EPA VICTORIA

Mining and quarrying – Guide to preventing harm to people and the environment

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Includes information about the new environmental laws

VICTORIA State Government

Acknowledgements

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We thank everyone for their contribution and commitment to keeping Victoria prosperous and liveable by preventing and reducing harm from pollution and waste.

Disclaimer

The information in this publication is for general guidance only. It does not constitute legal or other professional advice and should not be relied on as a statement of the law. Because it is intended only as a general guide, it may contain generalisations.

You should obtain professional advice if you have any specific concern. EPA has made every reasonable effort to provide current and accurate information, but does not make any guarantees regarding the accuracy, currency or completeness of the information.

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1. Introduction

Many things we do at work can cause pollution and create waste. This can put our health and our land, air and waterways at risk of harm.

New environment protection laws in Victoria will require all businesses to take proactive steps to manage risks of harm from pollution and waste.

As well as preventing harm and complying with the law, you will be keeping your community safe, lowering your environmental impact and potentially saving time and money.

What you consider to be minor pollution and waste also adds up – think about the combined impact of every business on our health and the environment.

The **mining and quarrying** life cycle can include pre-competitive geoscience, exploration, discovery, feasibility, development and land clearing, operational activities, decommissioning activities, site rehabilitation, closure and post-closure management of the mine.

Purpose of this guide

This guide outlines how to manage your risks, including examples of how this can be done using a simple four-step process.

This guide also provides an outline of your legal obligations, starting with the general environmental duty (GED), and what actions you can take to comply with the new laws.

To help you work out which of your activities have the potential to cause harm, this guide contains a list of common hazards in mining and quarrying[1], plus information about managing waste.

This guide doesn't tell you what specific controls to put in place – it links to guidance which has information about controls, and you can decide what best suits your circumstances. It also has a list of resources and where to go for more help.

Note: EPA is the primary regulator of water discharges from mining and quarrying industries. EPA is also responsible for advising on monitoring of air quality and noise emissions and has responsibilities when responding to referrals for mining from other government agencies. Earth Resources Regulation (ERR) is the primary regulator for mining and quarrying, delivering regulatory functions under the *Mineral Resources (Sustainable Development) Act 1990*.

This guide will be updated when any proposed environment protection regulations become available. You can find out more about the proposed regulations, and how they may be relevant to you, by reviewing the draft regulations on the Engage Victoria website.

[1] The *Mineral Resources (Sustainable Development) Act 1990* defines:
"mining" as extracting minerals from land for the purpose of producing them commercially, and includes processing and treating ore;
"quarry" as (a) a pit or excavation made in land below the natural surface for the purpose of extracting or removing stone if a primary purpose of the extraction or removal is the sale or commercial use of the stone or the use of the stone in construction, building, road or manufacturing works; or (b) any place or operation involving the removal of stone from land, declared by the Minister by notice published in the Government Gazette to be a quarry —
and includes access ways on private land and the works, machinery, plant, equipment, buildings and structures above or below ground used for or in connection with —

(c) making, enlarging or deepening the pit or excavation; or
(d) carrying on the operation; or
(e) the extraction or removal of stone from the pit or excavation; or
(f) the treatment on or adjacent to the land in which the pit or excavation is made of stone extracted or removed from the land or the manufacture on or adjacent to that land of bricks, tiles, pottery or cement products substantially from stone so extracted or removed.

2. How to manage your risks

As a business owner or sole trader, it is your responsibility to understand and manage the risks of harm from pollution and waste to people and the environment from any work you do.

In straightforward situations, managing risks will involve thinking through your activities and taking simple steps to avoid harm. For example, making sure your rubbish goes in the right bin, and chemicals don't go down stormwater drains and into our waterways.

In larger businesses or those that carry out a lot of different activities with greater risks of harm, more complex systems, procedures and documentation may be required.

You should follow any required risk assessment processes where there are co-regulators involved – for example, ERR's risk assessment process identified in work plans and work plan variations for mining and quarrying. EPA doesn't require a separate risk assessment process to be undertaken when you have followed requirements of another co-regulator. EPA's expectation is that you can demonstrate you have identified and assessed risk. The following four-step process may assist you to do so.

Use these four steps to help you manage your risks:

Step 1 – Identify any hazards from your business activities that could cause harm.

Step 2 – Assess the risk, based on the likelihood of the hazard occurring and causing harm, and the consequence of that harm.

Step 3 – Implement suitable control measures, based on what is reasonably practicable for your business, with the aim of choosing the highest level of protection and reliability.

Step 4 – Check controls regularly to make sure they are working, are being maintained, and remain the most appropriate. This includes monitoring them to determine how effective control measures are and to identify any changes that may need to be made.

Useful resources:

- *Assessing and controlling risk: a guide for business* (EPA publication 1695) – this includes an example of a register where you can list your hazards and risks.
- *Self-assessment tool for small business* (EPA publication 1812) – check what actions you can take to manage the risks of your business causing harm to people and the environment.
- Action plan (see the Appendix in this guide) – you can use this template to list what actions you can take to improve the way you control risks.

Note: Keeping one of the above registers or plans isn't a mandatory EPA requirement for most sites. However, it can help you demonstrate what steps you have taken to manage your risks, if required.

Risk management examples

These examples show how to use the four-step risk process to manage environmental hazards.

