G10, including Monitoring being carried out by an **appropriately qualified person**.

Using biofilters

Note:

These conditions will apply, in addition to the conditions set out in section 5, if **you** are using biofilters in the composting process.

GB1

If an **air filtration system** includes a biofilter, the parameters and monitoring frequency requirements listed in *Table 3 – Additional monitoring parameters for biofilter beds* must be included in the **air filtration system** Efficiency Monitoring Plan required by condition GO4.

Table 3 – Additional monitoring parameters for biofilter beds

Parameter	Frequency
pH of the biofilter bed (pH units)	Every month
Moisture content of the biofilter bed (%)	Every month
Temperature of the biofilter bed (°C)	Every month

Intent

This condition ensures that the specified parameters are monitored to assess how effective the biofilter is in reducing odour from a composting windrow.

How to comply

If the **air filtration system** implemented on site includes a biofilter **you** must undertake monthly monitoring for the parameters included in the condition. Monitoring must be undertaken in accordance with general condition G10, including that it be carried out by an **appropriately qualified person**.

When using forced aeration

Note:

These conditions will apply, in addition to the conditions set out in section 5, if **you** are using **forced aeration** in the composting process.

GF1

Any f**orced aeration** used in the composting process must be managed to prevent anaerobic conditions and resultant odours.

Intent

This condition ensures that **forced aeration**, if used on site, is effective so as not to have an adverse impact on odour emissions.

How to comply

Forced aeration allows for precise process control of composting conditions (such as temperature, aeration and moisture addition). **Forced aeration** systems can take a

	number of different forms, including aerated static piles or windrows, bag systems, bunker systems, agitated bays and **in-vessel systems** such as tunnels. If **you** are using **forced aeration**, the aeration rate needs to be optimised for a particular compost mix. The aeration rate is used as a primary operational tool for the maintenance of aerobic conditions and for temperature control in **forced aeration** systems. The rate of aeration needs to be carefully controlled and respond to other parameters including temperature. Too much aeration will disperse the natural heat and preclude pasteurisation while drying out the material.

7 Definitions[9]

Where a word or phrase in this document is defined in this Schedule or within the document, it has its corresponding meaning. Where a word or phrase in this document is not defined in this Schedule, it has the meaning given to it in (in order of priority):

- the *Environmental Protection Act 1994* (EP Act), its regulations or its environmental protection policies;
- the *Acts Interpretation Act 1954*;
- the Macquarie Dictionary (taking account of the context in which the word or phrase is used in this document).

For example, environmental value, environmental harm, environmental nuisance, material environmental harm, serious environmental harm and relevant act are defined in the EP Act and groundwater is defined in the Environmental Protection Regulation 2019.

Defined words or phrases in the singular include the plural and vice versa.

24-hour rainfall event with an Annual Exceedance Probability means the maximum Design Rainfall Depth (mm) from a 24-hour duration precipitation event with an annual exceedance probability of a certain percentage. The Design Rainfall Depth (mm) for an AEP probability over a 24-hour duration can be calculated for your location using the Intensity-Frequency-Duration (IFD) Design Rainfall Data System on the Bureau of Meteorology website.
Activity means the environmentally relevant activity or activities to which the environmental authority relates.
Administering authority means the Chief Executive administering the *Environmental Protection Act 1994*.
Aerobic conditions is demonstrated by stored **leachate** having a dissolved oxygen concentration of ≥1 mg/L as measured in-situ at a minimum of three different depths (top, middle and bottom) across the entire water column.
Air filtration system means a system, including biofiltration, which removes or collects **noxious** or **offensive** odours and airborne **contaminants**.
Annual exceedance probability means the probability that a given rainfall total accumulated over a given duration will be exceeded in any one year.
Appropriately qualified person(s) means a person or persons who has professional qualifications, training, skills and experience relevant to the environmental authority requirement and can give authoritative assessment, advice and analysis in relation to the environmental authority requirement using the relevant protocols, standards, methods or literature. Where a requirement relates to odour, the person or persons must have odour assessment qualifications and must be able to demonstrate a calibrated nose or that their sense of smell has not been compromised.
Bulking agent includes wood chips or woody green waste.
C:N ratio means the ratio of elemental carbon (C) to elemental nitrogen (N) by weight in organic material.
Commercial place means a place or part of a place that is used as a workplace, an office, or for conducting

