

**EUEXCERT – EDUCATION & TRAINING IN  
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**Harmonised European Training and Training Requirements  
For End Users of Explosives within the Civil Sector**

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## **Introduction**

The European Federation of Explosives, EFEE, was established in Aachen 1988 by representatives from six countries. Now in 2007 EFEE consists of a core group of national societies from close to twenty European countries. From last year onwards the Federation is also open for corporate and individual members.

The primary objectives of the federation are:

- a) promotion of standardisation and harmonisation of explosives training in Europe;
- b) promotion of explosives technology in all fields related to this technology;
- c) the issue of a European shot firing certificate;
- d) accident prevention in the field of explosives technology;
- e) to foster the image of the profession, as well as good relations and co-operation with related associations.

This paper concentrates on the shotfirer training:

We are living in a volatile world. Inter-European borders are not what they used to be. One may like it or not, the future will, in all respects, be increased cross border activities. The use of explosives within the civil sector is not an exception. For all kinds of cultural and commercial activities national borders create lesser and lesser hindrances.

The situation cause new challenges. Within EFEE it is strongly felt that harmonisation of laws, rules, regulations take place, that companies – people – equipment and materials are increasingly crossing borders. We support the trend, but also support equal terms, training possibilities and the learning from each other with a special view to the required qualifications and training programmes of the shotfirer.

In the context of this Cranfield symposium it should be underlined that EFEE is partner in the ongoing EUExcert programme.

## **Objectives**

The primary objectives of EFEE concern the development of good practise, harmonisation of rules and regulations in Europe for the use of explosives in the civil sector and, may be as important, we see ourselves as a future certifying body for the education and training facilities throughout Europe as far as shotfirer training for the civil sector is concerned.

## **The member societies**

The harmonisation process in Europe will take some time, better not to think about how many years. One may find some comfort in construction parallels, some cathedrals where the construction work started around 1000 AD are not yet quite finished.

Our member societies are also not yet harmonised, they have different structures, some are small, other societies count their members in thousands. The EFEE member societies come from Russia in the east to Portugal in the west, from the Scandinavian countries in the north to Bulgaria or Spain in the south. The working together and the objectives cause no problems.

## **Our target is end users of explosives in the civil sector.**

End users as defined by EFEE are individuals or companies using explosives and detonators as part of their activities. Some examples are quarrying, mining for minerals or metals, underground infrastructure, storing facilities for crude oil or refined products, gas, underwater construction, surface blasting for roads, site preparation for the industry and much more. Research and exploration are also consuming explosives.

It starts with the planning, purchase and deliveries, through the execution and ends with reports and payments. Misfires and unplanned events causing harm to people and property are rare, happen from time to time and usually draw unpleasant attention from the media.

The turnover related to blasting is immense and the number of people involved is very-very large.

## **Harmonising regulations and good practise.**

EFEE appreciates the existing differences between good practise and regulations from one country to another. We believe that these differences basically are caused not by technical matters, but primarily due to history – politics and the general social situation.

Harmonisation is not about destroying bad habits, it is about quality, competence, safety, and through training hopefully reduction of not so good practise. EFEE has during some years worked on requirements to the shotfirer training. Two committee meetings and two council meetings per year caused numerous versions until the document was unanimously accepted in Rome during the October Council meeting 2004. These requirements were presented here during the last year symposium at Shrivenham. I will not revert to that. One may also find the document on [www.efee.eu](http://www.efee.eu) . We will focus on the ongoing EU Excert project and the-maybe-next.

## **The levels of competence.**

EFEE has based its approach to the harmonisation process on observations of the existing situation in the member countries and discussions both in the in the shotfiring committee and discussions in the twice-annual council meetings. The progress is slow.

