

# EPC FOCUS

**Concentrated Energy News**

No. 3 • October 2013 • [www.epc-groupe.com](http://www.epc-groupe.com)

**SPECIAL  
FEATURE**

## WOMEN IN ACTION



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EPC FRANCE - Advancing  
on all fronts



# ÉDITORIAL

In this new issue of EPC FOCUS, we wanted to bring you a report dedicated to the women in the company. In this rather male environment, they are playing an increasingly significant and legitimate role. Our series of interviews gives an insight into their personalities and jobs.

The EPC Group celebrates its 120th anniversary this year: more than a century of history marked by a desire to innovate, in which men and women have contributed their knowledge of the sector, their drive and their tenacity.

Our business is simultaneously difficult, technically demanding and dangerous, but it leaves no-one indifferent.

Throughout the magazine, the energy we have is expressed in interviews covering subjects relating to our values and expertise: safety through personal protective equipment, Track and Trace regulations, rehabilitation of abandoned land in Wales, specialist expertise on various sites (the Old Cliff Hill quarry in England, Bordeaux city centre), and more.

Independent from the start, an undisputed player in the international explosives industry and the French demolition sector, we hope that this magazine is a reflection of the EPC Group: friendly and stimulating.

Happy reading.

The Editor



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# 120<sup>TH</sup> ANNIVERSARY OF THE EPC GROUP

As EPC celebrates 120 years in business, we take a look at the key dates in the Group's history.

## Constant research and innovation

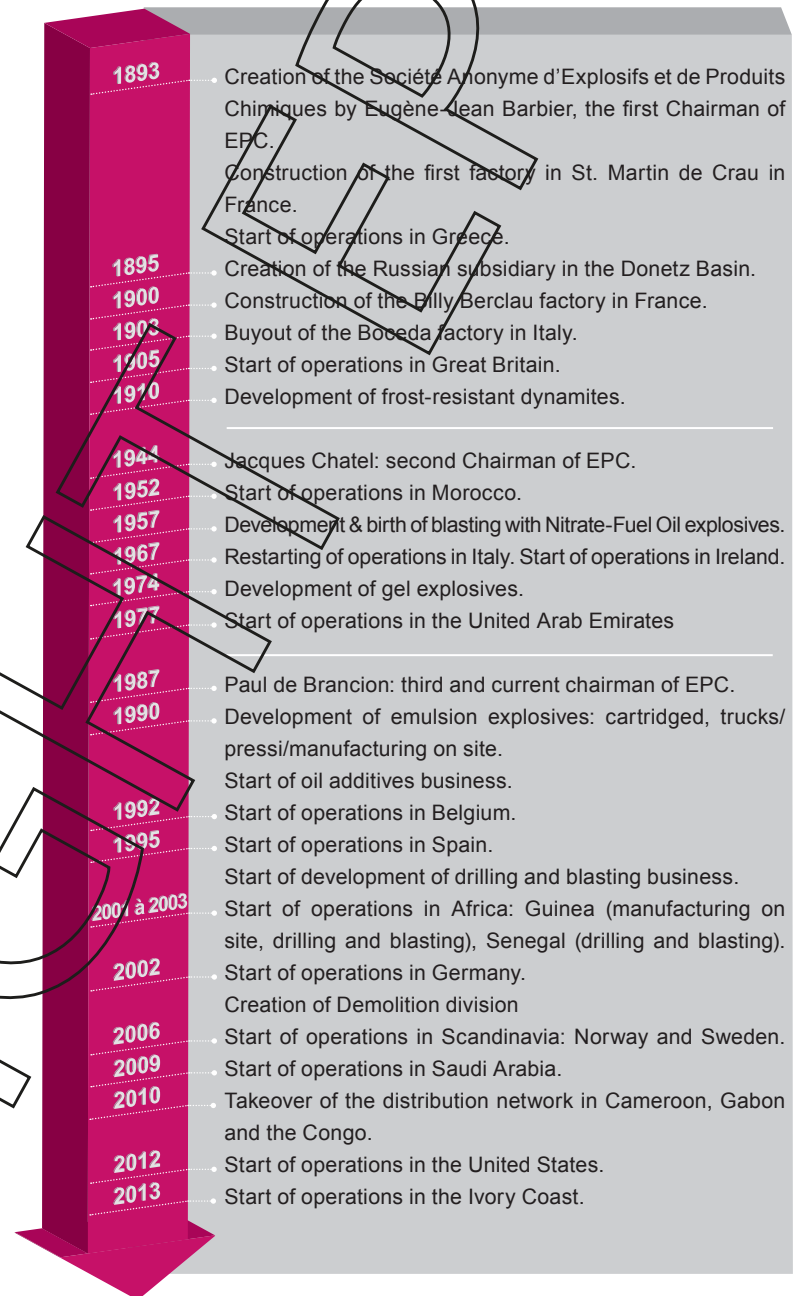
EPC has operated an ambitious research and innovation policy throughout its long history. Frost-resistant dynamite was developed in 1910, making it possible to harness the power of nitroglycerine even in cold conditions. In 1957, the EPC Group filed the first ammonium nitrate-fuel oil (ANFO) patent and began using the new material in blasting applications. Nitroglycerine-free, detonator-triggered gel explosives were developed next, in 1974. Last but not least, nitrogen-oil emulsion explosives, which are even more effective than gel-based solutions, were introduced in 1990. The full list of discoveries is too long to include here... In recent decades, the Group has devised numerous related techniques and technologies, including mixer trucks (1989), the MORSE emulsion pumping and sensitisation module (1997), an on-site explosive manufacturing process (2001), blasting block size improvements (2004), modular manufacturing plants (2010), etc. EPC INNOVATION, a new subsidiary of the Group, is today co-ordinating all the research.

