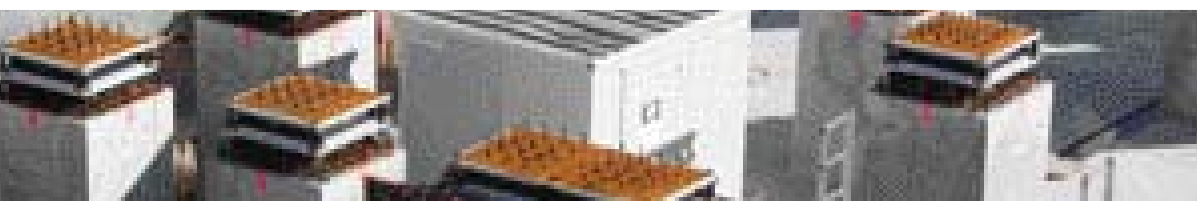


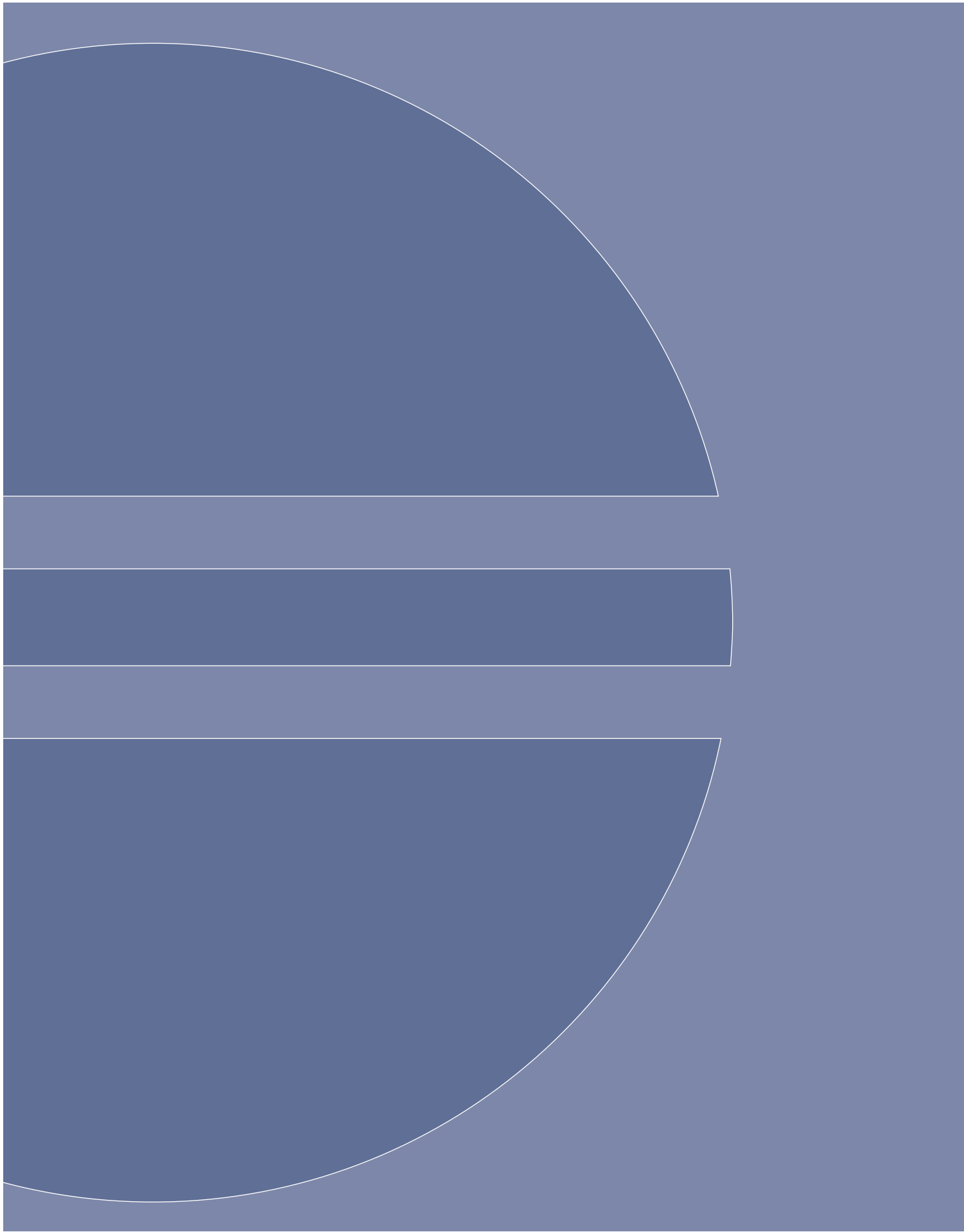


SOLETANCHE FREYSSINET



ACTIVITY
REPORT
2009





EDITORIAL

BRUNO DUPETY

*Chief Executive Officer
of Soletanche Freyssinet*



2009

2009 was Soletanche Freyssinet's first year of existence. During the year, the five companies that make up the new group brought together their teams, expertise and techniques. Meanwhile, the group affirmed its commitment to safety, its culture of innovation and its drive for sustainable development.

"In a demonstration of resilience across all our business lines, earnings remained at a good level, with a 5% operating margin"

2009 was also a difficult year, marked by the current crisis, for the construction industry and for the economy as a whole. At Soletanche Freyssinet, revenue came in at €2.1 billion, 13% below 2008. The soils business lines, which operate upstream of construction, suffered a sharp decline. Volume contracted by about 20% at Soletanche Bachy, with markets severely affected in the United Kingdom, Spain, Central and Eastern Europe and Dubai.

The decline was less severe – around 8% – at Menard. Conversely, Terre Armee's business volume grew slightly, thanks to its American and Indian locations in particular. In the structures business lines, Freyssinet's business activity stood at the same level as in 2008 as a result of orders placed and projects launched before the crisis. Nuvia was sustained by its buoyant nuclear markets.

In a demonstration of resilience across all our business lines, earnings remained at a good level, with a 5% operating margin. The necessary steps were also taken to adjust and restructure.

We move into 2010 with our objectives unchanged. Our order book has been renewed and stands at €1.9 billion; we therefore expect overall business activity to be in line with 2009.

