

BRITISH GEOLOGICAL SURVEY

RISK ASSESSMENT FOR WORKING IN QUARRIES

Definitions from Health & Safety Executive

Hazard *anything that can cause harm.*

Risk *the chance that someone will be harmed by the hazard.*

Health and Safety at Work Act & Quarry regulations

Working quarries, mines, opencast and other industrial sites, whether working or idle on the day of the visit, are subject to the above legislation. These acts require anyone entering such premises to wear hard hats, safety boots with steel toecaps and high visibility vest, together with other protective clothing, such as goggles, gloves, as required and comply with all local management instructions. Failure to observe these rules could result in you being prosecuted under these acts.

Children under 16 are not usually allowed into working quarries

General Guidelines

When planning to visit a quarry, seek permission from the owners prior to the visit and establish whether you need to be accompanied into the quarry by a member of their staff.

Always comply with and undergo any health and safety induction courses.

When entering quarry premises in a vehicle, follow all designated routes. Beware of moving cars, lorries, plant and pedestrians. Park only in designated areas and do not obstruct any quarry traffic. Always report in to the designated area, which is generally the weighbridge or reception, using only pedestrian routes for walking.

Permission to drive a BGS vehicle into the quarry must be sought from the owners. Any BGS vehicle used in a working quarry must be fitted with an orange flashing light on the roof and with reversing bleeps.

Establish prior to the visit who will provide the protective clothing (hard hats, high visibility vests, safety boots, gloves, safety glasses etc.).

Always take a mobile phone into a quarry; utilise any two-way radio or other communication equipment offered by the quarry company in working quarries.

The group leader will announce the arrival and departure of the group.

There should be no lone working in active quarries. Abandoned quarries may need to be visited during the course of fieldwork when working alone. When entering any large quarry alone, extra care must be taken to observe all of the hazards outlined below, particularly those that have the potential to cause harm. Mobile phones must be taken and kept switched on and a member of staff at BGS informed on entering and leaving the quarry. Many active quarries will now insist on members of staff accompanying anybody entering the quarry. If access is permitted without any quarry staff then a minimum of two people must be present; mobile phones must be taken and kept switched on and details of contacts in the quarry offices must be noted before entering the quarry.

Hazards and Recommendations for Control:-

Weather

Hazard Variable, unpredictable weather, i.e. too hot, cold, or windy, with risk of sunstroke, hypothermia, or dehydration; wet weather resulting in poor visibility, slippery rocks and roadways, **frost/ice underfoot; fog**

Control Winter - wear layers of warm clothing and good quality waterproofs.
Summer - wear light clothing, waterproofs, sunhat, sunglasses and sun block.
Wet weather - wear waterproofs, take extra care with observations, walk slowly and with care and do not rush.

Frost/ice - take great care when walking and always look out for icy surfaces

Fog - do not enter a working quarry in foggy conditions. If you are in a quarry and thick fog descends, prepare to leave immediately. Take extra precautions when driving as you may not be able to see moving vehicles in the quarry. If on foot, summon assistance if available. If you have to walk out of the quarry, make for the nearest exit roadway and keep to the edge farthest away from the faces.

Uneven Ground

Hazard Rough ground or slippery rocks

Risk **Injuries caused by stumbles, slips, trips and falls**

Control Wear suitable stout footwear with good grip to protect feet and ankles. Always look out for and keep clear of loose rock debris; be extra careful on uneven ground; take extra care during or after rain when the rocks are wet and potentially much more slippery; take extra care near exposed edges of cliffs and rock scarps.

Quarry Faces

Hazard Rock Falls

Risk **Injury caused by falling rocks/debris from quarry faces.**

Control Do not approach any face without first assessing the risk of rockfalls. **Check with quarry manager for problem faces and significant hazards flagged up to Health and Safety Executive.** Avoid faces where blasting has recently occurred. Take care not to dislodge rocks from above faces. Do not work or move above other people on a lower face. Minimise working close up to the rock face. Ensure there are other people observing the rock face above where you are working. When working close to a rock face, do not concentrate on working to the exclusion of being aware of your surroundings. Ensure that you have a line of retreat from the rock face. Do not work alone close to a rock face. Do not work at a face when there is activity at the top of that face. Take particular care after rain or during frosty weather. Be aware that major or catastrophic rock falls can occur in quarries.

Hazard **Overhangs**

Risk **Injury caused by falling rocks/debris**

Control **Do not work under overhangs**

Hazard **Scree slopes**

Control **Avoid walking on scree slopes wherever possible. If they have to be traversed, always move slowly and lean back into the face when going down a scree slope. Do not lean forwards. When climbing up, always walk in a zig-zag diagonal path.**