A. Managing risks from dust

Samson is an environmental site manager with a mining company. His worksite is often dry and exposed, so dust is a common hazard they need to control. He knows it can cause health complications and adversely impact surrounding views, vegetation and land uses.

Their site was designed with a buffer zone between dust-generating activities and neighbouring land. Onsite roads near sensitive areas like those with protected flora are sealed or actively treated with clean water to prevent dust. Some of their equipment that generates dust is kept in buildings fitted with extraction fans.

Samson identified the dust comes from: vehicles travelling on unsealed roads; drilling and blasting; vegetation clearing; stockpiling of soil and rock; and equipment like crushers and conveyers.

Dust controls in the site's environmental management plan include progressively rehabilitating disturbed areas, dampening blast areas pre-blasting, dampening unsealed roads to prevent dust and covering or wetting loads when moving materials. The dust prone roads are also signposted with enforced speed limits.

The company monitors weather and is ready to adjust its activities when conditions are dry and windy.

Samson regularly checks and keeps a log of controls and equipment to ensure they're working effectively and are maintained. He also monitors dust levels near sensitive areas and identifies other present or potential sources of dust.

The company adjusts controls depending on their effectiveness, or if onsite conditions change. They register dust complaints which then trigger a review and possible modification of controls and practices.

Samson's confident they are managing their risks associated with dust.

B. Managing risks from water and sediment discharge into waterways

Leah is an environmental officer with a quarrying company. Leah knows rainwater, water from dewatering, and water from other sources can cause erosion and run-off offsite, and collect sediment, nutrients and other contaminants as it travels across a site. This can enter their site's drainage system and waterways, and impact the health of people downstream, as well as plant and aquatic life.

When planning their site layout, the company locates stockpiles away from waterways and floodplains, and incorporates erosion and sediment controls based on rainfall and water flows. They have bunded washdown facilities to capture wastewater. They have designed their water management requirements to separate dirty water from non-dirty water (to minimise water coming into contact with mining activities).

The company minimises the surface area of land exposed through staging vegetation clearing and earthworks. Other controls include revegetation of disturbed areas, seeding or mulching soil stockpiles, road drainage, and contouring and minimising the length and steepness of stockpile slopes.

The company implements controls that respond to seasonal rainfall patterns, and before and after high-rainfall events. They routinely inspect and de-silt their drainage system and erosion and sediment control structures, so they are ready for use.

Before a high-rainfall event, they increase inspections and monitor against EPA licence water discharge requirements. This helps them understand whether their controls are effective or need to be modified to comply with licence conditions.

Leah is confident they're eliminating or reducing risk well because they follow all relevant EPA guidance and other regulatory requirements.

As EPA is the primary regulator for water discharges, their environmental management plan includes a trigger to notify EPA, as well as Earth Resources Regulation, if any discharge not meeting licence, permitting or compliance requirements leaves their site.

Note: The above are examples. You will need to assess your site and apply relevant legal obligations – refer to information about approvals, licencing and permits in '**Section 4 – EPA's role in mining and quarrying'** of this guide for more information.

3. Your legal obligations

New environment protection laws will be introduced in Victoria.

The new laws introduce a duty focused on prevention, called the general environmental duty. This duty requires you to take reasonably practicable steps to eliminate or reduce the risks of harm to people and the environment from pollution and waste.

This means, when the new laws take effect, you will need to proactively manage the risks of harm as well as deal with the impacts of pollution and waste after they have occurred. EPA works with people to help them understand the law and what they need to do to comply.

The main duties in the *Environment Protection Act 2017*[2] (the Act) are outlined on pages 9 to 11 of this guide. In some instances, there may be specific requirements that may be set out in any future environment protection regulations.

Some businesses may already be managing some environmental risks through their efforts to comply with Victoria's occupational health and safety (OHS) and dangerous goods laws. For example, using and storing chemicals and fuels safely, and keeping their business clean and tidy. You may also be familiar with terms like 'reasonably practicable' which is used in OHS.

'Reasonably practicable' means you must *put in proportionate controls to mitigate or minimise the risk of harm*.

To show you have thought about what is reasonably practicable, consider these six factors:

1. Eliminate first
2. Likelihood
3. Degree
4. Your knowledge about the risk
5. Availability
6. Cost

EPA's compliance and enforcement approach involves a mix of encouragement and deterrence to motivate action. See **'Chapter 5 – How environmental law is enforced'** for more information.

It's important to note that a breach of the general environmental duty could lead to civil or criminal penalties if you are a business or conducting an undertaking, even if harm has not occurred.

Note: If you are using this guide before the new laws take effect, the summary of the duties on pages 9 to 11 may be useful in helping you prepare for their introduction. Until the new laws take effect, you must continue to comply with the *Environment Protection Act 1970* and its supporting regulations and policies.

