

Building a Safety Culture in Ireland

Patrick Griffin

Senior Inspector

Health and Safety Authority



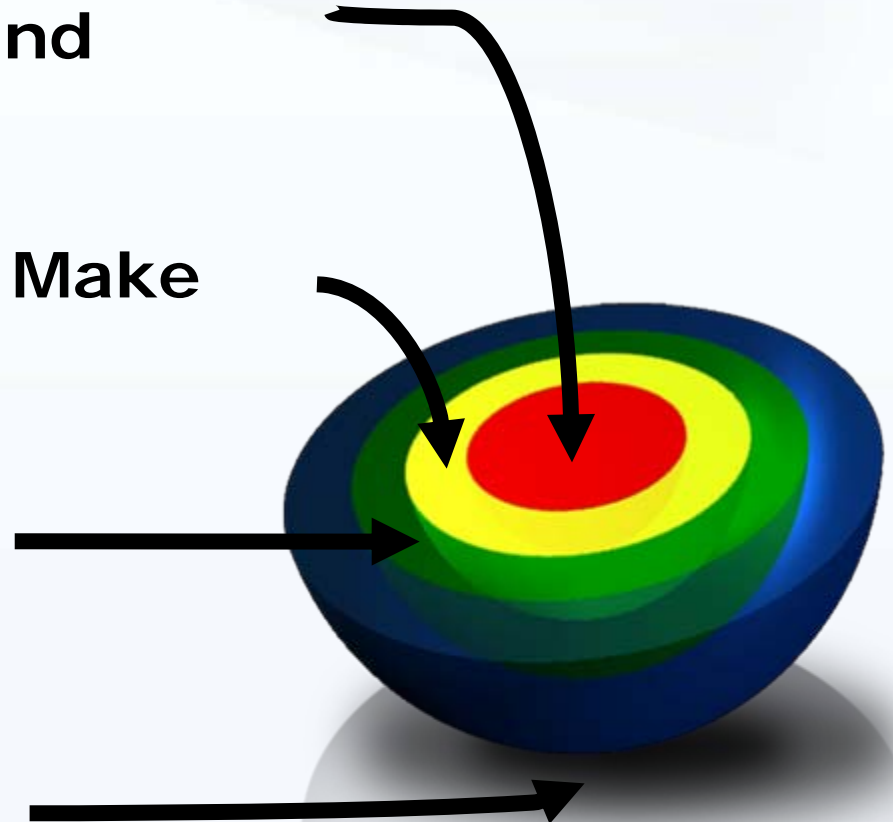
Health & Safety Authority

Promote, Encourage and Foster

Monitor, Evaluate and Make Recommendations

Provide Legislation and Information

Enforce Legislation and Standards





Role within the Authority

	Pat Griffin
Staffing	Anthony Morahan – Agriculture Specialist (Part – time 66%) Tom Browne – Research Clerical (one- shared with 6 others)
Level 1	Agriculture Quarries
Level 2	Mines Explosives Forestry
Level 3	Signage – Signs Directive



Extent of the Problem

- Deaths
- Injury
- Ill-health
- Costs to Individual
- Costs to Companies
- Costs to Society





Sector Performance

- EU average is 7 FA per 100,000 workers per year
- In the EU a Worker has an accident every 5 seconds
- In the EU a Worker suffers a FA every 2 hours

Irish Fatal Accident Rates- (3 year rolling average)