## Customer focus

EPC's strategy since the 1980's has been to develop the most comprehensive service possible. In 1995, we became the first European explosive company to introduce drilling and blasting services, enabling us to penetrate new markets by providing customers with integrated solutions. Our design offices are developing advanced blast engineering techniques in response to growing market demand. We are enhancing our operations at customers' facilities by implementing state-of-the-art detonation velocity, rock size distribution and vibration measurements. We also provide consulting and training services as a means of achieving excellent service levels. Alongside customer service, the central focus of the Group's culture is on safety. We have worked tirelessly to eliminate risk factors and make progress towards a zero accident operation. One of EPC Group strength comes from its Safety Culture successes and this has led us to totally rethink the organisation of our subsidiaries.



EPC employees at work



## A world of opportunities

EPC's international pedigree stretches back to the Group's early days, with longstanding operations in France, Italy, Great-Britain and Russia. The Group methodically rolled out its European activities to Spain and Scandinavia, and more recently began doing business in Africa. A joint-venture in the United Arab Emirates was set up between 1974 and 1977, and we are now developing a plant in the country. In the early 2000's, we renewed our historical ties with the mining industry, strengthening our position in Africa by building independent production units close to our customers. Ever alert to new opportunities, the Group began operating in the demolition sector in 2002. EPC's Demolition division – consisting of five companies – is now among the leading market players in France. Between 2005 and 2008, we conducted negotiations and established a commercial partnership in order to obtain Saudi Arabia's second explosives production licence. This resulted in the construction of ANFO and emulsion production plants and depots. Future chapters in the EPC Group's history will feature Africa, the Middle East, and the United States as well as Europe. ■

Testimonials by Paul de Brancion and Olivier Obst



# A TIGHTLY-CONTROLLED QUARRY



Placing explosives at Old Cliffe Hill quarry

EPC-UK has developed a special operating technique at the Old Cliffe Hill quarry in England, in response to environmental requirements and the criteria stipulated by the quarry\_operator, Midland Quarry Products.

vibration database. This database is continuously enriched with data from seismographs installed at the site, with which the computer system communicates remotely via modem.

## A partnership based on trust

Old Cliffe Hill quarry, near Nottingham in central England, produces between 4 and 5 million tonnes of granite per year. Rock from the quarry is crushed and then carried on a conveyor belt through a 700 m long tunnel built under the neighbouring village to New Cliffe Hill quarry, from where it is delivered to customers. EPC-UK carries out blasting operations at Old Cliffe Hill under the terms of a contract based on the volume of rock brought down. The company is responsible for blast specification design, drilling, surveying, explosive loading, blasting and blast impact monitoring. These blasting operations require bulk emulsion explosives, initiated using electronic detonators and boosters.

## Constantly striving for progress

Tests conducted in recent years have revealed that using electronic detonators improves blasting performance and offers greater control over environmental impacts. EPC-UK makes every effort to minimise detonation delays. ■

Testimonial by Rob Farnfield

## Strict conditions

The quarry's operating licences stipulate particularly strict conditions owing to the presence of nearby homes: when blasting, vibration levels must not exceed a peak particle velocity of 6 mm.s<sup>-1</sup>, with a 95% confidence rating in all cases. The operator has a duty to be able to prove that each blast complies with the specified limits. EPC-UK has developed a blast design procedure that uses a constantly-updated

### A typical blast at Old Cliffe Hill

110 mm	Hole diameter
15,0 m	Face height
4,8 m	Spacing
3,0 m	Packing
1,0 m	Sub-drilling depth
10° to 20°	Hole angle



# SAFETY FIRST

Safety is the bedrock of EPC's business. We create the safest possible working environment for our employees by upholding suitable work methods and behaviour and by issuing carefully-selected personal protective equipment (PPE).

## Our approach to safety

"In our businesses, the men and women on the ground make all the difference in terms of safety. Keeping safe requires plenty of common sense as well as a certain humility, watchfulness and an ability to objectively assess one's behaviour. Although personal protective equipment is undeniably important, it is only the visible part of our efforts. The real keys to performance and sustainability in our activities are appropriate behaviour

and strict compliance with rules and regulations," explains Thierry Rousse.

## PPE and best practices

Personal protective equipment is selected according to various criteria, including the environment in which it will be used, the type of activity involved, the climate, wildlife considerations and potential exposure to chemical hazards. Keeping equipment and premises clean, complying with tidy storage instructions, reporting potential risks, observing safety-related best practices and sharing feedback among colleagues and at corporate level also play an important role in controlling risks more effectively and working towards a zero-accident operation. ■

*Testimonial by Thierry Rousse*

## MCS, Saudi Arabia

## A SUBSIDIARY AT WORK

EPC's Saudi Arabian subsidiary, MCS, has adopted the Japanese "5S" safety methodology. Mohammad Al Momani, who is in charge of the Jamom plant, explains the principle behind this proven management technique.

accident risks and improving working conditions and equipment reliability. The key to success is for employees to fully commit to the approach and work together as a team.

## The MCS approach to "5S"

The 5S methodology aims to cut wastage and boost productivity by maintaining a well-organised working environment. It takes its name from the Japanese words for five key operations: Seiri (sort), Seiton (straighten), Seiso (sweep), Seiketsu (standardise) and Shitsuke (sustain). "At MCS, we use an enhanced version of the 5S methodology, featuring a sixth "S": S for Safety".

