ntepa Northern Territory Environment Protection Authority

Guideline:
Recommended Land Use Separation Distances

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Version 1.0

Acknowledgement

To assist in the formulation of this document a review and synthesis was undertaken giving consideration to various Guidelines, legislative frameworks and research papers within other jurisdictions.

The Northern Territory Environment Protection Authority (NT EPA) acknowledges in particular the contributions from the following:

- Environment Protection Authority Victoria's Publication 1518 – Recommended Separation Distances for Industrial Residual Air Emission – Guideline (2013)
- Government of Western Australia, Department of Environment Regulations, Draft Separation Distances – Guidance statement (2015)
- Environment Protection Authority South Australia, Guidelines for Separation Distances (2007).
- Rob Learmonth, Rik Whitehead, Bill Boyd, Stephen Fletcher, Living and Working in Rural Areas: A Handbook for Managing Land Use Conflict Issues on the NSW North Coast, NSW Department of Primary Industries, Wollongbar 2007.

Contents

Abbreviations

DCA	Development Consent Authority
EIS	Environmental Impact Statement
NT EPA	Northern Territory Environment Protection Authority
WMPC Act	*Waste Management and Pollution Control Act*

Glossary of terms

Term	Definition
Activity[1]	means a current or proposed activity and includes a current or proposed process, operation, project, venture or business.
Activity boundary	means the area, including all current or proposed activities (including the plants, buildings or other sources), from which off-site emissions of offensive or unreasonable odour, noise, smoke, dust or fumes may arise (including but not limited to stockpiles, windrows, leachate ponds and odour-control equipment). It is not the property boundary of the activity.
Amenity[2]	In relation to locality or building, means any quality, condition or factor that makes or contributes to making the locality or building harmonious, pleasant or enjoyable.
Best Practice Environmental Management[3]	The management of an activity or premises in a cost-effective manner that, having regard to national or international practices for management of activities or premises of the same kind, ensures the continued minimisation of the actual or potential environmental impact of the activity or premises.
Contaminant[4]	means a solid, liquid or gas or any combination of such substances and includes: (a) noise, odour, heat and electromagnetic radiation; (b) a prescribed substance or prescribed class of substances; and (c) a substance having prescribed property or prescribed class of properties.

[1] As defined by the NT *Waste Management and Pollution Control Act.*
[2] As defined by the NT *Planning Act*.
[3] As defined by the NT *Waste Management and Pollution Control Act.*
[4] As defined by the NT *Waste Management and Pollution Control Act.*

Term	Definition
Environment[5]	means land, air, water, organisms and ecosystems and includes: (a) the well-being of humans; (b) structures made or modified by humans; (c) the amenity values of an area; and (d) economic, cultural and social conditions.
Environmental harm[6]	Means: • any harm to or adverse effect on the environment; or • any potential harm (including the risk of harm and future harm) to or potential adverse effect on the environment, of any degree or duration and includes environmental nuisance.
Environmental Nuisance[7]	Means: a) an adverse effect on the amenity of an area that: i. is caused by noise, smoke, dust, fumes or odour; and ii. unreasonably interferes with or is likely to unreasonably interfere with the enjoyment of the area by persons who occupy a place within the area or are otherwise lawfully in the area; or b) an unsightly or offensive condition caused by contaminants or waste.
EP	Equivalent population (in terms of biochemical oxygen demand [BOD] load). Calculations of EP will incorporate population and load expected from trade waste activities.
Off-site emissions	Pollutants emitted from an activity that are not contained within the property boundary of the activity.
Pollute[8]	Means: emit, discharge, deposit, or disturb, directly or indirectly, a contaminant or waste; or cause, permit, or fail to prevent, directly or indirectly, the emission, discharge, deposition, disturbance or escape of a contaminant or waste.

[5] As defined by the NT *Waste Management and Pollution Control Act.*
[6] As defined by the NT *Waste Management and Pollution Control Act.*
[7] As defined by the NT *Waste Management and Pollution Control Act.*
[8] As defined by the NT *Waste Management and Pollution Control Act.*

Term	Definition
Potentially impacting Activity	An activity with the potential to pollute.
Residual emissions	Pollutants from an activity emitted after the application of best practice environmental management.
Sensitive land uses	Land uses where people live or regularly spend time and which require a particular focus on protecting the health and well-being of humans and amenity values from the emissions of an activity. For example sensitive land uses may include but are not limited to residential premises, accommodation facilities such as hotels and nursing homes, hospitals, childcare centres, schools and some outdoor recreation facilities.
Separation distances	The estimated distances proposed to an activity and its emissions from sensitive land uses
Waste	means: (a) a solid, a liquid or a gas; or (b) a mixture of such substances, that is or are left over, surplus or an unwanted by-product from any activity (whether or not the substance is of value) and includes a prescribed substance or class of substances.

1 Introduction

The development, growth and evolving character of a locality can bring together land uses which are incompatible due to the external effects of one land use over another. Conflict can arise because of off-site emissions such as noise, dust, vibration, smoke or fumes and odour.