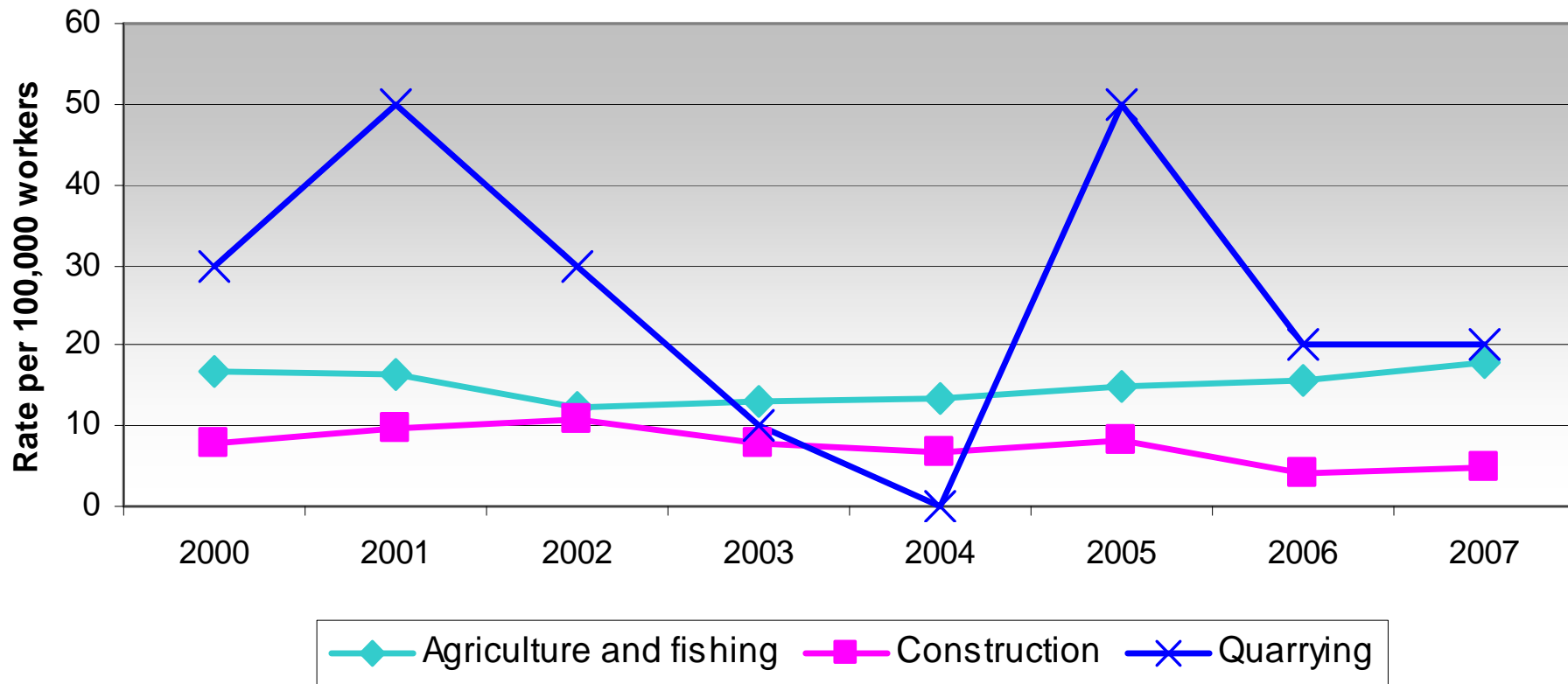
- General Workforce 3 FA per 100,000 workers
- Construction 6 FA per 100,000 workers
- Agriculture 16 FA per 100,000 workers
- Quarrying 26 FA per 100,000 workers
- Fishing 86 FA per 100,000 workers

Sector Target must be Zero Incidents



Ireland's FA Rate Performance

Fatality rates 2000-2007: Agriculture and fishing / Quarrying / Construction





Occupational Health

- **60% of those at work have suffered an illness (30% MSD; 12% Stress)**
- **300,000 report a chronic health problem (110,000 of these at work)**
- **Illness rate increasing - some sectors significant (agric; fishing; health and social work)**

Occupational Health - Ireland

- Irish Exchequer Income – approx €40 - €45bn
- Costs of Incidents and ill health at work - €3.6bn (Indecon; 2006)
- Absenteeism - €1.5bn cost (IBEC 2004)
- Small business - €692m per annum
- Indirect costs - lost output, quality, lost customers
- Data shortcomings – Lack of consensus on Data
- H.S.A. Budget – €22m per annum



