



Do you work in a

**QUARRY?**



A simple guide  
to the Quarries  
Regulations 1999

# Introduction

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Quarries are dangerous places, often using large numbers of vehicles, explosives and handling large amounts of heavy materials. Although much has been done to improve health and safety standards, the quarries industry still has a poor health and safety record. Someone working at a quarry is more than twice as likely to be killed through an accident at work as a construction worker and 13 times as likely as someone working in manufacturing industries. Members of the public can also be at risk as a result of quarry work, for example if they live or work nearby or come to the quarry to buy materials.

The Quarries Regulations 1999 aim to tackle these dangers and improve health and safety standards. The Regulations will not, by themselves, stop accidents or prevent ill health, but they are a good starting point and should help everyone work together to tackle these problems.

This leaflet explains, in simple terms, the main requirements of the Regulations and provides some practical guidance. It is intended to help anyone working in a quarry who wants to know more about health and safety. There is more detailed information in the Approved Code of Practice (ACOP) and guidance accompanying the Regulations (see the 'Further reading' section for details).

The Quarries Regulations apply at all active quarries and cover:

- mineral extraction;
- crushing, screening, washing, drying, bagging and similar work;
- transport around a site and to, but not on, public roadways; and
- tips (including stockpiles) of any kind.

# Operators

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The operator is usually the company running the quarry. Most of the duties under these Regulations are placed on operators.

Their responsibilities start with the design of the quarry, which can often eliminate hazards or at least significantly reduce them. They have to make sure that the quarry is designed, staffed and equipped so that it can be run safely.

Operators' duties fall into three basic areas.

## Planning and preparation

They need to:

- consider the site geology;
- decide what plant is required;
- decide on site layout including haul roads and the siting and building of tips;
- take into account the presence of roadways, streams, electricity lines etc;
- appoint a suitable overall quarry manager and management team, setting out their responsibilities;
- assess the risks and ensure a plan is prepared and revised as required. This includes risks to health and safety from materials and equipment;
- set up lock-off and permit-to-work systems for particularly hazardous tasks;
- develop a health and safety document and site rules and ensure that everyone understands them; and
- notify the Health and Safety Executive (HSE) about the quarry and any hazardous excavations or tips.

## Day-to-day work

They need to:

- ensure there are enough suitable employees and contractors to do the work;
- ensure that all employees and contractors are competent, and have had adequate training for the work they have to do, including proper induction;
- encourage the workforce to be actively involved in health and safety;
- ensure that the work is properly co-ordinated and that there is co-operation with and between any contractors;
- report accidents, dangerous occurrences and cases of ill health to HSE as required by the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR) (see 'Further reading').

## Review and monitoring

They need to monitor and review:

- physical safeguards, eg guards, interlocks and visibility aids; and
- safety procedures.

This needs to happen:

- routinely — before anything goes wrong;
- after accidents or near misses to see what went wrong and why; and
- when working practices change significantly.

They need to:

- ensure safeguards and safety procedures are satisfactory and appropriate and work in practice;
- explain the findings to everyone affected; and
- put any required changes into practice.

# Contractors

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At many quarries, employees and self-employed people from several companies work side by side. Contractors and operators must co-operate to achieve improvements in health and safety standards.

Although most of the responsibilities in the Regulations are placed on the operator, other employers and self-employed people still have duties under health and safety law. These include:

- providing the operator with information about the risks from their work and how they will deal with them;
- working in line with the health and safety document and site rules;
- reporting accidents, dangerous occurrences and cases of ill health to the operator who then has to report them to HSE under RIDDOR.

# Workforce participation

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Although operators and contractors must take the initiative to ensure health and safety, everyone working at a quarry must help, by pointing out risks and suggesting improvements, if quarries are to be made safer. Everyone working there must also comply with the site rules and do their work safely.

A committee can be appointed by the workforce or a body representing it, eg a trade union. Two members of this committee have the right to:

- inspect and take samples after an accident or dangerous occurrence;
- carry out an inspection of every part of the quarry at monthly intervals, accompanied, if they wish, by their advisors;
- study the health and safety document;
- review any risk assessments which form part of the health and safety document and suggest improvements; and
- make a written report on any health and safety problems found during their inspections.

These rights are in addition to those provided under the Safety Representatives and Safety Committees Regulations 1977 and the Health and Safety (Consultation with Employees) Regulations 1996 (see 'Further reading').

# The health and safety document

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Every operator, no matter how small the quarry, must prepare a health and safety document. Its purpose is to demonstrate that the risks at the quarry have been identified and are properly controlled. It helps everyone to understand their health and safety responsibilities and how they fit in with others. Everyone working at the quarry can make a useful contribution in identifying the risks and preparing the document.

It must set out in writing, in a way which can be understood by everyone who works there, key information about health and safety at the quarry.

