

EPC FOCUS

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energy

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In Spring 2015, the group launched the "Team Spirit" programme. The programme, designed as a new component of our continuous improvement of HSE performance, in fact rapidly extended beyond its initial remit. "Team Spirit" has become a watch phrase, a "rallying call", a form of expression of the fundamental values of EPC. However, it might not be all that surprising. For generations, hasn't it been just this feeling of belonging to a community of values which has given our group its strength, and which sets us apart? Our 2017 annual convention was dedicated entirely to illustrating this team work within EPC. We saw there was no activity, no project, no culture, where pooling skills and enthusiasm cannot lead, literally, to moving mountains. The central theme for this edition of our magazine follows on from the convention and provides some new examples of team success. Editorial tradition dictates that the central theme is limited to a reasonable portion of the edition. Nevertheless, virtually all the articles in this edition, as in previous editions, could legitimately find their place within this central theme. At EPC, it's all about "Team Spirit".

Olivier Obst
Chairman and CEO



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DOSSIER



Under-ground: EPC steps into the breach

Faced with the spectacular increase in world ore consumption and the depletion of surface deposits, the future of the mining industry is clearly underground. A unique opportunity to showcase all our know-how, as Pascal Montagneux, head of underground activities and responsible for business development on the Asian continent, explains.

Chuquicamata in Chile, Grasberg in Papua, Palabora in South Africa ... the largest underground mining deposits are not about to see their operations cease. The situation is better still. The technological maturity of extracting at great depth will allow for the mining of reserves situated at depths between 4,000 and 5,000 metres. "It's simple: between now and 2025-2030, more than 50% of metal ore production will come from underground mines", says Pascal.

A UNIQUE UNDERGROUND EXPERIENCE

EPC Groupe has always been present in the underground works sector. The development of this expertise began in the early 20th century in the French iron, coal and gold mines. Later, the

From our underground activity comes a service offering tailored to a high-growth potential market

excavation of dozens of kilometres of tunnels and galleries needed to create major infrastructures consolidating this expertise among the major construction and engineering players. And so the MORSE was born (Emulsion Repumping and Sensitisation Module), an unrivalled benchmark in tunnel excavations with explosives. As highlighted by Pascal, "this success is due not only to the engineers

and technicians of EPC Innovation, but also the involvement and professionalism of the EPC France teams on the ground, who have made themselves indispensable with their sense of service and ability to

adapt". The collective contributions to our underground expertise has also crossed borders. EPC Sverige, again in collaboration with EPC Innovation, has developed our loading formulations and techniques (mechanisation with string charging) in up holes. And this momentum extends to North American, where Canadian EPC Nordex adds

another string to our bow to pursue our growth in this strategic sector, which is underground.

KEY PLAYER IN THE UNDERGROUND MINE OF THE FUTURE

Underground, the group's historical activity, is future-oriented. Worthy successor of the MORSE, the SPUR technology (Smart Process for Underground Repumping), with its different modules, is now the cornerstone of our development on numerous market segments. Other exclusive solutions, like equipment automation and blast optimisation through the exploitation of an increasing volume of information, are in preparation. Their objective: to overcome ever more complex challenges in deep underground mining, in terms of both safety, our absolute priority, and productivity. "With our wealth of past experience, we work together every day on technologies which will ensure our growth on the underground markets of the future", concludes Pascal. •



→ The future of mining will play out underground.

SAFEX: commitment on all fronts!

SAFEX, the organisation bringing together the world pyrotechnics players, demonstrates a formidable collective commitment to safety, to which EPC Groupe is committed in more ways than one.



Team work begins as soon as you choose to join SAFEX. Each member reports on their incidents and accidents, and shares the lessons learned with the others. No competition here. These precious reports are compiled and made available via a database reserved for all SAFEX

members. Remote teaching modules are also available to members. Coming from international groups, the twelve members of the SAFEX Board of Directors, among which Thierry Rousse, embody this strong desire for global cooperation, the high point of which is a triennial Congress.

TEAM WORK AMONG OUR RANKS TOO

Before and during the two days of the Congress, EPC Groupe mobilises its troops. Over the two years preceding the event, internal discussions take place on the pertinence of the security topics to

From 2018, we'll be preparing for the 2020 Congress

be expanded on. Last May in Helsinki, no fewer than twelve of our employees, from seven subsidiaries, gave thirteen of the thirty Congress presentations. Even on the other side of the rostrum, EPC Groupe continued the team play with eighteen of its employees among the audience. •

Mentoring: the same commitment to excellence

Early in the year in Saint-Martin-de-Crau, the first mentoring event was held on the group standard "Sécurité des Procédés Industriels" (Safety of Industrial Processes). Behind an abstract word, mentoring quite simply embodies the art of conveying information.

While Process Safety will ultimately be a matter for all the group's plants, the reflection work began with our French-speaking subsidiaries. EPC

Groupe, EPC France, EPC Innovation, EPC Belgique, EPC Côte d'Ivoire, EPC Maroc, Nitrokemine Guinée: around a dozen representatives were to meet to together define an action plan to meet operational standards. As Pascal Lacourie pointed out, "it's important these standards aren't just imposed, that everyone makes their contribution". And that's what happened: each shared their problems and experiences with their colleagues and discussed specific cases. Production, storage, distribution, use and application: all our activities associated with hazardous materials were reviewed. Objective: to put in place the methodological tools allowing for the prevention of major industrial accidents and their human and environmental impacts. •



→ Participants of the first mentoring event on the definition of a group standard "Sécurité des Procédés Industriels".

TOTAL La Mède: ATD Démolition and EPC France fuel confidence

On the environs of Martigues, one of the refineries of the world number 4 oil group was the stage for a wonderful example of collaboration between our different business divisions.