Other Areas Impacting Health & Wellbeing

- Noise Induced Hearing Loss
- Level of exposure to breathing in vapours, fumes, dust etc higher in Ireland than EU15.
- Exposure to handling dangerous substances is higher for Irish workers than EU15
- Occupational exposure to carcinogens – e.g. solar radiation
- Occupations at risk of asbestos exposure



Psychosocial

- Stress - the second most reported work related health problem
- 7% report being bullied at work (140,000)
- Physical violence at work higher in Ireland than other EU15



Sector Objectives

Zero Incidents and Zero Fatalities Through-

- **Employer and Employee Commitment**
- **Enforcement Activity of Compliance Inspectors**
- **Prevention Services**

STRATEGIC

EU Strategy, Minister, DETE, Board, Social Partners, Strategic Alliances, Workers for Tomorrow, MOUs

ENVIRONMENTAL

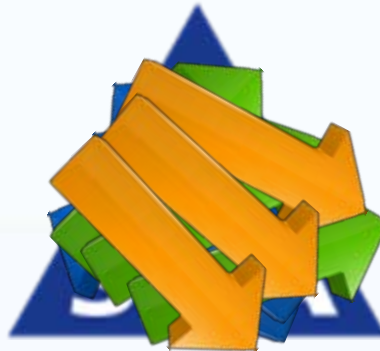
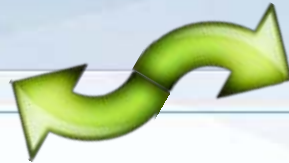
Changing Demography, Economy, Culture, Labour Market, Public Safety

The Problem

Extent of Death/injury, Root Causes, Costs to individuals and economy, High Risk Sectors, High Risk activities

Solution

Commitment from CEO's & Senior Mgt, Visible Leadership, Live Risk Assessments, SME, Training, Family Dimension, Key Issues,



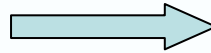
Building a Safety Culture

- Modern Appropriate Legislation
- User-friendly Guidance
- Shared Industry Responsibility
- Effective Training regime

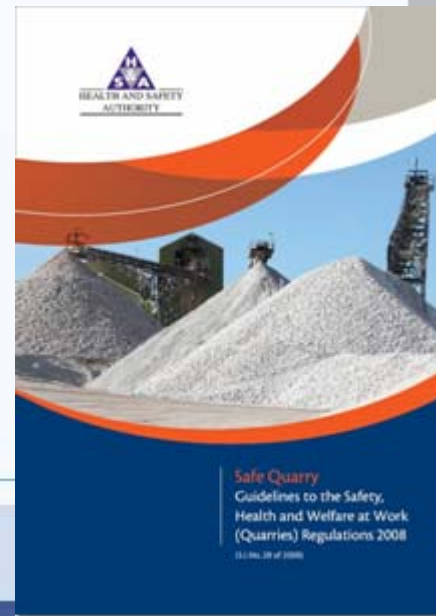
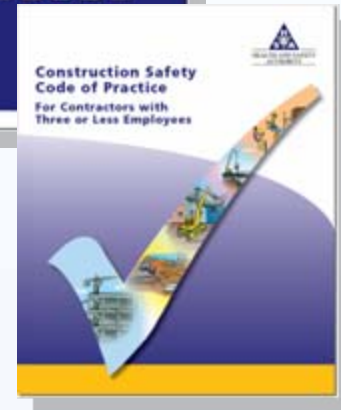


Rationalisation of Legislation

Up to date Legislation



- 2005 Act
- 2007 General Application Regulations
- 2007 Construction Regulations
- 2008 Quarry Regulations