[9] Note to **administering authority** officers: These definitions have been developed for consistent use across the State. However it is recognised that in rare circumstances, a definition might need to be amended to fit a particular type of operation. You should also carefully consider the definitions of **sensitive place** and **commercial place** when issuing an environmental authority and if both definitions are appropriate to be included in condition A1 or N1 given the proposed location of the **activity.**

business or commercial activities.
Composting material refers to waste or other material received on the site, which is mixed and undergoing a composting process until it becomes **finished compost**.
Contaminant as defined under section 11 of the *Environmental Protection Act 1994.*
Contaminated land means land defined as contaminated land under the *Environmental Protection Act 1994.*
Declared pest species means a pest species listed as restricted matter in Schedule 2 of the *Biosecurity Act 2014.*
Disturbed area/s include areas: • That are susceptible to erosion; and/or • That are contaminated by the **activity**; and/or • Upon which stockpiles of soil or other materials are located.
Emergency as defined under section 466B of the *Environmental Protection Act 1994.*
Enclosed system means a large building, or section of a building, operating under negative pressure where the receipt, mixing and composting of **feedstocks** occurs.
Environmental harm as defined under section 14 of the *Environmental Protection Act 1994.*
Environmental nuisance as defined under Chapter 1 of the *Environmental Protection Act 1994.*
Environmental value as defined under Chapter 1 of the *Environmental Protection Act 1994.*
Feedstock means the material/s used or intended to be used for organic material processing.
Finished compost means an organic product/s that has undergone controlled aerobic and thermophilic biological transformation through the composting process to achieve pasteurisation.
Forced aeration means an aeration system where oxygen is forced through the **composting material** reducing the need for turning
Generator means a person who sells, or gives away, or otherwise provides, a **feedstock**.
Groundwater means water that occurs naturally in, or is introduced artificially into, an aquifer.
Impervious barrier means a barrier with a thickness of at least 600 mm with an in-situ permeability (K) of less than 10^{-9} ms^{-1}.
In-vessel system means a system where **composting material** is contained and/or covered to capture or filter the release of gases from the composting process. Any **in-vessel system** must allow for air emissions to be captured and managed (including filtering) and is also capable of being operated under either positive or negative air pressure.
Land as defined in Schedule 4 of the *Environmental Protection Act 1994*.
Leachate means a liquid that has passed through or emerged from, or is likely to have passed through or emerged from, a material that contains soluble, suspended or miscible **contaminants**.
Measures has the broadest interpretation and includes plant, equipment, physical objects, monitoring, procedures, actions, directions and competency.
Offensive means causing offence or displeasure; is unreasonably disagreeable to the sense; disgusting, nauseous or repulsive.

Pasteurisation is a process whereby organic materials are treated to significantly reduce the numbers of plant and animal pathogens and plant propagules.

PFAS means per and poly-fluoroalkyl substances. PFAS short and long naming conventions are as follows (unless otherwise specified by the laboratory):

Short name	Long name
PFOS	Perfluorooctane sulfonic acid
PFHxS	Perfluorohexane sulfonic acid
PFOA	Perfluorooctanoic acid
PFBA	Perfluorobutanoic acid
PFPeA	Perfluoropentanoic acid
PFHxA	Perfluorohexanoic acid
PFHpA	Perfluoroheptanoic acid
PFNA	Perfluorononanoic acid
PFDA	Perfluorodecanoic acid
PFUnDA	Perfluoroundecanoic acid
PFDoDA	Perfluorododecanoic acid
PFTrDA	Perfluorotridecanoic acid
PFTeDA	Perfluorotetradecanoic acid
4:2 FTS	4:2 Fluorotelomer sulfonic acid
6:2 FTS	6:2 Fluorotelomer sulfonic acid
8:2 FTS	8:2 Fluorotelomer sulfonic acid
10:2 FTS	10:2 Fluorotelomer sulfonic acid
PFOSA (or FOSA)	Perfluorooctane sulfonamide
N-MeFOSA	N-Methyl perfluorooctane sulfonamide
N-EtFOSA	N-Ethyl perfluorooctane sulfonamide
N-MeFOSE	N-Methyl perfluorooctane sulfonamido ethanol
N-EtFOSE	N-Ethylperfluorooctane sulfonamido ethanol
N-MeFOSAA	N-Methyl perfluorooctane sulfonamido acetic acid
N-EtFOSAA	N-Ethyl perfluorooctane sulfonamido acetic acid

Prescribed water contaminants means **contaminants** listed within Schedule 10 of the *Environmental Protection Regulation 2019*.

