NEWSLETTER

December 2013

This Newsletter contains the above articles (Click on the headings to jump to the article)

We in EFEE hope you will enjoy the present EFEE-Newsletter. The next edition will be published after the council and AGM meeting in Dublin in May 2014. Please feel free to contact the EFEE secretariat in case:

- You have a story you want to bring in the newsletter.
- You have a future event for the next EFEE-newsletter upcoming events list.
- You want to advertise in a future newsletter.

Or any other matter.
Johan Finsteen Gjødvad, Chairman of the Newsletter Committee and Vice president of EFEE

Dear EFEE members, the president's voice

After a long summer and autumn being a bit unstable, we are now seeing the first snowflakes coming down in the lowlands thus ringing in the fourth season. The Christmas markets have spread the scent of mulled wine and Christmas cake (Stollen) and, with the Christmas season, the year's end is fast approaching.

Right in time for this year's end, we are sending you this third newsletter informing you about current events and developments in the explosives sector and the European Federation of Explosives Engineers itself.

This autumn, EFEE's 7th World Conference on Blasting took place from 15th to 17th September in Moscow.



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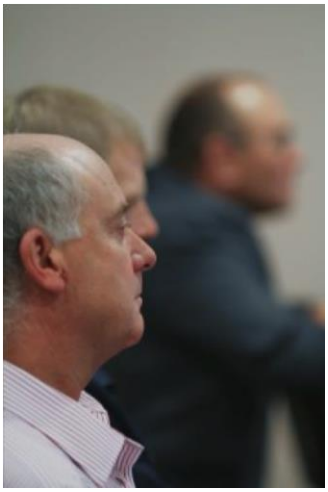
NEWSLETTER

December 2013

Pictures from the 7th World conference in Moscow 15th to the 17th of September 2013.
For the first time the conference took place in a city not situated in Central Europe which is partly based on the fact that the circle of EFEE partners and members has expanded in almost every direction in the past years. Moscow is a strategic starting point for making new contacts in the blasting sector between East and West, exchanging experiences and opening up new business relations.

More than 300 colleagues attended the conference in Moscow. The two workshops preceding the conference were received with great interest as well. The main workshop topics were Track and Trace of Explosives as well as demolition blasting.




Pictures from the 7th World conference in Moscow 15th to the 17th of September 2013.

As **your opinion on the Moscow conference** is of great importance to us, we ask you please; to reply to the questionnaire which is sent out shortly.

The Explosives Working Group's most recent meeting on 18th October 2013 in Brussels had its main focus on the Directives 2008/43 and 2012/4 defining Track and Trace of Explosives. The meeting, which I attended as EFEE representative, was used to exchange first experiences with implementing the aforementioned directives. Manfred Dax and Jörg Rennert presented first feedback on the unique labelling of explosives required since 5th April 2013 as well as its electronic

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readability and usability. Results showed that implementing this part of the directive posed and continue to pose quite an effort for manufacturers and importers of explosives. Experiences made during this process must be used to solve problems that have come up so far.Once more it became clear that postponing the original date of implementation from April 2012 to April 2013 and April 2015 had been an almost inevitable necessity.

The European Commission's decision was mainly based on the EFEE's comprehensive feedback, technical comments and arguments relating to practical issues. Again this underlines the importance of participating actively in those committees on a European level. Again we would like to recommend to all blasting companies to make themselves familiar with the Directives 2008/43 and 2012/4 requirements early that are relevant for blasting operations and have to be implemented by 5th April 2015. The hardware and software solution TTE which was developed by TTE-Europe GmbH receiving active support from the EFEE surely is a suitable tool.

Another central point of the last EFEE board meeting was the Standing Committees' work from which I would like to especially highlight the activities of the Shot Fire Committee about which we will inform you in detail in this newsletter.

I would like to give my sincere thanks to our Federation's partners for their great support and trust. Many of the services the EFEE provides to its members, participation at numerous committees and expert panels, involvement and active contribution to working out European directives and regulations would be impossible without their extensive support.

The Board wishes all members, colleagues and friends of the Federation a pleasant Advent Season, a peaceful and reflective Christmas with their loved ones as well as a Happy New Year 2014 and we are looking forward to see you again at the next Council meeting and General Assembly which will be held from 2nd to 3rd May 2014 in Dublin.

Jörg Rennert, President of EFEE

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Can you vote at the EFEE election?

National members get to vote in the EFEE election, but individual and company members also have a say.

According to the EFEE By-Laws, the Corporate and Individuals EFEE members are entitled to have representatives at the Council and General Assembly. The number of representatives is established according to the formula presented in Article 11.