In September 2016, ATD Démolition was awarded a 1.4 million euro contract to destroy ten storage tanks and dismantle an isomerization unit for TOTAL. Among the many safety requirements (operational SEVESO site) was the need for regular monitoring by a safety engineer. Since ATD is located more than 900 km from the site and EPC France less than 50 km, Cédric Durand, Quality and Safety Director at ATD and Claude Roth, Sustainable Development Director at EPC France, decided to pool their resources on site in the figure of Jérôme Romani, Safety Engineer at EPC France. "The integration was incredibly easy. It really illustrates how EPC Groupe is opening up and how easy communication is between different divisions or activities" says Jérôme. Site visits, audits and inspections with reporting, as well as 15-minute safety presentations and safety talks, exchanges of best practices between ATD and EPC France, reporting on risk situations... discussion was the key item on the agenda. Confidence too. This project was recognised by customer TOTAL for two consecutive months in its safety and availability challenge. •

EPC France and Kemek: mobilisation across the line

Early 2017, five containers containing a complete production line arrived at Saint-Martin-de-Crau. Transported from the Kemek site, this precious and sizeable cargo was the subject of significant preparatory work between France and Ireland.



→ Re-installation of the Kemek line: a perfect example of team work.

Preparation began early 2016 when EPC France was planning to replace its emulsion wrapping machine which constitutes the heart of the production line. Negotiations with suppliers reached their peak when our subsidiary Kemek informed us that it wanted to part with one of its lines. Setting off immediately for the Dublin suburbs: Thierry Galvez- Billiard, EPC France Head of Industrial Development, accompanied by its Director Laurent Casagrande and Didier Humbert, the group's Purchasing Director. In situ: a line 100% compatible with our plant in France.

METICULOUS PREPARATION

Mid-December, Thierry, in charge of orchestrating this delicate logistics operation, returned to Ireland with two EPC France technicians. "They needed to take a precise inventory of the line. Functionalities, repatriation operating modes, evaluation of labour for the dismantling operation, cubic volume for the transport... we reviewed

Repatriate a production line from Enfield to Saint-Martin-de-Crau? Together? Anything's possible!

everything" recalls Thierry. On return to France, he got on with the organisation until the end of January 2017. "We were assisted by the local Kemek teams from the outset. I worked closely with site director Padraig Gill from the preparation phase. It was a very successful collaboration" he says. And thankfully so, as everything had to be planned, right up to the leasing of the equipment and tools on site!

DISMANTLING TEAM

To dismantle its production line in optimal conditions, Thierry handpicked a team of people. No fewer than four electro-mechanics were recruited for this mission, together with one EPC France technician and Thierry himself to supervise the operations. The operations took two weeks, monopolising six people in the first week and five in the second. On site, the local Kemek teams contributed their precious knowledge of the site to help us bring this technical challenge to a successful conclusion. •

5,5
full time equivalent
2 weeks
of dismantling
5 containers
1 month of
transport by sea

EPC Premium: a high-flying partnership



→ EPC Groupe and AIRWARE at the FNTP (construction and engineering) forum: a success to carry on to the Interat fair in 2018.

"We're moving forward together to formalise a stand-apart offer which exists nowhere else" says Philippe Dozolme. And this offer is EPC Premium: an on-line solution to optimise extraction, from the blast to the crusher, thanks to the optimal exploitation of the quarry data gathered, notably by means of drones. It's based on team work on a number of levels. First within EPC, with a group bringing together representatives of the France, Belgium and UK subsidiaries. "This offer has to be compatible with the diversity of our markets and customers. It will be based on the presentation of concrete cases", says Philippe. For this, the EPC teams collaborated closely with US company AIRWARE, which worked on the development and implementation of this solution and which will also be in contact with customers to assist with its implementation. We could call this triple team work! •

Key Accounts Manager (KAM), a catalyst of dynamic development

At EPC Groupe, we talk about partners rather than customers. Question of corporate culture. While all are important, some partners reflect a strategic dimension requiring constant monitoring.

Present in our various subsidiaries, the Key Accounts have found a capable conductor in the figure of Éric Krolop. Even though the challenge of the role represents a full-time job for him, it also involves many of us. Beginning with the three area directors. As Éric recalls, "it's with the area directors and possibly the Development Director that the objectives specific to each Key Account are decided". As a minimum, meetings are organised each quarter. However, the team work of the KAM also takes the form of regular discussions seeking to coordinate the different customer relations contacts: technical, supply chain, operational etc.

The Key Accounts approach, an opportunity to create further added value

DYNAMISING THE RELATIONSHIP

One of Éric's main objectives is to ensure a perfect understanding of our customers' requirements, indeed anticipate them, and to transmit this precious information to the relevant employees to be able to develop ad hoc solutions. "The KAM promotes dialogue between equivalent customer side and EPC Groupe side roles", explains Éric. Able to best understand the reality of its customers, he defends their positions, ensuring the coherence of the commercial actions: monitoring of framework agreements with legal, supporting the commercial teams ... "Ultimately, the KAM is just a leader, a coordinator ensuring the dynamic development and coherence of the commercial strategy", concludes Éric humbly. •



→ Éric Krolop, EPC Groupe Key Accounts Manager.

Project development: all on deck!

While this is reflected by a dedicated team on the organisation chart, project development is everyone's business. Flair, audaciousness and a sprinkle of creativity enables every one of us to convert an opportunity into a new market!

Bertrand Pougny and his team carry out what constitutes the first phase of development work at EPC Groupe: research. At the start, they're just ideas, avenues emerging from a field visit, a meeting at a fair or a discussion with a contact ... Next comes the validation phase. As Bertrand Pougny explains, "the aim is to confirm the pertinence of an idea". For this, other people are already contributors: operational personnel, area directors, financial division, general management etc. ... "in principal, I pass on information to Olivier Obst very early on, as soon as I sense real potential" confides Bertrand.