The separation of certain classes of activities by using land-use zones and associated development controls (as per the NT Planning Scheme) is an important mechanism to protect the amenity of residential areas and the unhindered operation of businesses in industrial and commercial areas. Just as important are the pollution control regulation and cleaner production methodologies applied to activities through the *Waste Management and Pollution Control Act* (WMPC Act) to ensure off-site emissions are minimised.

Separation distances can be used to support these approaches and reduce the effects of residual emissions on sensitive land uses. By separating potentially incompatible land uses separation distances can reduce conflict and the resulting complaints. When there is an inadequate separation distance between an activity with off-site emissions and sensitive land uses, subsequent remedial action to alleviate off-site effects may be uneconomic. Accordingly, the viability of the activity is jeopardised and the off-site effects are not alleviated. Adequate separation distances seek to avoid these land use conflict situations.

To support the growth and development of the Northern Territory this Guideline introduces recommended separation distances for different land use activities which may potentially establish in the Northern Territory. The long term growth of the Northern Territory will see growing demand for industrial land uses, support services (such as transport and infrastructure), agricultural industries as well as residential development. The Guideline will support land use planning and environmental protection regulation as an additional and complementary means to minimise potential for conflict between land use activities with the potential for off-site emissions and adjacent sensitive uses.

2 The purpose of this Guideline

The purpose of this Guideline is to recommend separation distances between industry and sensitive land uses to ensure off-site emissions of offensive odour, noise, smoke, dust or fumes do not adversely impact on people. Separation distances acknowledge that for some industry/ land use types residual emissions (once best practice environmental management techniques have been applied) may have the potential to cause impact on adjacent, sensitive land uses if located too closely.

The Guideline has been prepared with the following objectives:

- provide consistency of advice to land use planners, development and environmental assessment officers and proponents
- minimise the overall potential for conflict between land use activities with off-site emissions and receptors within more sensitive land uses
- ensure the amenity and functional activities of competing land uses are not compromised
- support development and evolving land use of the NT in a manner that protects land value and minimises risk of an activity becoming uneconomic due to costly remedial action

- provide greater certainty for proponents and assist proponents to avoid unnecessary development and assessment costs.

The Guideline is primarily for the use of the NT EPA when preparing advice to planning authorities on development applications and strategic land use plans. However, the separation distances recommended in the Guideline will also provide greater certainty for all persons that may be involved in approving or undertaking activities that may be incompatible with existing land uses, and those persons who may be impacted by these types of activities. In summary the Guideline can be applied in a number of settings:

- a tool for industry proponents in planning proposals and amendments to existing development plans (i.e. operation expansions)
- a tool for development proponents in planning proposals and amendment to existing development plans where their development has the potential of locating a sensitive land use near an existing industry
- a guide for land use planners when developing Area Plans and associated zoning tables
- a guide for the review and assessment of environmental impact assessment documents, as well as the preparation of environmental assessment reports by the NT EPA
- a source of information for members of the public to understand preferred separation distances for different types of land uses.

3 The role of separation distances

A separation distance is the recommended distance to separate a source of emissions (offensive odour, noise, smoke, dust or fumes) from sensitive land uses in order to avoid adverse impacts to human health and amenity. Sensitive land uses are land uses where people live or regularly spend time and which require a particular focus on protecting the health and well-being of humans and amenity values from the emissions of an activity. Sensitive land uses may include but are not limited to residential premises, accommodation facilities such as hotels and nursing homes, hospitals, childcare centres, schools and some outdoor recreation facilities.

Separation distances are not intended to replace effective source control technology and practices and are to be used in conjunction with best or leading practice environmental management.

The NT EPA's hierarchy for the management of emissions is (in descending order):

1. avoid or minimise the creation and discharge of emissions through design and operation of the facility, then
2. ensure environmental impacts from emissions are acceptable and meet the relevant regulations and health criteria at the boundary of the site, then
3. implement separation distances to ensure that any residual emissions and unintended emissions do not impact adversely on sensitive land uses.

4 Scope

This Guideline has been prepared with the expectation that potentially impacting land use activities will minimise their emissions through appropriate site layout, design of

facilities, and the implementation and maintenance of engineering and process controls. The Guideline does not condone uncontrolled off-site emissions.

The Guideline considers only the off-site emissions of offensive odour, noise, smoke, dust or fumes generated through activities which may have the potential to cause environmental harm or environmental nuisance (in line with the legislative framework of the WMPC Act).

The Guideline is not intended to replace site-specific assessments or the consideration of site-specific circumstances which may result in a requirement for a separation distance which is larger or smaller than the distance proposed in this Guideline.

Sensitive land uses only include areas of environmental sensitivity or cultural significance if these places are where people live or regularly spend time.

This Guideline cannot be applied to existing interfaces between current activities and sensitive land uses where those sensitive land uses are located within land that would be part of the separation distance. In these circumstances the NT EPA manages potential impacts under existing authorisations and general environmental duty provisions within the WMPC Act.

