

POEO Risk-based licensing Guidance on using the risk assessment tool

Draft for comment



© State of NSW and Environment Protection Authority.

The Environment Protection Authority (EPA) and the State of NSW are pleased to allow this material to be reproduced, for educational or non-commercial use, in whole or in part, provided the meaning is unchanged and its source, publisher and authorship are acknowledged. Specific permission is required for the reproduction of images.

Disclaimer:

The EPA has compiled this document in good faith, exercising all due care and attention. The EPA does not accept responsibility for any inaccurate or incomplete information supplied by third parties. No representation is made about the accuracy, completeness or suitability of the information in this publication for any particular purpose. The EPA shall not be liable for any damage which may occur to any person or organisation taking action or not on the basis of this publication. Readers should seek appropriate advice about the suitability of the information to their needs.

Published by:

NSW Environment Protection Authority (EPA)
59–61 Goulburn Street, Sydney
PO Box A290
Sydney South NSW 1232

Report pollution and environmental incidents

Environment Line: 131 555 (NSW only) or info@environment.nsw.gov.au

See also www.epa.nsw.gov.au/pollution

Phone: +61 2 9995 5000 (switchboard)

Phone: 131 555 (NSW only – environment information and publication requests)

Fax: +61 2 9995 5999

TTY users: phone 133 677, then ask for 131 555

Speak and listen users: phone 1300 555 727, then ask for 131 555

Email: info@environment.nsw.gov.au

Website: www.epa.nsw.gov.au

ISBN 978 1 74359 646 3

EPA 2014/0396

May 2014

Contents

1	Introduction.....	1
1.1	Overview of the EPA’s risk-based licensing system.....	1
1.2	About this guidance.....	2
2	Environmental risk assessment.....	3
2.1	Assessment of air impacts.....	3
2.1.1	Potential for discharges to air (point and fugitive sources) from day to day activities.....	3
2.1.2	Hazard level of air discharges (point and fugitive sources).....	5
2.1.3	Contribution to regional air quality in GMR (NO _x , VOCs).....	6
2.1.4	Potential for release of odours from day to day activities.....	6
2.1.5	Proximity to sensitive receivers.....	7
2.1.6	Sensitivity of local air quality.....	8
2.1.7	Sensitivity of regional air quality.....	8
2.1.8	Worked examples – assessment of air impacts.....	8
2.2	Assessment of water impacts.....	11
2.2.1	Potential for discharges to waters (point and diffuse sources).....	11
2.2.2	Hazard level of discharges to waters (point and diffuse sources).....	13
2.2.3	Proximity to waters.....	14
2.2.4	Sensitivity of receiving waters.....	14
2.2.5	Worked example – assessment of water impacts.....	15
2.3	Assessment of noise impacts.....	17
2.3.1	Potential for noise nuisance from activities on site.....	17
2.3.2	Nuisance level of noise from activities.....	18
2.3.3	Proximity to sensitive receivers.....	19
2.3.4	Sensitivity of noise receivers.....	19
2.4	Assessment of impacts from incidents and/or unplanned events.....	20
2.4.1	Incident potential.....	20
2.4.2	Proximity to waters.....	21
2.4.3	Proximity to sensitive groundwater.....	21
2.4.4	Proximity to sensitive receivers.....	21
3	Environment management category.....	22
4	Complex and large geographical sites.....	23
4.1	What to do for complex sites.....	23
4.1.1	Multiple emission sources.....	23
4.2	Large geographical sites.....	23
4.2.1	Sewage treatment systems.....	23
4.2.2	Worked example – large scale sewage treatment plant.....	24
	Appendix A: Glossary.....	26

1 Introduction

1.1 Overview of the EPA's risk-based licensing system

The EPA's risk-based licensing system aims to ensure that all licensees receive an appropriate level of regulation based on the level of risk they pose. The EPA will assess the site-specific risks posed by licensed premises and identify any environmental issues that a licensee needs to address and where the EPA needs to focus its regulatory attention.

The risk assessment process considers the:

- day to day operations
- pollution incident risk
- environmental management performance of the licensee.

To assess the risks posed by the day to day operations and pollution incident risks, the EPA takes into account:

- the type and nature of emissions from the premises
- pollution control measures used at the premises
- proximity to sensitive environments and receptors
- level of sensitivity of environments and receptors.

To assess the environmental management performance of a licensee the EPA takes into account:

- the enforcement history
- regulatory actions the EPA has taken to respond to incidents and non-compliances
- environmental management systems and practices the licensee has in place to control and mitigate environmental risk
- any works programs or works that will lead to environmental improvements.

Based on this assessment each licensee will be allocated an environmental management category: A, B, C, D or E.

The results from each of the three components of the risk assessment will be used to determine the environmental risk level for each licence, and each licence will be allocated to one of three risk levels: 1, 2 or 3 (with level 3 being the highest risk).

The risk assessments will inform the level and type of EPA regulatory intervention required; for example, a higher risk level may result in more intensive monitoring and reporting obligations on the licence.

The overall environmental risk levels allocated to each licence will be available on the EPA's Public Register, providing greater information to the community about environmental risks and environmental performance of individual licensees and the EPA's regulatory decisions.

Licence risk levels will be reviewed at minimum as part of the statutory five year licence review process. In addition the risk levels may be reviewed as a result of a number of triggers including the completion of pollution reduction programs (PRPs) or if there is an environmental incident.

A licensee's environmental management category will be assessed annually and be based on the licensee's regulatory performance over a three year period. This assessment will be carried out as part of the anniversary process and in conjunction with the receipt of the annual return.

1.2 About this guidance

This guidance document has been prepared to assist licensees under the *Protection of the Environment Operations Act 1997* (POEO Act) in the use of the risk assessment tool on the EPA's website, which can be found at www.epa.nsw.gov.au/licensing/licencereg.htm. The risk assessment tool includes an assessment of the day to day operations, the pollution incident risk of a premises and the environmental management performance of a licensee.

The first two components of the risk assessment consist of four worksheets with a series of questions on the following topics:

1. Air (including odour)
2. Water
3. Noise
4. Incidents (pollution incidents from unplanned events).

The assessment of the environmental management performance of a licensee consists of a worksheet with a series of questions regarding:

- enforcement history
- regulatory actions and tools
- operator systems.

The risk assessment tool and this supporting guidance have been designed to assist in understanding the EPA's risk assessment process and to allow users to produce a consistent risk assessment and environmental management category.

This guidance provides worked examples for further assistance when undertaking your risk assessment.

It is important to note that the risk assessment is a snapshot in time and risk profiles may change from time to time. As noted previously risk assessments will be periodically reviewed by the EPA.

Terms used in this document are defined in the glossary in **Appendix A**.

2 Environmental risk assessment

2.1 Assessment of air impacts

This section provides guidance on how to assess site specific risks posed to air.

2.1.1 Potential for discharges to air (point and fugitive sources) from day to day activities

Question 1: Are there any air emissions (point and fugitive)?

Identifying air emissions

As a starting point, the licensed discharge points should be considered. Fugitive emissions must also be considered as fugitive emissions are often not identified on the licence. In some cases likely fugitive emissions for certain industries are identified in the load-based licensing (LBL) requirements.

Examples of activities that may result in fugitive emissions include:

- chemical storage
- use or handling of prints, inks and varnishes
- metal coating
- use and handling of volatile organic compounds (VOCs)
- extractive industries – large scale land disturbance activities.

Note: Fuel burning equipment and boilers have the potential to emit SO_x, NO_x, CO₂, CO and particulate emissions. These emissions may be fugitive or point source.

Further guidance about possible air discharges can be found at:

- National Pollutant Inventory emission estimation technique manuals for specific industries: www.npi.gov.au/publications/emission-estimation-technique/index.html
- European Union BREFs (reference documents on best available techniques) for specific industries: <http://eippcb.jrc.ec.europa.eu/reference/>
- USEPA AP42 Compilation of Air Pollution Emission Factors: www.epa.gov/ttnchie1/ap42/.

Question 2: Are there any pollution controls prior to discharge to air?