DEVELOPMENT: OF THE HUMAN AND OF FEELING

Once the relevance of the project is proven, a team is created specially to develop it. At its head, one of the members of the development team, who builds around them a multi-disciplinary team representing all the

competencies they believe necessary. "Safety, finance, technical and also legal. There are at least four of us. But this number can quickly rise if the project requires it" stresses Bertrand. And he reminds us that "development at EPC has the

advantage of not being partitioned or enclosed within fixed procedures.

The emergence of a project should not be due solely to the Development Division

It depends not just on our research, but also the expertise and participation of everyone. •



→ Our new Vietnamese partners, a fine project development achievement.

We love Peru!

In the last Focus, we told you about a new joint-venture with IESA, leader in the construction of underground galleries in Peru. Since then, a team dedicated to capturing this market was born.

Establishing yourself on a market like Peru, with highly protective regulations, is not simple. Hence, the strategic interest of the joint-venture with IESA. Their business covers all gallery excavation activities. Ours covers production and the application of explosives for blasting. This complementary know-how gave rise to a close collaboration between our two companies in order to provide our Peruvian customers with ever more comprehensive and effective solutions.



→ Around Juan, a momentum is being established to grow our business in Peru.

The development of our underground activity has also been the subject of significant partnership work within EPC Groupe itself. Thus, it involves EPC Innovation for the technological dimension, and our colleagues at EPC Sverige with their wealth of experience on the Björkdal mine.

Peru illustrates a collective desire to develop our underground activity in Latin America

A FIRST INSPIRATIONAL PROJECT

Our activity in Peru will very soon come to fruition with underground access works on a mine. There again, sharing has proven essential. Juan Martin, UG blast engineer at EPC Servicios Perú, was hired at the beginning of the year. With his experience in underground mining in Chile, he visited our different project sites in France, Spain, Sweden etc. ... before discussing software aspects with our technical division. Late June, he took off with all the equipment to represent EPC Groupe alongside the employees of IESA. But don't think he's alone.

Prior to that, team work again played out. Pascal Lacourie and Michel Chiodi regularly travel to Peru, while Philippe Cappello, Moustar Abdallah and other people from EPC France

and EPC Sverige meet with Pascal Montagneux to develop our underground activity. •

Sharing information, is a craft!

Formerly with Davey Bickford, Yves Sarrey joined EPC Groupe in April 2017 as Africa/Middle East Technical and Training Director. His experience in the pyrotechnic sector, more than thirty years no less, is evidenced daily by discussion-centred work.

”

At EPC, there is an unusual openness which is conducive to all sorts of exchanges, at all levels



→ Yves Sarrey, Africa/Middle East Training Director

Your career journey with EPC?

I had an electro-technical qualification initially. I worked at Davey Bickford for twenty-seven years, firstly in Research & Development. Test benches and other lab tests, my role shifted towards Quality. Then I was project manager before working in customer support for Europe/Middle East/Africa from 2005. There I began working with the guys at EPC, through Nitro Bickford, some of which are now my colleagues!

Your day-to-day role?

In terms of training, I have replaced Éric Coussart. This responds to a real need in the Africa segment. Olivier Vandenabelle, my manager, also wanted to develop a technical support activity. Working with me is a young graduate engineer from the École des Mines de Liège, Maxime Schaerlaeken. We began working on two projects, one seeking to reduce the effect of dilution on the gold mine of Bonikro in Ivory Coast, and another in Senegal,

focused on seismic disturbances. This are mobile missions, which can last between three days and two weeks.

Your role as trainer?

Training is a particular way of communicating knowledge other might not have. Before EPC Groupe, I gave a lot of training! Here, the scope is wider and covers safety rules linked more to application than to the product itself. In Africa, I have a structured framework to continue work I've been involved with for a long time, covering training leading to both diplomas and qualifications.

Why this role?

Because we are always discovering things! In this role, we take nothing for granted. Each site is different: the rock, the orientation, the seams... You have to continually measure, adapt, understand and revalidate. Take an electric motor. It will always work the same way. The same can't be said for explosives!

The benefits at EPC?

Without doubt, the ability to share. Exchange, pooling knowledge, de-partitioning between the divisions and subsidiaries, it's rare within a group like this. The importance placed on training is a good illustration of this. The same goes for the technical dimension. Mathieu Lachamp and Ricardo Chavez shared their precious feedback with me on the Björkdal mine in Sweden, in Pascal Lacourie's area. And it's a simple and natural process. •

A demolition which speaks volumes

The demolition of two towers in Rillieux-la-Pape (69) was entrusted to our subsidiaries ATD/Occamat. Real team work was needed to coordinate all the expertise present in the group to turn this project into a spectacular success.

An operation like this needs scrupulous coordination between all the participants. "Project manager, contracting authority, local authorities, law enforcement agencies, safety services ... the organisation work began thirty weeks before the blast", recalls Nadège Doubinsky, head of the Occamat Rhône-Alpes agency. On site, his teams stripped and removed the asbestos from the building before weakening the structure and proceeding to the drilling works. The objective was to restrict the blasting to just a few storeys. The others would then collapse under their own weight to bring the towers down in on themselves. This is the implosion by explosives technique. Implementation was entrusted to EPC France, which supplied close to 1,500 latest-generation electronic detonators and produced 275 kg of Nitralox explosive. Added to this was specific expertise which Benoit Lanfry, Managing Director of ATD, had no trouble finding: "EPC

Groupe is currently the only player on the market capable of offering a completely integrated solution, from production of the explosive to implosion". The mobilisation of this expertise, as diverse as it was complementary, lasted two days, with peak phases of thirty-five people on site. All this for a demolition which lasted just a few seconds. Jimmy Loncle, operations director, concludes "ATD was perfectly structured for these time-critical operations involving major organisation and logistics". •



→ A demolition which mobilised several areas of expertise within EPC Groupe.