[2] *Environment Protection Act 2017* as amended by the *Environment Protection Amendment Act 2018*

Summary of environmental duties (in the *Environment Protection Act 2017*)[3]

This legal requirement	Means I have to…
General environmental duty (s25-27)	*Understand* how my business activities may give rise to risks of harm to people or the environment from pollution and waste. *Put in place* reasonably practicable measures to eliminate or reduce identified risks of harm from pollution or waste. *Use* and *maintain*: • plant, equipment, processes and systems in a way that minimises risks (e.g. maintain my machinery and equipment in accordance with manufacturer's specifications) • systems for identifying, assessing and controlling risks • adequate systems to ensure that if risk eventuates, harmful effects are minimised. *Ensure* all substances are handled, stored, used and/or transported in a way that minimises risks. *Provide* information, instruction, supervision and training to people engaged in activities to ensure they comply with above (e.g. undertake toolbox sessions where practicable). It doesn't matter whether an adverse impact on people and/or the environment has or has not occurred. The general environmental duty is breached whenever there is a *risk* of harm not being proportionally managed. **If you engage in an activity that involves the design, manufacture, installation or supply of a substance, plant, equipment or structure you must, so far as is reasonably practicable:** - *Minimise* risks of harm to people or the environment from pollution and waste arising from the design, manufacture, installation or supply of the substance, plant, equipment or structure when used for the purpose it was intended. - Where a risk of harm cannot be eliminated, *provide* information to each person about the purpose of the substance, plant, equipment or structure and any conditions necessary to ensure it can be used in a way that reduces the risks of harm.

[3] *Environment Protection Act 2017* as amended by the *Environment Protection Amendment Act 2018*

This legal requirement	Means I have to…
Duty to respond to harm (s31)	*Take* reasonably practicable measures to restore the environment if a pollution incident occurs as a result of a leak, spill or other unintended deposit or escape of a substance. The person engaging in the activity that results in the pollution incident must *clean* it up. They must also *restore* the affected area to the state it was in before the pollution incident, as far as reasonably practicable. This duty applies regardless of fault.
Duty to notify of an event (s32-33)	*Contact* EPA on 1300 372 842 (1300 EPA VIC) as soon as practicable if a pollution incident happens that causes or threatens material harm[4] to human health or the environment. *Provide* information about the nature of the incident, its location, the harm or threatened harm, the circumstances in which it occurred, and proposed action to deal with the incident. EPA will provide further instructions on completing my notification.
Duty to manage contamination (s39)	If I manage or control contaminated land (vacant or occupied), including groundwater, minimise risks of harm to human health and the environment arising from the contamination. This may include mitigating pathways for exposure to the contamination. If I suspect contamination, *investigate* further to understand the risks. This duty applies regardless of who caused the land or groundwater to be contaminated or when contamination took place. It also applies regardless of whether EPA is aware of the contamination or has issued any notices.
Duty to notify of certain contamination (s40)	*Contact* EPA on 1300 372 842 (1300 EPA VIC) as soon as practicable if the land I manage or control is contaminated in any of the circumstances set out in the regulations. This includes contamination to groundwater. See EPA's guidance on the thresholds. This duty applies regardless of fault or when the contamination took place. It applies as soon as I become aware (or ought to have been aware) of the contamination. The duty is intended to expand EPA's knowledge about contaminated sites in Victoria.

[4] Material harm means harm that is caused by pollution or waste that has an adverse effect on human health or the environment that is not insignificant; has an adverse effect on an area of high conservation value or of special significance; or results in, or is likely to result in, greater costs than what would have been incurred if action had been taken to prevent or minimise the harm in the first place.

This legal requirement	Means I have to…
Duties relating to industrial waste (s133-137)	Only *deposit* industrial waste at a 'lawful place' – this means a place or premises that is authorised and agrees to receive the industrial waste. Before handing over industrial waste to another person: • *identify* and *classify* the type of industrial waste • *describe* the industrial waste to the person collecting, consigning, transferring or transporting the industrial waste • *check* that the place the transporter is planning to take the industrial waste can lawfully receive that waste.
Duties and controls relating to priority waste (s138-141)	If I manage or control priority waste (any waste, including municipal and industrial waste, classified as priority waste in accordance with the regulations, see note below), *take* all reasonable steps to ensure it is contained so it can't escape and is isolated to ensure resource recovery remains practicable. *Give* the person who collects or consigns the priority waste information about its: • nature and type • any risks of harm • any other relevant information necessary for them to comply with the law. Before deciding to dispose any priority waste to landfill, *investigate* if I can re-use or recycle the priority waste. Also investigate how I can avoid producing or generating similar waste in the future. Some ways I can investigate alternatives include: • consider EPA guidelines or other relevant publications • consider the availability of any relevant technology • consult with someone with relevant expertise.
Duties and controls relating to reportable priority waste (s142-143)	*Record* and *notify* transaction details relating to reportable priority waste in accordance with the proposed regulations This can be done via the EPA Interaction Portal. Note: reportable priority waste is a subset of priority waste and carries the highest level of controls. It is reserved for waste types with the highest levels of risk. If I *transport* reportable priority waste, do so in accordance with a permission.

Note: It is anticipated that environment protection regulations will be made available before the new laws commence. The regulations may provide more specific information about the way you must comply with the new laws. You can find out more about the proposed regulations, and how they may be relevant to you, by reviewing the draft regulations on the Engage Victoria website. It is recommended you periodically check this guide for any further updates.

Permissions

When the new environment protection laws take effect, EPA will be issuing licences, permits and registrations. These are collectively referred to as 'permissions' and work alongside the general environmental duty. They ensure certain standards and conditions are met across a range of activities.

Licences – are for complex prescribed activities that need the highest level of regulatory control.

Permits – are for medium-risk prescribed activities with low complexity.

Registrations – are for low-risk prescribed activities and are simple to obtain (they are automatically granted).