Identifying pollution controls

It is important to consider both fugitive and point source emission controls. Examples of pollution controls include:

- baghouses
- cyclones
- flares
- activated carbon beds
- afterburners
- air scrubbers
- regular wetting of stockpiles or surfaces prone to generating dust emissions
- dissolved air flotation tank.

Fugitive emissions may be minimised by simply keeping activities indoors – doors closed, use of negative pressure.

Question 3: How well are the controls and management measures operated and maintained?

When answering this question you will need to focus your attention on the highest risk components or activities on site with regards to air emissions.

Step 1: Determine the highest risk component or activity

To determine the highest risk component or activity you need to focus on the pollutants that have a major impact on the environment or human health, and look at the controls and management measures at the source.

To determine which emissions should be identified as a major source you should consider:

1. Are there emissions that are more significant and/or have a greater load?
2. Are there any emissions that are problematic (they may not be major emissions, i.e. with the highest load) and need to be addressed/mitigated?

Many sites will have multiple emission sources and subsequently a variety of control techniques with varying effectiveness. In such cases, you will need to consider the assessment across the entire site, keeping in mind the range and complexity of the emission sources and focusing on the highest risk sources.

Some tips for determining the highest risk source:

1. Look at all the emission sources and identify the types of pollutants and load being emitted, and consider the emission source with the most toxic emissions.
2. Look at all the emission sources and identify where there are minimal/ poor/ no controls in place, and consider the emission source with the least effective controls relative to the toxicity of the emissions.

Step 2: Identify controls for the highest risk component or activity

The following issues should be considered:

- whether proven and established controls are used
- age of the premises (newer premises may have more reliable controls)
- sound knowledge of the pollution controls and their maintenance systems
- documented procedures for operation and maintenance
- thorough and regular maintenance schedules
- allocation of staff to demonstrate accountability
- performance monitoring or alarm systems used to alert operators to problems.

Step 3: Select the manner in which controls are operated and maintained

You are required to select from the drop down list:

- *Good*
- *Fair*, or
- *Attention required*.

The following table provides guidance on how the EPA defines 'Good', 'Fair' and 'Attention required' for the purposes of describing how well the controls and management measures are operated and maintained.

Table 2.1: Definitions of *Good*, *Fair* and *Attention required*.

Good
<ul style="list-style-type: none"> · Effective pollution controls and/ or mitigation measures are in place, addressing all major issues, and · Equipment is well operated and maintained with evident routine maintenance schedule in place, and · Effective and reliable operational programs are in place as a pollution mitigation strategy <p><i>NOTE: All of the above attributes must apply for this category to be allocated.</i></p>
Fair
<ul style="list-style-type: none"> · Effective pollution controls and/ or mitigation measures are in place but they only address some issues, not all major issues · Pollution control equipment has a satisfactory maintenance schedule · Operational programs are in place as a pollution mitigation strategy but their effectiveness is not wholly reliable <p><i>NOTE: One or more of these attributes can apply for this category to be applicable</i></p>
Attention required
<ul style="list-style-type: none"> · There are no effective pollution controls and/ or mitigation measures to address major issues · There is no routine or reliable maintenance schedule · Operational programs are ineffective at mitigating emissions <p><i>NOTE: One or more of these attributes can apply for this category to be applicable</i></p>

2.1.2 Hazard level of air discharges (point and fugitive sources)

Question 4: Select the pollutants discharged from the activity – focus on major sources only

The aim of this exercise is not to identify all pollutants being emitted from the site but to focus on the ‘*major*’ sources when identifying relevant pollutants as part of the risk assessment process.

The air pollutants emitted from the site are likely to be those included for monitoring or setting of limits on your licence. They may also include the pollutants identified for monitoring under the load-based licensing (LBL) monitoring requirements.

Once major sources of emissions have been identified, select the pollutants emitted from those major sources and then click on the arrow button to add it to the list. The tool will record the highest risk score for the range of pollutants selected.

Note: The pollutants have been identified and applied with weightings according to their risk to the environment and human health. The list of pollutants comprises the EPA’s priority pollutants, and as such, does not include all pollutants.

2.1.3 Contribution to regional air quality in GMR (NO_x, VOCs)

Question 5: What is the premise's contribution to photochemical smog?

This question relates to a premise's ozone-forming potential within the greater metropolitan region (GMR), i.e. Sydney, Illawarra and Newcastle. Every four years the EPA collects data from licensed premises within the GMR to prioritise facilities on substance emissions, substance potency or toxicity, source release height and proximity to sensitive receivers. From this data a prioritisation list is developed to rank the potential of each site on its ozone generation capability. The most recent data collected and analysed was in 2008.

Check the facility prioritisation category

If your facility is located in the GMR then you should contact the EPA at the following address: riskbased.licensing@epa.nsw.gov.au to identify the designation as either a *low*, *intermediate* or *high* priority.

If you are not located in the GMR then select *no air emissions or not in GMR*.

Note: Further information on ozone-forming potential can be found at the EPA's air emissions inventory for the GMR in NSW: www.epa.nsw.gov.au/air/airinventory.htm

2.1.4 Potential for release of odours from day to day activities

Question 6: Are there any odorous activities?

Assess your premises for the potential to generate odours from day to day activities. Generally handling human or animal waste/products and some chemicals (e.g. VOCs) has the potential to generate odours.

Examples include:

- handling, use or storage of human or animal waste/products
- VOCs (paints, varnishes, inks)
- effluent irrigation
- sludge, anaerobic or wastewater ponds
- leachate management and disposal
- chemical storage facilities, especially petroleum products.

Question 7: Are there any offensive odour issues or verified odour complaints in the past 12 months?

Odour complaints are an indicator that there is a problem with odours at the premises. It is important that odour complaints have been verified as resulting from your particular premises.

Odour complaints may be verified by:

- EPA officer/s
- the licensee
- local council officer/s.

Note: Offensive odour is defined under the POEO Act:

Offensive odour means an odour:

- (a) that, by reason of its strength, nature, duration, character or quality, or the time at which it is emitted, or any other circumstances*
- (i) is harmful to (or is likely to be harmful to) a person who is outside the premises from which it is emitted, or*

(ii) *interferes unreasonably with (or is likely to interfere unreasonably with) the comfort or repose of a person who is outside the premises from which it is emitted, or*

(b) *that is of a strength, nature, duration, character or quality prescribed by the regulations or that is emitted at a time, or in other circumstances, prescribed by the regulations.*

Question 8: Are there any odour controls or management measures at the premises?

Controls can be in the form of equipment or management practices to minimise odour emissions. Examples:

- flares
- activated carbon beds
- afterburners
- air scrubbers
- scheduling of irrigation activities according to wind direction.

Question 9: How well are these controls or management measures operated and maintained?

Select either *Good*, *Fair* or *Attention required* from the drop down. Refer to Table 2.1 in this section to help determine which category your controls or management measures fit into to.

2.1.5 Proximity to sensitive receivers

Question 10: How far away is the nearest sensitive receiver?

Sensitive receivers are typically residences, schools, childcare centres, aged care facilities or hospitals. Sensitive receivers can also include the neighbouring businesses.

The *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* document defines sensitive receiver as a location where people are likely to work or reside; this includes residential dwellings, schools, hospitals, offices or public recreational areas.

If the location of any nearest sensitive receivers are unknown you may wish to look at an aerial photograph of the site (e.g. Google maps).

Notes:

- Consider hours of operation. Neighbouring businesses may be at greater risk of air impacts during business hours.
- Where possible, proximity should be measured from the main impact source on site to the sensitive receiver; this is particularly important for large and/ or complex sites. For measuring distance between a fugitive source and sensitive receivers, proximity is measured from the premise boundary closest to the sensitive receiver. The approach you take must be documented.

Once the distance has been established select the appropriate range from the drop down menu:

- 0–100 m
- 101–250 m
- 251–500 m
- 501–1000 m, or
- >1000 m.

2.1.6 Sensitivity of local air quality

Question 11: What is the density of human occupation within a 1 km radius?

This question helps determine the sensitivity of local air quality. When assessing this, it is necessary to consider the population density and if there are any particularly sensitive receivers nearby.