5 Policy basis

Managing land use conflict and interface issues requires land managers, planners and regulators to have access to a range of tools and methods. This Guideline is intended to supplement and support decisions made within the existing overarching policy framework.

5.1 Land use planning

Land use planning has the unique and important role of being able to manage land use to allow the best use of any part of the landscape. It allows strategies to be put in place that will help avoid conflicts between different types of land use. It does this through:

- planning for future settlement by identifying and planning for the location of future rural and urban settlements
- establishing land use zones to facilitate control of the development and use of land
- articulating permissible land uses in each land use zone
- defining the rules for each land use zone, such as how land can be subdivided into smaller parcels
- putting in place guidelines to guide planning and development decisions.

In the Northern Territory this planning framework is set out in the *Planning Act* and the NT Planning Scheme.

The NT Planning Scheme applies to the whole of the NT apart from those areas covered by the Jabiru Town Plan. It includes the following:

- statements about land use policy
- development controls that allow, prohibit or put conditions on a use or development of land

- instructions, guidelines and assessment criteria to help the Development Consent Authority (DCA) to assess and decide on development applications.

Regional and Subregional Land Use Plans and Area Plans establish policy to guide future development. NT Planning Scheme zones control and manage the development and use of land. Each zone is supported by zoning tables which describe a zone's purpose and lists potential land uses that are permissible (can occur without requiring development consent), discretionary (development consent is required) or prohibited.

The preparation of Regional Land Use Plans and Area Plans establishing policy for future development and amendments to zones create the main opportunities within the NT for consideration of appropriate separation of potentially conflicting land uses.

5.1.1 Application of this Guideline

This Guideline provides guidance for the NT EPA when providing advice to planning authorities on policy plans and zoning (as a referral agency). Planning authorities may also be guided by the recommended separation distances.

5.2 Development control

If consent is required for the use or development of land an application is made to the Development Consent Authority (DCA). Uses identified as discretionary (or discretionary by virtue of being undefined within the NT Planning Scheme) as well as subdivisions require the consent of the DCA. The DCA is a panel of five members appointed by the Minister.

The *Planning Act* establishes the matters the DCA must take into account in considering any application including the provisions of the NT Planning Scheme, and a range of other issues including but not limited to land capability, environmental, infrastructure and amenity. The DCA may issue a Development Permit which may have conditions attached to it.

Planning principles and policies included in the NT Planning Scheme guide the DCA's interpretation of the NT Planning Scheme. Decisions are required to advance or ensure consistency with these planning principles.

The need for consent for a particular land use may provide an additional opportunity to consider potential land use conflicts depending on the development provisions within the Scheme relevant in the circumstances.

5.2.1 Application of this Guideline

This Guideline can be used as a reference for the NT EPA as a referral agency providing input on a matter requiring consent.

Based upon input received from the NT EPA the DCA can consider the advice on adequate separation distances to minimise the potential for land use conflicts.

The proponent is able to draw from the Guideline when preparing their application for development consent.

Where development consent is not required the proponent for the activity can use the Guideline to assist with site design and activity layout to ensure an adequate separation distance. Where off-site impact occurs and an inadequate separation has been provided, resulting in public complaints the NT EPA will respond using the WMPC Act (Section 5.4)

5.3 Environmental assessment

Projects that have the potential for a significant impact on the environment are assessed under the *Environmental Assessment Act* by the NT EPA, usually in the form of an Environmental Impact Statement (EIS). This process allows the review and assessment of any potential off-site impacts associated with a project, including emissions likely to cause environmental harm and/ or nuisance on surrounding land uses. Through the Minister for Environment and Natural Resources, the NT EPA is able to make recommendations to the approving Minister (the Minister responsible for issuing approval for a development) about the proposal, including recommendations to minimise off-site emissions and impacts.

5.3.1 Application of this Guideline

This Guideline can assist the NT EPA in its assessment role and when making recommendations to ensure potential land use conflicts are minimised.

In the event that an EIS has been required and the NT EPA has prepared an assessment report and the project requires a project approval (e.g. development consent under the *Planning Act* or a mining authorisation under the *Mining Management Act*), decision makers may be required to consider the outcomes of the assessment in their decision making. This provides a mechanism in which a project approval document could consider the application of separation distances.

5.4 Environmental regulation

Section 12 of the WMPC Act requires land managers who conduct an activity that has the potential to cause pollution resulting in environmental harm (including environmental nuisance) or waste to take measures to prevent, minimise or reduce the potential pollution and/ or waste (referred to as a general environmental duty). The general environmental duty operates to manage and minimise off-site emissions which have the potential to cause land use conflicts.

Section 83 of the WMPC Act sets out general environmental offences for environmental harm, including s83(5) *a person must not cause an environmental nuisance*.

Section 84 sets out the defence provisions to general environmental offences, specifically for offences relating to environmental harm.

The general offences provide the incentive to ensure off-site emissions are not causing environmental harm or nuisance, minimising land use conflicts with a sensitive land use.