The type of permission you require, if you require one, depends on the type of activities you undertake and the level of control that needs to be put in place.

For more information, see EPA's draft Permissions Scheme Policy (publication 1799), which describes how the three types of permissions will work.

The **environment reference standards (ERS)** will take effect with the new laws.

The ERS describes features of the environment that are of value to the community, e.g. the quality of water for drinking and swimming. It also has indicators and objectives to measure whether those features are being met for different parts of the environment (air, land, acoustic and water environments).

EPA may consider the ERS when assessing development and operating licence applications, and when making other decisions.

4. EPA's role in mining and quarrying

EPA is the primary regulator for water discharges from mining and quarrying activities. EPA also advises on air quality and noise emissions, and responds to referrals for mining and quarrying from other government agencies.

Earth Resources Regulation (ERR) is the primary regulator for all other aspects of mining and quarrying.

EPA has a support and advisory role that includes advising on:

- air discharges, noise and waste management
- environmental management conditions (both operational and rehabilitation) related to waste and pollution.

EPA and ERR work together under a Memorandum of Understanding. EPA also uses the *Protocol for Environmental Management: Mining and extractive industries* (publication 1191) to set out requirements for assessment and management of emissions to air and environment from mining and quarrying activities.

As part of the approval process, Environment Effects Statements (EES) are required for projects that are of a larger scale and are likely to have a larger environmental impact. When an EES is not required, mining and quarrying activities are regulated through a work plan process managed by ERR or a planning permit process managed by the local authority. Both processes allow for referral to the EPA for expert technical advice. In addition, mining and quarrying activities are regulated by WorkSafe Victoria, for worker safety aspects of operations.

The EPA website and ERR website provide the most up-to-date information for your sector. With the new environment protection laws and ongoing reform of the *Mineral Resources (Sustainable Development) Act 1990,* there are a number of publications and webpages that will be replaced and updated.

Approvals, licensing and permits

ERR is responsible for the approval process with advice from EPA where required.

EPA are responsible for licensing of discharges to surface and groundwaters.

ERR regulate mines and quarries under the *Mineral Resources (Sustainable Development) Act 1990*. Mines require a mining licence to extract minerals. Quarries require a work authority to extract stones.

Low-risk quarrying and mining is regulated through codes of practice. This includes mines and quarries that are limited in scale and use low-risk methods to extract materials out of the ground. All other commercial operations are regulated through a work plan endorsement process, in which EPA is a referral authority (both statutory and non-statutory) and can provide comments to ERR in line with our supportive role.

For more information please visit https://earthresources.vic.gov.au/ or email workplan.approvals@ecodev.vic.gov.au

EPA licences for mining and quarrying are outlined in the Environment Protection (Scheduled Premises) Regulations 2017*,* or any requirements for licences, permits or registrations as prescribed in future regulations.

EPA has a dedicated email to support referrals and applications for quarry and mine proposals: ERR.Referrals@epa.vic.gov.au

5. How environmental law is enforced

EPA compliance and enforcement

EPA works with industry to build knowledge and capability to prevent environmental harm.

We provide businesses with certainty, transparency and consistency. In turn, EPA expects duty holders to take proactive steps to inform themselves and comply with their obligations.

EPA supports compliance with guidance, education, and where appropriate, remedial action. We will strongly enforce the law if the community is deliberately or negligently exposed to harm.

For more information, see EPA's regulatory strategy and compliance and enforcement policy.

Who enforces environmental law?

EPA has a team of authorised officers who inspect businesses and premises, provide guidance and advice about compliance, and enforce the law. Council officers can also be authorised officers under the EP Act.

What happens if I don't manage my risks?

Where an EPA authorised officer believes that you are not complying with your duties, they will consider using remedial powers and tools (see the table on pages 15 to 16 for an overview). The aim of this is to bring you into compliance with the relevant duties or address any harm, waste or contamination present.

Remedial powers and tools

Remedial tool	What it is
Compliance advice	This may include information about how to comply with the law, interpret standards and/or other support on how to remedy non-compliance. While an EPA officer will record this advice in an entry report it doesn't mean you necessarily have to follow the advice if you find another suitable way to comply.
Remedial notices	A formal record that EPA has sought action to remedy non-compliance. They may be issued where an authorised officer reasonably believes you are not complying with the legislation or where a harmful or unlawful situation exists. The range of remedial notices include: • **Improvement notice** – requires you to take action to remedy non-compliance. These are EPA's primary enforcement tool. A notice can request you to proactively address a risk. This means harm doesn't necessarily have to occur for EPA to issue an improvement notice. • **Prohibition notice** – requires you to stop an activity that has an immediate risk of harm. It may also require you to do other things to prevent or minimise the harm. • **Notice to investigate** – requires you to investigate whether: land is or may be contaminated; a pollution incident has occurred; industrial waste is at a place or premises unlawfully; or there is a risk of harm arising from pollution or the depositing, storing or handling of waste. This investigation will determine whether further action needs to be taken. • **Environmental action notice** – requires you to address the impact of pollution, waste and contamination. They are used when: land is or may be contaminated; a pollution incident has occurred; industrial waste is at a place or premises unlawfully; there is a risk of harm arising from pollution or the depositing, storing or handling of waste; or you haven't complied with a notice to investigate. • **Waste abatement notice** – requires you to address waste that: negatively impacts the public; negatively impacts the proper use of a place; or is a hazard to the environment. They may be issued by EPA officers or councils. They require you to: conduct a cleanup to remove waste; restore places impacted by waste; modify activities that cause waste to be deposited; or lawfully dispose of waste.
Site management order	Used for the long-term management or rehabilitation of contaminated land or to undertake a broad range of actions to manage the risk of harm. They may be used when land is contaminated, or where there is a risk of harm from pollution and waste. Measures required by an order may include installing and maintaining infrastructure, monitoring of contamination on the site and ongoing reporting requirements.