You are required to identify the population density within a 1 km radius by selecting one of the following:

- *High density* is typically flats, units or apartments
- *Medium density* is typically semi-detached, townhouses, terraces and industrial estates
- *Low density* is typically single dwellings, houses
- *Rural* is typically an agricultural area (excluding intensive agricultural activities), recreational area, wilderness area or national park.

If the population density is a mix between two different densities then the greater density should be selected. For example, if a premises is a mix between *Medium* and *Low* density then *Medium* density should be selected.

Question 12: Are there any of the following sensitive receivers within a 500 m radius?

Consider if there are any highly sensitive facilities within 500 m of the facility (i.e. schools, childcare centres, hospitals and aged care facilities).

2.1.7 Sensitivity of regional air quality

Question 13: What LGA is the activity located in?

This section of the risk tool identifies the LGAs that are sensitive to photochemical smog.

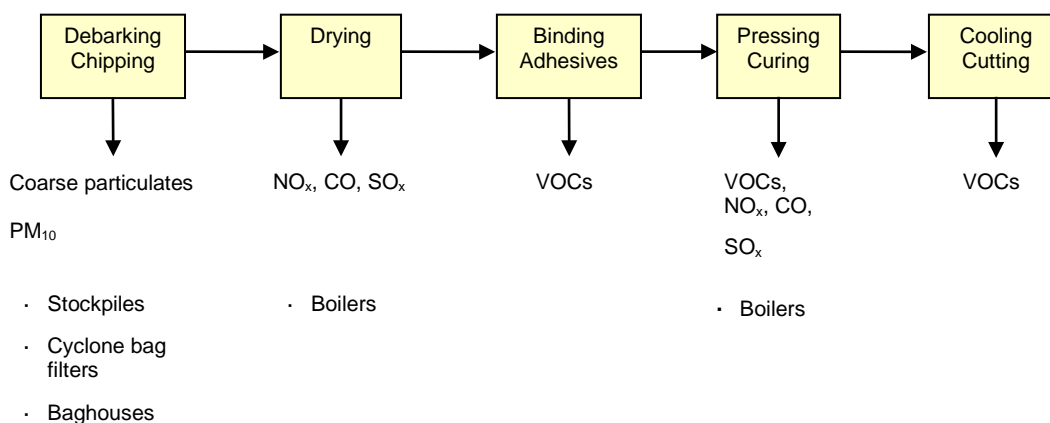
LGAs' sensitivity to photochemical smog is categorised in the Protection of the Environment Operations (General) Regulation 2009, Schedule 2 – Load based fee calculation, Pollutant critical zone weightings. If your LGA is not included in the drop down menu then click on '*All other LGAs in NSW*'.

2.1.8 Worked examples – assessment of air impacts

1. A site processes timber to make chip board

The site is licensed as a '*wood or timber milling works*' and has two licensed discharge points for air emissions from the dryers. The licensee is required to monitor particulate matter from the discharge points. The emissions have limits for opacity and particulate matter.

ACTIVITY



POEO Risk-based licensing: Draft Guidance on using the risk assessment tool

Pollutant / emission	Possible sources	Controls	Major or minor source	Comments
Coarse particulates	Stockpiles	No controls	Major	Fugitive emissions, source of Environment Line reports, covered in licence condition
PM ₁₀	Cyclone bag filters Baghouses	Well understood controls	Major	Point emission, performance fairly reliable, covered in licence condition
VOCs	Pressing, curing and cooling	No controls	Minor	Fugitive emission
NO _x	Boilers	No controls to minimise NO _x	Minor	Not in GMR hence reduction of NO _x not crucial
SO _x	Boilers	No controls	Minor	
CO	Boilers	No controls	Minor	

2. Multiple air discharge points: Open cut coal mine operation

A site mines and processes low ash, medium sulphur black coal suitable for electricity generation, cement manufacture and industrial purposes, using open cut mining methods. The site is licensed for 'mining for coal' and 'coal works'. It has no licensed discharge points for air emissions, however there are many sources of fugitive emissions.

The licensee is required to monitor dust (depositional dust, TSP – total suspended solids and PM₁₀ – particulate matter 10 µg) using a network of dust monitoring equipment at locations where dust depositional levels are representative of the level experienced at residential properties, or other sensitive receivers, resulting from operation of the mine. The licensee is also required to undertake weather monitoring.

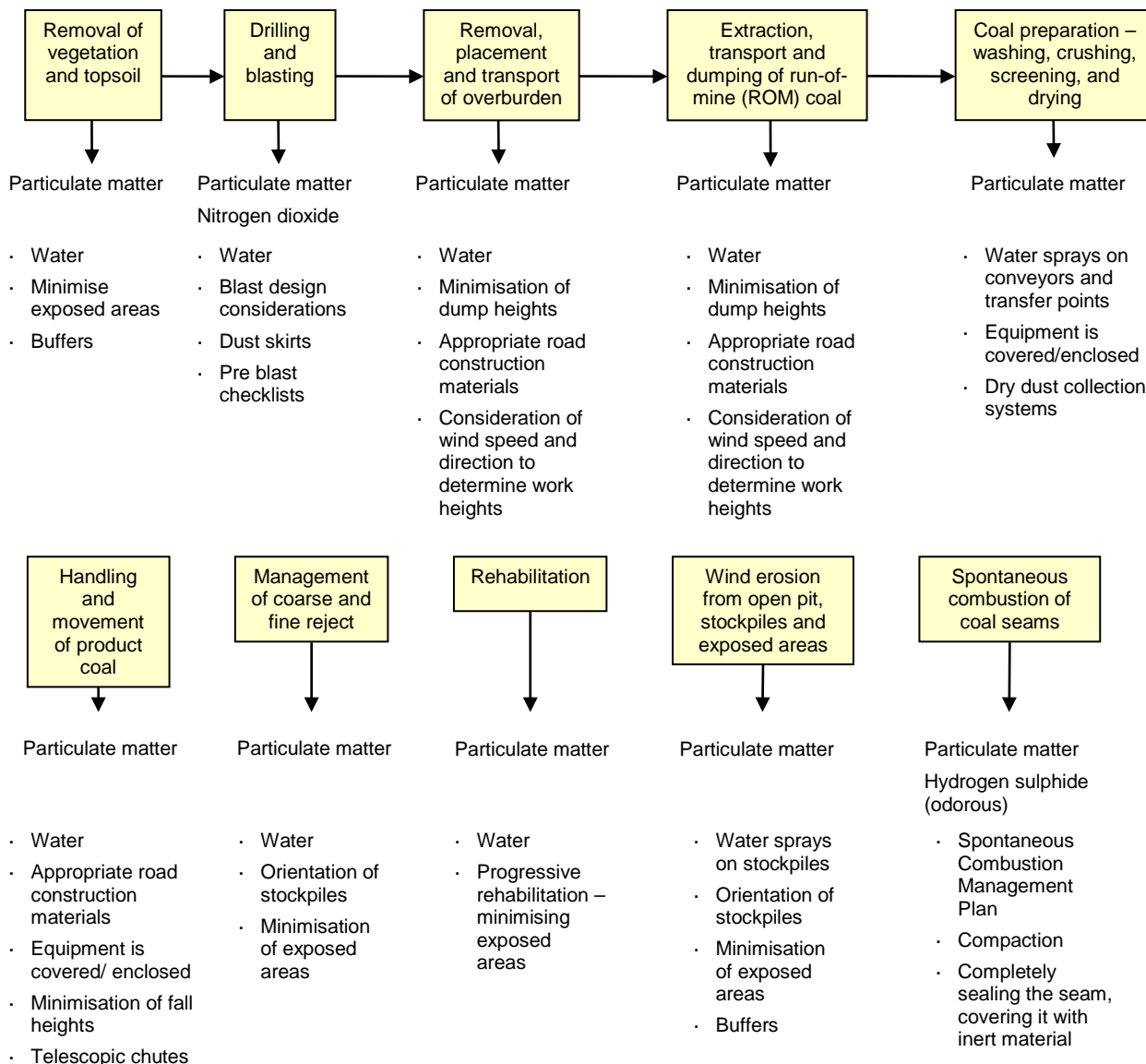
There are no emission limits on the licence, however there are limits imposed by the development approval: dust fallout (4 mg/m²/month), suspended dust (TSP – 90 µg/m³/annum) and suspended dust (PM₁₀ – 30 µg/m³/annum). There has been no exceedence of these limits for the past year.