## Shared safety culture

At the Jamom plant, employees from six different countries work together. "Managing multicultural teams has been a real challenge. Despite our employees' very different backgrounds, we have succeeded in creating a recognisable "MCS culture" with the aid of a range of suitable management tools"! We also organise frequent training sessions. All in all, these measures help to build "safety instincts" and a "shared safety culture".

## An effective method

As well as helping to ensure that operations are carried out smoothly, this management technique enhances operating profitability by delivering savings in terms of time and energy costs, as well as by decreasing

## Continuous improvement

The experience gained at the plant has enabled us to identify areas for improvement. "This encourages us to keep moving forward, and to take our already high standards to the next level" explains the plant manager. ■

*Testimonial by Mohammad Al Momani*

*"In our businesses, the men and women on the ground make all the difference in terms of safety."*



The MCS team wearing personal protective equipment

# WOMEN IN ACTION

Since 1893, when the EPC Group was created, women have always occupied various positions, starting with the 'extruding operators' or 'cartridge makers' who, for nearly one hundred years, manufactured dynamite cartridges manually and/or semi-mechanically. Nowadays, women are in all positions: site manager, production operator, safety-, health- and environment-related positions, subsidiary manager... Let us meet some of them!



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**Gwenaëlle Croizer,**  
Quality & Environment Manager,  
2B RECYCLAGE

Angélique Janiszewski joined EPC France in 2008 as a logistics operator. Following the merger of NITROCHIMIE and NITRO-BICKFORD (which resulted in the creation of EPC FRANCE), she took the opportunity to move into production, and is now a utility production operator.

## What are your main roles ?

I deal with packaging and storing products in the warehouses. We recently acquired a new packaging line that ensures product traceability (pursuant to Track and Trace\* regulations). We received training and now it is my turn to train and monitor personnel. It has enriched my work.

## What do you feel are vital qualities for your job ?

Safety is fundamental within the Group, and it is vital to be rigorous and follow the rules. You also have to be organised.

## How have you integrated into this rather male orientated environment ?

I was a little apprehensive at first, but being motivated and surrounded by highly skilled people quickly put me at ease in the job. There are two of us in the team now and we regularly have female temporary workers.

\* see our article about "Track and Trace" on page 15.

In June 2007, the management of the EPC Demolition Division created a position in response to legislative requirements. Gwenaëlle Croizer, who was working for an environmental design office at the time, was attracted by the operational and multi-site aspects of the job (sorting centre, landfill centre, mobile crushing units, work sites). She is now Quality & Environment Manager at 2B RECYCLAGE.

## Why choose the environment ?

When I graduated in 2002, it was a rapidly growing field, constantly driven by regulations. There was a lot of talk about renewable energies, environmental management, etc. With my chemistry-oriented background, I thought it would be worthwhile to use it for environmental protection.

## What does your job involve ?

My position is very cross-disciplinary. I work alongside people in operations as well as top management. I move between accounting and various adjustments on site, and I am also involved in business development. I find solutions during emergencies relating to waste management. We are also examining the issues surrounding ISO 14000, which relates to environmental management. Lastly, I manage an administrative team.

## What do you feel is vital for your job ?

Rigour! I absolutely have to be demanding in my work, and my role includes educating others about regulatory aspects.

## You work in a very male orientated environment. Is that easy for a woman ?

I manage an administrative team of women, so it is more of an advantage really. Out on the work sites, I had to win people's trust at first, but it was not difficult.



© EPC Group

**Angélique Janiszewski,**  
utility production operator,  
EPC FRANCE (St Martin de Crau)



# WOMEN IN ACTION

Having managed a mining site, Malika joined MARODYN in 2002 as site monitoring manager in Casablanca. At the end of 2005, management made her responsible for the Tangier-Med port site, which contains the largest quarry in Morocco. Malika manages around forty people.

## How do you handle the responsibility ?

It is the difficulty that attracts me: managing a team, incorporating all the parameters (people, resources, technical constraints), finding solutions... The port of Tangier-Med is a multi-disciplinary site, with mining and drilling, providing the materials necessary for construction, mining to move earth, and the construction of roads and railway lines. I am learning a lot and human relationships are important. It is like a huge school. Being able to run a site is an advantage in a quarry.

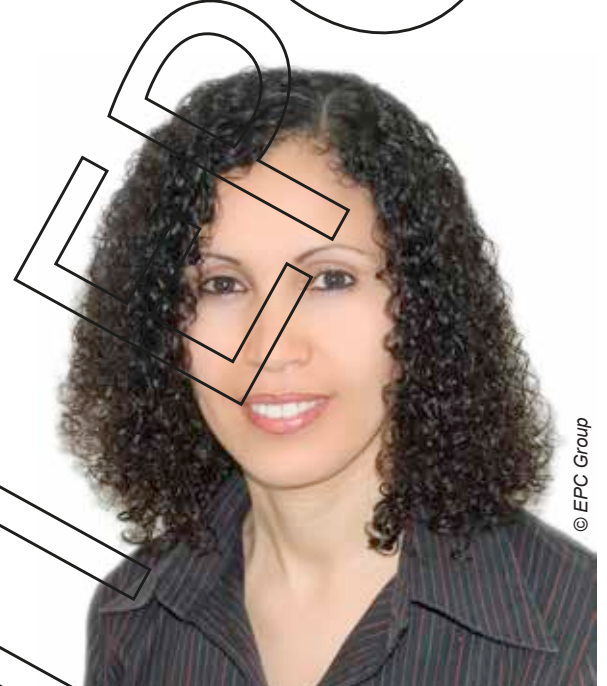
## In such a technical field, what qualities are required ?