This includes:

- what the risks are;
- the measures taken to control those risks;
- how the quarry is managed; and
- how the work of everyone, including contractors, is co-ordinated.

The health and safety document must be updated as things change or as more is learned about the risks. It must be available to every employer and person at work at the quarry.

# Training and competence

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Everyone working at a quarry must be competent for the work they do. They must be properly trained and have the experience and knowledge to work safely. Some need formal qualifications, eg explosives supervisors, geotechnical specialists and shotfirers.

There must be suitable induction for everyone new to the site. This needs to include a site tour explaining relevant hazards and how they are dealt with and also the first-aid and other emergency arrangements. In addition, training or coaching will often be required for people taking on new responsibilities or using new equipment or systems of work.

**Good standards of health and safety can only be achieved if operators, contractors, employees and any consultants are all competent for the work they have to do and work together effectively, as a team.**

# Controlling risks

## Excavations and tips

All excavations and tips, including stockpiles and lagoons, are covered by these Regulations. It does not matter how big or small they are, what material a tip is made from, where that material comes from, or what will happen to it later. Tips to be used for refilling the excavation or landscaping the site after extraction, stockpiles of materials for later processing or sale, amenity and soil bunds are all covered.



### Safety checklist

- Was there a thorough site investigation before work began?
- Has the excavation or tip been properly designed?
- Do the working methods tally with the design?
- Is the quarry and its equipment well maintained?
- Do cracks, collapses or other discoveries raise doubts about the design?
- Are there significant overhangs in excavations or vertical faces in tips?
- Is there loose material on a face which could injure someone?
- Have barriers been placed around areas where material is extracted from a water-filled excavation and the edge may collapse without warning?
- Are there proper records of materials tipped?
- Has an appraisal been done?
- Is a geotechnical assessment by an expert required? If so, has HSE been notified and is the assessment repeated at least every two years or if things change significantly?
- Do the excavations and tips rules deal with all these points and do they work in practice?

## Vehicles

Every year about three quarry workers are killed and 12 seriously injured by reversing or moving vehicles, accounting for over 60% of fatal accidents in quarries.



### Safety checklist

- Are the vehicles suitable for the work and conditions?
- Are benches and haul roads suitable for the type and size of vehicles used (eg layout, strength, surface, width, slope, signs)?
- Is there adequate edge protection where there are drops or lagoons?
- Are all drivers assessed and authorised?
- Are keys always removed and vehicles left secure?
- Are any restrictions on where vehicles may be used, eg due to height, width, gradient, or overhead power lines, clearly marked?
- Is reversing minimised and properly controlled where it cannot be avoided?
- Are speed limits/one-way systems clearly marked and enforced?
- Are pedestrians kept away from vehicle routes, particularly reversing areas?
- Are safety devices, eg seat belts/visibility aids fitted and used?
- Are vehicles used when the weather, eg fog, rain, mud, ice or snow, makes it unsafe?
- Is tipping and sheeting carried out safely?
- Are vehicles well maintained and do drivers report defects?
- Can vehicles cross public footpaths or roads without endangering the public?
- Are haulage contractors' vehicles subject to the same rules?
- Are light and heavy vehicles kept apart?
- Do the vehicles rules deal with all these points and do they work in practice?

## Explosives

A competent explosives supervisor must be appointed to organise and supervise the safe and secure storage, handling and use of explosives.



### Safety checklist

- Have shotfirers, trainee shotfirers, storekeepers and others working with explosives been properly trained, appointed and authorised?
- Are explosives and ammonium nitrate stored and transported safely?
- Are explosives secure from theft?
- Is the explosive mixed/stored in accordance with the licences?
- Is shotfiring equipment suitable and properly maintained?
- Are times when shotfiring may take place made clear?
- Is there a blasting specification, tailored for each blast, to minimise the risk of flyrock or misfires and ensure that faces are left in a safe condition?
- How is the danger zone determined and kept clear during blasting?
- Is visibility good enough to carry out all shotfiring and post-shotfiring operations safely?
- Are there adequate shelters for the shotfirer when blasting?
- How is the state of the face and the possibility of misfires checked after a blast?
- Are misfires dealt with safely?
- Do the explosives rules deal with all these points and do they work in practice?

# Inspection and maintenance

Quarries must be properly inspected and maintained to safeguard people's health and safety. Guidelines should set out what should be inspected, how often, in what detail and who should do the inspections. (In addition to the inspections carried out by the operator, representatives of the employees can also carry out inspections on behalf of the workforce.)

There is a model inspection form in the ACOP. It can be downloaded from <http://www.open.gov.uk/hse/spd/tipform.doc> and edited to meet individual requirements.

If there is an immediate risk of injury, equipment may need to be taken out of use or work in a particular area may need to be stopped.