Remedial tool	What it is
Directions	Issued when EPA believes there is an immediate risk of harm, for example during an emergency incident. These directions, whether issued verbally or in writing, must be followed immediately.
Cleanup powers	An intervention from EPA that involves conducting a cleanup to deal with an immediate or serious risk of harm arising from pollution, waste or contaminated land. EPA will only use these powers when all other attempts to have the person responsible address the immediate or serious risk have not worked.

In certain circumstances EPA may determine that pursuing a sanction is warranted. This may be an infringement notice, enforceable undertaking or penalties determined by a court through civil or criminal proceedings.

6. Common environmental hazards in mining and quarrying

Hazards you may commonly come across in mining and quarrying include:

- air contaminants
- chemical spills
- dust
- fire and explosion
- groundwater contamination
- offensive odour
- surface water contamination
- unreasonable noise
- waste
- wastewater.

See the tables on pages 18 to 25 for information about these hazards, and some examples of what may cause them. This isn't a complete list but gives you an idea of what could harm people and the environment if risks of harm aren't properly managed.

Some of the common sources of harm can impact many different areas of the environment as well as human health. These include, but aren't limited to:

- social surroundings (houses, hospitals, schools, playgrounds, public amenities)
- waterways, streams, sources of drinking water for people or livestock
- parks and recreational areas
- areas of public interest and cultural significance
- land or water with identified flora, fauna, vegetation, ecosystem or environmental value.

These are also referred to as 'sensitive receptors'.

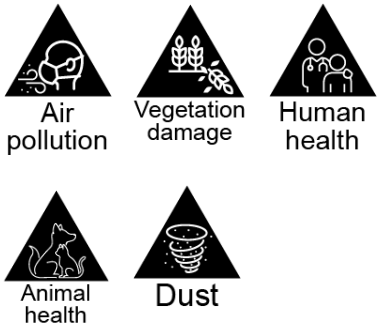
A single hazard can have multiple risks associated with it that can cause several harmful impacts. For example, poor management of stored chemicals can result in chemical spills, release of air contaminants, and surface water contamination.

Remember that every site is different and may have a unique set of hazards and risks. Putting in place controls to eliminate or reduce identified risks of harm from pollution or waste will help you meet your general environmental duty. Following standards in existing relevant regulatory legislation or codes of practice (e.g. OHS) can also indicate that your common sources of harm are being managed appropriately.

Note: Similar example hazards and controls/recommended practices are described in the Earth Resources Regulation code of practices and work plan guidelines for exploration, mining and quarrying (refer to the list on page 25).

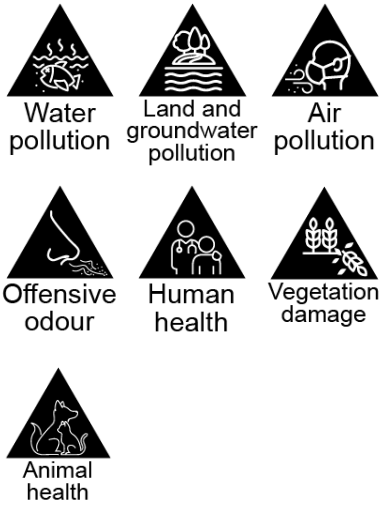
Hazard: Air contaminants

Toxic or hazardous materials that are discharged into the air in the form of soot, ashes, fumes, gas, smoke etc.

Common sources of harm	Possible consequences if risks of harm from pollution and waste aren't managed	For more information, including controls
• exhaust fumes from poorly maintained vehicles and machinery • fire ignition sources • mine ventilation exhausts • fumes and exhausts from poorly maintained processing facilities (e.g. furnaces and boilers) • smelting emissions • bulk storage tank failure (e.g. fuels) • mine and stone/rock processing activities (which can discharge hazardous materials) • air emissions from waste storage areas • respirable particles including crystalline silica and other dust • demolition activities		Check air quality in Victoria – EPA AirWatch Air pollution Air quality *Protocol for environmental management: Mining and extractive industries* (publication 1191) *Recommended Separation Distances for Industrial Residual Air Emissions – Guideline* (publication 1518)

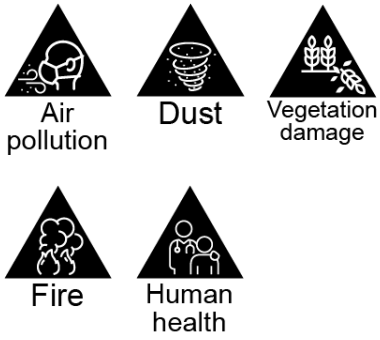
Hazard: Chemical spills

The uncontrolled release of chemicals, regardless of the amount or whether the spill happens indoors or outdoors.