The WMPC Act also establishes a licensing regime for some industry types in the Northern Territory. The NT EPA grants environment protection approvals and licences for activities listed in Schedule 2 of the WMPC Act. These activities are associated with:

- disposal of waste by burial
- listed Waste collection, transport, storage, re-cycling, treatment or disposal
- processing hydrocarbons so as to produce, store and/or despatch liquefied natural gas or methanol.

Licences are a tool to ensure that an operator applies best practice environmental management to their activity, minimising residual emissions and associated potential conflict with adjacent land uses.

5.4.1 Application of this Guideline

This Guideline will assist an operator or proponent of an activity to undertake site planning ensuring adequate separation distances are in place. In addition to adequate pollution control technology and environmental management practices the implementation of separation distances assists an operator to demonstrate compliance with section 12 of the WMPC Act as well as reasonable diligence (providing a defence for an environmental offence).

Licensing provides the NT EPA with the regulatory tool to ensure an operator has in place effective environmental and pollution control management techniques. Where an activity is operating without adequate separation distances and off site impacts occur, the NT EPA can use the licensing function to get the operator to install or undertake further remedial actions.

6 When to consider separation distances

6.1 The agent of change principle

The proponent of any new development that may give rise to land use conflicts has the onus to avoid land use conflict in their site planning.

The new development is the trigger for considering and applying separation distances (regardless of whether the development requires development consent). The proponent for the new development needs to draw on this Guideline to inform site design and planning.

The agent of change may be a proponent of a (for example) new industrial land use, or expansion or change to an existing industrial land use, or it may be the proponent of a proposed sensitive land use adjacent to an existing industrial land use.

6.2 Greenfield site

An area of undeveloped land earmarked for commercial, residential (including rural living and rural residential) or industrial development is known as a greenfield site.

Separation distances are best put in place during the land use and site planning stage of a greenfield site development. For example:

- area planning and associated land use zoning of large mixed use development sites (which may include residential, commercial, light industry, utilities etc)
- site planning of a new industrial estate within a General Industry or Development zone, adjacent to zonings where sensitive uses are permissible
- site planning of an agricultural industry in an area of rural living and rural residential
- subdivision, planning and development of a residential estate adjacent to industrial or rural zonings.

6.3 Brownfield site

An area of land or a premises which has previously been used or developed and is not currently fully in use, although it may be partially occupied or utilised, is known as a brownfield development site. Brownfield land may also be vacant, derelict or contaminated. Separation distances can be applied when developing brownfield sites, as follows:

- area planning and associated land use zoning where a large brownfield site is being re-developed for an alternative land use (for example, the development of Kitchener Bay (the Darwin Waterfront) from industry to a mix of residential and commercial uses)
- site planning of a new activity as part of the in-fill development of a brownfield site (for example a new industry establishing or an existing industry expanding on vacant, derelict or underutilised land)
- site planning of a new activity that will result in a change in land-use, creating a mix of uses within a broader brownfield site (for example, redeveloping a tract of land for residential purposes).

7 How to measure separation distances

Three methods to measure separation distances are provided below. Methods one and two are the preferred methods to be applied. Method three is provided as an alternate approach that will require information demonstrating its appropriateness in the circumstances.

Irrespective of where off-site effects may be experienced, an industry with the potential for producing any noise, odour or dust emissions should be separated as far as possible from the nearest sensitive land use.

7.1 Method One – Property boundary to property boundary

Method one measures the separation distance from the property boundary of a potentially impacting activity to the property boundary of the nearest sensitive land use.

This method allows both property owners/users to utilise their whole property for any purpose that is permissible within the zoning. It recognises that existing potentially impacting activities may have identified plans to expand their activities within their property boundary.

This method should be used where new developments are being planned to abut existing developments.

It should also be used where the agent of change is a more sensitive land use.

Achieving this separation distance may require the application of an interface land use.

7.2 Method Two – Activity boundary to property boundary

Method two measures the separation distance from the activity boundary of a potentially impacting activity to the property boundary of the nearest sensitive land use.

The activity boundary is the area that includes all current or proposed activities (including the plants, buildings or other sources) from which off-site emissions of offensive or unreasonable odour, noise, smoke, dust or fumes may arise (including but not limited to stockpiles, windrows, leachate ponds and odour-control equipment). The activity boundary is not the property boundary of the activity.

Measuring from the activity area (rather than the property boundary) ensures that any separation provided within the property boundary is considered. If an activity changes its use or moves a functional activity within the property boundary, these changes may result in a need to reconsider the adequacy of separation distances.

This method is most suitable where the agent of change is the more impacting activity (i.e. the activity with a less sensitive land use).

This method allows the property owners/ users of the sensitive use to utilise their whole property for any purpose that is permissible within the zoning.