Working Quarries

- Risk** Injury caused by working machinery, toxic substances or blasting, climbing, stumbles and falls over rough ground, loose or slippery rocks, rock falls. Falling into sludge ponds and other areas of potentially soft ground or deep standing water.
- General Controls** Wear safety equipment provided and comply with safety instructions issued by owners or site managers. Keep with group and avoid moving equipment and vehicles. Take extra care near exposed edges of rock faces and steep slopes. Never climb rock faces.
- Hazard** Hammering
- Risk** Injury, especially to eyes, caused by flying rock fragments.
- Control** Wear safety goggles and warn those close by before hammering for samples. Gloves may be needed when hammering hard, brittle rock and on cold days
- Hazard** Unstable mounds of rock debris, including stockpiles of rock. Stockpiles in particular can pose a major hazard as they can be very unstable and capable of flowing or collapse without warning. Materials with a higher fines content may temporarily stand at angles greater than their angle of repose.
- Control** Do not walk on or near loose piles of rock.
- Hazard** Moving machinery, lorries etc., **mobile crushing plants, face loaders, drilling rigs**
- Control** Always look around with vigilance for any moving vehicles or machines. Many of these are very large and the drivers may not see you. **Keep away from all fixed and moving machinery**
- Hazard** Steep faces with or without loose rock debris; rock falls
- Control** Keep away from all faces. Do not go beyond any fence, gate or edge protection, (including lines of pop-stones or bunding) without authorisation from site representative. Do not go within 5m of any unprotected top of a face. Never walk up or down an area of loose rock debris to go from one quarry level to another. Always use the designated roads either on foot or in a vehicle. Be particularly vigilante immediately after blasting or in frosty or wet weather.
- Hazard** Blasting
- Control** You will be instructed to evacuate the quarry prior to blasting. Be sure to adhere to these instructions and leave the quarry immediately when instructed and do not finish what you are doing.
- Hazard** Unconsolidated faces in superficial deposits, particularly sand/gravel
- Control** Keep away from all unconsolidated faces. Do not go beyond any fence, gate or edge protection, (including lines of pop-stones or bunding) without authorisation from site representative. Do not go within 5m of any unprotected top of a face.
- Hazard** Driving in the quarry
- Control** Always drive slowly; **always use hazard warning lights and a flashing orange light attached to the roof of the vehicle; keep to designated routes**; look out for muddy and potentially slippery areas and avoid if possible; look out for areas of soft ground

and avoid; beware of large pieces of rock; give way to all quarry plant movements and move when requested to do so; avoid areas where there is active working; do not drive near to the edge of faces; park in areas clear of all working and quarry movements and well away from the faces so that the vehicle can be clearly seen. Never stop or park close to movable plant.

Hazard Standing water, flooded workings and silt lagoons

Control Avoid all areas of water and silt lagoons

Hazard Dust

Control Wear face masks where dust is a problem

Hazard Noise

Control Wear ear protectors if noise is a problem

Non-working Quarries

Risk Injury caused by toxic substances, climbing, stumbles and falls over rough ground, loose or slippery rocks, rock falls. Falling into sludge ponds and other areas of potentially soft ground or deep standing water.

General Controls Wear safety equipment provided and comply with safety instructions issued by owners or site managers. Take extra care near exposed edges of rock faces and steep slopes. Never climb rock faces. Take a mobile phone.

Hazard Hammering

Risk Injury, especially to eyes and face, caused by flying rock fragments.

Control Wear safety goggles and warn those close by before hammering for samples. Gloves may be needed when hammering hard, brittle rocks.

Hazard Injury caused by working or abandoned machinery, toxic substances, fly tipping.

Control Wear safety equipment provided and comply with safety instructions issued by owners or site managers. Keep with group and avoid moving or abandoned equipment and vehicles.

Hazard Falling into sludge ponds and other areas of potentially soft ground or deep standing water.

Control Avoid all areas of water and silt lagoons

Hazard Unstable mounds of rock debris, including stockpiles of rock. Stockpiles in particular can pose a major hazard as they can be very unstable and capable of flowing or collapse without warning. Materials with a higher fines content may temporarily stand at angles greater than their angle of repose.

Control Do not walk on or near loose piles of rock.

Hazard Uncompacted rubbish, slurry

Control Keep away from and do not walk on any rubbish or areas that may include slurry

Hazard Steep faces with or without loose rock debris

Control Keep away from all faces. Do not go beyond any fence, gate or edge protection, (including lines of pop-stones or bunding) without authorisation from site representative. Do not go within 5m of any unprotected top of a face. Never walk up or down an area of loose rock debris to go from one quarry level to another. Always use the designated roads either on foot or in a vehicle. Be particularly vigilante in

frosty or wet weather. Take extra care near exposed edges of rock faces and steep slopes

Hazard Landslides: these can occur in any quarry but particularly those in unconsolidated sediments

Control Keep away from all faces

Hazard Injuries caused by stumbles and falls over rough ground, loose or slippery rocks.

Control Wear suitable stout footwear with good grip to protect feet and ankles

Hazard Abandoned buildings

Control Keep away from and do not enter any disused buildings

Hazard Unconsolidated faces in superficial deposits, particularly sand/gravel

Control Keep away from all unconsolidated faces. Do not go beyond any fence, gate or edge protection, (including lines of pop-stones or bunding) without authorisation from site representative. Do not go within 5m of any unprotected top of a face.

Hazard Vegetation

Control Avoid whiplash from tree branches where two or more people are walking through vegetation. Do not walk through areas of thick vegetation.

Hazard Driving in the quarry

Control Always drive slowly; look out for muddy and potentially slippery areas and avoid if possible; look out for areas of soft ground and avoid; beware of large pieces of rock; do not drive near to the edge of faces; park in areas away from the faces.

Hazard Lone working

Control Always ensure you have a mobile phone or other means of communication. Keep in regular contact with a member of staff for the duration of being in the quarry. Do not enter large quarries alone.

Hazard Lack of lighting – some abandoned quarries may be very overgrown with vegetation resulting in poor visibility and the potential for increasing all of the hazards listed above

Control Take a torch; do not go into quarries with poor visibility alone.

Hazard Lack of emergency response

Control Always ensure you have a mobile phone or other means of communication. Carry spare warm clothing in case of emergency.

Code of Conduct

Take all reasonable precautions to maintain your own safety and that of others.