Previous Quarries Legislation

Mines & Quarries Act 1965

Quarries (General) Regulations 1974

Quarries (Explosives) Regulations 1971

Quarries (Electricity) Regulations 1972

M&Q (Reference) Rules 1970

M&Q (Dangerous Occurrence) Regulations 1970

M&Q (Notification of Diseases) Regulations 1971

M&Q (General Register) Regulations 1974

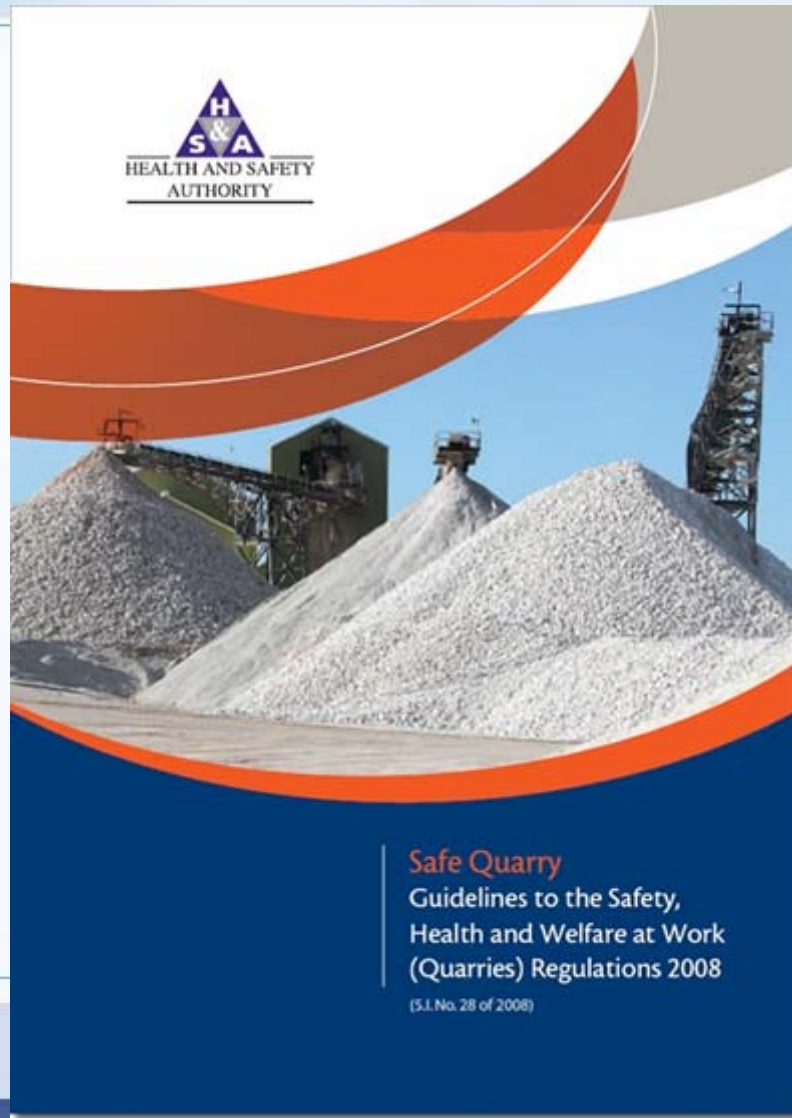
Quarries (Explosives)(Amendment) Regulations 1976

Safety, Health & Welfare at Work (Extractive Industries)
Regulations 1997

ALL THESE IN RELATION TO QUARRIES ARE NOW REVOKED.



Regulations & Guidance





Interpretation





Guidance Includes

1. All the text of the Regulations,
2. Detailed explanations,
3. Sample notification and inspection sheets,
4. Extensive use of pictures and diagrams
5. Attractive layout to ensure user-friendly
6. Links on H.S.A. web to the document and other sources of information including Atlantic Alliance