7.3 Method Three – Activity boundary to activity boundary

Method three measures the separation distance from the activity boundary of the potentially impacting activity to the edge of a circular two hectare area on the sensitive land use (not the property boundary of the sensitive land use). The sensitive land use includes all current or proposed sensitive uses (including but not limited to residences, garages and carports, BBQ areas, clotheslines, playgrounds and swimming pools).

Method three should only be used in the following circumstances:

- the nearest sensitive use is located on a site more than 2 hectares[9] in size
- there is documented evidence demonstrating agreement for the property of the sensitive use to make up part of the separation distance
- the potentially impacting activity is using best or leading practice environmental management and can demonstrate that residual emissions do not have the potential to cause significant impact on the property of the sensitive land use (that is, environmental harm or impact to human health).

8 Interface land uses

Interface land uses are those that can be located within separation distances between potentially impacting activities and sensitive land uses. The inclusion of and planning for interface land uses can occur when planning for and developing a greenfield site (either through land use planning and associated zoning or in site plans for large subdivisions and associated development). Interface land uses can only occur if the zoning allows for the use.

Interface land uses neither generate significant off-site emissions caused by odour, noise or hazardous pollutants, nor warrant protection from them. Interface land uses typically include zones that are for the purpose of agricultural/rural activity and light industry.

Table 1 below provides examples of activities and their suitability as interface land uses. The examples provided in Table 1 are not intended to be an exhaustive list of all activities.

Table 1: Examples of interface land uses and their suitability

Suitability	Examples of interface land use
Encouraged	Light industry with no adverse amenity potential, agriculture, car parks.
Potential (subject to assessment)	Utilities (except for sewage works), offices, natural systems, conservation zones, service stations, and research centres.

[9] Two hectares reflects the minimum lot size for the Rural Living zone

Prohibited	Sensitive land uses and industrial land uses that require separation distances as listed in the Index.

9 Proposed separation distances

The proposed minimum separation distances are stipulated in the Index of Activities (the Index) found in Appendix A. The Index:

- broadly defines the activity types requiring a separation distance
- lists and assigns proposed separation distances between identified activities and sensitive land uses
- references other guidelines if they are relevant to particular industries.

The Index distances are based upon separation distances used in other Australian jurisdictions, but recognise local conditions.

9.1 Limitations

The NT EPA recognises that the separation distances in this Guideline are based on generality. It is consequently important when determining separation distances to consider the key parameters that influence emission dispersion including local meteorology (i.e. wind speed, wind direction, intensity of rainfall, seasonality, cloud cover, solar exposure and atmospheric stability) and topography. Industry air emissions and sensitivity to the particular emissions can be variable.

Table 2 provides some of the criteria to be considered during the assessment of site-specific variation to the recommended separation distances.

Table 2: Criteria for site-specific variation

Criteria	Explanation
Transitioning of the activity	Existing activity has formally indicated that it will transition out of an area over a specified timeframe.
Plant equipment or operation	The plant and equipment have an exceptionally high standard of emission control technology.
Size of plant and scale of operation	The plant is significantly smaller or larger than comparable industries.
Topography or meteorology	There are exceptional parameters that affect emission dispersion including local meteorology (i.e. intensity of rainfall, seasonality, cloud cover, solar exposure, wind speed, wind direction and atmospheric stability) and topography.
Likelihood of emission	Particular emissions are either highly likely or highly unlikely to occur.

9.2 Cumulative impacts

Cumulative effects are those individually minor but collectively significant effects that result from an activity in combination with other projects and activities. Cumulative impacts are potentially more difficult to predict than other impacts on the environment.

This Guideline does not seek to recommend specific separation distances for any cumulative impacts resulting from the co-location of like activities. However, where a cluster of activities of the same type exists or is proposed, consideration of cumulative impacts may be necessary when all of the following conditions arise:

- an existing or proposed potentially impacting activity occurs in the proximity of the same type of activity
- the activity and its associated functional activities will have, or has, overlapping separation distances
- the combined capacity of the individual activities is in excess of the 'scale of operations' listed in the Index.

This can occur, for example, in the event that a new industrial development is proposed or an existing industry plans to expand (placing the onus on the proponent of the new or expanding industry to account for separation distances) or when a proponent of a sensitive land use proposes a development nearby to a cluster of industries (placing the onus on the proponent of the sensitive land use to account for separation distances).

Appendix A: Index of Activity Types

No.	Activity type	Activity description	Scale	Proposed separation distance (m)
Agriculture				
1.	Grain and stockfeed mill, and handling facility	Receiving, storing, fumigating, bagging, transporting, and loading grain or stock feed.	≥ 20,000 tonnes per year	250
2.	Piggery	Premises pigs are fed, watered and confined in pens for the purpose of agricultural productions.	≥ 1,000 head	1,000 Refer to *National Environmental Guidelines for Piggeries* (Australian Pork Limited, 2010).
3.	Stock feedlot	Premises where animals are confined for the purpose of agricultural production; beef, dairy, buffalo or bison.	Beef or buffalo ≥ 500 head	1,000 Refer to *National Guidelines for Beef Cattle Feedlots in Australia* (Meat and Livestock Australia, 2012).
			Dairy	500
4.	Livestock saleyard or holding pen	Premises where pigs, cattle or other stock are temporarily confined for sale, transport, processing or slaughter.	< 10,000 head per year	500
			≥ 10,000 head per year	1,000