More than a customer, more than a partner, more like a team mate!

A new partnership milestone has just been reached with the CB group. Owner, among others, of the largest quarry in France, Carrières du Boulonnais wanted to take its collaboration with EPC Groupe further.



→ Our Belgian Amay plant is forging a new form of partnership with Carrières du Boulonnais.

At the heart of this new kind of partnership, Pascal Lacourie very quickly recalls the objective sought by the customer. "It wanted to be autonomous in terms of explosives production. There was growing logistical problems with these semi-finished products

from Scotland and we were planning to build a plant in France" recalls the General Manager of EPC France. Except that for him, such a project was not economically justifiable. So instead, Pascal proposed to share the production tool. The EPC Groupe has

at its disposal units both in France and Europe with great capacities to exploit further. We liked the idea. "We said why not do something together around our Amay site in Belgium. It's 90 minutes from Calais by tanker" points out Pascal.

A production cooperative with ever closer collaboration

WIN-WIN COOPERATION

The CB group wanted to be a stakeholder in production. A unique semi-finished product production cooperative was therefore created, with Carrières du Boulonnais owning a 30% stake. As Pascal explains, "for them, it's greater autonomy, direct access to production and attractive cost prices. And for us, it's an increase in activity on the site". The speed at which the agreement was concluded illustrates the determination of the two parties: just six months. Operational since September 2016 and with a very encouraging first half-year in 2017, this new form of collaboration is proving promising. And makes the difference between customer and partner even more tenuous. •

EPC Nordex: a big step in America

Just as the joint-venture with IESA should open up the doors to South America for us, the acquisition of Canadian Nordex will enable us to develop our activity in the northern part of the of American continent. The capture of the West continues for EPC Groupe!



→ Production, transport, explosives engineering: the Canadian Nordex had what it takes to become EPC Nordex.

Nordex in figures:

More than

40 employees

7 bulk cargo lorries

2 Scorpion units

10 Mini-Scorpions

Revenues of

15 million
Canadian dollars

A fine example of project development, an opportunity identified at the time by Ben Williams, Atlantic Area Director, which in the space of a few months became a project, and then reality. On 19 August 2016, EPC Groupe acquired a 100% stake in Nordex Explosives LTD. As recalled by our Chairman

Complementary expertise to tackle the North American market

and CEO in a previous issue of Focus: "The acquisition of Nordex is founded on strong synergies. It allows us to strengthen our presence in North America, while providing Nordex with a broader range of technologies and services to develop its activity on the Canadian market". Today, Ferdinand Bodéan is Senior Vice-President

of this multiple asset Canadian company.

A SOLID EXPERIENCE IN THE MINING SECTOR

Nordex has been established on the Canadian market since the early 70s. "It is located to the north of Ontario, at the heart of a gold mining region in which dozens of mines operate. It represents major market potential" explains Ferdinand. A market on which it is easier to establish yourself through a company which is itself already well established! EPC Groupe therefore made the strategic decision to acquire the entirety of the stock of Nordex, listed on the Toronto stock exchange. As Ferdinand states, "the company is historically oriented towards the mining sector and has less experience in the quarry sector. It's an opportunity for each to benefit the other with its know-how. EPC Groupe has technologies and a service offering developed particularly in quarries".



→ In 2016, Nordex and its forty or so employees joined EPC Groupe to become EPC Nordex.

A NATURAL COMPATIBILITY

The interest Nordex represents goes beyond its strategic position on the Canadian market. The company has in fact many similarities with ours. It has its own wrapped emulsion production line and produces bulk emulsion as well as ANFO (Nitrate Fuel). As with us, it is quick to innovate to improve the performance of the solutions offered to its customers. Examples include the Econotrim Buttbuster, a product of choice for perimeter control (see

article page 14) or the Scorpion, a hole loading device which more than holds its own against our SPUR and MORSE solutions (see further below). But beyond the products and their application, it's the values of Nordex which bring us together. Extreme professionalism, permanent safety of operations, a 100% customer-centric approach ... that's what speaks to all of us! •



Scorpion unit: an emulsion pumping beast

Following a first, already highly promising, version, EPC Nordex returns with a development of its mobile emulsion pumping unit. More modern, higher performing, the Scorpion 2 doesn't fail to pack a punch.

As we saw at the beginning of this edition's Focus, EPC Groupe fosters serious and legitimate ambitions on the underground market. This unique machine is further proof of this. Used exclusively in Canada by EPC Nordex, the Scorpion 2 is capable of loading mine holes at



→ The EPC Nordex Scorpion, an additional asset to capture the Canadian underground market.

depths of more than 40 metres over a 360° slew. But the beast boasts more than that. With its tanker capacity of more than five tonnes of emulsion, which is more than double the traditional capacity, the Scorpion 2 needs reloading less often.

And this is good for productivity. Safety remains key since the 9.80 metre telescopic arm is equipped with a camera. This gives the operator optimal control of the loading process while remaining outside the risk zone. •

Holes > 40 m
360°
115 Kg/min.
5 t of emulsion
9.8 m arm

CHALLENGES / Suppliers

The supply chain: the key to anticipation and mobilisation

Lack of materials, an accident at a supplier or even a logistics problem can impact the entire activity of the group. Faced with the challenge represented by supply, it's better to act than to react.



→ With nitrate, the boosters occupy a strategic place in the Business Continuity Plan.