Guidance

Figure 3: Sample Daily Inspection Record for a Quarry

QUARRY	DAILY INSPECTION	DATE	WEATHER
Area	Condition of Face	Comments	
West Face	Some loose at upper part of face	From last blast (01/05/08), to push down with excavator today.	
East Face	Good - No Loose	Not worked for 2 Months	
South Face	OK	Drilling to commence today, holes position marked up	
Condition of Haul Road			
West Haul Road	Requires improvement on Ramp	Height of Edge Protection to be raised with scalplings - Ongoing	
East Haul Road	OK	Direction Arrow Signs to be installed, on Order	
South Haul Road	Some Potholes to be filled	Ongoing	
Observations			
Mobile Plant	Reversing Siren not working on Articulated Dumptruck	Electrician to check out	
	Idler Roller guard missing on Mobile Crusher	Fitter making new guard	
Fixed Plant	Checked all Pull-wires OK	Checked all Pull-wires OK	
	All Guards in place	All Guards in place	
Other Matters			
John Smith attending Excavator Driver Training Today			
Person making this report & position:		Signature:	
A Foreman Asst Quarry Manager		A Foreman	

16.1 Imminent Risks

If an imminent risk of serious injury is discovered during an inspection, the scheme must require immediate action to safeguard those at risk. This may include, for example, suspension of work in the area or the taking of an item of plant out of use. Situations where such action is likely to be appropriate include:

- loose ground or overhanging rocks above a loading point, roadway or workplace;
- a vehicle with inefficient brakes or faulty steering;
- missing edge protection on roads, benches, ramps and tipping points;
- machinery with missing guards or faulty safety devices, etc.

any third party periodic inspections carried out, for example, by an insurance engineer, an electrician, etc.

Records must show when the inspection was carried out, details of any significant defects found and any remedial action taken. Significant defects are those which:

- create a significant risk; or
- may indicate the existence of a significant design or maintenance problem.

The report must be signed by the person making it, and countersigned by an appropriate manager or supervisor. This needs to be someone who can judge whether proposed remedial measures are appropriate and authorise them. Types of defect which need to be brought to the personal attention of the quarry manager, or other designated person, should be identified in the scheme.

Sometimes equipment is inspected by, or on behalf of, the operator although it belongs to another person, for example, a hire company or a contractor. In such cases, the owner of the equipment should be informed of any defects found.

Anyone who notices a hazard related to the condition of the quarry or its equipment should bring it to the attention of the supervisor or manager without unreasonable delay.

A sample checklist and report form is shown overleaf at Figure 5. It is a model which should be tailored to the needs of a particular quarry. It is not intended to be used exclusively as it is presented.

Figure 4: Crushed by Face Collapse



16.2 Records of Inspection and Maintenance

Records, which may be computerised with digital signatures, should be kept for all inspections, unless this would involve disproportionate effort, for example, where small tools are inspected by their user before use and the time taken to carry out the inspections is less than the time to record it. Records will always be required, however, where significant defects are found, unless the tool is immediately scrapped. Records are also required for



Guidance

Danger areas at a quarry where access is required and there is significant risk should be treated as hazardous areas and appropriate precautions taken.

Consideration needs to be given to:

- sections of the excavation, particularly where there are significant overhangs, which are liable to collapse;
- edges of excavations, particularly water-filled excavations, which are liable to collapse;
- places from which persons can fall from height;
- places where falling objects such as stones may fall from faces or sides;

- places that contain soft materials or deep water where a risk of drowning exists; and
- hazardous maintenance activities.

No barrier can totally prevent access by a determined person, but barriers should clearly identify the boundary of the danger area and be appropriate to the risk. Barriers can consist of tensioned ropes or straps. Fences or earth bunds, which provide equivalent protection, are also acceptable as well as anything which provides similar protection and this must be based on an assessment of risks.

Figure 27: Signage, bunding and rescue equipment at a sand & gravel lagoon



Figure 28: Installing quarry face edge protection



In this system aluminium poles are inserted into pre-drilled holes approximately one metre deep.

These holes are drilled behind the last line of blast holes so that they can be re-installed immediately following blasting.

Figure 29: Installing quarry face edge protection



Two tensionable fibre straps are connected between poles up to 20 metres apart.