No.	Activity type	Activity description	Scale	Proposed separation distance (m)
Metal products				
5.	Metal coating	Premises on which metals products (excluding vehicles) are spray painted, powder coated or enamelled.	≥ 1,000 litres of paint or powder per year	
			Spray painted is conducted inside a spray booth	200
			Work is conducted in the open (no spray booth)	500
			Metal products are powder-coated or enamelled	200
6.	Metal finishing	Premises which metals are chemically cleaned or metals, plastic products are plated, electroplated, anodized, coloured or otherwise coated or finished.		200
			Iron or steel is galvanised	500
7.	Metal melting or casting	Process where metal or scrap metal is melted in furnaces or cast.	≥ 100 tonnes per year	500
8.	Metal smelting or refining	Process where metal ore, metal ore concentrates or metal waste is smelted, fused, roasted, refined or processed.	≥ 1,000 tonnes per year	Case by case
9.	Scrap metal recovery	Premises on which metal scrap is fragmented or melted, including premises on which lead acid batteries are reprocessed.	≥ 100 tonnes per year	500

No.	Activity type	Activity description	Scale	Proposed separation distance (m)
Chemical, petroleum and coal products				
10.	Biocide production	Production of biocides.	≥ 2,000 tonnes per year	1,000
11.	Bulk storage of chemicals	Storage of acids, alkalis or chemicals that contain at least one carbon to carbon bond and are liquid in standard temperature and pressure (STP).		1,000
12.	Carbon stripping	Reprocessing carbon granules from a gold extraction process located external to the site.	≥ 100 tonnes per year	300
13.	Chemical blending or mixing	Premises on which chemicals or chemical products are mixed, blended or packaged.	Dependent on size and type of chemicals involved	300-500
14.	Chemical manufacturing	Manufacturing chemical products (other than those mentioned within this index) by a chemical process.	≥ 1,000 tonnes per year	1,000
15.	Fertiliser production	Production of inorganic fertilisers.	≥ 2,000 tonnes per year	1,000
16.	Formaldehyde production	Production of formaldehyde.	≥ 2,000 tonnes per year	500
17.	Industrial gas production	Production of industrial gases.	≥ 2,000 tonnes per year	1,000
18.	Oil or gas refining	Refining oil or gas, producing hydrocarbon fractions or liquefying gas.		2,000
19.	Paint and ink production	Production of paint or ink.		500

No.	Activity type	Activity description	Scale	Proposed separation distance (m)
20.	Pesticides manufacturing	Manufacturing by a chemical process herbicides, insecticides or pesticides.		1,000
21.	Pharmaceutical and veterinary product production	Production of pharmaceutical or veterinary products.	≥ 2,000 tonnes per year	500
22.	Recycling of chemicals or oil	Premises on which waste liquid hydrocarbons or chemicals are refined, purified, reformed, separated or processed.		1,000
23.	Rubber, polyester and synthetic resins production	Production of rubber products, polyester or synthetic resins.	≥ 2,000 tonnes per year	1,000
24.	Rubber products production, using either organics solvents or carbon black	Production of rubber products using organic solvents or carbon black.	≥ 2,000 tonnes per year	250
25.	Soap and detergent production	Production or soap or detergent.	≥ 2,000 tonnes per year	500
Food, beverage and manufacturing				
26.	Abattoir	Premises on which animals are slaughtered – no rendering.	≥ 200 tonnes per year With wastewater treatment ponds	1,000
			≥ 200 tonnes per year	500

No.	Activity type	Activity description	Scale	Proposed separation distance (m)
			Without wastewater treatment ponds	
27.	Alcoholic and non-alcoholic beverage manufacturing	Premises on which an alcoholic or non-alcoholic beverage is manufactured.	≥ 200 kilolitres	500
28.	Edible oil or fat production	Premises on which vegetable oil, or oil seed or animal fat is processed using seed crushing, solvent extraction or fat deodorising.	≥ 200 tonnes per year	500
29.	Food processing of small goods	Premises on which vegetables are, or fruit or meat is, preserved, cooked, dried canned, bottled or processed.	≥ 200 tonnes per year	500
30.	Milk products	Processing of milk or dairy products which; Milk is separated or evaporated (other than a farm); or Evaporated or condensed milk, butter, ice cream, cheese or any other product is manufactured.	≥ 100 tonnes per year	500
31.	Pet food production	Production or manufacturing or animal food.	≥ 100 tonnes per year	500
32.	Rendering and casings works	Abattoirs, knackeries or poultry processing works involving rendering.	≥ 200 tonnes per year	1,000
33.	Seafood	Premise (other than fish wholesalers) on which fish or other seafood is processed.	≥ 200 tonnes per year	500