Prohibited material includes:

Feedstock Material	Description
Asbestos and asbestos containing materials	
Bilge waters	Sea and fresh water from vessel pump outs.
Biosecurity waste	(a) waste that is goods subject to biosecurity control under the *Biosecurity Act 2015* (Cwlth); or (b) goods under the *Biosecurity Act 2015* (Cwlth) that are or were in contact with waste mentioned in paragraph (a).
Dye waste (water based)	By-product from industrial dying processes.
Effluent waste and wastewater	Liquid industrial or domestic effluents and waste streams, including contaminated groundwater and stormwater, except those of known origin and composition solely containing organic material as defined in the definition of environmentally relevant activity organic material processing ERA 53.
Filter cake and presses	Any concentrated solid and semi-solid waste streams from water treatment process (e.g. centrifuge, filter press), excluding material that complies with the requirements of End of Waste Code ENEW07503318.[10]
Filter and ion exchange resin backwash waters	Any backwash and reject water from a filtration (e.g. sand or membrane filter) or ion exchange process, excluding material that complies with the requirements of End of Waste Code ENEW07503318.
Forecourt water	Run off from service station forecourts.
Hide curing effluent	Effluent and wastes from tanneries including, but not limited to, the various steps involved in preparing animal hide e.g. washing for removal of hair, fat removal, chemical treatment.
Leachate waste	A liquid that has passed through, or emerged from, or is likely to have passed through or emerged from, a landfill or from a non-organic waste or contaminated soil deposit.
Materials containing persistent organic pollutants including polybrominated diphenyl ethers (PDBEs), polychlorinated biphenyls (PCBs), polyfluorinated organic compounds[11] and polyaromatic Hydrocarbons (PAHs).	
Materials originating from activities or sites associated with PFAS contamination,[12] except where representative analysis results for the load undertaken in accordance with the PFAS monitoring requirements outlined in condition G10, indicate an absence of PFAS.	
Municipal solid waste (excluding segregated compostable organic waste that does not include another **prohibited material** under this environmental authority).	
Paint and industrial	Paint and industrial coatings products and water and solvent wash down water

[10] Available online at https://environment.des.qld.gov.au/
[11] Materials containing per and poly-fluoroalkyl substances (PFAS) are considered separately
[12] Operators should refer to Appendix B of the PFAS NEMP for details of activities associated with PFAS contamination. The PFAS NEMP is available online on the Australian Government Department of Agriculture, Water and Environment website at https://www.environment.gov.au/

coatings products and wash	containing paint and industrial coatings residues.
Particle board	Any part of an engineered wood panel product, manufactured from wood particles, coated in adhesive resin and pressed together into a finished panel.
Sullage waste (greywater)	Greywater / wastewater from domestic or commercial buildings excluding sewage but including waters drained from showers, sinks and laundries.
Treatment tank sludges and residues	Any treatment tank sludge or residue, excluding sludges and residues containing only plant or animal based organic matter or material that complies with the requirements of End of Waste Code ENEW07503318.
Treated timber waste	Any treated timber waste that does not meet the requirements of End of Waste Code ENEW07607119.
Waste containing **restricted stimulation fluids**	
Waste known to be contaminated with glass, metal, rubber and coatings that cannot be eliminated though processing	
Waste treated by immobilisation or fixation	
Water based inks	Liquid wastes from ink use or manufacture.
Water and solvent based paints and industrial coatings	Liquid waste paint, including where undiluted.

Records are documents made or issued in respect of this environmental authority, including contravention notifications, written procedures, analysis results, plans, monitoring reports and monitoring programs required under a condition of this authority.

Restricted stimulation fluids as defined in section 206 of the *Environmental Protection Act 1994.*

Secondary containment system means a system designed, installed and operated to prevent any release of **contaminants** from the system, or containers within the system, to **land**, **groundwater**, or surface waters.

Sediment storage zone means the storage available in the bottom section of the stormwater basin designed to retain settled sediments.

Sensitive place is any part of the following:

1. A dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
2. A motel, hotel or hostel; or
3. A kindergarten, school, university or other educational institution; or
4. A medical centre or hospital; or
5. A protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 2004* or a World Heritage Area; or
6. A public park or garden; or
7. For noise, a place defined as a sensitive receptor for the purposes of the *Environmental Protection (Noise) Policy 2019*.

Stable condition for the purposes of this document means the **land** is safe and structurally stable and there

is no **environmental harm** being caused by anything on or in the **land**.
Stabilised biosolids means biosolids processed to reduce or eliminate the potential for putrefaction and which, as a result, reduces pathogens, **vector** attraction and **offensive** odours.
Stormwater treatment and retention measures include stormwater dams/ponds and sediment dams/ponds.
Transporter means a person who transports **feedstock**.
Upper settling volume means the volume of the stormwater basin designed to capture surface runoff from storm events up to the design event.
Vector means an insect or other organism transmitting germs or other agents of disease.
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.
Weed means an invasive plant as defined in the *Biosecurity Act 2014.*
"Witch's hat" odour sampling method means an odour assessment and measurement technique using a hollow cone-shaped device where: • the base of the device (large diameter) is placed on the surface of the odour source; • the odour is funnelled through the device and out the top of the device (small diameter); and • odour samples are collected at the top of the device (small diameter).
You means the holder of the environmental authority.