Due to the nature of the coal seams mined, spontaneous combustion is an issue at this site resulting in odorous gases (hydrogen sulphide). Over the last 12 months, there have been a couple of Environment Line reports regarding odour impacting on neighbouring residences.

A site inspection reveals that the licensee has an Air Quality Management Plan and a Spontaneous Combustion Management Plan to assist in the control of air emissions and odour. The controls observed appeared to be effective; however, some excessive dust was observed from trucks transporting overburden on haul roads within the premises.

POEO Risk-based licensing: Draft Guidance on using the risk assessment tool

ACTIVITY



Pollutant/ emission	Possible sources	Controls	Major or minor source	Comments
PM ₁₀ PM _{2.5}	Exposed areas	Standard technology/ controls used	Major	Fugitive emissions – reliable performance
PM ₁₀ PM _{2.5}	Movement of ROM coal and overburden	Standard technology/ controls used	Major	Fugitive emissions –transport by trucks on haul roads is the main component. Some excessive dust observed during inspection
PM ₁₀ PM _{2.5}	Processing and movement of product coal	Standard technology/ controls used	Minor	Fugitive emissions – regular maintenance of equipment and reliable performance
PM ₁₀ PM _{2.5} Hydrogen sulphide	Spontaneous combustion	Standard technology/ controls used	Major	Fugitive emissions –comprehensive management plan implemented

2.2 Assessment of water impacts

This section provides guidance on how to assess water impacts from licensed premises using the risk assessment tool. The assessment focuses on impacts from day to day activities only ('typical operations').

2.2.1 Potential for discharges to waters (point and diffuse sources)

Question 1: Does the activity have any direct discharges to waters?

The definition of waters is defined in the POEO Act 1997:

Waters means the whole or any part of:

- Any river, stream, lake, lagoon, swamp, wetlands, unconfined surface water, natural or artificial watercourse, dam or tidal waters (including the sea), or
- Any water stored in artificial works, any water in water mains, water pipes or water channels, or any underground or artesian water.

The following discharges can be considered:

- licensed wastewater discharges
- other discharges that may not appear on the licence
- stormwater discharges associated with construction or operational activities (not including irrigation activities) are considered direct discharges to waters.

Question 2: Are there any pollution controls prior to discharge to waters?

There are a wide range of pollution controls available. A few examples are given below:

- primary, secondary, tertiary wastewater treatment
- oil and water separators
- erosion and sediment controls
- sedimentation basins
- dissolved air flotation (DAF) tanks
- chemical dosing (e.g. for removing phosphorous).

Question 3: How well are these controls and management measures operated and maintained?

Step 1: Determine the highest risk component or activity

The highest risk component or activity on the site will drive the decision making process when determining the source of emission and the associated controls.

Many sites will have multiple emission sources and subsequently a variety of control techniques with varying effectiveness. In such cases, you will need to consider the assessment across the entire site, keeping in mind the range and complexity of the emission sources and focusing on the highest risk sources.

Some tips for determining the highest risk source:

1. Look at all the emission sources and identify the types of pollutants and load being emitted, and consider the emission source with the most toxic emissions.
2. Look at all the emission sources and identify where there are minimal/ poor/ no controls in place, and consider the emission source with the least effective controls relative to the toxicity of the emissions.

Step 2: Identify controls for the highest risk component or activity

The following issues should be considered:

- whether proven and established controls are used
- age of the premises (newer premises may have more reliable controls)
- sound knowledge of the pollution controls and their maintenance systems
- documented procedures for operation and maintenance
- thorough and regular maintenance schedules
- allocation of staff to demonstrate accountability
- performance monitoring or alarm systems used to alert operators to problems.

Step 3: Select the manner in which controls are operated and maintained

Select the following options from the drop down menu:

- *Good*
- *Fair, or*
- *Attention required.*

The following guide is provided to assist you when deciding which category to choose.

Table 3.1: Definitions of *Good, Fair and Attention required.*

Good
<ul style="list-style-type: none"> · Effective pollution controls and/ or mitigation measures are in place, addressing all major issues, and · Equipment is well operated and maintained with evident routine maintenance schedule in place, and · Effective and reliable operational programs are in place as a pollution mitigation strategy <p><i>NOTE: All of the above attributes must apply for this category to be allocated.</i></p>
Fair
<ul style="list-style-type: none"> · Effective pollution controls and/ or mitigation measures are in place but they only address some issues, not all major issues · Pollution control equipment has a satisfactory maintenance schedule · Operational programs are in place as a pollution mitigation strategy but their effectiveness is not wholly reliable <p><i>NOTE: One or more of these attributes can apply for this category to be applicable.</i></p>
Attention required
<ul style="list-style-type: none"> · There are no effective pollution controls and/ or mitigation measures to address major issues · There is no routine or reliable maintenance schedule · Operational programs are ineffective at mitigating emissions <p><i>NOTE: One or more of these attributes can apply for this category to be applicable.</i></p>

Question 4: Does the activity have any diffuse discharges to waters?

Some sites will have diffuse discharges as part of their operation. Typically, diffuse discharges to waters occur through stormwater runoffs on construction sites, or through irrigation activities which also have the potential to indirectly discharge to waters following a rainfall event or as a result of poor operational practices.

This question captures potential discharges associated with runoff from irrigation activities or stormwater runoff and discharges associated with construction activities (e.g. sedimentation basins, etc.). It does not capture potentially contaminated runoff from industrial premises (e.g. first flush systems, runoff from hardstand areas). These are minor discharges and are not related to the day to day operations of the activity.

Question 5: Are there any controls to prevent or treat diffuse discharge to waters?

Identify any pollution controls. There is a wide range of pollution controls (a few examples are given below):

- primary, secondary, tertiary wastewater treatment
- oil and water separators
- erosion and sediment controls
- sedimentation basins
- dissolved air flotation (DAF) tanks
- chemical dosing (e.g. for removing phosphorous).

In particular, when considering management and controls for irrigation activities please refer to the EPA's *Environmental guidelines: Use of effluent by irrigation* (DEC 2004) available at: www.environment.nsw.gov.au/resources/water/effguide.pdf.

Question 6: How well are the controls and management measures operated and maintained? (diffuse discharges)

For complex sites, there are likely to be multiple controls in place to prevent or treat diffuse discharges. For this risk assessment, you are required to identify and assess the highest risk component or activity.

For further guidance on assessment methodology, please refer to the guidance for Question 3 in this section.

2.2.2 Hazard level of discharges to waters (point and diffuse sources)

Question 7: Select the pollutants discharged from the activity – focus on major emissions only.

You are required to identify pollutants that are discharged from your site into water.

The aim of this question is not to identify **all** pollutants being emitted from the site, but to focus on the emissions having the greatest impact on the environment. Scale and load are to be considered when identifying relevant pollutants as part of the risk assessment process.

Step 1: Determine major sources of emissions to waters (point and diffuse)

Defining a major source includes focusing on pollutants that have a major impact on the environment or human health and looking at controls and management measures for the sources.

Step 2: Identify major pollutants

To determine what pollutants/ emissions should be identified as a major source, the following should be considered:

POEO Risk-based licensing: Draft Guidance on using the risk assessment tool

- Are there emissions that are more significant and have a greater load?
- Are there any emissions that are problematic (they may not be major emissions, i.e. with the highest load) and need to be addressed/mitigated?

Information on the types of water discharges emitted from the site can be obtained from a variety of sources:

- water monitoring/ limit conditions on the licence
- load-based licensing (LBL) data.

Multiple pollutants can be selected. The tool will record the highest risk score for the range of pollutants selected.

2.2.3 Proximity to waters

Question 8: How far away is the nearest surface water?

For the purpose of completing this section, surface water includes:

- natural rivers, creeks, lagoons, wetlands and lakes (whether permanent, temporary, ephemeral or seasonal), estuarine and marine waters
- artificial structures such as reservoirs and lakes, where these have community value for aquatic ecosystems or for human uses.