There are several: rigour, flexibility, stress management, conflict resolution, the ability to define priorities and think ahead, and a strong personality.

## In Moroccan culture, it seems that women are meant to stay at home and look after their families. Do you encounter any difficulties in your job ?

From time to time you do come across problems linked to that mentality, and some men find it hard to accept being managed by a woman. But with support from the management team, we are able to work in a calm atmosphere. Here, work is men's business, and that is what you have to learn to manage.

*\* See MARODYN Director Franck Maupoux's portrait, p.13*



© EPC Group

**Malika Fadil,**  
Site manager (Tangier-Med port expansion),  
MARODYN



© EPC Group

**Solaine Folens,**  
Quality, Safety & Environment (QSE) Engineer, PRODEMO

Having studied at the Ecole Nationale Supérieure d'Ingénieurs in Bourges, France, specialising in industrial risk management, Solaine completed a work placement focusing on safety and environmental management systems. In October 2006, she secured her first job as a QSE engineer at PRODEMO.

## Tell us about your job.

There are two aspects to my job: an administrative part involving reports, accident analyses, site preparation and audits, and an operational part where I go out to meet people and see how their safety can be improved. Each site is different and gives rise to a number of problems, for which I provide solutions. By being diplomatic and informative, we manage to create a climate of trust, which is important so that the teams better understand the importance of following safety instructions.

## Is the interpersonal skills aspect easier because you are a woman ?

Contact with the teams is different. In my opinion, it is easier for a woman to monitor people in terms of quality and safety. On site, men are generally happy to explain what they are doing. As a woman, I have never had the slightest problem.

Tone joined EPC NORGE in May 2008 as Financial Director. At the time, competition was stiff and the EPC Group management team put its trust in her. She has been General Manager since 1st January 2013.

## Quel est l'atout majeur d'EPC NORGE ?

Human resources are really a major asset in our company. Our slogan is "People make the difference" and that reflects a certain reality. Qualified, experienced people with a positive attitude are the cornerstone of our company.

## The explosives sector is rather a male environment. Does that have an impact on you ?

Explosives is a male environment, without any doubt, and of course that entails certain differences when you are a woman. The men are much more technically qualified whereas the women are more structured. But the biggest split lies in individual characteristics. The ideal solution would be to have a good balance between the proportion of men and women.

*\* See FOCUS ON Development on EPC NORGE, p.12*



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**Tone Hegelsen,**  
General Manager,  
EPC NORGE



## WOMEN IN ACTION



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**Johanne Della Rovere,**  
Assistant to the Health, Safety & Environment (HSE) Director,  
EPC Group

Johanne has a French Master 2 degree in Industrial System Safety. She was HSE Manager at a structural steel plant and then worked in the offshore platform construction sector, where she managed a team of 8 leaders on a 400-person site. In 2012, looking for a new direction in her career, she joined the EPC Group as assistant to the HSE Director.

#### What motivated you to work in safety ?

When I was a student, I worked as a lifeguard on the beach so I was already involved in preventing bathers from having accidents at that point. It was therefore completely natural for me to move towards accident prevention, and I made it my profession.

#### Who do you work with ?

I am involved at all levels of the hierarchical structure. At a group level, it is a matter of setting out guidelines that work towards a common safety culture. Accident prevention is a huge, fascinating field, and it is sometimes a difficult job, but above all it is about people.

#### What skills do you feel are vital ?

It is important to have methodological knowledge and a technical understanding of the business you are working in so that you are capable of finding solutions when faced with safety constraints. To take a concrete approach to accident prevention, I took my Blasting engineer's certificate. Interpersonal skills, adaptability, common sense, openness and sometimes compassion are the keys to success !

#### Is it different doing this job as a woman ?

No, I am completely happy with my decision to work in an essentially male environment. I think it is even an advantage! Because of our accident prevention role, people tend to see us as "policemen". I would say it is more that aspect that you have to learn to come to terms with.

\* See article 'Safety first', p.6

Maria and her brother Paolo took over the management of Serafina Ortega in 1995 following the death of their mother, Serafina Ortega Molina, a charismatic woman whose role was decisive for the company. In 1997, Serafina Ortega became part of the EPC Group. In 2000, Maria took sole charge of the family company following her brother's accidental death.

#### How were you able to take on the management of the company ?

I have known how the company works, the sector and the clients since I was a small child. I studied management and I surrounded myself with a competent team, which enabled me to continue at the head of the business.

#### What do you do ?

Our work consists of distributing industrial explosives. We house, transport and store explosives. Only two companies in Spain offer these three services. EPC SERAFINA ORTEGA is one of them.

#### What does it take to be a good manager ?

You have to have business management skills so that you can solve problems, set out future strategies, manage people, etc. Enthusiasm, effort, responsibility, daring, a positive attitude and teamwork have enabled EPC SERAFINA ORTEGA to remain a benchmark company in the Almeria region, known and recognised throughout Spain.

#### Most management roles are held by men. As a woman, how have you managed to find your place ?

People who know this company have seen evidence of my strength of character and, above all, my desire to be fair, decisive, optimistic and warm many times over the years. I do not believe in the difference between men and women. ■



© Carlos de Paz

**Maria Del Mar Laborda Ortega,**  
General Manager,  
EPC SERAFINA ORTEGA



# A NEW LEASE OF LIFE FOR FFOS-Y-FRAN

An ambitious 18-year project to restore land around the Ffos-y-fran mining complex in Wales is now underway.

