

Health and Safety Executive		Sector Information Minute	
Manufacturing		SIM 03/2007/10	
Cancellation Date	19/03/2011	Open Government Status	Fully Open
Version No & Date	1: 19/03/2007	Author Unit/Section	Manufacturing Sector

Target Audience:

All FOD Inspectors inspecting quarries

All Mines Inspectors inspecting opencast coal sites

COMPETENCE OF SHOTFIRERS AND EXPLOSIVES SUPERVISORS IN THE QUARRY INDUSTRY

This SIM outlines enforcement policy to the end of 2010, relating to the industry framework for assured competence for shotfirers and explosives supervisors. The scheme has been developed in consultation with stakeholders and agreed by the Quarries National Joint Advisory Committee (QNJAC), as a co-ordinated effort to comply with Regulation 9 of the Quarries Regulations for these safety critical roles.

Addressing competence at quarry inspections contributes directly to the Workplace Inclusion, Diversity and Education programme, and indirectly to all other priority programmes. This SIM contributes to the HSC's Enforcement Strategic Enabling Programme.

BACKGROUND

1 Regulation 9 of the Quarries Regulations 1999 requires all those working at the quarry to be **competent**, whether or not they are employees of the quarry operator, and that there are sufficient competent people on site to manage the quarry and supervise as necessary. The general inspection and enforcement approach for assessing competence in the quarry industry is outlined in SIM 03/2005/15. It is a QNJAC aim that the industry is fully competence assured by 2010, since improved health and safety performance is a benefit.

2 Blasting is one of the most potentially dangerous operations in hard rock quarrying. There is the immediate risk associated with the storage, transport and handling of explosives, wider on-site risks associated with firing the shot itself, and secondary risks such as flyrock which may go beyond the quarry boundary, poorly designed or problematic blasts affecting subsequent quarry operations, and the risk of misfires caused by poor blast design, poor practice or faulty equipment. It is essential that those involved understand how best to avoid or manage the risks.

LEGAL BACKGROUND

3 Regulation 9 of the Quarries Regulations 1999 requires quarry operators to ensure that anyone working at a quarry should be competent to do so (or be under competent supervision if undergoing training). Competent means "a person with sufficient training, experience, knowledge and other qualities to enable him properly to undertake the duties assigned to him" (Regulation 2).

4 The quarry industry has been progressive in its understanding of competence and competence assurance during recent years, and purely knowledge-based training for those working with explosives is now considered to fall short of meeting the competence requirement under Regulation 9. A cut-off date of the end of 2006 was set by HSE to give a focus for the necessary action by stakeholders.

5 Considerable consultation has taken place with EPIC, the industry's main training provider, and those operating in the industry, to map out acceptable ways to ensure that Shotfirers and Explosives Supervisors can demonstrate and maintain competence to the relevant national standard, and can continue to undertake or supervise blasting operations and remain in compliance with Regulation 9.

NATIONAL OCCUPATIONAL STANDARD FOR BLASTING OPERATIONS

6 Using the existing framework of National Occupational Standards (NOSs), the measure of competence is through the attainment of relevant NVQ units. NVQs for shotfiring have been available since the mid-1990s, and since 2000 for blast designers and explosives supervisors. When the NOSs for working with explosives were reviewed in 2005, all the Units were combined into one suite of standards, now known as Blasting Operations. A table of the units relevant to quarry work is given at Appendix 1.

7 It is important to note that the achievement of each individual unit is a qualification in itself, and the units undertaken by an individual should reflect their range of job responsibilities, perhaps also with consideration of units which would be desirable to achieve towards potential progression or promotion routes.

8 Full details of how to achieve or maintain competence for Shotfirers and Explosives Supervisors will be maintained on EPIC's website, which should be used as the main source of up to date and detailed information beyond the scope of this SIM.

TRAINING AND EXAMINATIONS

9 Until the mid 1980s, training of those involved in blasting was *ad hoc*. The Quarry Products Training Council (QPTC), in conjunction with HSE, industry and manufacturers of explosives, then introduced two examinations, in Shotfiring Operations and Blast Design. These examinations became the established norm for those wishing to become shotfirers or designers of blasts. These qualifications are now referred to as the "Old (pre 2002) examinations". QPTC expanded in the mid 1990s to become EPIC.

10 With the introduction of the Quarries Regulations in 2000 a thorough review of this training was undertaken and a new set of examinations was introduced in 2002, consisting of 4 modules:

- Module 1 Shotfiring
- Module 2 Blast Design & Calculation
- Module 3 Environmental
- Module 4 Health & Safety Legislation.

11 These qualifications are referred to as the “New Style (post-2001) examinations”. As with the “old” exams, the Shotfiring examination has to be passed before any of the other examinations can be taken. These training courses and examinations remain current and available, and are a straightforward way to gain the necessary underpinning knowledge needed for safe firing or supervision of shots.

12 Prior to 1 January 2007, on successful completion of the Shotfiring Module, an EPIC Shotfiring Card and Certificate were issued, and, once all four modules had been passed, an EPIC Explosives Supervisor Card and Certificate were issued. These cards and certificates are evidence of knowledge rather than of competence.

13 The knowledge-based system does not measure the extent to which a person can, or has, put the acquired knowledge into practice, nor address the other aspects of competent explosives practice.

14 The advantage of an NVQ unit is that candidates have to demonstrate in their own workplace the competence set out in the NOSs for the operations they undertake. Candidates have to show not only that they can physically perform a task to the NOS but also explain why they do things in a certain way, and how they would deal with the range of unusual circumstances which may arise. It is a test of both underpinning knowledge and how to apply this knowledge in practice.