There are many different regulations that also contain inspection and maintenance requirements which must be met, for example, the Provision and Use of Work Equipment Regulations 1998.



## Inspection and maintenance checklist

Are the following properly inspected and maintained:

- vehicles?
- machinery guarding?
- safety devices such as reversing aids, interlocks and trip wires?
- quarry electrical equipment?
- pressure systems, including air receivers on vehicles?
- pedestrian routes, roadways and any edge protection?
- excavations and tips?
- buildings and all other structures?
- any barriers provided around the quarry to prevent trespass?
- faces above working places or roads? (These must be inspected before work starts each day for loose ground or rocks.)



## Hazards and emergencies checklist

### Hazardous work

- Have any particularly hazardous jobs been identified, eg working in confined spaces, or where guards are removed?
- Have lock-off and permit-to-work procedures been set up and does everyone know when and how to apply them?

### Emergency lighting

- Is there adequate emergency lighting if work goes on after dark? (Independently powered lighting towers are sufficient, where the failure of any one would still leave enough light to enable people to leave the area safely.)
- Can security staff and others who have to move around the quarry at night do so safely? For example, do they have torches for emergency use?

### Escape and rescue

- Have the sort of emergencies which might happen been considered?
- Does everyone know what to do if the worst happens, and have they been properly trained?
- Is the required equipment readily available and properly maintained?
- Have the possible emergencies and action needed been discussed with the emergency services?

# Danger areas

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Areas of the quarry where there are particular health or safety hazards need to be marked and treated as danger areas. Unauthorised people must be excluded from such areas, for example by erecting warning signs and barriers. People should only enter a danger area if it is essential and when appropriate safeguards are in place. There should be barriers that clearly identify the boundary of the danger area and make entry impossible without a conscious effort.

Danger areas include:

- sections of the excavation which may collapse onto people, eg significant overhangs;
- edges of excavations which may collapse under people or equipment, eg water-filled excavations;
- places from which people can fall more than 2 m or where falling a lesser distance could be particularly dangerous;
- places where people may be struck by falling objects such as stone falling from faces or conveyors;
- places where there are materials which behave like quicksand which could drown people; and
- lagoons.

# Barriers to discourage trespass

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Suitable barriers must be provided around the quarry if members of the public are likely to trespass on to the site. Barriers should always be provided at quarry boundaries if they are near to schools, colleges, shops or a significant number of homes.

The type of barrier will depend on the risks. In a rural area where the risk of public access is low, hedges, trenches and mounds may be sufficient. At the other extreme where there is evidence of persistent trespass by children, which places them at significant risk, sophisticated metal paling fences may be required.

# Further reading

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*Health and safety at quarries* HSE Books 1999 L188 ISBN 0 7176 2458 7

*Management of health and safety at work. Management of Health and Safety at Work Regulations 1992. Approved Code of Practice* L21 HSE Books 1992 ISBN 0 7176 0412 8

*Safe use of work equipment. Provision and Use of Work Equipment Regulations 1998. Approved Code of Practice and guidance* L22 HSE Books 1999 ISBN 0 7176 1626 6

*General COSHH ACOP, Carcinogens ACOP and Biological Agents ACOP. Control of Substances Hazardous to Health Regulations 1999. Approved Codes of Practice* HSE Books 1999 L5 ISBN 0 7176 1670 3

*Workplace health, safety and welfare. Workplace (Health, Safety and Welfare) Regulations 1992. Approved Code of Practice* L24 HSE Books 1992 ISBN 0 7176 0413 6

*Manual handling. Manual Handling Operations Regulations 1992. Guidance on Regulations* L23 HSE Books 1998 ISBN 0 7176 2415 3

*Personal protective equipment at work. Personal Protective Equipment at Work Regulations 1992. Guidance on Regulations* L25 HSE Books 1992 ISBN 0 7176 0415 2

*Guidance on the Noise at Work Regulations 1989* L108 HSE Books 1998 ISBN 0 7176 1511 1

*Safe work in confined spaces. Confined Spaces Regulations 1997. Approved Code of Practice, Regulations and guidance* L101 HSE Books 1997 ISBN 0 7176 1405 0

*Safe use of lifting equipment. Lifting Operations and Lifting Equipment Regulations 1998. Approved Code of Practice and guidance* L113 HSE Books 1999 ISBN 0 7176 1628 2

*A guide to the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995* L73 HSE Books 1996 ISBN 0 7176 1012 8

*Safety representatives and safety committees* (Third edition) HSE Books 1996 ISBN 0 7176 1220 1

*A guide to the Health and Safety (Consultation with Employees) Regulations 1996* L95 HSE Books 1996 ISBN 0 7176 1234 1

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This leaflet contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.

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