In order to nominate the Corporate and Individual representatives an election process will be carried out during next January and February 2014. The Election Committee will provide information about the Election procedure deadline.

The candidates that wish to be nominated should communicate their intent to the EFEE secretary by email to info@efee.eu , with a short description of their company (for Corporate members) or a short CV (for Individual members) – about A4 half page.

The list of nominated candidates is later distributed with the voting deadline. Votes must be addressed by email to the EFEE secretary, with cc: to the Election President. The results and the nominations are announced latest February 28th. The number of nominated representatives are established according to the formula in Article 11 of the By-Laws.

The elected representatives will receive the invitation to the Council meetings and the General Assembly in May 3 2014 in Dublin.

Council meetings are held twice a year and the General Assembly shall be convened once a year in conjunction with the spring Council meeting. Travel and accommodation costs are supported by each delegate.

José Góis, President of Election Committee

The 8th EFEE conference in Lyon

In April 2015 we welcome you to Lyon, France.

In the last EFEE Newsletter the host city of the next EFEE conference was introduced. As we are all looking forward for christmas eve and the many joys, gifts and happy moments so will we here contribute with some more information about our next destination. With this you can all look forward for the big event; anticipating the lectures, networking and social interaction with the leeding professionals of the field of explosives.

General
With a population of 484.000 inhabitants in 2010 (1.500.000 inhabitants in the whole urban district), Lyon is one of the biggest cities in France. Lyon is one of the oldest cities as well, and it was, during the Roman period, the head town of the Roman Gallia and became, at this time, an important center for trade and administration.

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Lyon kept a strong trade influence during the Middle Age and became, at the beginning of the Renaissance a very prosperous city by the development of silk handicraft.

At the very beginning of the Industrial Era, in the early 19th century, Lyon benefited from the nearby coalfields, in the Saint Etienne and Blanzy areas, to pioneer a diversified industrial development in mechanics, chemistry, textile, etc. The first railway line used for passengers transportation in France was commissioned in 1832 between Lyon and Saint Etienne.
By the end of the 19th century, the brothers Auguste and Louis Lumière adopted the know-how from the textile mechanized industry to develop the movie pictures.

Climate
The spring in Lyon is usually mild and the average temperature registered during the month of April in the last 30 years is 10.8 ° C (about 51° F), but some strong variations on such averages have been registered in the last century: The coldest temperature registered in April.1954 has been -4.4 ° C (24° F) and the hottest has been 30 ° C (74° F).

The average April rainfall over the last 30 years is in the order of 64 mm (2½").

Gastronomy
Lyon is a very known city for good food. Together with nearly one dozen of the nationally known high rated restaurants existing in Lyon and its area, there are, downtown, many popular "Bouchons" that propose good, simple and affordable cooking made from the local seasonal products.

"Bouchon" means cork, and the past tradition made that the bills were assessed according to the number of corks (from the bottles) the house keeper had in his desk after serving. In most of the "Bouchons", the cooking, in the first half of the 20th century, was managed, by ladies, and, therefore, the houses kept their names preceded by "Mère" that is a popular way to address a woman. The most remembered names, many of them still active, are Mère Jean, Mère Boulomier, Mère Vittet, Mère Léa, Mère Castaing, Mère Fillioux, MèreBrazier, Mère Allard, Mère Pompom, etc.

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Downtown leisure
All kind of entertainments can be found in Lyon : Opera Concerts, Theater, Movie theaters.
The Guignol marionette theater is a genuine Lyonese show that took its name from Guignol, the main marionette character.


In addition to the roman remains, extended mainly at the foot of the Fourvière hill, the old town (Vieux Lyon) offers, on the right bank of the Saone river and in the peninsula (between the Saone and Rhone rivers), one of the most extended areas in Europe for medieval, renaissance and baroque buildings. The Musée des Beaux Arts offers one of the biggest painting collections in France.

Cité internationale
The center where the EFEE Conference in 2015 will be organized is located between the "Parc de la Tête d'Or" and the Rhône left bank. This is a business center designed Renzo Piano, the famous Genoan architect and built at the beginning of the 21st century.
This center offers excellent accommodation and conference rooms, restaurants, exhibition spaces, etc.