It does **not** include groundwaters or artificial works that have no environmental value, including:

- enclosed or piped waters (e.g. reticulated sewers), or
- operational works that occur within the site of an activity and have no community value for aquatic ecosystems or human uses.

If the site directly discharges to surface waters, it represents the highest risk to waters and the smallest distance category should be selected when answering this question (i.e. 0–10 m).

If there are no direct discharges to surface waters, you are required to identify the nearest surface water to take into consideration the potential for irrigation or stormwater runoff. In this instance, the proximity to surface waters is measured from the boundary of the irrigation area, or the site closest to surface waters (i.e. the point of highest risk).

There are a number of options available to assess how far away surface waters are from a site:

- look at an aerial photograph (Google maps)
- look at a street map of the site, surface waters are usually identified.

Question 9: Nature of the pathway

The nature of the pathway surrounding the premises to the nearest watercourse needs to be identified. For example, if the pathway is well vegetated, the discharge to waters will not be as high a risk as a pathway which is not well vegetated. This assessment takes into consideration the surrounding environment.

2.2.4 Sensitivity of receiving waters

Question 10: What is the receiving water type(s)? (more than 1 receiving water type can be selected)

The sensitivity of the receiving waters is highly dependent on the type of waters, the state of the catchment and the pollutants discharged. This section identifies the sensitivity of the

receiving environment characterised by a particular pollutant. For example, inland rivers are highly sensitive to discharges of phosphorous, while open oceans are not as sensitive.

For large sites discharges may occur to a number of receiving water types that have varying levels of sensitivity. Multiple receiving water types can be picked for a pollutant:

- Open Ocean
- Shoreline
- Major Estuaries
- Inland Rivers
- Groundwater.

A list of the pollutants selected at Question 7 will appear at Question 10. You are required to select the relevant receiving water type for each pollutant.

The overall risk score will be based on the highest score recorded across the variety of receiving water types and pollutants selected. If the site discharges to a number of receiving water types, an additional score is added to reflect the increase in complexity and risk of the discharge.

Question 11: Are any of the receiving water types a potable water supply?

To assist in identifying whether the receiving water type is a potable water supply consider the *NSW Water Quality Objectives* (WQOs). The WQOs are agreed environmental values and long-term goals for the surface waters of NSW. The WQOs generally apply to all licensed off-take points for town water supply and to specific sections of rivers that contribute to drinking water storages or immediately upstream of town water supply off-take points and that the objectives also apply to sub-catchments or groundwaters used for town water supplies.

Note: It is important to consider the nature of discharges (e.g. types of pollutants, point source or diffuse, volume and frequency of discharge, and river flow/dilution) and areas formally protected or recognised as contributing to the drinking water source.

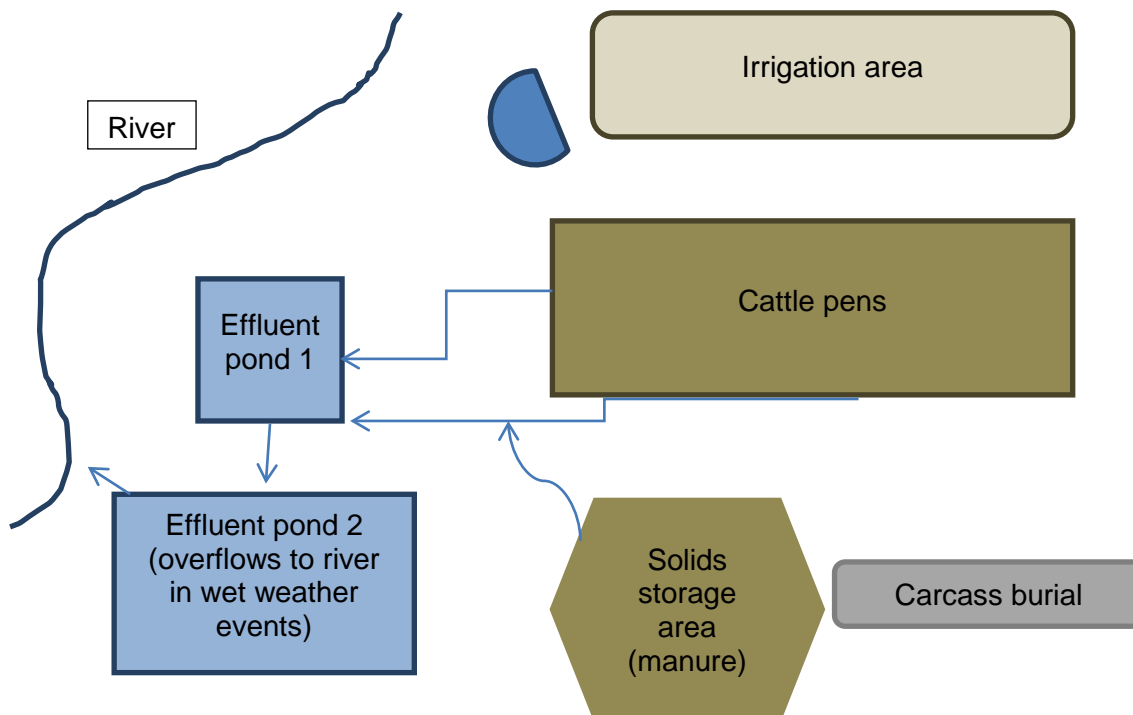
2.2.5 Worked example – assessment of water impacts

Cattle feedlot

A licensed feedlot accommodates 10,000 head of cattle at any one time. Effluent holding ponds collect contaminated stormwater from the site. Effluent is irrigated on site and crops are grown occasionally.

- There are no continuous direct discharges to waters, however there is an overflow point from the effluent ponds to the river for monitoring if a discharge occurs (i.e. during wet weather events).
- There is potential for diffuse discharges to waters (irrigation area, waste water drains, effluent ponds, carcass burial).
- Contaminated stormwater from the pens and manure storage areas is directed to effluent ponds.
- There is potential for groundwater pollution from the effluent ponds if the impermeability of the pond is not sufficient.

Figure 1: Site layout



Pollutants: Nutrients, biochemical oxygen demand (BOD), pH, total suspended solids (TSS)/total dissolved solids (TDS), salts, bacteria and pathogens.

Activity	Controls	Major or minor source	How well controls are operated and maintained
Manure (solids) storage area and cattle pens	<ul style="list-style-type: none"> Pen base and storage area is compacted to prevent infiltration Effluent drains to effluent ponds 	Minor	Good – compaction of base appropriate and drainage appears to capture all runoff
Effluent ponds	<ul style="list-style-type: none"> Impermeable high density PVC liner on pond base and wall Sufficient storage capacity Desludging of effluent ponds occurs once capacity has been reduced by 20% Containment measures downslope of ponds to help prevent effluent overflows reaching the river during wet weather events 	Minor	Good – ponds constructed competently. Management plans in place to maintain sufficient capacity within ponds
Irrigation area	<ul style="list-style-type: none"> Drains to holding pond Irrigation activities continue during wet weather events Inadequate harvesting to uptake nutrients No soil monitoring undertaken 	Major	Fair to Attention required. Crops unreliable for uptake of nutrients. No management practices in place to cease irrigation during wet weather. Soil monitoring required to determine uptake of nutrients
Carcass disposal area	<ul style="list-style-type: none"> Pits not lined – potential groundwater pollution Pits full of rain water on inspection 	Major	Attention required

2.3 Assessment of noise impacts

This section provides guidance on how to complete the site specific risks posed by noise in the risk assessment tool. Many questions in this section will activate depending on the answers to prior questions.

2.3.1 Potential for noise nuisance from activities on site

Question 1: Are any activities conducted outside of the following times?

In this assessment, operating outside of standard hours is given greater focus and therefore a higher risk score. This question assesses the noise impact that your particular activity is having on the surrounding environment and the community during sensitive hours. It is not about checking compliance against the development consent or licence condition.