Maintaining activity whatever happens. A necessity which, among other things, requires a diversification of supply sources. Not always obvious if you have a preferred supplier you have negotiated prices and services with. "While it's a risk, it's important. It's being able to turn the situation around and provide the service to the customer without any loss in quality", says Didier Humbert, Group Purchasing Director. Anticipating all the scenarios and having alternative

Suppliers and logistics: 11 of the 47 risks to business continuity identified

solutions available in a critical situation, this is the mantra of Darrell Howard, Logistics Director. Together with Didier, his team and the purchasers of the different subsidiaries, he regularly prospects for new suppliers. Since 2016, this highly strategic approach entered a new phase. Under the impetus of Charles-Ernest Armand and Thierry Rousse, a group project was created. Its purpose: to identify the supplier risk typologies, then formalise the procedures and tools required for the implementation of a Business Continuity Plan in degraded mode. Essential yet delicate work requiring "commitment and cooperation across all subsidiaries of the group" points out Darrell. •

CONSTRUCTION / Infrastructure

En route to a new challenge!

The EPC France special works division has again made the difference with the big construction and engineering players. The project this time involved embankment reinforcement within the context of expanding the RD 30 in the Paris region.

The expansion to 2 x 2 lanes of the RD 30 between Plaisir and Élanecourt extends over 4.2 km. Under project manager EGIS, this expansion was carried out by the consortium BOUYGUES TP, DTP

Terrassement and Colas IdF. It required the construction of several retaining walls, eleven of which were anchored walls. "Maintaining traffic flow and the poor quality of the ground required the works to be segmented with an important phasing of our interventions", recalls Étienne Schmitz, EPC France Director of Works. An even bigger challenge because the volumes of concrete to be poured were to reach an average of 18 m3 per day!

REINFORCED CONCRETE SHELL

The reinforcement work began with small areas of earthworks of a height of two metres, in which metal anchors were inserted before the injection of a cement slurry. As Étienne explains, "these anchors reinforce the whole surface of the embankment, which will be covered with metal lattice before being sprayed with concrete over a thickness of 20 centimetres". Around twenty people from EPC France were mobilised for this project, which was completed at the end of September 2017. •

11 retaining walls
27,500 ml of drilling
3,550 anchors
6,350 m² of sprayed concrete



→ 6,350 m² of sprayed concrete, screeded before final coating.

CHALLENGES / Health

Wellbeing at work, works!

Within EPC Groupe, safety always remains the no. 1 priority in terms of caring for its employees. Nevertheless, there are other contributing factors to ensure that each person feels better both in and outside work. Recapped with our various area managers.

Health and wellbeing embody one of the priority objectives established by EPC Groupe over the coming years. Central to the last Safety Committee of April, this subject was the opportunity to report on the actions undertaken. For Pascal Lacourie, Continental Europe and Latin America Area Director, "priority will be given to musculoskeletal disorders,

taking inspiration notably from the awareness-raising campaigns rolled out by our customer Vale in New Caledonia". Within the demolition division, health and wellbeing at work form part of an CSR* policy which has enabled its six subsidiaries to commit to a structured approach. All kinds of shared actions then ensued, which are a source of pride for Cédric Durand, Quality and Safety Director. Awareness-raising days, contributions from an osteopath, workshops on stress management, sleep, diet etc. Working groups also discuss solutions to mechanise or "alleviate" certain manual operations: lorry ramps, robots to help with handling or dedicated to asbestos removal, exoskeleton etc.

DIFFERENT PRIORITIES DEPENDING ON THE AREAS

Africa and Middle East Area Director, Olivier Vandenabelle, wants to capitalise on access to medical care: "the employer has a duty to its employees".

A company is above all a living space!



In Guinea, breast cancer and cervical cancer screening campaigns have just commenced. Treatments, such as triple

therapy, are also made available to employees and their dependents. Important awareness-raising work is carried

out to encourage these new medical practices. New habits, a subject also relevant to the Atlantic area. Its Director, Ben Willams, has just launched the Commit to be Fit programme, an initiative to promote wellbeing among its 250 employees. Sports, nutrition as well as mindfulness, psychology... the support system is completed by group workshops and personalised supervision. Training is also offered to the supervisory teams to enable them to detect and deal more effectively with stress-related symptoms. As Ben sums up, "the significant amount of time spent in the work environment means we have to take the health and wellbeing of every one of us very seriously!". He and his counterparts meet each quarter to share their feedback on this challenge which is more current than ever. •



→ Targeted actions on employee wellbeing throughout EPC Groupe.

*Corporate Social Responsibility



NEWS / Safety

And the winner is...

Everybody, we want to write! Because the EPC safety Oscars are there to celebrate health and safety throughout our whole group. It wasn't in the cinematic sense that we held our awards ceremony during our last convention in Ajaccio, but an understanding of our values. Although we have to admit the film devoted to the Saint-Cloud accident affected all the members of the panel. The humanity of the message, the sober description of the accident

and the painfulness of the poignant image of the split helmet at the end of the reel earned this project the gold trophy. Serafina, a small structure overflowing with imagination and enthusiasm, raises funds with a film about the risk of fire in dry zones. Newcomer to EPC Groupe, EPC Nordex, illustrated its successful integration with a montage paying tribute to team work... another value we hold dear. •



CHALLENGES / Management

All leaders ahead of schedule!

In May 2017, EPC-UK presented a project to the rest of the group on the development of the delicate art of managing a team! Leadership, management... words that are complicated to translate while representing a necessity, however, that is both simple and universal: sharing one and the same course of action into the future.

It all began in 2012, when our English colleagues appointed a new director and decided to simplify the management team. "It was at this point that EPC-UK began to develop its strategy 'One company, one vision, one mission, one team'" recalls Ben Williams, Atlantic Area Director. At the time, the development of management and succession plans had no structure within the economic model in place.



→ Leadership, a complex notion to be assimilated with simple methods.

DEVELOPING THE MANAGER IN US

Ben's team began with considerable work to identify individual potential in both supervision and management roles. As Ben explains, "this allowed participants to reflect on their own experiences and to learn that each person was different". An approved training programme was then implemented with a specialist firm. Based on pragmatic and interactive workshops in a pleasant atmosphere,

Supervising, running, managing... a potential for development

the aim was to develop our ability to run and manage activities from the perspective of economic sustainability.