During the breaks, the Rhône banks or the "Parc de la Tête d'Or" would allow the delegates to have relaxing walks. The "Parc de la Tête d'Or" extends over more than 100 hectares and offers many activities (rowing on its lake, visiting the Zoo, walking in the wooded spaces, etc…).
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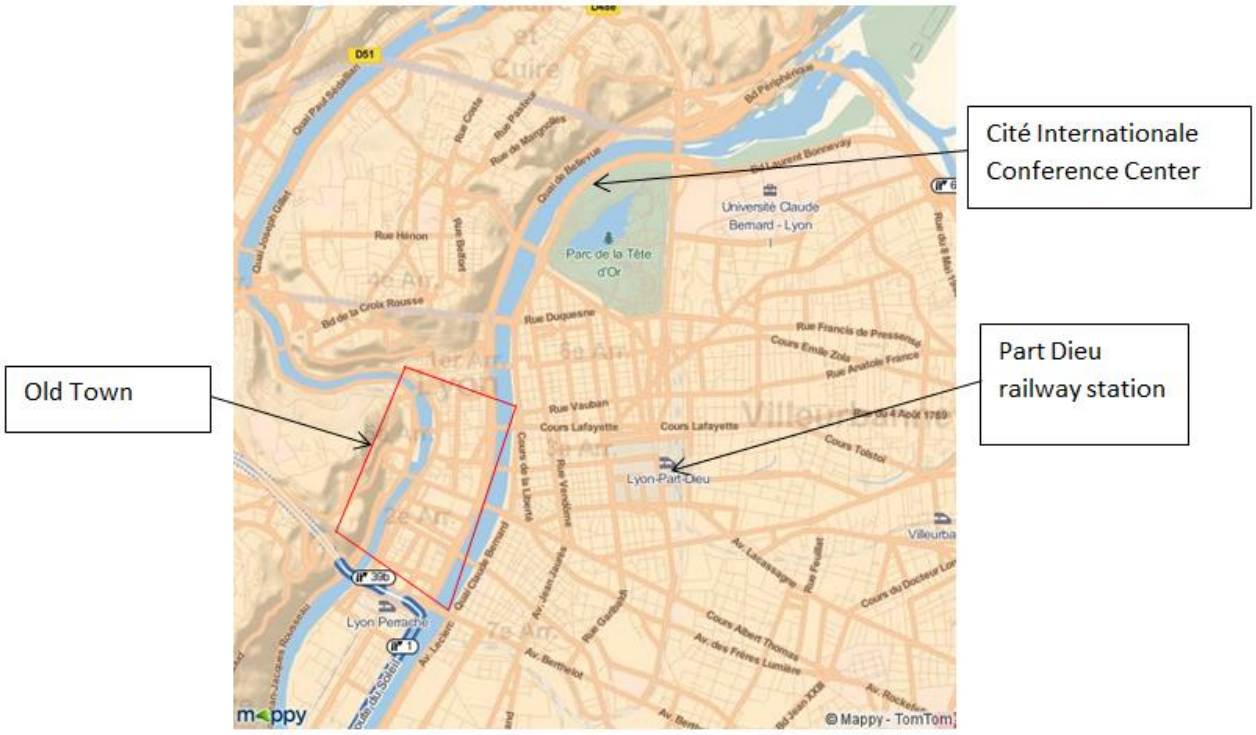
The accesses to this center are excellent from the main Railway station (Gare de la Part Dieu) or from the Satolas Airport. The center is at about ¼ hour trolleybus drive to the "Part Dieu" station and at about 1 hour to the Satolas Airport (¼ hour drive to the Part Dieu station then ½ hour drive by the shuttle tram from the Part Dieuy station to the Satolas Airport.



Nearby resorts

Lyon is very well located, at short distances to many Alpine and other mountain resorts. For downhill skiing, the Chamonix resort (at the Mont Blanc slopes) is at 225 km (141 miles) and Courchevel, one of the most extended skiing slopes in the Alps, is at 205 km (128 miles) from Lyon. Cross country skiing can be done in Jura Mountains (Les Rousses is at 124 km or 77 miles), in the Préalpes Vercors Massif (Autrans is at 124 km or 77 miles) and in the Northern Alps (Les Saisies is at about 180 km or 112 miles). Côte d'Azur, with its scenic sea shore landscapes ant sea shore resorts is at about 400 km (225 miles) from Lyon.

Among the interesting cities near Lyon there are:

- Dijon (France), the main town in Burgundy, at about 180 km (112 miles).
- Geneva (Switzerland) at 160 km (100 miles)
- Turin (Italy) at 225 km (141 miles).

Looking forward to welcome you in Lyon in April 2015

Albert Armangue, EFEE Delegate France

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European Vibration Standards

Overview on the EFEE member's internet pages.