Schedule 1—Odour rating of composting feedstock

Notes:

- If the **feedstock** that is proposed to be accepted for composting as part of an environmental authority application is not included in Table 1 – Odour rating of compost **feedstock**, this Schedule may be updated to reflect the applied for **feedstock**.
- If a **feedstock** can fit within multiple listings in Table 1 – Odour rating of compost **feedstock**, the most specific listing applies. For example, 'vegetable waste' could be considered 'Food organics' with a high odour rating. However, as 'vegetable waste' is listed as a specific example under 'Food and food processing waste' the applicable odour rating for 'vegetable waste' is medium.

Table 1 – Odour rating of composting feedstock

Feedstock	Examples	Odour Rating
Abattoir waste	Meat processing leftovers, bone material, blood, tallow waste, abattoir waste including animal effluent and residues from meat processing, including abattoir effluent, liquid animal wastes (blood) and sludge	Very high
	Paunch material	High
Animal manure	Horse manure, chicken manure, cow manure, livestock manure, or any manure produced by animals, wastewater from holding yards.	High
Animal waste and animal processing waste	Any dead animals or part/s of dead animals, remains of animals or part/s of remains of animals (e.g. chickens from poultry farms), egg waste, milk waste, mixtures of animal manure and animal bedding organics	Very High
Bark, lawn clippings, leaves, mulch, pruning waste, sawdust, shavings, woodchip and other waste from forest products	Cane and sorghum residues including bagasse, forest mulches, cypress chip, green waste, mill mud[13], pine bark, sawmill residues non-treated (including sawdust, bark, wood chip, shavings etc.), tub ground mulch (from **land** clearing and forestry waste), peat, seed hulls/husks, straw, and other natural fibrous organics, wood chips (forestry waste and **land** clearing, household maintenance), wood waste (including untreated pallets, offcuts, boards, stumps and logs); worm castings suitable for unrestricted use	Low
Biosolids	Biosolids that are not **stabilised biosolids**	Very high
	Stabilised biosolids	Medium
Cardboard and paper waste	Paper mulch	Low
	Paper pulp effluent, paper sludge dewatered	Medium
Compostable polylactic acid (PLA) plastics	Compostable plastics produced in accordance with: (a) AS 47362006 (Biodegradable plastics) or the most recent or replaced version of that standard or (b) AS 5810:2010 (Biodegradable plastics - Biodegradable plastics suitable for home composting) or the most recent or replaced version of that standard.	Low

[13] That meets the Resource quality criteria for the approved use in the Sugar Mill By-Products End of Waste Code (ENEW07359817)

Feedstock	Examples	Odour Rating
A substance used for manufacturing fertiliser for agricultural, horticultural or garden use	Ammonium Nitrate, dewatered fertiliser sludge	High
	Fertiliser water and fertiliser washings, stormwater from fertiliser manufacturing plants containing fertiliser wash water	Medium
Fish processing waste	Fish bones and other fish remains/leftovers, wastewater from fish processing	Very high
Food and food processing waste	Expired/past used by date non-protein based food from supermarkets, expired beer, vegetable oil wastes and starches, vegetable waste, yeast waste, food processing effluent (wastewater) and solids (including sludges) from non-protein based food	Medium
	Food processing effluent (wastewater) and solids (including sludges) from protein based food	Very high
	Food organics, expired/past used by date protein based food from supermarkets, brewery and distillery effluent and waste	High
	Expired soft drinks, molasses waste, grain waste (hulls / waste grains), starch water waste, sugar and sugar solutions	Low
Grease trap waste	Oil and grease waste recovered from grease traps	Very high
Green waste	Leaves, grass clippings, prunings, tree branches from household maintenance	Low
Inorganic additives with beneficial properties	Bentonite	None
	Crusher dust	None
	Drilling muds (non-CSG and no additives)	None
	Gypsum	Medium
	Lime and lime slurry (inert)	None
Mushroom compost and mushroom growing substrate		Medium
Poultry processing waste	Feathers, meal and bone leftovers, egg waste including poultry processing poultry abattoir effluent and sludges	Very high
Soils	Acid sulfate soils and sludge	High
	Clean soil, clean mud, sand	None
Stormwater	Low level organically contaminated stormwaters or **groundwaters** (tested)	Low
Wood waste from untreated timber	Untreated pallets, offcuts, boards, stumps and logs, sawdust, shavings, timber offcuts, crates, wood packaging	Low