Standard operating hours:

7 am – 6 pm (Monday to Saturday)

8 am – 6 pm (Sunday and public holidays)

Standard construction hours:

7 am – 6 pm (Monday to Friday)

8 am – 1 pm (Saturday)

No work on Sunday

Questions 2: Are there any activities, machinery, plant or vehicles on site which are noisy?

Examples of noisy activities are:

- blasting
- vehicle movements, trucks and locomotives
- vehicle reverse beeping sensors
- pumps, transformers and machinery
- construction activities – jack hammering, impact piling, tunnelling.

Consideration should be given to both mobile and stationary sources on the site. Mobile sources are vehicles, locomotives, etc. Unloading/loading activities can generate a lot of noise nuisance.

Question 3: Are there any noise mitigation measures?

Examples of noise mitigation measures include:

- Control at the source e.g. enclosed building, barriers
- Controlling noise in transmission e.g. barriers (natural or built), noise buffers
- Control at the receiver e.g. insulation, double glazed windows
- Consultation e.g. letterbox drop, community consultation, information hotline

Question 4: Are there any noise issues or any verified noise complaints in the past 12 months?

It is important that noise issues or complaints are verified as resulting from the particular licensed premises. Noise complaints may be verified by:

- EPA officers
- the licensee or
- local council officers.

Question 5: Are there multiple verified noise complaints by different complainants?
(Consider last 12 months only)

If there are noise complaints, you will need to consider the following:

- Number of complaints.
- Do the complaints occur regularly or intermittently over the year?
- Number of complainants – is there one regular complainant or multiple complainants?

2.3.2 Nuisance level of noise from activities

Question 6: What is the noise level at the boundary nearest to sensitive receivers?

Step 1: Identify the nearest sensitive receiver

This question is designed to assess the nuisance level of noise from activities. To assess this, you will need to have an understanding of the area surrounding the site and be able to identify the nearest sensitive receivers. The noise assessment must be undertaken at the boundary of the nearest sensitive receiver.

Sensitive receivers are typically residences, schools, childcare centres, aged care facilities or hospitals. However, the nearest sensitive receiver can be a neighbouring business.

Sensitive receivers can also be identified by:

- reviewing the environmental impact statement (EIS) and identifying the nearest sensitive receivers to the site
- looking at a street map or aerial photograph of the site (e.g. Google maps).

Step 2: Assess the dominance of the noise from activities at the nearest sensitive receiver

The dominance of the site's noise will need to be compared to background noise levels at the nearest sensitive receiver. The surrounding traffic noise will give you an indication of the dominance of the 'background noise' and whether this will mask noise from the site.

An assessment needs to be made whether the noise from activities at the sensitive receiver is loud in absolute terms, or relative to other noises in the area.

If you cannot hear the activity from the licensed premises then you should select *activity is relatively quiet to inaudible* from the drop down menu.

If the activity can be heard above all other noise at the boundary of the nearest sensitive receiver you must pick *activity is the dominant noise*.

If it is not clear whether the activity is audible or the dominant source the middle category should be selected, i.e. *activity is audible but not dominant*.

Question 7: Is the dominant noise intermittent or steady?

You will need to have an understanding of the noise characteristics typical for your activities, plants and/or equipment.

Some examples of intermittent and steady noise sources:

- heating, ventilating and air conditioning (HVAC) equipment (steady, note however that air conditioning can cycle on and off making it effectively intermittent)
- rotating machinery (steady or intermittent)
- impacting mechanical sources (intermittent)
- other mechanical equipment and machinery such as conveyors (steady or intermittent)
- air compressors that cycle on and off (intermittent)
- mobile sources confined to a particular location, such as draglines and haul trucks (intermittent).

A noise source may exhibit a range of characteristics; however, for the purposes of the risk assessment you are only required to determine if the noise characteristic is steady or intermittent.

2.3.3 Proximity to sensitive receivers

The proximity to sensitive receivers is auto-populated from the answer to Question 10 of the Air sheet.

2.3.4 Sensitivity of noise receivers

Question 8: What is the surrounding environment?

This question will activate if sensitive noise receivers are located within 1 km of the boundary of the premises (this information is taken from the answer to Question 10 of the Air sheet). The EPA considers this to be a sound approach as sensitive receivers are similar for both odour and noise issues.

You are required to consider the surrounding environment within a 1 km radius (the nearest receivers affected by noisy activities are likely to be located within a 1 km radius).

The population density, traffic movements, type of roads and presence of mass transportation in the surrounding environment will all influence the background noise at the receiver. This assessment may be based on information obtained from spatial data on PALMS, aerial photographs (e.g. Google maps), street maps or a survey of the local area.

The most appropriate environment definition provided below must be selected. If the surrounds have the characteristics of two different types of environments then the definition that characterises the environment most sensitive to noise should be selected. For example, if the surrounding environment has the characteristics of both *Rural* and *Suburban*, *Rural* should be selected.

Definitions are provided¹:

<i>Rural</i>
<p>An area with an acoustical environment that is dominated by natural sounds, having little or no road traffic. Such areas may include:</p> <ul style="list-style-type: none"> • an agricultural area, except those used for intensive agricultural activities • a rural recreational area such as resort areas • a wilderness area or national park • an area generally characterised by low background noise levels (except in the immediate vicinity of industrial noise sources). <p>This area may be located in either a rural, rural residential, environment protection zone or scenic protection zone as defined on a council zoning map (Local Environmental Plan (LEP) or other planning instrument).</p>
<i>Suburban</i>
<p>An area that has local traffic with characteristically intermittent traffic flows or with some limited commerce or industry. This area often has the following characteristics:</p> <ul style="list-style-type: none"> • decreasing noise levels in the evening period (18.00–22.00 h) and/or • evening ambient noise levels defined by the natural environment and infrequent human activity. <p>This area may be located in either a rural, rural residential or residential zone, as defined on an LEP or other planning instrument.</p>

¹ NSW Industrial Noise Policy pp. 17–18

Urban
<p>An area with an acoustical environment that:</p> <ul style="list-style-type: none"> · is dominated by ‘urban hum’ or industrial source noise · has through traffic with characteristically heavy and continuous traffic flows during peak periods · is near commercial districts or industrial districts · has any combination of the above. <p>‘Urban hum’ means the aggregate sound of many unidentifiable, mostly traffic-related sound sources. This area may be located in either a rural, rural residential or residential zone as defined in an LEP or other planning instrument, and also includes mixed land-use zones such as mixed commercial and residential uses.</p>
Industrial
<p>An area defined as an industrial zone on an LEP. For isolated residences within an industrial zone the industrial amenity criteria would usually apply.</p>

Question 9: Is the nearest sensitive receiver beyond a 3 km radius from the premises?

This question will apply for sensitive receivers located beyond a 1 km radius of the licensed premises (Question 10 on the Air worksheet) if:

- operating outside of the standard operating hours (yes was selected at Question 1), and
- potential for noise nuisance from activities on site (yes was selected at Question 2).

If you answer as outlined above, you will need to identify if there are any sensitive receivers within a 3 km radius of the premises.

In rural settings noise is likely to travel further than other settings if a premises is operating outside of standard operating hours. If the nearest sensitive receiver is more than 3 km from the premises a lower risk will apply.

2.4 Assessment of impacts from incidents and/or unplanned events

This section comprises a series of questions in relation to the licensee’s pollution incident response management plan (PIRMP). Part 5.7A of the POEO Act requires all licensees to prepare, keep, test and implement a PIRMP. The aim of this assessment is to confirm that the key requirements have been addressed relating to preparing and implementing the plans.

For further information on PIRMP guidelines, refer to the document: *Environmental guidelines: Preparation of pollution incident response management plans* at www.epa.nsw.gov.au/resources/legislation/201200227egpreppirmp.pdf.

2.4.1 Incident potential

Question 1: Does the licensee have a Pollution Incident Response Management Plan (PIRMP)

Has a PIRMP been prepared in accordance with Part 5.7A of the POEO Act?

Question 2: Does the PIRMP address potential incidents associated with any hazardous materials or dangerous goods stored, used or handled on site?

Does the plan address potential incidents associated with hazardous materials or dangerous goods stored, used or handled on site?