As mentioned in the previous EFEE Newsletter, the EFEE Environmental Committee is working on a project collecting information about the European vibration standards used all over Europe (including the former Soviet Union Countries). At EFEE's 7th World Conference on Explosives & Blasting in Moscow in September 2013 a status report of the work was published. The work intends not to create a unified European vibration monitoring code but rather pool all the resources that exist across Europe, so that engineers and technicians can learn from each other's systems in the constant strive for continuous improvement. Most importantly, continuous improvement helps ensure that regulations remain relevant and up to date thereby protecting both operators and the public in a rapidly changing world.

Currently 16 independent vibration standards are found to be used in the European countries. These standards cover 29 of in total 50 European nations. The list of countries and belonging vibration standards is available as a member benefit in the EFEE internet pages. EFEE will not reveal all in the Newsletter, however two examples of the key information about the standards are shown in table 1.

Table 1

Country	**Title/reference**	**Code/number**	**Web link**
Austria	Building vibrations; blasting vibrations and comparable immissions of impulse shape	ÖNORM S 9020:1986	www.on-norm.at
Czech Republic	Loads of technical structures by technical seismicity	ČSN 73 0040 (1996)	www.cni.cz

As a member you get access to all information. Table 2 shows all the relevant countries, with data and not any data.

Table 2 Updated country list by November 2013

Data available	***No data available***
Austria	*Albania*
Belgium	*Andorra*
Belarus	*Armenia*
Bulgaria	*Azerbaijan*
Croatia	*Bosnia and Herzegovina*
Czech Republic	*Cyprus*
Denmark (Greenland and Faroe Islands)	*Georgia*
Estonia	*Greece*
Finland	*Hungary*
France	*Kazakhstan*
Germany	*Latvia*
Iceland	*Lithuania*
Ireland	*Macedonia*
Italy	*Moldova*
Liechtenstein	*Monaco*
Luxembourg	*Montenegro*

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Malta	*Romania*
Netherlands	*San Marino*
Norway	*Serbia*
Poland	*Slovak Republic*
Portugal	*Ukraine*
Russia	*Vatikan City*
Slovenia	
Spain	
Sweden	
Switzerland	
Turkey	
United Kingdom (England, Northern Ireland, Scotland and Wales)	

In addition to the "library facts" shown in table 1, short summaries of the standards are presented at the EFEE Members web pages. Two examples are shown in table 3.

Table 3 Examples of short summaries

Austria	Assessments of distance – charge relation and structure classification. Discrete PPV limits on four different building categories. Influence of frequency is considered in two steps; distance 15 - 50 m, and above 50 m. PPV criteria is maximum vector sum of all directions.
Czech republic	PPV limits estimated regarding ground conditions, classes of resistance (construction types), degree of damage (crack size generation) and duration and magnitude of work. Three frequency dependent steps (<10 Hz, 10-50 Hz, > 50 Hz). Charge assessment formulas included.

Vibration standards are most likely to come in two varieties: Those dealing with human comfort and those dealing with cosmetic or structural damage to buildings. Currently the standards treating damage of buildings are at focus, even though some of them may include both. By time EFEE will also include noise standards.

As shown, the list of vibration standards within Europe and the former Soviet Union is not complete. Most missing information relates to former Soviet Union and Eastern European countries. The reason is probably language barriers and fewer personal contacts, more than standards and regulations not existing. Hopefully this will improve by time as EFEE will continue its work.

Many persons have been contributing in the work, by sharing references and names of contacts in the different countries around Europe. In particular the EFEE Environmental Committee members and other National delegates have been important in the data collection work. Also blasting colleagues and other acquaintances around Europe have been contributing.

The work will proceed and EFEE invites all readers to supplement the data and also subscribe as personal or company members.

For information about membership subscription and benefits, please visit our web site: www.efee.eu or contact the EFFE Secretariat by email: info@efee.eu. For information about vibration standards contact the Chairman of the Environmental Committee, through the EFEE Secretariat by e-mail as mentioned above.

Vegard Olesen, EFEE-Delegate, Norway

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Effects of Airblast from Multiple Charges

This article has been produced as the result of a phenomenon that was observed during an explosive demolition project about 15 years ago.

The observation was;

If 25 millisecond delays are used between charges approximately 8m apart in a line the AOP is greater at one end of the line than the other.

The conclusion reached was that the blast waves were combining in one direction but not in the other.

Before we look at how this was happening we should consider a few basic issues:

- When multiple charges are fired each gives out a shock wave in a circular pattern.
- If all charges are fired at the same time we have a high Maximum Instantaneous Charge weight MIC. (Distance between charges and inaccuracies in detonation times creates small ripples but are not practically significant)
- In order to reduce MIC and so reduce AOP we use delays between charges.
- 25 milliseconds is a common delay increment for such purposes.