CHANGES AT THE END OF 2006 FOR EXISTING SHOTFIRERS AND EXPLOSIVES SUPERVISORS

15 A shotfirer or explosives supervisor practising at the beginning of 2007 should have **either** completed the relevant units of the old (pre 2005) NVQ or the Blasting Operations NVQ; **or** should have passed the post-2001 examination. Those who do not have the NVQ units should complete them before expiry of their current certificate, or can retake the exams before their current certificate expires to gain additional time to complete the NVQ units by the end of 2010.

16 Those whose only qualification was under the old style (pre-2002) examinations should have **either** completed the relevant NVQ units **or** passed the current (post-2001) examination before 31 December 2006.

17 Due to a lack of capacity for examination dates and assessor time during the second half of 2006, there are some people who have been unable to complete the necessary (re)qualification to meet this deadline. Provided that they are able to demonstrate their active engagement in the process during 2006, each case should be taken on its merits. They should be encouraged and enabled to complete early in 2007.

NEW SHOTFIRERS AND EXPLOSIVES SUPERVISORS

18 From 1 January 2007, a new shotfirer will have to achieve a minimum of units BL1, BL2 and BL4-BL7 of the NVQ in Blasting Operations before s/he can be appointed as a Shotfirer. S/he should be appointed as a Trainee Shotfirer, whilst gaining the underpinning knowledge required under Quarries Regulations 1999,

Regulation 26, ACOP para 237-238 and Appendix 1, and working towards the relevant NVQ units. Once the NVQ units are achieved, s/he may be appointed as a Shotfirer and will be issued with an EPIC Competence Card valid for five years.

19 A new Explosives Supervisor needs to have the theoretical knowledge set out in the Quarries Regulations ACOP paragraph 187, and be appointed and working under supervision. (There is no "Trainee Explosives Supervisor" defined in the Regulations.) S/he will need to achieve as a minimum units BL1, BL2 and BL7 - BL9. Once these are completed EPIC will issue an "Interim Competence Card", valid for one year. It is not possible to complete unit BL11 until actually practising as an Explosives Supervisor. S/he should complete BL11 within the year, and will then be issued with a Competence Card valid for five years.

DEMONSTRATING CONTINUING COMPETENCE

20 Competence can only be maintained if the person is continuing to practise as a Shotfirer or Explosives Supervisor. S/he should keep a personal log of shots (in addition to the operator's records which are site-based); and should undertake and record continuing professional development (CPD).

21 Using the precedent of the successful 5-yearly reassessment by EPIC of mobile plant operators, audit checklists have been developed against which all Shotfirers and Explosives Supervisors will be audited on a 5-yearly basis, to assess their continuing competence. The audit checklist has been produced by representatives of industry, including those who actually undertake and are responsible for blasting operations at quarries, blasting contractors and those organisations involved in the current series of training courses.

22 The audit is seeking to re-assess the individual's competence with regard to the content of NVQ Units, the Quarries Regulations 1999 and National Occupational Standards. Part of the audit is a "Professional Discussion" to cover those issues that have not been observed during the shot audited, such as how misfires would be managed.

23 The first audit should take place within 5 years of obtaining an N/SVQ, and those who achieved their qualification before 2002 will be subject to this early in 2007.

24 The content of the audit will be openly available on EPIC's website to enable Shotfirers and Explosives Supervisors to prepare themselves. The content of the audit is likely to evolve over time to reflect changes in good practice, Guidance Notes, ACOPs and the content of the NVQ in Blasting Operations (which will next be reviewed in 2010).

ENFORCEMENT CONSIDERATIONS

25 HSE's general enforcement approach to competence issues in the quarry industry has been published as SIM 03/2005/15, which should be considered alongside this SIM.

26 Formal enforcement (e.g. an Improvement Notice) should be considered where, for example:

- a. The Explosives Rules do not set out the operator's training and competence requirements for those involved with explosives and blasting.
- b. The shotfirer or explosives supervisor does not have NVQ unit qualifications, and is unable to show that s/he is actively engaged in achieving these by the end of 2010.
- c. CPD is not being undertaken and recorded by those working with explosives.

27 Where a matter of evident concern arises during inspection of blasting practices or when there has been an incident involving explosives, **and** the shotfirer or explosives supervisor is as described at 26(b) above, consideration should be given to prohibiting the individual from further work with explosives, unless supervised by a competent person, until they can demonstrate their competence.

28 Recent inspector experience demonstrates that at an early stage of an investigation, consideration must be given to the evidence that will be required in order to support a possible charge under Regulation 9. The matters listed in SIM 03/2005/15 para 23-25 should be considered and advice sought from the Manufacturing Sector at an early stage.

FURTHER INFORMATION

29 Specific enquiries should be directed to the Metals and Minerals Group, Manufacturing Sector, Cardiff.

Date first issued: March 2007

APPENDIX 1:

Blasting Operations National Occupational Standard

Essential units are given for different job roles. An individual may need to take more than this minimum to cover all his / her activities, e.g. the shotfirer may also be the explosives storekeeper and / or profiler.

Unit	Title	Shotfirer	Explosives supervisor	Other job role
BL 1	Contribute to an efficient and effective blasting environment	Essential	Essential	
BL2	Contribute to health and safety in the blasting workplace	Essential	Essential	
BL3	Receive, store and issue explosive materials			Essential for Explosives Storekeeper
BL4	Receive and handle explosive materials on site	Essential		
BL5	Charge blast holes to specification	Essential		
BL6	Blast to specification	Essential		
BL7	Deal with misfires	Essential	Essential	
BL8	Determine the blast requirements		Essential	
BL9	Design and arrange for the authorisation of the blast specification		Essential	
BL10	Produce profiles of rock faces and landforms			Essential for Profiler
BL11	Supervise the blasting operation		Essential	

The full suite of Occupational Standards can be viewed on the internet.