## Light at the end of the tunnel

Some 367 hectares of derelict land near the town of Merthyr Tydfil are being restored. This land bears the marks left by decades of coal and iron ore mining and related activities. The aim of the reclamation scheme is to rehabilitate the area for public use. The project will be funded by selling the coal extracted during the restoration process.

## Vibration management solutions

EPC-UK BLASTING SERVICES is responsible for drilling and blasting operations to remove "sterile" rock from above and between the coal seams. Approximately three million cubic metres of rock must be drilled and brought down each year. This entails drilling 127 mm diameter holes along 5 to 12 metre-high rock faces. Bulk ANFO or emulsion explosives are being used, detonated using Euronel non-electric detonators developed by the EPC Group. Blasting operations are subject to very tight restrictions, due to the presence of nearby homes. In order to comply with these requirements and monitor ground vibrations, the Hotshot electronic detonator system was successfully used in the most sensitive areas. ■

Testimonial by Ian Davies



Ffos-y-Fran land reclamation scheme in Wales



Land restoration work at the Ffos-y-Fran site

Key figures	
3 million cu. m	of rock drilled and blasted annually
127 mm	diameter drilling holes
5 to 12 m	high rock faces
367 hectares	of land reclaimed



## A VERY ENCLOSED SITE

Since September 2011, the Occamat-ATD\* consortium has been involved in the reconstruction of Bordeaux city centre, on the longest shopping street in Europe. Covering a 1.2 ha area in the heart of the city, the work consists of demolishing the former Sud Ouest newspaper printing plant and a number of shopping centres to make way for the future Promenade Sainte Catherine development.

### Meticulous preparation

The key elements in preparing the site included setting out and constantly updating a methodology for each building and type of work, installing crack gauges, numerous committees, meetings and reports, laying out traffic zones, work to open up the site, special night operations, etc.

### A complex, technical project

The project involves a number of specialist processes such as dismantling, asbestos removal (performed by Occamiente), demolition, top-down demolition and decontamination (performed by 2B Recyclage). The site's down-town location imposes significant organisational constraints (delivery hours, transferring equipment, managing disruption, etc.). Special equipment is being used, such as Liebherr 954 hydraulic excavators and 25-tonne excavators, to ensure that the demolition is carried out safely and methodically.

### Communication plays a vital role

"It is vital to be able to communicate effectively with external parties, it is vital. We have had numerous discussions with the city council, the teams on site and with local residents, who are offered site visits amongst other things. The operators are aware of the significant constraints on site and we keep residents fully informed warn them about noise or plant movements, and so on", explains Pierre Moreau, OCCAMAT works foreman.

#### Key figures

35 to 40

people on site

23

lorries to remove rubble

60 m

of rock face to be preserved

1 m

cut-out around adjacent buildings during work to open up the site

### OCCAMAT-ATD, the multi-faceted consortium

"In order to ensure that the two-year project is completed successfully, our consortium complies with environmental standards such as BREEAM HQE\*. "Occamat-ATD has adapted to the constraints of the project by providing technical strengthening solutions through an external design office." The buildings were extremely old, with numerous cracks. The demolition work had to be done manually because the buildings were interlinked", concludes Pierre Moreau.

The Sainte Catherine development is scheduled for completion in 2015. ■

*Testimonial by Pierre Moreau*

\*BREEAM HQE : environmental assessment method for buildings, covering factors such as carbon footprint, water and electricity use, waste management, etc.

**\*The Occamat-ATD Consortium** is made up of Occamat, ATD, Occamiente and 2B Recyclage, 4 of the 5 companies forming the EPC Group demolition division.



General view of the Bordeaux site

© EPC Group



# EPC GROUP GAINS GROUND IN SCANDINAVIA

The EPC Group is represented in Scandinavia by EPC SVERIGE and EPC NORGE, and has increased its presence on a highly competitive market with six suppliers.