It seems to be a common understanding of the existence of five levels. Naming of these levels is not easy. We have e.g. used the word Shotfirer. Literally translation to German, French, Spanish, Portuguese, Russian, Czech and Slovakian, Finnish , Slovenian, Bulgarian and three Scandinavian languages is easy. One will find the right word, the content or understanding of inherent qualifications and the hierarchical position, however, is still different:

- A shotfirer in one country may be unskilled, his duty may be limited to the use of matches.
- On the other extreme a shotfirer may be a certified person handling planning, execution and also being the responsible legal party to punish in the case of accidents.

In short, the term shotfirer is not established at a defined common competence level in Europe. This is a part of the work that remains to be solved. From an EFEE point of view the ongoing work is based on the following basic understanding:

- **Beginner.** This is an individual without practical or theoretical training participating in a blast operation. This person may be
  - a trainee during the two first years of 4 years as apprentice or
  - a student during the first two years of vocational training (VK I / VK II.)
- **Skilled worker/operator.** This is defined as
  - an individual having passed the first two years as trainee or
  - an individual having passed two years of vocational training now gaining on-the-job experience, still waiting for the testing to obtain his shotfirer certificate.
- **Supervisor** is a journeyman that has obtained his craft certificate and undertakes blasting operations.
- **Manager** is a master shotfirer that has obtained his certificate and the managerial skills to simultaneously manage several blasting operations. This person has the competence as required in the established “EFEE shotfiring requirements”
- **Expert.** This is an individual that has obtained expertise – special knowledge or competence within one or more sectors of blasting. That could be within underground blasting or underwater blasting or the dealing with hot masses or concrete or metals or special demolition or other specialities.

## How to proceed

The requirements to shotfirer training established by EFEE give in some detail the direction of the training, what must be covered by training manuals, textbooks and other means. EFEE has the intention to prepare these means in close co-operation with players in this segment of the industry.

We are not talking about bestsellers earning money. We know that we have the competence to do it, and we know how we will do it, still some support is needed.

## The plan

The key items in the proposal on how to develop the training means based on the shotfirer training requirements are:

- The chapters and their subsections shall be divided into smaller “parts”. Each part should be reasonable easy to handle
- Then we will develop each single part to a complete and final content
- All societies have competence and some human resources available. Each society should therefore take upon itself to develop one or more such “parts”. It is thought that an individual or a small group from the actual society will be assigned the duty of preparing a draft for the “part or parts” allocated to the same. Credibility of the out-put depends on the quality of the produced training means. It is important, in the context of EFEE co-operation, that many – a majority - or all member societies contribute.
- Progress is vital. Hence it is foreseen to organise two conferences. The first conference will discuss those in advance distributed draft training program parts. The agenda will be quality, to compare and modify degree of detailing, support proposals or propose additions/deductions/modifications etc. It will also be necessary to discuss the best methods of training in order to prepare the different parts
- The second conference would be a discussion of the “final” training program. The participants should be those that prepared the content of the “parts”.

The Shotfiring Committee of EFEE is able to organise the assignment of parts and duties, to handle all technical aspects, to review and formulate the final document and to organise the conferences. EFEE or the member societies, however, are not in a position to cover the costs related to the work and the two conferences. Financial support is necessary. At this stage one could dream that the necessary funding would be made available through an EU Excert project stage 3. (From 2008 onwards?) We understand that the stage 3 is still under consideration, maybe yes – maybe no.

We have during discussions also tabled ideas on a civil sector project. We have studied handbooks on how to establish a project and how to apply for support. The procedures are time-consuming though.

A third option is to go back to our member societies and their member companies. These are usually helpful, but are also requested to support a number of other important projects.

One way or the other, a solution will be found.

During the EFEE Brussels discussions April 07, the ongoing stage 2 EU Excert project was a major topic. The EFEE contribution, prepared in agreement with the project intentions and procedures must be concluded within the given deadline in September 2008.

So far the shotfiring committee has concentrated its work to the requirements of the shotfirer. The committee agreed that the focus for some time must change to the levels of competence.

## **Progress**

As far as further work within EFEE is concerned, it is of importance to have a general accept or understanding from the EU Excert project management, that the EFEE work executed so far is in line with the project intentions.