Question 3: Does the PIRMP also address potential incidents associated with other materials or discharges? (e.g. dust emissions from stockpiles, contaminated stormwater runoff, etc.)

The EPA recently undertook a comprehensive audit program on a selection of licensees, focusing on the adequacy of their PIRMPs. The audits found that most PIRMPs addressed issues associated with hazardous materials, however did not address the less obvious potential incidents (such as dust emissions from stockpiles and contaminated stormwater runoff).

Question 4: Has the PIRMP been tested or reviewed as per the guidelines? (i.e. at least every 12 months or within 1 month of any pollution incident)

2.4.2 Proximity to waters

The risk score for this section is auto-populated with the answers selected for Question 8 of the Water sheet: *Proximity to waters*.

Question 5: Is the site situated on a floodplain?

Most licensees would be aware of their site being located on a floodplain. In addition to this, local councils are responsible for planning and managing flood studies (i.e. 1 in 100 year flood events). In accordance with the *Environmental Planning and Assessment Act 1979*, section 149 Planning Certificates contains information on how a property may be used and the restrictions on development, including flood information of the property. It is also noted that some councils have published flood studies on their websites which you can refer to.

2.4.3 Proximity to sensitive groundwater

Question 6: Are there any chemicals/ materials stored on or in land? (e.g. above ground or underground storage tanks)

Impact to groundwater is specifically considered in this worksheet as it is not normally associated with day to day operations. Impact to groundwater is generally associated with chronic, long-term leaks and spills; hence the risk tool asks the question about materials stored on or below ground.

Question 7: Is the activity located within a groundwater sensitive zone?

If you require assistance with answering this question you can refer to the maps generated as part of the EPA's Underground Petroleum Storage Systems program. The link is provided at this question, however the maps can be found at: www.epa.nsw.gov.au/clm/listUPSSexemptionmaps.htm.

The groundwater sensitive zones are shaded in green in the maps.

You may also wish to use other local sources of information to determine if the activity is located in a groundwater sensitive zone.

2.4.4 Proximity to sensitive receivers

The information for proximity to sensitive receivers (i.e. schools, childcare centres) is taken directly taken from the Air sheet (Question 10).

3 Environment management category

To determine the environmental management category (EMC) a series of questions are required to be answered relating to:

- enforcement history
- regulatory actions and tools, and
- operator systems.

For further information on the environmental management category please refer to the *Environmental Management Calculation Protocol* which can be found at:

www.epa.nsw.gov.au/licensing/licencereq.htm.

The protocol sets out the matters and methods the EPA will use to determine the EMC.

4 Complex and large geographical sites

4.1 What to do for complex sites

A key functionality of the risk assessment process is the requirement to identify the ‘major’ emission source posing the highest risk to the environment for a number of assessment questions. Where there are multiple emission sources, it may be challenging to make a decision on which is the ‘major’ or ‘riskiest’ source.

The suggested general approach is to choose the source posing the highest risk outcome and justification for this decision should be recorded.

4.1.1 Multiple emission sources

Many sites being assessed will have multiple emission sources and subsequently a variety of treatment techniques with varying effectiveness. The assessment is required to be considered across the entire site (keeping in mind the range and complexity of the emission points) and focus on the higher risk activities to make a judgement on a major source.

The ‘riskiest’ component or activity on the site should be the basis of your decision making process. The highest risk source can be identified by considering the following factors:

- toxicity of the pollutant
- load of the pollutant
- receiving environment
- licensee is unaware of or has insufficient knowledge about the issue
- lack of effective controls
- lack of monitoring the effectiveness of any controls.

As the operator of the site you are likely to know which parts of the site represent the highest risk from air or water emissions. This will enable you to focus the assessment process on this activity. This will drive decision making in relation to questions regarding the adequacy of pollution controls and the proximity to sensitive receivers. For example, the distance to closest surface water or sensitive receiver can be measured from the point on the boundary of the premise that is closest to the identified ‘major’ or ‘riskiest’ source.

Worked examples of sites with complex air and water emissions can be found in Sections 2.1.8 (Air) and 2.2.5 (Water).

Licensees should consider documenting decision making processes, especially for making a decision identifying the ‘riskiest’ component or activity on a site. This documentation should outline the component of the facility they have based their assessment on and why. This information will be important if comparisons are made with risk assessments made by the EPA.

4.2 Large geographical sites

This section specifically addresses issues associated with sewage treatment systems (STs) and with road construction projects; however, aspects of the approach can be applied to other licensed activities covering a large geographical area and/or with multiple discrete operational sites.

4.2.1 Sewage treatment systems

Schedule 1 of the POEO Act specifically captures both the sewage treatment plant and reticulated sewer system in the licensing framework. Consequently, a holistic approach needs to be taken for the assessment and the entire system must be assessed in the risk tool. The risk tool should be applied to the area or point of the sewage system with the highest risk.

Recommended approaches include:

- In making a decision on the point or area of highest risk to apply the tool, both the plant and reticulation systems need to be considered as a possible source of sewer overflows.
- Sewer overflows associated with wet or dry weather conditions are considered wastewater discharges.
- Responses relating to emissions and process risks should focus on the plant facilities as the most likely source of pollution.
- The reticulation system should be considered as a potential source of both point source and diffuse pollution.
- Point source pollution should also be considered in respect to single event and long-term events.

While taking a holistic approach allows consideration of the system as it exists under the licence, it obviously does not allow the assessment to differentiate between the risks of separate functional areas or systems. In considering the recommended approach during testing it was apparent that the risk levels resulting from application of the tool are generally the same or similar regardless of whether the licence is considered as one system, divided into plant and reticulation systems, or divided into multiple individual plants and separate reticulation systems.

A worked example for some of the questions relating to a **large scale sewage treatment plant** is provided below.

4.2.2 Worked example – large scale sewage treatment plant

Includes only a sample of questions and answers from each assessment sheet in the risk tool.

AIR

1. Are there any air emissions?

Yes. Discharges to air occur from the cogeneration units and odour scrubbers. The activity includes a number of licensed discharge points which are listed below by EPA identification number.

3. How well are the controls and management measures operated and maintained?

Good. Regular maintenance is carried out on odour controls. Upgrades of this system have recently occurred and further modifications are planned.

6. Are there any odorous activities?

Yes. Numerous odour sources are related to this activity. Predominantly digester and biosolid related.

7. Are there any offensive odour issues or verified odour complaints (past 12 months)?

Yes. A number of complaints have been made. One of the complaints was verified by an EPA officer during the reporting period.

9. How well are these controls or management measures operated and maintained?

Fair. Operations are well maintained, however numerous odour complaints have been recorded.

10. How far away is the nearest sensitive receiver?

Primary school located within 500 m of centre of site.

WATER

1. Does the activity have any direct discharges to waters?

Yes. There are multiple discharges.

4. Does the activity have any diffuse discharges to waters?

Yes. The entire length of the reticulation system has the potential for leakage and diffuse discharges to water.

8. How far away is the nearest surface water?

The site directly discharges to surface waters, therefore represents the highest risk to waters. Minimum distance is selected (i.e. 0–100 m).

NOISE

2. Are there any activities, machinery, plant or vehicles on site which are noisy?

Yes. Cogeneration plant generates some noise, including one unit that can only be run in business hours.

4. Are there any noise issues, or any verified noise complaints (past 12 months)?

Yes. Noise complaints related to noisy cogeneration unit. Complaints verified in some instances by EPA officers during site inspections.

6. What is the noise level at the boundary nearest to sensitive receivers?

Activity is audible but not dominant.

INCIDENTS

7. Is the activity located within a groundwater sensitive zone?

The activity lies within multiple sensitive groundwater zones. EPA UPSS groundwater sensitive zone maps accessed.