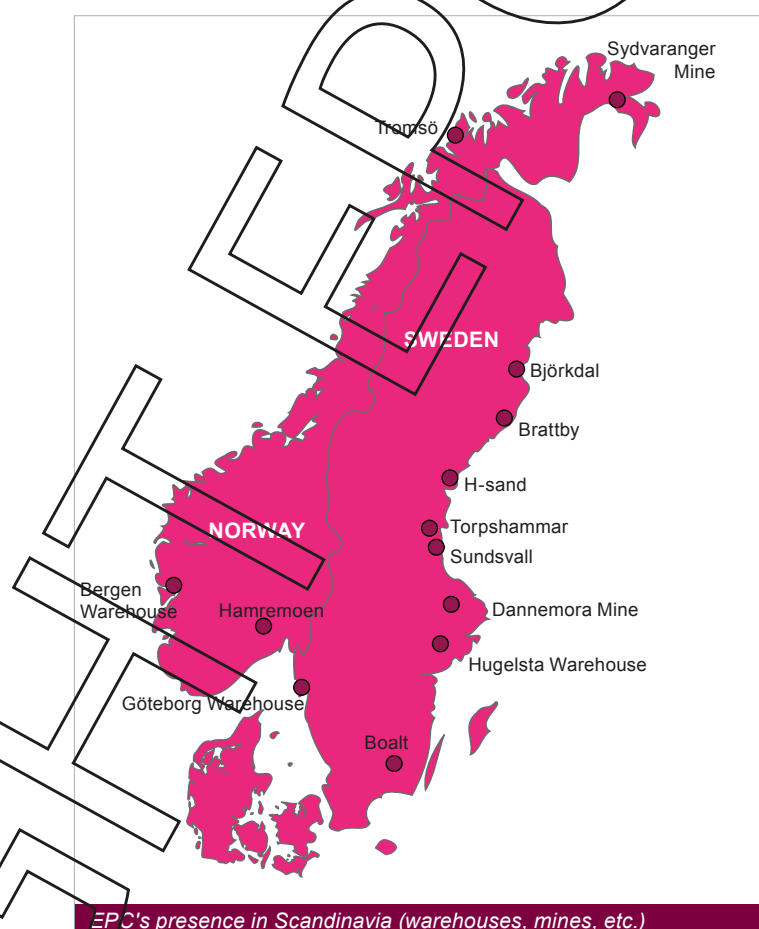
## Playing the local card

At over 2,000 tonnes per month, bulk emulsion is the main product supplied by EPC SVERIGE, along it also offers extensive mining services ranging from explosives delivery to a full service. The teams' expertise and the way customer requirements are taken into account were key factors in facilitating the expansion, which was also encouraged by the improvement in our network of warehouses, bringing us closer to our customers.

## A favourable climate

Driven by the mining sector and major infrastructure projects, the Scandinavian explosives market has been growing for a number of years. High metal prices have made it possible to reopen existing seams and develop new ones. The phenomenon is set to continue, as urbanisation and the growth of large towns have led to the launch of tunnel projects to reroute road traffic. Mining in these areas is complicated and requires new technologies in order to meet technical and environmental constraints. The geological conditions mean that almost every construction project requires mining work, which is great news for the company. ■

*Testimonial by Per Johansson*



# A FEEL-GOOD CONTRACT

EPC SVERIGE has won its first contract to perform underground mining operations with the Dannemora iron ore mine on the east coast of Sweden. Signed in December 2011 by EPC SVERIGE and DANNEMORA MAGNETITE AB, it includes the supply of explosives and blasting accessories to the site.

## Involvement at every level

The preparatory phase and setting up of the technical elements was orchestrated by EPC SVERIGE. The company has been completely



Underground mining operation

## Key figures

**4** blasts per day

**150** tonnes of bulk emulsion used per month

**250 000** tonnes of iron ore extracted per month

The main production areas are located between **160** metres and **600** metres underground

Sub-level caving with vertical holes **76 mm** in diameter and **15 à 30 m** deep

Approximately **700** linear metres worked per month

committed right from the start of the project, developing methods and adapting the equipment required to operate the underground mine. It has risen handsomely to the challenge posed by the highly specialised mining method involved. The teams' dedication and expertise have also been decisive. The candidates were carefully selected and then trained to work in an underground environment.

## New prospects

The Dannemora mine has taken advantage of a full mining service (storage, supervision, technical support, pumping and blasting). "This opens up a new market for us", says Per Johansson, Director of EPC SVERIGE. ■

*Testimonial by Per Johansson*



FRANCK MAUPOUX PRESENTS MARODYN

Franck Maupoux joined MARODYN, the EPC Group's Moroccan drilling and blasting subsidiary, in February 2011. As MARODYN's General Manager, he is well placed to tell us about the company's strengths and flagship projects.

What do you see as MARODYN's strengths ?

Our expertise is almost unique in Morocco, and our workforce is skilled and highly qualified. We have excellent technical tools as well as high-performance plant. We are very meticulous when it comes to employee safety, and spare no effort to keep people as safe as possible on all our sites. MARODYN is regarded as a leader on safety in Morocco.

Can you tell us more about the projects managed by MARODYN ?

MARODYN works on a wide range of projects, with particular expertise in dams for irrigation and hydro-electric power. Our company is able to carry out many different activities relating to this type of project, including blasting in the area around the dam (often in hard-to-access locations, requiring special blasting techniques for the dam foundations as well as blasting to yield construction materials); soil in rocky areas; blasting in pump and turbine feedwater tunnels, etc.

What are your most recent major projects ?

We recently helped to build the Tamalout, Timkit, Ait Moulay Ahmed and Taskourt dams, as well as the Fes/Oujda motorway and the Mediterranean coastal road; and we are currently working on four big projects; the M'dez

and Martil dams; the new Tangiers-Med 2 port development and the motorway between Berrechid and Beni Mellal.



Franck Maupoux, Managing Director of MARODYN

FOCUS ON Training

EPC-UK - A MAJOR TRAINING SERVICES PROVIDER

EPC-UK shares its expertise with partners in an effort to preclude the specific risks inherent to its area of activity. Training provided by EPC-UK benefits the whole industry !

Recognised role

Safety standards in our industrial sector have risen sharply in recent years. Our relentless efforts to refine safety skills are among the reasons for this improvement. EPC-UK is the leading provider of drilling- and blasting-related training services, both for EPC Group employees and for teams working at customer's sites. The company runs nationally-accredited training and assessment programmes.

Training for all

EPC-UK recently organised and ran a series of very well-received industrial seminars throughout the United Kingdom. Large numbers of people took part with the aim to of improving their working practices. Our explosives engineering experts regularly work with industry organisations, providing in-service training for employees. They also provide information and support for courses run by higher education institutions. As a result of these initiatives, civilian explosive users in the United Kingdom have one or more EPC-UK-trained engineers on their staff.