No.	Activity type	Activity description	Scale	Proposed separation distance (m)
34.	Starch manufacturing	Premises on which starch or gluten is manufactured.	≥ 200 tonnes per year	500
35.	Sugar milling or refinery	Premises on which sugar cane is crushed or sugar is refined.	≥ 1,000 tonnes per year	1,500
Mining and extractive industry				
36.	Gas and oil extraction	All natural gas or oil production wells including tight, shale and coal seams.		
				2,000
37.	Mine dewatering	Premises which water is extracted from ore with a chemical solution.	≥ 50,000 tonnes per year	500
38.	Mineral sands mining or processing	Premises on which mineral sands ore is mined, screened, separated or otherwise processed.	< 5,000 tonnes per year	500
			≥ 5,000 tonnes per year	2,000
39.	Oil or gas production	Whether on land or offshore, via wells or other mechanisms, premises on which: • crude oil, natural gas or condensate is extracted from below the surface of the land or the seabed, as the case requires, and is treated or separated to produce stabilised crude oil, purified natural gas or liquefied hydrocarbons gases; or,		2,000

No.	Activity type	Activity description	Scale	Proposed separation distance (m)
		• commercial production of oil or gas occurs (including the reforming of hydrocarbon gas).		
40.	Quarry	Quarrying, crushing, screening, stockpiling and conveying or rock.	Without blasting	250
			With blasting	500
			With respirable crystalline silica	600
41.	Screening etc. of materials	Premises on which material extracted from the ground is screened, washed, crushed, ground, milled, sized or separated.	≥ 5,000 but less than < 50,000 tonnes per year	500
			≥ 50,000 tonnes per year	1,000
42.	Processing or beneficiation of metallic or non-metallic ore	Premises on which: metallic or non-metallic ore is crushed, ground, milled or otherwise processed; or, tailings from metallic or non-metallic ore are reprocessed; or, tailings or residue from metallic or non-metallic ore are discharged into a containment cell or dam.	≥ 50,000 tonners per year	2,000
43.	Vat or in *situ* leaching of metal	Premises which metal is extracted from ore with a chemical solution.	≥ 5,000 tonnes per year	500
Miscellaneous manufacturing				

No.	Activity type	Activity description	Scale	Proposed separation distance (m)
44.	Boat building and maintenance	Building or maintenance of vessels for commercial sale.		500
		Where organotin compounds are used or removed from vessels.		1,000
45.	Foam products manufacturing	Resin based preparation or manufacturing of plastic foam or plastic foam products using MDI (diphenylmethane di-iso-cyanate) or TID (toluene-2, 4-di-iso-cyanate).	≥ 1 tonnes per year	500
46.	Manufacture of products using fibreglass and resin	Manufacturing products using fibreglass or resin.	≥ 250 tonnes per year	250
47.	Manufacturing or tanned leather and artificial leather products	Processing leather by tanning or dressing.	≥ 250 tonnes per year	250
48.	Printing	Printing works emitting volatile organic compounds.	Emitting ≥ 100 kilograms per day	500
49.	Solar salt manufacturing	Premises on which salt is produced by solar evaporation.		500
50.	Fellmongering	Drying, storing, curing packaging of animal skins or hides	≥ 1,000 skins	500
51.	Tannery	Premises on which animal skins or hides are tanned, dressed, finished or dyed.	≥ 1,000 skins	2,000
Non-metallic mineral products				

No.	Activity type	Activity description	Scale	Proposed separation distance (m)
52.	Asphalt plant	Premises which hot or cold mix asphalt is produced using crushed or ground rock aggregates mixed with bituminous or asphaltic materials for use external to the premises.		1,000
53.	Bitumen manufacturing	Premises on which bitumen is mixed or prepared for use external to the premises.		1,000
54.	Brick, tile, pipe and refractory manufacturing	Production of bricks, tiles, pipes, pottery goods or refractories, processed in dryers or kilns.	≥ 10,000 tonnes per year	1,000
55.	Cement manufacturing	Production of cement form clays, or limestone in either a furnace or kiln to produce cement clinker.	< 150,000 tonnes per year	500
			≥ 150,000 tonnes per year	1,000
56.	Cement clinker grinding	Grinding or cement clinker, clays or limestone materials.	≥ 150,000 tonnes per year	2,000
57.	Ceramic goods manufacturing	Premises on which ceramic kitchen or table ware or other non-refractory ceramic products are manufactured.	≥ 200 tonnes per year	500
58.	Concrete batching plant or, concrete and stone article manufacturing	Premises where finished concrete or stone products are manufactured.	≥ 5,000 tonnes per year	500
59.	Glass or glass fibre manufacturing	Premises where glass, glass products or glass fibre is manufactured.	≥ 1,000 tonnes per year	500
60.	Other non-metallic mineral processing	Premises on which non-metallic minerals are crushed, ground, milled or separated.	≥ 100 tonnes per year	200