Its preliminary benefits are already being felt. For Julie Wooton, head of human resources, "the link between management and economic performance is more evident. We've also seen an increase in operational efficiency and a greater commitment among the staff". •

TECHNOLOGY / Loading

The sound advice of EPC Nordex

EPC Nordex's arrival in the group doesn't just mean new opportunities on the North American market. It also means access to new technologies. The Buttbuster is among these.

A Nordex exclusive in North America, the Buttbuster comes in the form of a charge contained in a semi-rigid tube, the length of which is customised to the needs of each customer. Perfect for loading perimeter boreholes, the product ensures a clean cut of

the contours of the mined zone. Nitroglycerin-free with a high velocity of detonation, the Buttbuster considerably reduces risks of fractures in the surrounding rocks. Result: post-blast reinforcements are reduced, as are the costs. And safety and productivity increase significantly.

A TECHNOLOGY WITH A BRIGHT FUTURE

EPC Nordex is pursuing its research and development activities on the Buttbuster. The product has recently inherited a new asset, with direct initiation to make peripheral borehole loading even faster. As Glenn Donnithorne, head of the Technical and Customer Relations division, states "this product delivers maximum efficiency and safety,

Precise blasting of contour boreholes

results we support!". The Buttbuster has already proved itself in Canada, one of the world's biggest mining countries. Now it's available at a group-wide level, multiple surface and underground blasting projects and applications open up to us! •



→ Customised wrapped charges and direct initiation.

Quality in the pastureland

We found ourselves in an unusual position, and present an undertaking far from our world of explosives. Technically, in any case. Geographically, it's very close as it's the EPC agricultural operation adjoining our production site at Saint-Martin-de-Crau. And it's clear that the quality cultivated there aligns closely with our standards.

The site of Saint-Martin-de-Crau constitutes 400 ha of land, 100 ha of which are reserved for our industrial facilities. The remainder is intended to maintain a clear security perimeter around the plant. Nevertheless, maintaining such a vast natural space, you can't just improvise. That's when "Lou Craven", family farm of the Garagnon's, entered the scene, and more particularly nephew Cédric. He explained it all to us... in his very southern accent!

SHEEP, HAY, WOOL... PREMIUM

Cédric Garagnon took over the farm his uncles established some thirty years before. With his wife and helped by two other people, he specialises in breeding lambs and the Crau hay crop. "Our livestock represents 700 animals. Hay, between 70 and 80 hectares. We also do butchery, chickens, eggs..." says the young farmer. Since he took over the farm, Cédric decided to go the direct sale route. And it's working! Each year, he sells between 300 and 400 animals to individuals. Meat which he packs and processes himself, on site. "People today are increasingly looking for quality. And that's not easy to find in retail. Now

The partnership with the Lou Craven farm has contributed to adding value to the natural spaces of EPC France

they come to us" he says. The farm's other activity follows the same exacting levels. With the Crau hay designation, Cédric's produces eight tonnes of hay per hectare and per year in accordance with strict standards verified annually by the AOP (Protected Designation of Origin) Commission of Marseille. On a more esoteric commercial note, but just as noble, the famous wool of his Arles merino ewes confirms our farmer's serious ambitions.

FIVE YEARS TO PAMPER EPC LAND

The vast area of land of the Saint-Martin-de-Crau site was faced with rising upkeep problems with passage of the years.

Outsourcing this job became clear, as was the choice of Cédric. "I had two complementary activities: breeding and haymaking. Making just one contact" he recalls. A loan for use consolidated the partnership. In other words, EPC France makes its land available to the farmer free of charge in return for his upkeep of the land. Upkeep which has required several months of labour by Cédric to clear, crop... and also irrigate. One of the particular

features of Crau hay: every ten days, the entire pasture has to be submerged to ensure the optimal growth of the thirty or so varieties of plant making up the hay. For this, Cédric has developed a whole network of ditches linked upland to canals. Major work, but as he says, "for us farmers, the more land available to us, the happier we are!". •



→ A herd of 700 lambs and ewes, plus the hay, all of the highest quality ... and from Crau naturally!



The very finest of hay



With its Protected Designation of Origin, Crau hay is distinguished by its quality and the diversity of its grassland varieties. Its gravity irrigation system and the low earth and waste content ranks it among the least dusty in the world. It therefore protects the respiratory systems of horses. The horses particularly love its long crispy and fragranced stems. Finally, its nutritional values are excellent in terms of calories, proteins and minerals. It's no surprise that a significant part of Lou Craven's production is exported to the Middle East to feed race horses. The rest is enjoyed by the beasts of the region's breeders.



NEWS / Manufacturing

The Saint-Martin plant is forward-looking

The Industrial Development Division and management of the Saint-Martin-de-Crau site are working on a reorganisation of the existing plant and potential developments. The ambition is clear: the industrial site has to be rethought fast, starting with our current activities and integrating upstream and downstream flows. The objective is to achieve a global

response to health, safety and environment constraints. The overhaul of this production plant, which is strategic for EPC Groupe, will focus on the buildings housing the EM3 (EMulsion3) production line. Two years of work will be necessary to carry out the redevelopments and give the site of the future a new lease of life. •

Graphic coherence, a strategic challenge for MCS

Fahad Abdulaziz Alhamwah, Director of Marketing, Human Resources, Administrative Affairs and Institutional Relations of MCS, was welcomed at the head offices of the group on 6 April 2017. A visit during which our Saudi partners demonstrated their desire to fully integrate the EPC Groupe graphic charter.