For the purpose of understanding what is happening and the magnitude of the effects we will use a simple scenario of 3 x 5kg charges (Identified as 1, 2 & 3) placed 8m apart, as shown below.

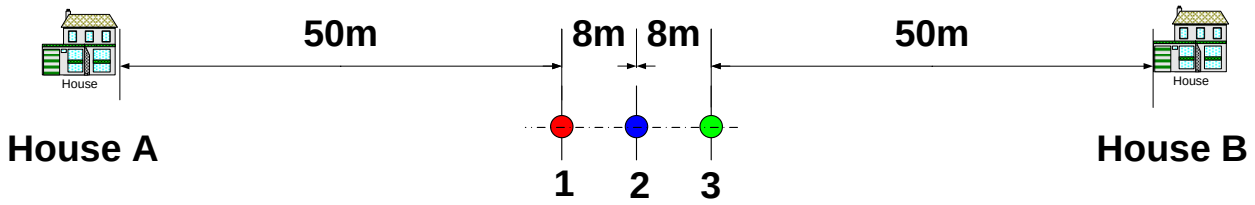

Fig 1 Scenario used to explain the phenomenon.

If we fire all charges at the same time, the Maximum Instantaneous Charge (MIC) = 15 kg. Using figure 38.8, page 631 in the 17th edition of the ISEE Blasters Handbook (ISBN: 1-892396-00-9) we would expect a 15 kg charge to produce an air Over Pressure (AOP) of 133 dB or 89 Pa at 50 m.

Conventional practice within the blasting industry says 'Use delays between charges and consider one charge only'. This would give us an MIC = 5 kg, which using the same method as above would produce an AOP of 130 dB or 63 Pa at 50 m. The difference between 133 dB or 89 Pa and 130 dB or 63 Pa may not seem to be much but due to sound pressure levels being measured on a logarithmic scale, the sound pressure level for 5 kg is about half that for the 15 kg charge.

The forgoing approach is probably acceptable where charges are well spaced out both in terms of distance and also time, but when charges are close together blasters can be given a false sense of security as will be explained.

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Taking the speed of sound in air = 343m/sec.
Speed x Time = Distance
343 m/sec x 0.025 sec = 8.57 m

Charge one fires, the blast wave then travels 8.5m in 25 ms, at which time it passes over the second charge just as that fires.

Using the example given in Fig 1 we produce the situation illustrated in Fig 3.