No.	Activity type	Activity description	Scale	Proposed separation distance (m)
61.	Plaster and plaster article manufacturing	Premises where plaster products, plaster board, gyprock or products comprised wholly or primarily of gypsum are manufactured.	≥ 5,000 tonnes per year	200
Paper, textiles and wood				
62.	Textile operations	Textiles manufacturing and processing including bleaching, dyeing or finishing cotton, linen, cotton ginning or milling, woollen yarns, carpet or textiles.	≥ 1,000 tonnes per year	500
63.	Timber preserving	Premises on which timber is preserved for commercial purposes by the use of chemicals		500
64.	Mineral wool or ceramic fibre manufacturing	Manufactured mineral wool or ceramic fibre is.		500
65.	Paper and paper pulp manufacture by other methods	Premises on which paper pulp, wood pulp, kraft paper, kraft paperboard, cardboard, paper or paperboard is manufactured.	≥ 5,000 tonnes per year	1,500
66.	Wood board manufacturing	Premises on which particleboard or chipboard is fabricated or manufactured.	≥ 500 tonnes per year	2,000
Storage, transport and waste management				
67.	Biomedical waste incineration	Premises on which: • infectious or potentially infectious waste produced by health care systems, or by	≥ 2 tonnes per day	200

No.	Activity type	Activity description	Scale	Proposed separation distance (m)
		pathology, dental, or veterinary practices, or by laboratories, is incinerated; or • quarantine waste is incinerated; or • cytotoxic waste is destroyed, but not including facilities used exclusively for human or animal cremation.	≥ 5 tonnes per day	500
			≥ 5 tonnes per day	1,000
68.	Bulk material loading or unloading	Premises on which clinker, coal, ore, ore concentrate or any other bulk granular material (other than salt) is loaded onto or unloaded from vessels by a materials loading system.	≥ 100 tonnes per day Open material loading system	2,000
			≥ 100 tonners per day Closed material loading system	300
69.	Contaminated soil treatment facility	Permanent facility for the temporary storage, processing and treatment of contaminated soil.		Case by case
70.	Fuel burning	Process of which gaseous, liquid or solid fuel is burnt in a boiler for the supply of steam or in power generation equipment.		
				300-500
71.	Incineration	Premises on which waste is incinerated (excluding clean paper cardboard and biomedical waste).	≥ 100 kilograms per day	1,000
72.	Landfill site facility		From surface waters	Case by case

No.	Activity type	Activity description	Scale	Proposed separation distance (m)
		Landfills used for the discharge, or deposit of solid wastes onto land.	In or adjacent to areas zoned SD, MD, MR, HR, CV, CL RR, RL or R	500
			From an aerodrome for piston engine propeller driven aircraft	1500
			From an aerodrome for jet aircraft	3000
73.	Liquid waste facility	Premises on which liquid waste (other than sewerage waste) is stored, reprocessed, treated or irrigated.	< 1,000 tonnes per year	200
			≥ 1,000 tonnes per year	1,000
74.	Materials recovery and recycling facility	Collecting, dismantling, treating, processing, storing, recycling, or selling used or surplus materials.		Case by case but generally ≥ 150
75.	Solid waste depot/transfer station	Premises on which solid waste is stored, or sorted, pending transfer final disposal or re-use.	≥ 500 tonnes per year	250
76.	Solid waste facility	Premises on which solid waste produced externally is stored, reprocessed, treated or discharged onto land (excluding fuel burning).	≥ 1,000 tonnes per year	500
77.	Used tyre storage	Premises on which used tyres are stored in connection with a tyre fitting business.	≥ 100 tyres or more	200
Power and utilities				

No.	Activity type	Activity description	Scale	Proposed separation distance (m)
78.	Electric power generation	Electrical power generation using natural gas as fuel.	≥ 20 megawatts (MW) in aggregate	1,000
			≥ 10 but < 20 megawatts (MW) in aggregate	500
		Electrical power generation using fuel other than natural gas.	≥ 10 megawatts (MW) in aggregate	1,000
			≥ 100 kW but < 10 megawatts (MW) in aggregate	500
79.	On-site wastewater systems	Facility in which sewage is treated as per the description in the *NT Code of Practice for Small on-site Sewage and Sullage Treatment Systems and the Disposal or Reuse of Sewage Effluent* (the NT Code of Practice).	As per the NT Code of Practice	As per the NT Code of Practice
80.	Sewage pumping station	Premises on which sewage is pumped (excluding the pumping to and from septic tanks).	Total pump rate ≥ 100 L/s	100
			Total pump rate >50 L/s but < 100 L/s	50
			Total pump rate ≤ 50 L/s	25
81.	Sewage treatment plants	Plants using pond systems.		10 $(EP)^{0.5}$
		Plants using systems other than pond systems.		Case by case but not less than 10 $(EP)^{0.35}$
		Disposal areas for secondary treated effluent by spray irrigation.		200

No.	Activity type	Activity description	Scale	Proposed separation distance (m)
		Disposal areas for secondary treated effluent by flood irrigation.		50
		Onsite biosolid storage.		Case by case

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