## **Points of view from the Brussels meetings April 07 not to be forgotten**

The shotfiring committee may be looked upon as the more aggressive part of EFEE as far as harmonising is concerned. There have been some warnings

- One should be careful not to overplay, avoid confrontation with domestic bodies, better teaming up.
- That is appreciated. At the same time EFEE cannot afford to go slow. The EU will end up giving a Directive that will influence daily life for the EFEE members.
- Sensible input from our side will certainly be accepted.
- Through the re-established EU-committee and through the EU Excert project, EFEE has opportunities to influence the future regulations.
- Until an EU directive is adopted all national regulations as they are will obviously be valid. These are normally modified from time to time. We feel sure that the EFEE member societies are well aware of domestic ongoing activities in the Governmental offices on any upgrading of regulations that concern their core activities and act as possible.

## **Certifying body.**

Some delegates to the Brussels Council meetings raised the matter “Certifying Body”. It is thought that EFEE would be a preferred certifying body for training institutes. (schools etc) This is well based on the fact that EFEE represents independent societies from many important European countries having well informed and trained representatives covering modern methods, technical and commercial aspects. It is premature to talk about plans.

The structure will most likely require a core unit that undertakes a certifying control similar to the procedures within the ISO-system.

## **Ongoing**

Most important at this stage is to clarify with EU Excert the EFEE position in a possible stage 3 project. EFEE will, anyway, continue its normal work on the subject. A subcommittee prepares the training requirements for the five levels of competence

During this symposium we have and will hear about training of personnel in several countries As a closing sequence of this paper, time permitting, we would like to add some information on the training system in one of the EFEE member countries as it is to-day and finally also present a plan – still under discussion though – on future training system. The trend seems to favour theoretical education:

The school system is likely more or less similar all over Europe. Starting at the age of 6, there are 10 years compulsory schooling with seven years primary and three years secondary level.

Everybody is entitled to further three years third level education. This level is either “theoretical” or “semi theoretical”. After these 13 years one may be ready for the university level education. The third level ”semi theoretical” will include vocational training

To become a shotfiring **certificate grade A** (as requested for the European Shotfiring Certificate) below requirements must be met:

- Successfully having passed the third level semi theoretical exam within heavy construction, with emphasis on tunnelling and rock excavation **or** similar education that renders satisfying basic knowledge within blasting **or** having successfully passed another training programme as accepted by the central authority. The candidate must further have acquired the necessary blasting experience.
- A practical test to the satisfaction of test panel appointed by the central authority.
- During the last two years prior to application having obtained 12 months relevant practical blasting training through work. The training shall cover 9 months training group I, covering blasting for small house basements, ditches, blasting underground , or contour blasting. The training shall further cover 3 months training group II, covering benching, blasting of boulders or similar
- The group I training must include at least two of the four given subjects, whereas group II blasting experience must include at least one of the subjects. Five of the required 9 months training shall take place in the vicinity of built-up areas, roads etc where cautious operation is necessary. For the group II training at least one segment must be covered.
- The applicant must satisfy requirements to age and working experience for diploma for vocational training
- Citizens from the EEC area ( EU + +) may practise their profession in our country subject the rules in directive 92/51/EØF (there are a number of provisions)
- Further, there are regulations on how, when, where to apply for the certificate.

### **Certificate grade B**

Holders of such certificate may undertake small scale, simple blasting. The requirements for schooling is less demanding. There is an important exemption for quarries for which the central authorities have made a special analysis, and according to which the same authorities may have given approval for a shotfirer class B to operate.

**Certificate class C** is an approval for farmers to undertake small blasting operations on own land subject to approval of satisfying competence, age 20 or more , and a confirmative document from the local police. For important blasting, the companies will use competent engineers/ civil engineers for blast design. The complete rules for blasting operations are rather complex.

The new system will cut out class B and C. The rules on purchase and storage of explosives will change. The certificate will be valid for 3 – 5 years provided active participation in blasting operations.

**Thank you.**

Attached: Vocational training program (2p.)