"MCS is a joint-venture between MCC and EPC Groupe. We consider EPC Groupe our parent company in services to the mining industry" says Fahad. The management and operational divisions of MCS have a number of senior EPC Groupe figures and apply the highest industry standards in mining services and applications. As Fahad explains, "it was therefore natural that MCS lent its graphic style and image to EPC. For MCS, this would have a positive impact in terms of prestige, and allow it to attract a broader customer base since we present EPC as the Leader in this industry, thanks to its long experience in the explosives production, mining industry and construction sectors".

"To communicate clearly about our pride to be part of EPC Groupe in Saudi Arabia and the Gulf States"



→ Mahmoud Eldieb, Haren Sampat, Fahad Alhamwah, Ian Bradley, Abdullah AlSubaie (from left to right).

ALIGNMENT OF THE GRAPHIC CHARTER

While the MCS logo, already in the colours of EPC and including our salamander, will remain unchanged, Fahad wants to align all the marketing media with our charter. This ambitious project began with intense discussions and the exchange of documents and information with the group Marketing Division. Clear priorities, accompanied by deadlines, were defined. "Fahad

is brilliant, enthusiastic and has energy to burn. We are both somewhat perfectionist and share the desire to move things forward. We immediately got on very well, which really helps our collaboration on this project" says Philippe Dozolme, group Marketing

Director. It's an immense project, but it's progressing fast and we've no doubt it will rapidly bear fruit due to the support it is receiving from the President and CEO of MCS, MM. Abdulaziz Alhamwah and Ian Bradley. MCS is currently

finalising a completely new bilingual English/written Arabic website, which is completely harmonious with the group's site. A photo base is currently being created to be used on MCS media. In parallel, Ian Bradley, Fahad Alhamwah, Mahmoud Eldeib and Haren Sampat are working on the creation of the new MCS corporate brochure and the catalogue of its products. Among others... •



→ The new mock-up of the MCS website adopts the group's visual standards ... the same goes for all its document templates, from the letterhead to business cards, and not forgetting envelopes!



NEWS / Sponsoring

EPC France and EPC Sénégal run for la Sénégalazelle

La Sénégalazelle, a women's only competition combining running and humanitarian action, took place last 11 to 19 February at Simal in Sénégal, 150 km from Dakar. Each 10 km daily stage ended on arrival at a different school, where the participants distributed school materials and supplies. Competition and aid: nothing further was

needed to convince two of our subsidiaries to take part in this wonderful human adventure. EPC France and EPC Sénégal sponsored Géraldine Leclou, school teacher in the Paris region, who magnificently dominated the race taking top spot on the podium at the end of each day! •



PORTRAIT / Victoria Jonemann

The law, spoken fluently

On 6 March 2017, our company saw the creation of a new, oh so strategic position: group lawyer. Victoria Jonemann has more than ten years of solid experience behind her. And, better still, we can now look to the future with inner calm.

Your arrival at EPC?

It started with an announcement on a specialist site. The missions proposed, the industrial sector of EPC Groupe and its international dimension really appealed to me. And because it's the creation of a role, there's still lots to do in terms of procedures, contractual documents, organising the work ... The challenges are highly stimulating!

Explosives, a first?

I'm familiar with some aspects due to my previous role. I know about geology, additives and even chemical risks. And of course the key aspects: liability, insurance and industrial property. From a legal perspective, my work enables me to participate in the entire explosives industry chain. Known for its innovation, I like the

industrial sector, and can't for a minute imagine leaving it!

Your missions within EPC?

The group lawyer has an advisory and support role. First, it's awareness-raising work, consisting in disseminating all aspects legal to everyone seeking my services. I also provide support with setting up projects, analysing and proposing tailored contractual terms, making recommendations and flagging potential risks. Lastly, I assist with contract negotiations.

What do you like about EPC?

I can deal with contacts from varied fields: property through the production and storage sites, technical with the engineers, financial with the Financial Affairs division etc. What's more, EPC Groupe is constantly evolving: international development with joint-ventures and subsidiaries, development of new products, arrivals of new employees like me ... it's a real source of enrichment and opportunities.

Your projects?

I'll soon be visiting the production sites in France and abroad in order to immerse myself in the projects and gain a concrete understanding of the implications of each activity. I'll also be continuing to establish documents templates and procedures in collaboration with my internal colleagues. I'm committed to promoting this new

group lawyer role. Later, this work will be completed by awareness-raising campaigns with supporting memos. It's essential that certain legal safety reflexes are completely integrated! •

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Protecting the group's assets, protecting its interests by meeting the challenges and preventing disputes

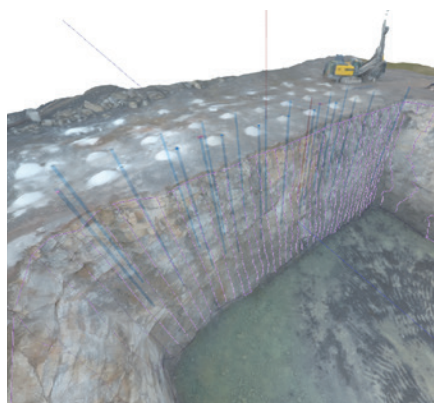


→ **Victoria Jonemann,**
group lawyer

TECHNOLOGY / Measurement

The drone, the technology a cut above laser

A true technological revolution, the drone is currently gaining a foothold, or should that be winghold, in a number of fields. Equipped with an HD camera, the flying machine opens up new prospects for its users. EPC Groupe has joined the party.



→ Accurate, comprehensive and fast, the drone measurement is the new benchmark.

Mathieu Lachamp, member of EPC Groupe's Technical Division, specialises in drones and measurement systems. For him, the drone is much more than simply a high-tech device and the current buzzword. Combined with photogrammetry techniques, it's currently replacing the laser profilers used to conduct topographical surveys of quarry faces. "Our ability to precision measure the thickness of a bench is critical to ensuring a successful blast" insists Mathieu. An argument which scores double. Firstly in terms of safety, since the thickness of the bench can be overestimated, leading to overloading

A new measurement tool in drilling and blasting

and then the generation of projections. Then in terms of quality, since you need to adapt the load to the true thickness of the rock to explode if you want to obtain a good fragmentation. Tests carried out on a reference segment at a distance of 120 metres revealed that the drone measurement was 40% more accurate than the measurement of the laser profiler!