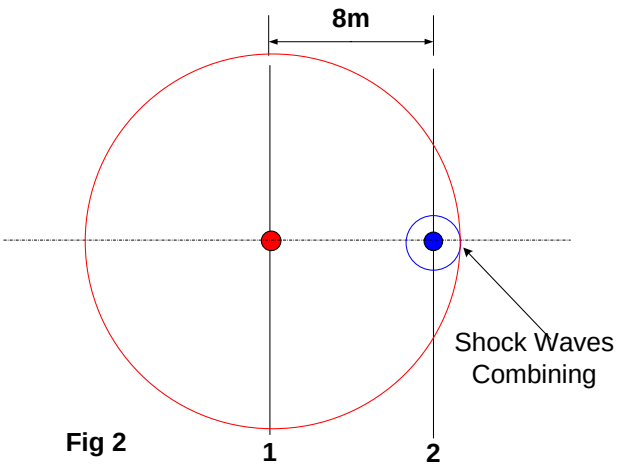

Fig 2

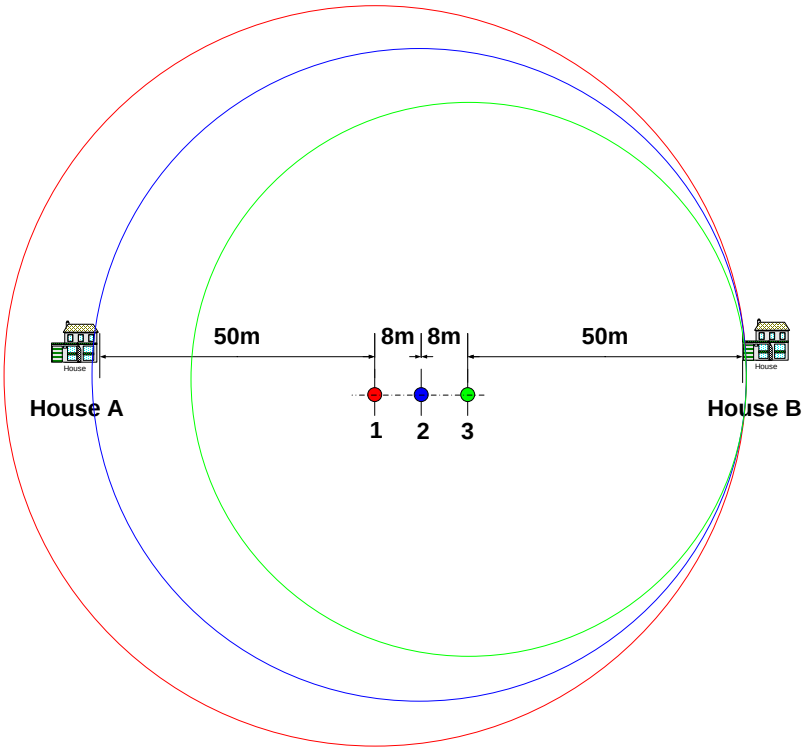

Fig 3

As can be seen, if we plot the position of the pressure wave front 25 milli seconds after the last shot is fired, House A will experience a series of three pressure waves, each equal in magnitude to that produced by a single 5kg charge. House B however will experience all three pressure waves at the same time. The magnitude of each of these waves will be:

- Charge 1 – 5 kg @ 66 m = 127 dB or 45 Pa
- Charge 2 – 5 kg @ 58 m = 128 dB or 52 Pa
- Charge 3 – 5 kg @ 50 m = 130 dB or 61 Pa
- Total - 133 dB or 89 Pa

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When added together this is equal in magnitude to that produced by a single 15kg charge as if no delays were used, which is not what would be expected.

The previous example is based only on a single row of charges, evenly spaced and at the same height above ground level. A typical example is blasting out a row of columns in a steel framed building at ground level to cause the structure to topple.

If we consider the demolition of a multi-storey tower bock such as the one shown in Fig 4 the problem becomes much more complex. The building was steel framed and had kicking / cutting charges at two blast levels at different locations on each floor, so required to be modelled in three dimensions by a specialist in this field.

Fig 4

The results of the model are shown in Fig 5.