Common sources of harm	Possible consequences if risks of harm from pollution and waste aren't managed	For more information, including controls
• leaking containers or pipelines, including chemical storage drums • poor storage and handling of fuels, chemicals or drilling mud • vehicle/equipment maintenance and refuelling (e.g. spills) • inappropriately contained chemical additives and coating substances		*Liquid storage and handling guidelines* (publication 1698) *Solid storage and handling guidelines* (publication 1730)

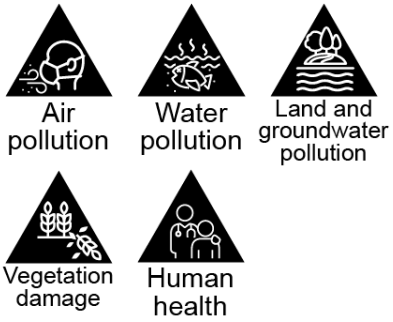
Hazard: Dust

Earth or other matter, in fine, dry particles.

Common sources of harm	Possible consequences if risks of harm from pollution and waste aren't managed	For more information, including controls
• stripping/land clearance • open pits • drilling and blasting • unsealed roads • ore processing and stockpiles • tailings storage facilities • exposed soil, overburden and waste rock stockpiles • improper use of plant and equipment (e.g. crushers) • poor management of material transfer (conveyor/truck loading/off-loading) • soil movement during site rehabilitation • site infrastructure demolition • poor cleaning operations		Reducing erosion and sedimentation risk: guidelines for industry *Construction techniques for sediment pollution control* (publication 275) *Recommended Separation Distances for Industrial Residual Air Emissions – Guideline* (publication 1518) Guidelines for the design and management of tailings storage facilities (ERR)

Hazard: Fire and explosion

Flames and heat from something that is burning in an uncontrolled way.

Common sources of harm	Possible consequences if risks of harm from pollution and waste aren't managed	For more information, including controls
• unmanaged vegetation • self-heating of ore materials (e.g. coal) • inadequate storage of waste mined materials (e.g. resulting in spontaneous combustion of waste rock materials) • poor storage of waste materials (e.g. combustible recyclables and other non-mined waste materials) • bushfires burning onto or within mining/quarrying sites • metal dust • uncontained ash		*Management and storage of combustible recyclable and waste materials – guideline* (publication 1667)

Hazard: Groundwater contamination

Chemical substances or waste present in the groundwater (water that flows underneath the earth's surface) at levels above what would be expected to occur naturally.

Common sources of harm	Possible consequences if risks of harm from pollution and waste aren't managed	For more information, including controls
• improper stormwater management practices • inappropriately managed mine dewatering • seepage from tailings storage facilities and soil and waste rock storage • leaching of heavy metals from mined metals and waste rock • inadequately managed oil, grease, fuel, and chemicals resulting in spills and leaks • pipeline leaks • inappropriate management of acid mine drainage		How to prevent water pollution from your business *Liquid storage and handling guidelines* (publication 1698) *Solid storage and handling guidelines* (publication 1730) Guidelines for the design and management of tailings storage facilities (ERR)

Hazard: Offensive odour

Gases in the air that can cause an unpleasant smell.

Common sources of harm	Possible consequences if risks of harm from pollution and waste aren't managed	For more information, including controls
• waste (e.g. processing waste, landfill) • chemical use (e.g. material processing and water treatment, fuels/oils) • fumes from poorly maintained machinery (exhaust and ventilators) • fumes from refueling • poorly maintained vehicles (exhaust) • inappropriately contained organic waste and sewage • unsegregated food waste from other waste • chemicals (e.g. paints and solvents) stored without containment		Odour guidance for businesses *Recommended Separation Distances for Industrial Residual Air Emissions – Guideline* (publication 1518)

Hazard: Surface water contamination

Surface run-off from rain and storms that enters our waterways (e.g. creeks, rivers, wetlands and bays) can contain pollutants such as sediments, chemicals, litter, and human and animal faeces.

Common sources of harm	Possible consequences if risks of harm from pollution and waste aren't managed	For more information, including controls
• inappropriate stormwater management practices • lack of separation of clean and dirty site water • inappropriate storage of water from site dewatering • sediment run-off from exposed cleared areas • run-off from soil and waste stockpiles • inappropriate / lack of containment of washdown water from cleaning of vehicle, machinery and equipment • contaminated run-off that has been in contact with wastes • inadequate containment of soil and loose waste during transport • inappropriate management of waste rock dumps and tailings storage facilities (e.g. leachates and contaminated soil, sediments and dust) • inadequately managed oil, grease, fuel, and chemicals resulting in spills and leaks • pipeline leaks • seepage from stored processing wastes (e.g. leach dumps/pads, tailings storage facilities) • inappropriate management of acid mine drainage • tailings storage facility failure		*Reducing stormwater pollution: A guide for industry* (publication 978) *Construction techniques for sediment pollution control* (publication 275) How to prevent water pollution from your business Reducing erosion and sedimentation risk: guidelines for industry *Liquid storage and handling guidelines* (publication 1698) *Solid storage and handling guidelines* (publication 1730) *Reducing risks in the pre-mixed concrete batching industry* (publication 1806) Guidelines for the design and management of tailings storage facilities (ERR)

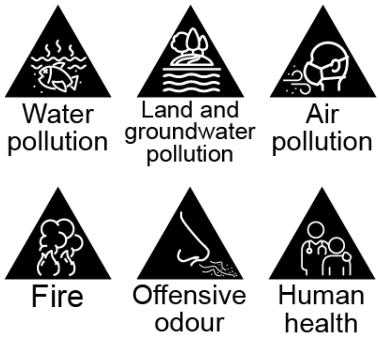
Hazard: Unreasonable noise

Unwanted sound (including vibration) that's annoying, distracting or harmful.