Netting or intermediate bands can be used to maintain a constant distance between the straps.

Figure 30: Installing quarry face edge protection



Straps are then tensioned to provide a strong fence at the working area up to any length.

This temporary fencing can remain in place until the area is ready for blasting when it is removed to a place of safety until it is required to be re-erected.

The consequences of objects falling on workers, or persons falling from a height over quarry edges or through cat-walk or floor openings or into corrosive or poisonous liquid or into lagoons or settling ponds are so serious that high standards of protection are required.

Secure fencing should normally be provided to prevent people falling from edges, and the fencing should also be adequate to prevent objects falling onto people. Where fencing cannot be provided or has to be removed temporarily, other measures should be taken to prevent falls.

The stacking or storage of materials or objects at levels from which, if they fall they could injure employees, should be secure. Warning signs should be provided to prevent unauthorised employees entering such areas, unless under direct supervision.

22. TRAFFIC ROUTES (Regulation 25)

25. The operator shall ensure that -

- traffic routes, including stairs, fixed ladders, loading bays and ramps, are designed, located, laid out and made negotiable to ensure easy, safe and appropriate access in such a way as not to endanger persons working in the vicinity of these traffic routes;
- routes used for pedestrian or goods traffic, or both, including those used for loading and unloading, are dimensioned in accordance with the number of potential users and the type of activity concerned;
- if means of transport are used on traffic routes, a sufficient safety clearance or adequate protective devices are provided for other quarry users, and routes are clearly marked, regularly checked and properly maintained;
- sufficient clearance is allowed between vehicle traffic routes and doors, gates, passages for pedestrians, corridors and staircases, and
- traffic routes are clearly identified for the protection of persons at work.

The vehicles normally present at quarries include, loading shovels, ridged & articulated trucks, delivery trucks, fork lift trucks, mobile lifting equipment, commercial vans and lorries and private vehicles.

Traffic routes, haul roads and passageways should be wide enough and the surfaces suitable for the safe movement of the largest vehicle liable to use them. Allowance should be made for the size and design of vehicles coming into the premises from outside.

Sharp bends and blind corners should be eliminated as far as possible and, where this is not possible, warning signs and mirrors should be used to reduce the risk of accidents. Traffic routes for heavy traffic should be designed, where possible, to avoid the areas mainly used by pedestrians.

The need for vehicles to reverse when collecting or delivering goods should, where possible, be avoided. Where quarry vehicles, forklift trucks, lorries, vans etc. have to reverse, markings on the ground in the area frequently used for reversing should be provided to aid the driver. Any person giving instructions to drivers should avoid doing so from behind the vehicle. A realistic speed limit should apply to all site vehicles and those making deliveries etc. and an appropriate speed limit should also apply within buildings.





Traffic routes should be suitably designed and maintained for the traffic to be carried -

- roads or floor surfaces should be constructed and surfaced with suitable material, surfaces should be even and properly drained;
- excessive gradients should be avoided;
- routes for pedestrians between levels within buildings should be by a properly constructed stairs, elevators, lifts or suitably constructed ramps or cat-walks;
- the use of fixed ladders for access should be avoided unless access is not needed by other means and no other means is possible.

Where mobile equipment is in use in workrooms traffic aisles should be arranged so as to avoid sharp corners, inclines, steep ramps and narrow passageways. They should be clearly defined, by floor markings, if necessary, and be free of obstacles.



Shared Industry Responsibility

-  Quarries Safety Steering Committee
-  Strategic Alliance with Irish Concrete Federation -ICF
-  Visible Leadership – CEO/Managers
-  Co-operation on Events – QSW/Conf



National Conference – 2008





QSW – Industry Initiatives





Training

Statutory Training Requirements;

- **Induction** training & instruction is immediate,
- Persons competent to carry out work assigned.
- Schedule 1 gives the list of Tasks requiring **Skills Card**, (1st Nov 2009)
- Working with Training Authority



A Lot Done – More To Do

Thanks for your Attention