Appendix A: Glossary

Day	The period from 0700 to 1800 h (Monday to Saturday) and 0800 to 1800 h (Sundays and Public Holidays) (NSW industrial noise policy)
Diffuse (discharge)	Diffuse discharges to waters occur through stormwater runoffs on construction sites, or through irrigation activities which also have the potential to indirectly discharge to waters following a rainfall event or as a result of poor operational practices
Direct (discharge)	A point source discharge into waters, e.g. pipe, outfall, etc. Direct discharge points are usually licensed (though not always) and defined in the POEO licence document
Evening	The period from 1800 to 2200 h (NSW industrial noise policy)
Floodplain	An area of land surrounding surface waters that stretches from the banks of its channel to the base of the enclosing valley walls, which experiences flooding during periods of high rain and discharge
Fugitive (emissions)	Uncontrolled releases as a result of handling, use or storage of materials, e.g. emissions from handling chemicals, wind-blown dust, emissions from doorways and openings, emissions from the transfer of chemicals
Groundwater	Water located beneath the earth's surface in soil pore spaces and in the fractures of rock formations
Hazardous	Considers the ignitability, corrosiveness, reactivity, and toxicity of a substance. If any of these factors are triggered when considering the nature of the substance it is considered hazardous
Indirect (discharge)	A discharge to land via irrigation. Proper operation and maintenance should prevent any discharges to waters however during rainfall periods or for poorly operated sites (e.g. where there is insufficient land area) wastewater may run off the land into nearby waters or seep into groundwater (esp. if the groundwater is located close to the surface)
Industrial (noise)	An area defined as an industrial zone on an LEP. For isolated residences within an industrial zone the industrial amenity criteria would usually apply
Inland river(s)	A natural watercourse, usually freshwater, flowing towards an ocean, a lake, a sea, or another river. In a few cases, a river simply flows into the ground or dries up completely before reaching another body of water
Intermittent (discharges)	Occur irregularly, e.g. odours associated with irrigation activities, dust emissions related to weather conditions, indirect discharges from irrigation areas during/following rainfall events, wet weather overflows, discharges associated with sediment and erosion controls, first flush systems, or any licensed discharge that occurs when a licensee nominates
Intermittent (noise)	Noise that occurs at irregular intervals or is characterised by significant fluctuations in volume
Major emissions	The typical/ common and expected emissions for a particular activity. Also considers emissions that are more significant and have a greater load (problematic emissions)
Major estuary	A body of water formed where freshwater from rivers and streams flows into the ocean, mixing with the seawater
Night time	The period from 2200 h to 0700 h
Noisy activity	Noisy activities include: <ul style="list-style-type: none"> • blasting • vehicle movements, trucks and locomotives • vehicle reverse beeping sensors • pumps, transformers and machinery • construction activities – jack hammering, impact piling, tunnelling

POEO Risk-based licensing: Draft Guidance on using the risk assessment tool

<p>Offensive odour</p>	<p>An odour that, by reason of its strength, nature, duration, character or quality, or the time at which it is emitted, or any other circumstances:</p> <ul style="list-style-type: none"> (i) is harmful to (or is likely to be harmful to) a person who is outside the premises from which it is emitted, or (ii) interferes unreasonably with (or is likely to interfere unreasonably with) the comfort or repose of a person who is outside the premises from which it is emitted. <p>An odour that is of a strength, nature, duration, character or quality prescribed by the regulations or that is emitted at a time, or in other circumstances, prescribed by the regulations</p>
<p>Open ocean</p>	<p>A body of saline water beyond the shoreline</p>
<p>Point (emissions)</p>	<p>Controlled releases from a stack or vent</p>
<p>Pollution controls</p>	<p>Infrastructure, equipment, management processes and plans in place to minimise the release of pollutants to air, water and land, or the minimisation of noise nuisance</p>
<p>Pollution incident</p>	<p>An incident or set of circumstances during, or as a consequence of which, there is or is likely to be a leak, spill or other escape or deposit of a substance, as a result of which pollution has occurred, is occurring or likely to occur. It includes an incident or set of circumstances in which a substance has been placed or disposed of on premises, but it does not include an incident or set of circumstances involving only the emission of any noise</p>
<p>Pollution incident response management plan (PIRMP)</p>	<p>Every licensee was required to have a pollution incident response management plan in place by 1 September 2012.</p> <p>The PIRMP will assist in risk scoring of ‘pollution from major incidents’ for activities undertaken at the premises. The following information contained in the plan should be referred to:</p> <p>Description of the main hazards to human health and/or the environment associated with the activity being undertaken at the premises, the likelihood of any such hazards occurring, including details of any circumstances or events that could, or would increase the likelihood</p> <p>Map identifying the surrounding area that is likely to be affected by a pollution incident, the location of potential pollutants on the premises, the location of any stormwater drains on the premises and the discharge locations of the stormwater drains to the nearest watercourse</p> <p>Identification of nearest sensitive environments, e.g. densely populated areas, schools, hospitals or water bodies, or neighbouring facilities that handle dangerous or explosive materials</p> <p>Pre-emptive actions taken to minimise or prevent any risk of harm to human health or the environment arising from the activities undertaken on the premises</p> <p>Inventory of potential pollutants kept on the premises or used in carrying out activities at the premises, including maximum quantity of any potential pollutant that is likely to be stored or held at the premises.</p> <p>The risk assessment will identify the major risks on site, it is these identified risks that should be used initially to determine their scores. The risks should be separated into air and water.</p>
<p>Population density</p>	<p>For the purposes of assessing the extent of potential harm on the human population, it is necessary to consider the population density:</p> <p>High density typically includes, high rises, flats, units or apartments in an urbanised setting near commercial centres with major roads (through traffic that is heavy and continuous in peak periods)</p> <p>Medium density typically includes semi-detached, townhouses, terraces, single dwellings (houses) with limited commerce and industry in a suburban setting with largely local roads</p>

POEO Risk-based licensing: Draft Guidance on using the risk assessment tool

Population density, continued	<p>Low density typically consists of single dwellings only with local roads with intermittent traffic flow</p> <p>Rural from the perspective of population density consists of single dwellings in a rural setting, large lot sizes, with roads with little or no traffic</p>
Receiver environment	The noise-sensitive land use at which noise from a development can be heard (NSW industrial noise policy)
Rural (noise)	<p>An area with an acoustical environment that is dominated by natural sounds, having little or no road traffic. Such areas may include:</p> <ul style="list-style-type: none"> • agricultural areas, except those used for intensive agricultural activities • rural recreational areas such as resort areas • wilderness areas or national parks • areas generally characterised by low background noise levels (except in the immediate vicinity of industrial noise sources). <p>Such an area may be located in either a rural, rural residential, environment protection zone or scenic protection zone as defined on a council zoning map (Local Environmental Plan (LEP) or other planning instrument)</p>
Sensitive receivers	Typically residences, schools, childcare centres, aged care facilities or hospitals; however, the nearest sensitive receiver can be a neighbouring business
Shoreline	Fringe of land at the edge of a large body of water, such as an ocean or sea
Steady (noise)	Constant or continuous
Suburban (noise)	<p>An area that has local traffic with characteristically intermittent traffic flows or with some limited commerce or industry. This area often has the following characteristics:</p> <ul style="list-style-type: none"> • decreasing noise levels in the evening period (1800 – 2200 h), and/or • evening ambient noise levels defined by the natural environment and infrequent human activity. <p>This area may be located in either a rural, rural residential or residential zone, as defined on an LEP or other planning instrument</p>
Surface waters	<p>A watercourse, lake or wetland, and any included water flowing over or lying on land after having precipitated naturally, or after having risen to the surface naturally from underground (groundwater).</p> <p>Types of surface water include:</p> <ul style="list-style-type: none"> • permanent (perennial) water bodies – waters are present all year round and are usually in the form of waterholes, lagoons, springs and swamps. Water table is maintained by the groundwater table • semi-permanent (ephemeral) water bodies – only hold water for part of the year • manmade water bodies – held in manmade structures such as river dams or rain-catching dams
Urban (noise)	<p>An area with an acoustical environment that:</p> <ul style="list-style-type: none"> • is dominated by ‘urban hum’ or industrial source noise • has through traffic with characteristically heavy and continuous traffic flows during peak periods • is near commercial districts or industrial districts • has any combination of the above. <p>‘Urban hum’ means the aggregate sound of many unidentifiable, mostly traffic-related sound sources. This area may be located in either a rural, rural residential or residential zone as defined on an LEP or other planning instrument, and also includes mixed land-use zones such as mixed commercial and residential uses</p>