Common sources of harm	Possible consequences if risks of harm from pollution and waste aren't managed	For more information, including controls
• drilling • rock and ore processing (e.g. from crushers, grinders, screens, and conveyor systems) • poor material handling (e.g. loading ore bins) • improper use of plant and machinery (mobile and fixed) • ventilation systems • excessive vehicle movement (e.g. haulage) and beepers • blasting (detonation of explosive devices) • concrete batching		Noise guidance for businesses *How to reduce noise from your business* (publication 1481) *Reducing risks in the pre-mixed concrete batching industry* (publication 1806)

Hazard: Waste

Any matter, whether solid, liquid, gaseous or radioactive, which is discharged, emitted or deposited in the environment in a way that alters it. This includes unwanted or surplus material, irrespective of its potential use or value.

Common sources of harm	Possible consequences if risks of harm from pollution and waste aren't managed	For more information, including controls
Mineral waste • overburden or waste rock stockpiles • tailings storage facilities and processing wastes • acid sulphate soils • leachate ponds • contaminated soils Non-mineral waste • hazardous wastes (e.g. fuels and chemicals) • onsite landfill • site closure and demolition activities • dewatering sludges or solids (e.g. sediment ponds) • contaminated soils		Managing waste Manage contaminated land Imported materials management guidelines (ERR) Guidelines for the design and management of tailings storage facilities (ERR)

Hazard: Wastewater

Any excrement or domestic waterborne waste, or any water that has been 'used' or is in excess and is not wanted for use, whether untreated or partially treated.

Common sources of harm	Possible consequences if risks of harm from pollution and waste aren't managed	For more information, including controls
• washing vehicles, tools, and equipment near waterways without containment or collection of wash waters processing wastewater • wastewater treatment facilities • leachate run-off from uncontained waste stockpiles		*Reducing stormwater pollution: A guide for industry* (publication 978) How to prevent water pollution from your business

Earth Resources Regulation guidance

The following guidance (developed by Earth Resources Regulation), has information relevant to all hazards listed in the tables on pages 18 to 25, including compliance and permission requirements:

- Code of practice for mineral exploration
- Exploration work plan guidelines
- Exploration licence guidelines
- Code of practice for small quarries
- Extractive industry work plan guideline
- Work plan guidelines for mining licenses
- Code of practice for low risk mines
- Preparation of Rehabilitation Plans: Guideline for Mining and Prospecting Projects

7. Managing your waste

It is up to everyone to make sure waste goes to the right place. This is to avoid land and groundwater contamination, stockpile fires, abandoned waste, and illegal waste sites.

Under the new laws, waste generators, transporters and receivers will share the responsibility for making sure waste ends up at an EPA-authorised site.

For some businesses, managing waste may involve simply sorting it into the right bin and keeping it out of drains. For other businesses who have hazardous wastes such as asbestos, clinical and medical waste, unprocessed used cooking fats and oils, and so on, it will be more complex.

If you are a small business who only disposes of general waste and paper/cardboard, you may find some useful waste and recycling tips from Sustainability Victoria.

If you have more complex industrial waste, follow these three steps to help you comply with the new laws:

1. **Classification: what is the waste?** Industrial waste must be properly identified and classified. This makes it clear what duties apply to the management of the waste. Under the Act, waste can be either industrial waste or both industrial and priority waste. Some priority wastes are also reportable priority wastes.
   - **Industrial waste** is the broad category covering all waste. This includes household waste once it is gathered at a waste facility (e.g. transfer station, landfill).
   - **Priority waste** is industrial waste that requires additional controls due to its higher level of hazard, its potential to be mismanaged, or to encourage resource recovery or efficiency.
   - **Reportable priority waste** is a subset of priority waste and carries the highest level of controls. It is reserved for waste types with the highest levels of risk. Controls for this type of waste include transportation only by permitted vehicles, and mandatory reporting to EPA each time the waste is exchanged.
2. **Transport: how should waste be transported safely?** Waste must be safely contained during transportation. Some waste types have specific containment and isolation requirements.
3. **Lawful place: where must the waste go?** Industrial waste may only go somewhere lawfully able to receive it, such as a place with an EPA permission.

Declaration of use (DoU) is a tool that when the new laws take effect, can be used to support safe storage, reuse and recovery of material from lower-risk wastes which do not require an EPA permit or permission.

The DoU will be a short statement or checklist. It will be valid for up to 12 months, or until your waste changes. You will need to complete a self-assessment that describes your waste, assesses its risk, identifies legitimate uses for it, and provides the end user with details about the quality and safety of your waste. DoUs do not need to be submitted to EPA but may be requested by an EPA authorised officer at any time.

