

FACT SHEET

Open cut opal mining

May 2021

What is open cut mining?

Open cut mining is a method of mining where excavation is performed from the surface. In opal mining it is generally carried out using power-operated machinery such as large earthmoving equipment, however, hand tools and explosives may also be used.

It is important to note that the use of explosives must be conducted by an authorised person.

Open cut mining on mineral claims

Open cut mining is only permitted on Class A, B and G mineral claims.

MINERAL CLAIM	REQUIREMENTS TO COMMENCE OPEN CUT MINING
Class A and B	<ul style="list-style-type: none"> • Permit required under section 175 of the <i>Mining Act 1992</i> • Additional security bond
Class G	<ul style="list-style-type: none"> • Granted for the purpose of open cut operations only

Figures 1 and 2: Open cut opal mining operations



Who has work health and safety responsibilities?

The person conducting the business or undertaking (PCBU) has the primary duty of care under the *Work Health and Safety Act 2011*. For small-scale titles, such as mineral claims, the mine operator is the PCBU.

The mine operator is responsible for matters relating to health and safety under the *Work Health and Safety Act 2011* and *Work Health and Safety (Mines and Petroleum Sites) Act 2013*, not only for themselves but also for workers, contractors, other people working the claim, visitors and those entering or travelling through the claim area.

The mine operator must eliminate risks arising from open cut work, or if that is not reasonably practicable, they must minimise the risks so far as is reasonably practicable.

They also have a duty to consult with workers and adjoining operators regarding work health and safety matters, including the preparation and implementation of a safety management system. The safety management system for the mine must manage all aspects of risks to health and safety in relation to the operation of the mine, including open cut mining methods.

The operator must ensure all plant and equipment is fit for purpose and have the skills, knowledge, experience and resources to exercise the function of the mine operator.

Managing the risk and controls

It is important to plan your open cut activity and identify hazards, assess risks and implement appropriate controls. Hazards that should be considered include:

- previous disturbance of the ground, such as underground workings
- instability of the excavation due to persons or plant working adjacent to the excavation
- instability of adjoining structures caused by the excavation (i.e. adjoining mine workings)
- ground collapse
- falls from one level to another
- presence of, or possible in-rush of, ground or surface water
- traffic
- placement of overburden and topsoil (i.e. not too close to edges as loose material may fall into workings/on haul roads).

Control methods

Regular inspections

Inspections of the operation should be undertaken frequently and include:

- daily inspections – i.e. pre-starts and general site conditions
- weekly inspections – i.e. benches/strata conditions and edge protection
- monthly inspections – i.e. equipment services and maintenance.

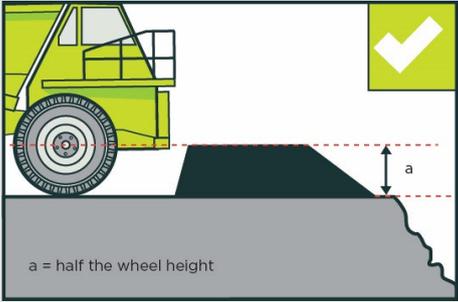
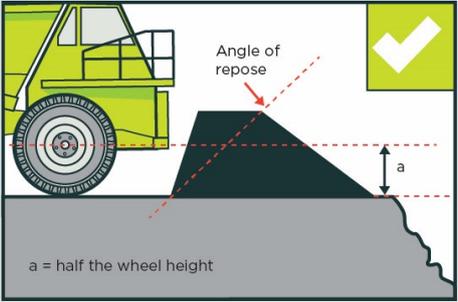
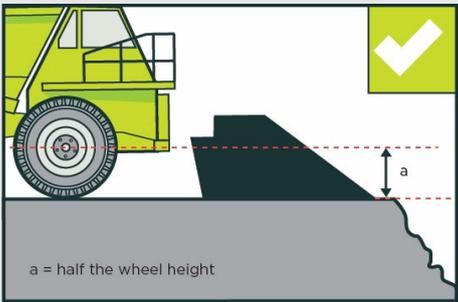
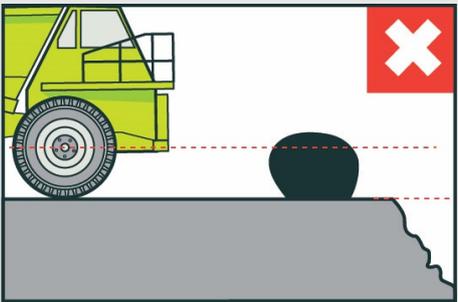
All inspections, maintenance, hazard identification and control implementation should be recorded. An effective method of documenting inspections, risks and controls is to maintain a logbook.

Operators should regularly review operations to identify any new hazards that may have arisen since a previous assessment. Controls should be regularly reviewed to ensure they remain relevant and effective.

Other control methods

Other control methods may include:

RISK	CONTROL
Ground support	<ul style="list-style-type: none"> ● Open cuts should be properly designed for the site conditions and excavation method. Consultation with technical experts should occur during the planning process to identify possible excavation failures and ensure strategies are in place to manage risks. ● Reduce falling loose material and ground collapse with suitable benching and battering/slopes, ensuring slope angles, bench widths, edge protection and heights are appropriate. ● Shoring of faces to control movement of loose materials using artificial support such as retaining walls, mesh securely pinned in place or cable bolts. ● Ensure the safety of mining operations at neighbouring claims is not adversely affected.

RISK	CONTROL
<p>Falls from height</p>	<ul style="list-style-type: none"> Excavations should be protected by bunding or a mesh fence at least one metre from the edge. Edge protection must be visible and maintained for the life of the excavation. Earth bunds should be designed, constructed and installed high enough to control the risk of a plant or machinery going beyond the edge. As a minimum, the bund should be half the wheel height of the largest vehicle on the site and the effectiveness depends on their width, firmness and construction material. <p><i>Figure 3: Suitable windrow – firm material big enough to absorb the vehicle's momentum with a steepened inside slope.</i></p>  <p><i>Figure 4: Suitable windrow – the width of the windrow is as wide as the normal angle of repose.</i></p>  <p><i>Figure 5: Suitable edge protection – a rock with material in between which can safely absorb the impact.</i></p>  <p><i>Figure 6: Unsuitable edge protection – blocks of stone can be pushed out of the way.</i></p> 

Inrush of ground or surface water

- Surface water management should be considered when the designing the mine. Bund walls and drainage should be included to prevent entry of water into the excavation.
- Consideration should be given to the possibility of breaking into flooded existing or adjoining workings.

RISK	CONTROL
Traffic	<ul style="list-style-type: none"> • Access roads and ramps should be adequately designed and maintained to control the risk of vehicle interaction, including light vehicles, heavy earthmoving equipment and trucks. • Signage should be clear and visible. • Excavations should be wide enough for vehicles to enter without the risk of engulfment in the case of ground failure. In the case of ground failure, no vehicles should access the excavations unless a risk assessment has been conducted and recorded.

The role of Mine Safety inspectors

Mine Safety inspectors are responsible for regulating work health and safety at mineral claim and opal prospecting sites. They are authorised to conduct site inspections and review documentation to ensure the operator is meeting their work health and safety obligations.

Inspectors may issue improvement notices to address non-compliances observed. Prohibition notices may also be issued to stop certain activities or plant from operating where there is a serious risk to workers or others.

Mine Safety inspectors are also available to provide advice about health and safety matters, specific to opal mining or prospecting.

Reporting an incident

Serious safety incidents or injuries at opal mine sites, **must be reported** to the NSW Resources Regulator immediately on **1300 814 609**. This is available 24 hours a day, 7 days a week.

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