YOU ALWAYS SEE BETTER HIGHER UP

With amazing efficiency, the drone is capable of providing viewing angles that until now were impossible to obtain. And to add to that, a better rendering of the relief of the front, and a better estimation of the bottom, even if the removal work from the previous blast is still ongoing. And all this as quick as possible thank you very much! This means greater safety and comfort for our teams, exposed for lesser periods of time on site. "The drone provides us with greater measurement precision and speed and therefore improves the quality of service provided to the customer. This was made possible by a development of our Expertir software and by the involvement of our technicians on the ground, who have acquired new skills" concludes Mathieu. •

Africa: the dam won't stop our expertise

In October 2017, EPC France began an important drilling and blasting job at the foot of the Kariba dam, on the borders of Zambia and Zimbabwe. On behalf of Razel-Bec, EPC France will use all the group's know-how and specialities associated with the use of explosives in public works to meet this new technical challenge.

Fed by the famous Victoria falls, the reservoir formed by the Kariba dam constitutes the second largest artificial lake in the world. Measuring 128 metres high and 579 metres long, the hydroelectric structure generates 1,320 MW of electricity for Zimbabwe and Zambia, thanks to two underground generating plants on each of its banks. Managed by the ZRA (Zambezi River Authority), it is distinguished by its floodwater spillways, creating an 80-metre high water chute! The forces exerted by the water combined with the weight of the years (constructed in the 50s) have eroded the rock base on which the dam sits. Knowing that its rupture would threaten more than three million people downstream, the reshaping of the plunge pool and refurbishment of the spillway was urgent. Estimated at 50 million euros, this project is financed 100% by the European Development Fund.

Micro-blasting and difficult access works: two essential areas of expertise

BLASTING BY STAGES

Responsible for monitoring the project within the Commercial Division, Jean-Renaud Dernoncourt will ensure the first phase of this ambitious project. "EPC France's intervention will follow a very specific phasing. Over around four months, our drilling-blasting operations will consist in creating the access road to the foot of the dam. This represents 30,000 m³, with micro-blasting, embankment cutting, difficult access works, subaquatic blasting..." he explains. Then over to Razel-Bec to construct the cofferdam, a temporary dam some 15 metres high which will isolate the plunge pool on the downstream side. The construction of this imposing structure will take ten months. The second and more important blasting phase may then begin. Over a period of twelve months, the project will require the blasting of

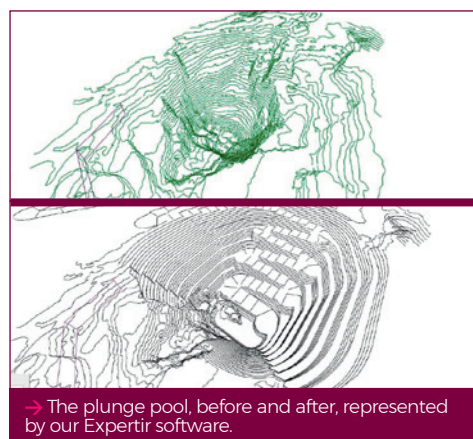

280,000 m³ in line with the pumping of the reservoir water, in stages of five to ten metres in depth. The EPC teams can then progressively reshape and expand the plunge pool. "These excavation stages will take the form of giant steps. We'll descend like this for 70 metres, where space becomes increasingly restrictive" explains Jean-Renaud. Once the rock spoil has been removed, the other companies can then begin with the consolidation works.

MADE TO MEASURE BLASTING

Over the 310,000 m³ of rocks to be excavated, close to half will be excavated by micro-blasting, aiming for a clean cut respecting the profiles. The proximity of the dam is by no means insignificant. There are contractual limits to be observed in terms of vibrations. EPC is in charge of monitoring the levels, using nine seismometers installed around the dam. These are what will enable us to define the unit charge of explosive to detonate in each borehole". And there's another




→ The Kariba dam on the river Zambezi, a reservoir around 220 kilometres long and 40 kilometres wide.

310,000 m³
OF ROCKS
FOR EXCAVATION



of which
125,600 m³
BY MICRO-BLASTING



of which
23,750 m³
DIFFICULT ACCESS



9 SEISMO
METERS



14 PEOPLE



15 months
OF WORK

constraint to add to this: access. With a depth like this to excavate, the use of two drilling-blasting rope work teams will be required throughout the project. Around 23,000 m³ awaits them. Add to this some 185,000 m³ of mass excavation. In total, 160 tonnes of emulsion will be produced using a MORSE unit. EPC France will be offering a comprehensive monitoring of the blasting operations throughout the project, which will include photogrammetric surveys with a drone. "The EPC tech touch" as Jean-Renaud likes to say. And finally, EPC France won't be deprived the pleasure of

**Seismometers,
drones,
photogrammetry...
close monitoring of
the project**

bringing the project to its conclusion with the explosive demolition of the dry part of its customer's cofferdam. The experience, qualifications and know-how of our teams are at the origin of this great adventure: the tender for this project in the middle of nowhere refers to three works phases of the same level of complexity ... two of which carried out by EPC. •



NEWS / Business

Development of drilling-blasting in Senegal



Our subsidiary EPC Sénégal already has a strong relationship of cooperation with the company Mineex, the drilling-blasting leader in Senegal. We've now entered a new phase after EPC Groupe acquires a stake in the company's capital. Taking charge of all blasting activities, from the design of the blast pattern to the blast itself, Mineex integrates innovative solutions and a high level of know-how. Which is just what we need to strengthen our presence on the Senegal drilling-blasting market. •



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