Testimonial by Rob Farnfield



An EPC-UK training session



# EPC BOOST® - REAL PERFORMANCE

Developed by EPC Italia\* with support from EPC-INNOVATION, the million-selling EPC BOOST 410 booster remains a huge success with European quarry operators and large international mining firms.

## The EPC Group's booster

Emulsion explosives (manufactured by EPC FRANCE) are well known for their high power and safety in use. Together, these two properties represent a major breakthrough compared with dynamite, which is now becoming less popular due to the safety risks posed by its excessive sensitivity to shocks and friction. However, emulsion explosives have a relatively low sensitivity threshold that must be overcome by a reliable, powerful initiating mechanism. EPC Group developed its own booster, EPC BOOST, to meet this need.

## Novel properties

Despite its light weight (410 g), EPC BOOST generates enough shock energy to boost the explosive to its rated detonation level. The booster is packaged in a rigid plastic cylinder that decreases its shock-sensitivity and makes it clean and easy to handle. At no point do users come into contact with the explosive compound. The product has a central hole through which the detonators and detonating cord are inserted, as well as two cavities specially designed to hold the detonators in position. "EPC BOOST features unique, innovative packaging that makes this type of product safer and easier to use, while also protecting the environment"

## Applications

When fired by a detonator, the high explosive mixture in the booster significantly enhances the energy pulse transmitted to the emulsion, ensuring reliable detonation in even the harshest conditions. Boosters are also highly effective for initiating nitrate-fuel oil and related explosives (such as heavy ANFO blends). The main customers for EPC BOOST include mine and quarry operators as well as public works contractors, which use it as a charge at the bottom of the holes.

## Extended product range

The range of boosters designed for open-cast application will shortly be expanded with the introduction of EPC BOOST 250 and 150 (250 and 150 g versions, respectively). EPC Cord, a version designed for underground use in conjunction with the EPC Group's pumpable emulsions is currently undergoing licensing. This innovation, developed by EPC ITALIA in partnership with EPC-INNOVATION, extends EPC's detonator range and confirms the Group's positioning as a supplier of high-quality products and services. ■

*Testimonials by  
Ricardo Chavez, Romeo Della Bella,  
Jim Eaton and Gilles Jauffret*

\* EPC Italia holds triple certification:  
ISO 14001/ISO 9001 and OHSAS 18001



EPC BOOST® - The premium detonation booster



# TRACK & TRACE FOR EXPLOSIVES

Track & Trace is a European directive aimed at improving the traceability of explosives by means of labelling. The production sites will have to perform two key steps to ensure compliance with the directive.

## Step 1 successfully completed

On 5<sup>th</sup> April 2013, the first key date in the directive, the EPC Group's production sites were finalising their preparations for affixing labels bearing a unique number and a 3D barcode to all explosives items.

## EURO – i TRACE

The EPC Group has developed and deployed a solution known as EURO - i TRACE. "First of all, we designed some software for printing labels with unique numbers for each level of packaging; it analyses and captures the data relating to each explosive and makes links between the packaging levels and their location at each stage of the process", explains Ashley Haslett, Operations Director at EPC-UK. Next, the orders can be assembled, shipped and checked in by the customer or consignee. It will then be possible to download all of the data to a management system that will generate

detailed reports and data specific to each item received. "We can now increase the efficiency of our traceability process thanks to the volume of accurate data that we'll receive in real time", says Ashley.

## Tailored solutions

The EURO - i TRACE package will offer customers a choice of solutions. They will be able to:

1. let the EPC Group store the data;
2. install EURO - i TRACE on their own server, using the data and related material to manage stock more effectively; or
3. set up a system of grouped databases that would enable EPC to discharge customers' obligations while providing them with the benefits of the real-time inventory accessible from anywhere.

## The next step: 5<sup>th</sup> April 2015

As of 5<sup>th</sup> April 2015, all explosives items along the supply chain must be traceable at every point in their life cycle. A record of every transaction must be kept on file for a period of 10 years. ■

*Testimonial by Ashley Haslett*

## FLASH News

# EPC FRANCE - ADVANCING ON ALL FRONTS

EPC FRANCE is working at major construction sites throughout France. Read on for an overview of current and planned projects.

### 1. Sud-Europe Atlantique (SEA) high-speed rail link

A grown breaking 73-month programme of works in the first half of 2012. The SEA Tours-Bordeaux project features a 302 km high-speed line as well as 38 km of network interconnections. Travelling times between the two cities will be significantly reduced. The overburden for this project involve moving a total of 37 million tonnes of soil, with blasting techniques being used to release 5.5 million cubic metres of materials. EPC FRANCE has assigned two depots and three teams to this project, delivering up to 20 tonnes of explosives per day at peak times. All in all, the job will require more than 2,000 tonnes of explosives for blasting operations.

### 2. Bretagne-Pays de Loire (BPL) high-speed rail link

The Bretagne-Pays de Loire high-speed rail link is scheduled



Construction work for the Saint-Béat-Arlos bypass

to begin operating in 2017, significantly shortening journey times between Paris and Rennes. Of a total of 29 million cubic metres of earthworks, around 1,000,000 m<sup>3</sup> will need to be blasted. Alpharoc, an EPC Group blasting subsidiary, is carrying out hillside rock-breaking works in Le Pertre, blasting some 700,000 m<sup>3</sup> of materials. EPC FRANCE is supplying the explosives and has assigned a mobile explosives manufacturing unit. Approximately 500 tonnes of explosives will be used during the construction of this railway line.