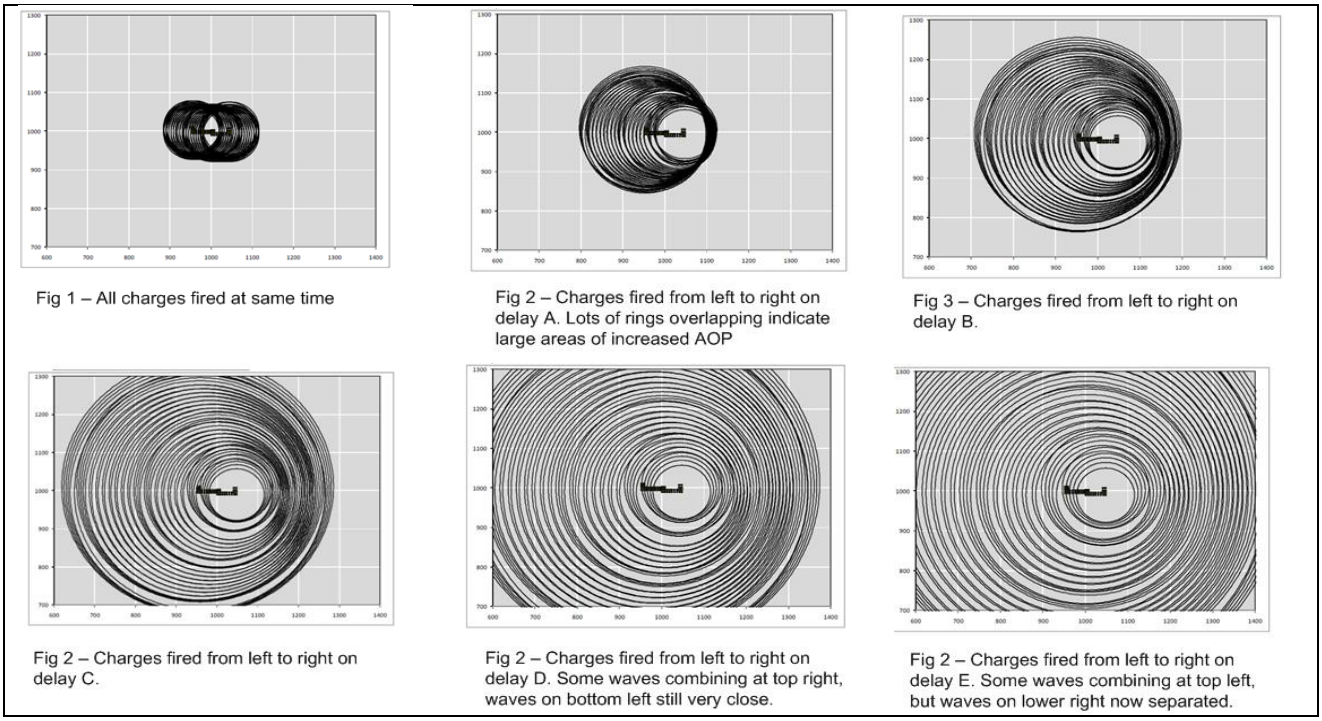

Fig 1 – All charges fired at same time

Fig 2 – Charges fired from left to right on delay A. Lots of rings overlapping indicate large areas of increased AOP

Fig 3 – Charges fired from left to right on delay B.

Fig 2 – Charges fired from left to right on delay C.

Fig 2 – Charges fired from left to right on delay D. Some waves combining at top right, waves on bottom left still very close.

Fig 2 – Charges fired from left to right on delay E. Some waves combining at top left, but waves on lower right now separated.

Fig 5

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The plots show the likely levels of air over pressure that will be produced using firstly no time delay and then gradually increasing the delay between the charges.

As can be seen in the first three plots many of the blast waves overlap and combine causing elevated levels of air over pressure.

As the time delay is further increased an optimum level was reached whereby the effects of air over pressure are at a minimum but the risk of cut off's, load transfer within the structure, disruption of blast wrap, vibration disturbance of cutting charges and the degree of breakup of structure would not be compromised.

Robyn Rushforth, EFEE Member, Precision Demolition Company Ltd.UK

New LdV project supported by EFEE

Trough EFEE and the participation in the Leonardo da Vinci project EU ExERT on 2008-2010, the partners and the organization itself have observed the needs for harmonized training means.

The main problems being tackled at the moment about the European shotfire profession is that the qualification and competence of that profession is very different around the countries of Europe. Most countries have developed its own training courses fitted to the local regulations or in some countries there is no possibility to acquire any training nor the certification on the profession. All EU countries have professionals working on this area but the education and vocational trainings need improvements and harmonizing. The national authorities do not recognize the competence of the professionals working in this area when they intend to work outside their home country, although the explosives companies and many quarries and mines are transnational.

Our aim is to enhance and harmonize the overall competence of shotfirers in all EU countries under valid «European Shot firer requirements»

(http://www.euexcert.org/pdf/Adopted_shotfirer_requirements.pdf).

In 2008 the ESSEEM LdV project proposed by EFEE developed a power point material organized in 10 chapters, in English. After the short presentation of the material the importance of a EU course based in this materials was recognized by all participants. To disseminate this material and the certification, we apply for financial assistance from the Lifelong Learning program Leonardo da Vinci – transfer of innovation for the second time.

The project is called ESSEEM II (European Shot firer Standard Education for Enhanced Mobility) it lasts for two years during which all the aims should be fulfilled.

The most basic aims of the ESSEEM II project is to prepare the certified transnational course of Explosives and Rock Blasting valid for the requirements of the European Shot firer Certificate by translating the materials into all languages needed and arranging instructor courses in different parts of Europe, instructors then will be giving complete developed courses in their homelands. It will be a contribution to the improvement of explosives training, levelling up the training systems and

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renewing the possibilities for shotfirers. By supporting the processes of improving explosives VET (– Vocational Education Training) performance we can enhance the quality, attractiveness and accessibility of the opportunities for lifelong learning and improve mobility and innovation in the sector. The results will be adopted by national entities in EFEE and further their members that include companies and individuals all over the continent. This should lead to more certified shotfirers in EU, better opportunities for shotfirers in EU, better educated staff for blasting and mining companies. And also to develop a more positive attitude in EU for the industry.

The EFFEE – European Federation of Explosives Engineers, has already improved and provided the project with tutorials for harmonized technical competence which qualifies for the European Shot firer Certification. The working group has taken into account the comments provided by participants in the workshop and presents an edited version of the training material. Those who have successfully passed the trainings in the future may apply for the European Shot firer Certification.
Although the application form of the LdV project 2014 will appear in December 2013, the project management has already gathered a good number of partners, who are keen to be part of the project. All the partners collaborating on this project are members of EFFEE, there are educational entities, private companies, specialized associations. The countries already represented are United Kingdom, France, Czech Republic, Portugal, Norway, Sweden, Germany and Estonia.
How to do this? The plan is to find teachers for courses of instructors, organize the courses, the instructors will then perform the trainings for shotfirers – the partners will make sure the materials are well provided, translated and safeguard the quality standard of the trainings. The project manager will engage all partners, adjust and improve the progress of the project, handle the financials, organize meetings and write reports. The project output will be introduced to instructors, teachers, labour force sector authorities. Training institutions will subsequently organize inspections and controls, entitled to issued certificates. All partners are involved with dissemination at all time during the project.