8. EPA guidance relevant to mining and quarrying

- *Assessing and controlling risk – A guide for business* (publication 1695) – how to manage risks, using a four-step process.
- *Self-assessment tool for small business* (publication 1812) – check what actions you can take to manage the risks of your business causing harm to people and the environment.
- Air pollution – information on what causes air pollution.
- Air quality – how to prevent air pollution.
- *Protocol for environmental management: Mining and extractive industries* (publication 1191) – how to assess potential impacts of emissions from mining and quarrying on the air environment.
- *Recommended Separation Distances for Industrial Residual Air Emissions – Guideline* (publication 1518) – how to identify which land uses require separation.
- *Liquid storage and handling guidelines* (publication 1698) – how to store and handle liquid substances.
- *Solid storage and handling guidelines* (publication 1730) – how to store and handle solid materials, including solid waste.
- Reducing erosion and sedimentation risk: guidelines for industry – how to put effective controls in place to prevent erosion and sedimentation.
- *Management and storage of combustible recyclable and waste materials – guideline* (publication 1667) – supports understanding of fire hazards related to management and storage of combustible waste materials.
- How to prevent water pollution from your business – how to prevent water pollution.
- *Reducing stormwater pollution* (publication 978) – how your business can avoid polluting stormwater.
- Odour guidance for businesses – how to manage odours from your business.
- Noise guidance for businesses – how to manage noise from your business.
- *How to reduce noise from your business* (publication 1481) – how to reduce noise from your business.
- *Reducing risk in the premixed concrete industry* (publication 1806) – how to assess, manage and control risks.
- Managing waste – how to manage your waste appropriately.
- Manage contaminated land – how to manage your contamination risks.

More guidance for mining and quarrying can be found at:
epa.vic.gov.au/for-business/find-your-industry/energy-petroleum-and-extractive-industries

Note: Some EPA publications haven't been updated to reflect changes relating to new environment protection laws. Guidance should be viewed as general in nature and not a substitute for obtaining legal advice.

9. Where to go for more help

epa.vic.gov.au/for-business / 1300 EPA VIC (1300 372 842)

Industry associations – Contact your industry association for further information about resources, training and opportunities that may be relevant to your business.

Know Your Council – The Victorian Government has compiled a list of all councils in Victoria. Get in touch with your council for information on building regulations and the Victorian planning schemes, and what it means for your operations.

WorkSafe Victoria – For guidance and advice relating to health and safety at your workplace, including storing, handling and transporting dangerous goods.

Consultants – Managing risks can sometimes be complicated. You may need expert help to identify and understand hazards and select appropriate control measures. *Fact sheet: Engaging consultants* (publication 1702) can help you engage a consultant.

Earth Resources Regulation (ERR) have legislation relating to mineral exploration, mining and quarrying activities. Many of their resources, including Codes of Practice, include information about managing risks, and other compliance and permission requirements, including*:

Exploration

- Code of practice for mineral exploration
- Exploration licence guidelines
- Exploration work plan guidelines

Extractives

- Code of practice for small quarries
- Extractive industry work plan guideline

Mining

- Code of practice for low risk mines
- Mining licence guidelines
- Work plan guidelines for a mining licence
- Preparation of Rehabilitation Plans: Guideline for Mining and Prospecting Projects

Other

- Imported materials management guidelines
- Guidelines for the design and management of tailings storage facilities

*The ERR website provides the most up-to-date information for your sector. With the ongoing reform of the *Mineral Resource (Sustainable Development) Act 1990* there are several publications and webpages that will be replaced and updated. Please refer to the ERR website for up-to-date information.

Appendix: Action plan example

Use this template to list what actions you can take to improve the way you control risks.

Key focus area	Action required	Objective	Action owner (who)	Target completion date	Date action reviewed	Additional comments (post review)
e.g. B	*e.g. Review EPA Liquid Storage and Handling Guideline*	*Improve the way liquids are stored on site and spill containment.*	*Danica*	*03/08/2020*		

Key focus areas:

A: Understanding the preventative laws	**B:** Documentation and operational procedures	**C:** Identification of hazards and risks If any of the following apply, please specify: **C(i)):** Identification of air pollution and odour **C(ii):** Identification of unreasonable and aggravated noise **C(iii):** Identification of water pollution (including stormwater)
D: Assessing hazards and risks	**E:** Managing risks of harm	**F:** Monitoring risks of harm
G: Reporting notifiable incidents	**H:** Management of contaminated land	**I:** Managing waste(s) (including disposal)
J: Permissions for activities	**K:** Storage of flammable or hazardous material(s)	**L:** Staff consultation and training and/or community engagement

Recognition statement

EPA acknowledges Victoria's First Nations peoples and their ongoing strength in practising the world's oldest living culture. We acknowledge the Traditional Owners of the land and water on which we live and work and pay our respect to their Elders past and present.

We acknowledge that:

- **Land and water is of spiritual, cultural and economic importance to Aboriginal people.**
- **All places in Victoria exist on the traditional country of Aboriginal Victorians.**
- **Aboriginal interests, needs and aspirations are integral to EPA's core business.**

In recognising and respecting thousands of years of environmental stewardship, Victorian Aboriginal peoples' and their culture is integral to EPA's regulatory remit to protect human health and environment from the harmful effects of pollution and waste. As part of our regulatory approach we seek to engage and work collaboratively to build a culturally safe and inclusive work environment that is inclusive of Aboriginal perspectives and values.

EPA encourages all Victorians to consider the ways in which they too can acknowledge, respect and protect Aboriginal cultural heritage.