### 3. Construction of the Saint-Béat-Arlos bypass on the RN125 road

On 9<sup>th</sup> April 2013, EPC FRANCE and Alpharoc began blasting operations for the Saint Béat tunnel, which is being dug as part of the Saint Béat-Arlos bypass construction project on the RN 125 road. Tunnelling work is scheduled to take around 10 months, using traditional drilling and blasting to advance the face. This 1 km long structure includes two safety tunnels. EPC FRANCE's expertise with MORSE®, its proprietary in situ explosives manufacturing solution, was a key factor in winning the contract. During the most intensive phase of the project, two MORSE units will be deployed, one at each of the two tunnel faces. A total of 250 tonnes of pumped emulsion explosive and 70,000 non-electric detonators will be required.

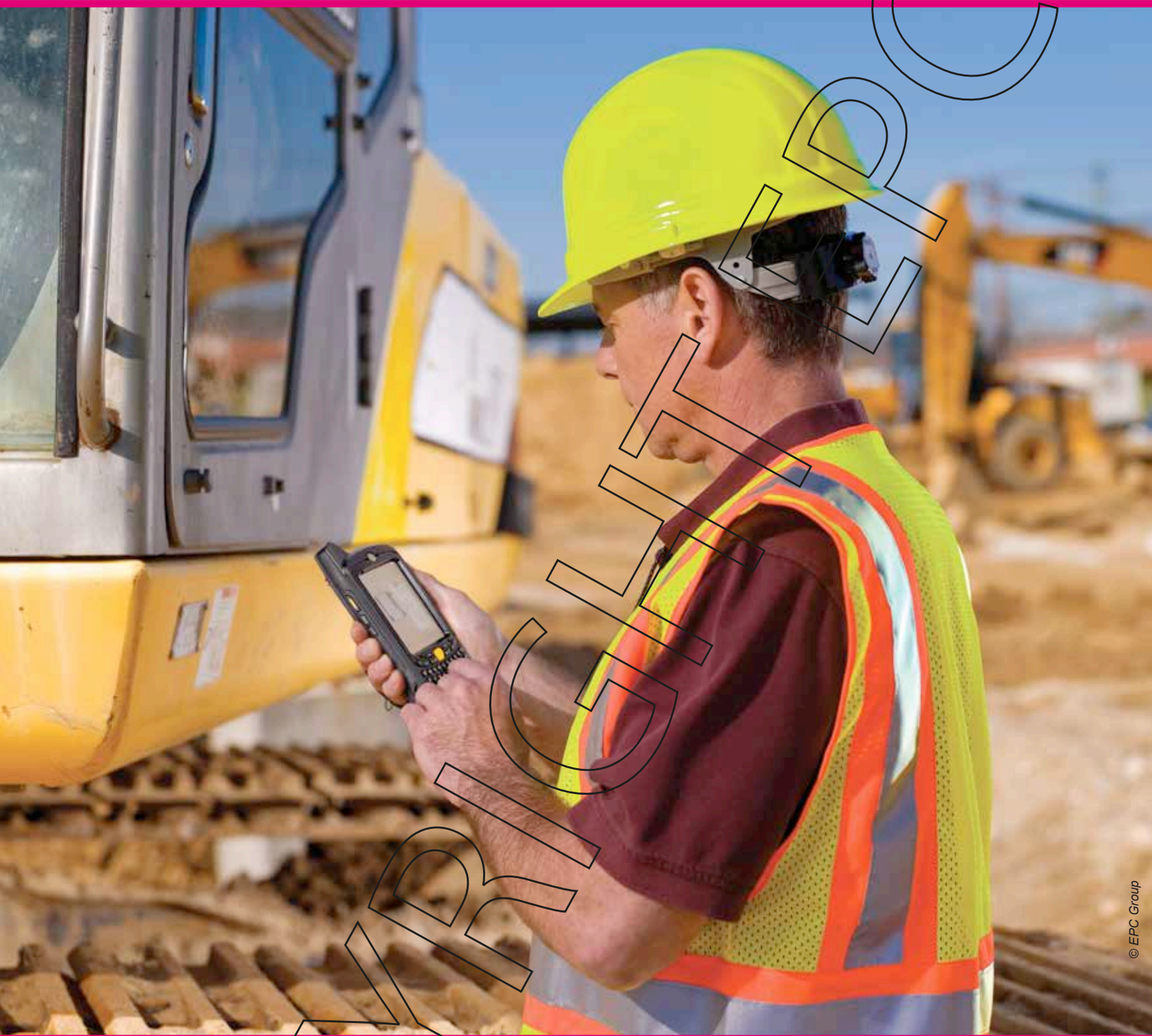
### 4. Contract to supply explosives for two infrastructure projects in Monaco

EPC FRANCE will supply explosives and detonators on a daily basis over the 15-month period for these two projects in Monaco. The first project concerns the construction of three underground vaults (with a volume of 30,000 m<sup>3</sup>) to house electricity substations as well as a network of service tunnels in which high-voltage power lines will be installed to support the principality's urban development. The second project involves excavating an inclined, single-carriageway road tunnel.

EPC FRANCE is also set to take part in projects to build the Puymorens tunnels in the Pyrenees, the Sarrans tunnel and the Borne Romaine tunnel, as well as earthworks for the Séchilienne bypass. ■

*Testimonial by Pascal Montagneux*





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**EPC**  
**GROUPE**

**No. 3 - October 2013**

**Publishing Director and Editor-in-chief :**  
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**Photos credits :**  
EPC Group  
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**Design, copywriting and execution:**  
Agence SHAÏKOU Communication - Nantes

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