As a contractor of this project, chosen by EFFE board members, Voglers Eesti from Estonia will manage the project with overall responsibility of quality, economy and progress.

All comments, ideas and suggestions are welcome.

Viive Tuuna, Project leader of the EFEE LdV project and EFEE-Delegate of Estonia

New EFEE members

EFEE likes to welcome the following Members who recently have joined EFEE.

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Company Members

New Boliden Tara Mines Ltd

www.boliden.com

Boliden Tara Mines is an underground mine, Europe's largest zinc mine and the world's ninth largest.

At the Tara mine, which was acquired by Boliden in early 2004, production has been under way since 1977.

Over the years, more than 80 million tonnes of ore have been mined. Approximately 2.6 million tonnes of ore for zinc and lead concentrate production is mined and concentrated every year.

Dresdner Sprengschule GmbH

www.sprengschule-dresden.de

The Dresden Sprengschule was founded 1961 and is since more than five decades an internationally recognized training company and a competent and efficient partner in all aspects of engineering. Consultation covers the areas;

- blasting,
- pyrotechnics,
- explosive ordnance disposal,
- transport of dangerous goods,
- construction and mechanical engineering.

Individual Members

Maxim Dokutovich, Moscow State Mining University, Russia
Michal Janiak, Explo Sp. z.o.o., Poland
Erdenbileg Amarsaana, Special Mining Service, Mongolia

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Upcoming events

2014	Jan. 18	17th Regional Conference on Explosives & Blasting Technique of the German Association of Blasting Engineers. www.sprengverband.de	Paterzell, Germany
	Feb. 9-12	ISEE's 40th Annual Conference on Explosives & Blasting Technique. www.ISEE.org	Denver, Colorado, USA
	March 4-8	CONEXPO-CONAGG www.conexpoconagg.com	Las Vegas, Nevada, USA
	April 25-26	36th Annual Conference on Explosives & Blasting Technique of the German Association of Blasting Engineers. www.sprengverband.de	Siegen, Germany
	May 9-15	World Tunnel Congress 2014. www.wtc2014.com.br	Iguassu Falls, Brazil
	May 11-15	CIM Conference and Exhibition. http://vancouver2014.cim.org/	Vancouver, BC, Canada
	June 22-25	2014 North American Tunneling Conference. http://www.smenet.org/page/index.cfm?id=913	Los Angeles, USA
2015	April 26-28	The 8th EFEE World Conference on Explosives and Blasting. http://www.EFEE.eu/	Lyon, France
	May 22-18	World Tunnel Congress 2015. www.wtc15.com	Dubrovnik, Croatia

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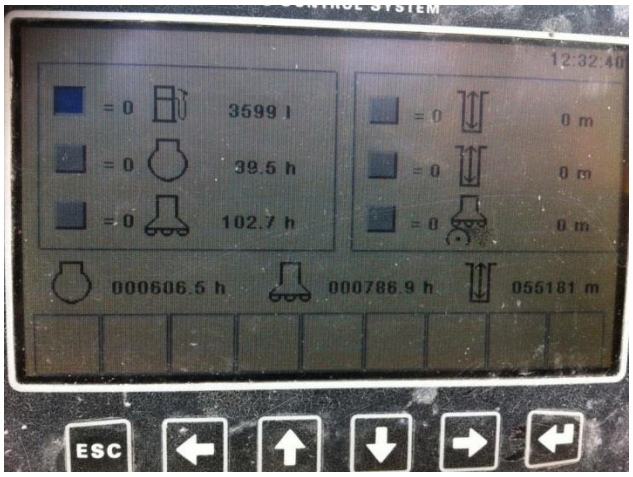
For sale

“Atlas Copco D7 drill rig”
Motor: Caterpillar C7 //// Serial number:JTF02801 //// Manufactured: 2006 ////



“Blast mat factory”
Machinery and materials for a blasting mat factory.

Interested may contact

Ingrid Jowenko-Rijkse
Tel. 0031 653 17 57 79.
info@jowenko.com

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