We will continue to merge our teams on schedule as part of the Resonance Plan. There are many transport and energy related projects around the world. And the synergies we develop should further benefit our international network of subsidiaries and boost our broad array of expertise.

A handwritten signature in black ink, appearing to be 'B. Dupety'.

Bruno Dupety

Synergies Innovation Solutions



04 - 05



Organisation
Key figures
Locations

OUR STRATEGY



« Resonance »

> *Making the most of our potential synergies*



Innovation and R&D

> *Our solutions stand out*



Sustainable development

> *A constant improvement objective*

OUR BUSINESS ACTIVITY



Soils

> *Soletanche Bachy*
> *Menard*
> *Terre Armee*



Structures

> *Freyssinet*



Nuclear

> *Nuvia*

PROFIL



☐ Freyssinet, Golden Ears Bridge, Vancouver, Canada.

As the world leader in soil, structures and nuclear business lines, operating in some one hundred countries, the Soletanche Freyssinet group brings together an unparalleled array of specialised civil engineering expertise and brands. The group's 16,585 employees strive to meet the needs of clients by proposing solutions that are tailored to the specific features of each project and help boost the performance and durability of each structure.

Coordination Committee

06 - 07



Bruno Dupety,
Chief Executive Officer
of Soletanche Freyssinet ⁽¹⁾



Remi Dorval,
Chairman and Chief Executive
Officer of Soletanche Bachy ⁽²⁾



Patrice Runacher,
Executive Vice President of
Soletanche Bachy directeur ⁽³⁾



Jérôme Stubler,
Chief Executive Officer
of Freyssinet,
Chairman of Nuvia

NISATION



Martin Pratt,
Director, United Kingdom,
Middle East
and Southern Africa Division,
Soletanche Bachy



Pierre-Yves Bigot,
Human Resources Director,
Soletanche Freyssinet



Jean-Philippe Renard,
Director, Asia, Latin America,
Eastern and Central Europe
and Major Projects Division,
Soletanche Bachy



Yann Grolimund,
Chief Administrative
and Financial Officer,
Soletanche Freyssinet



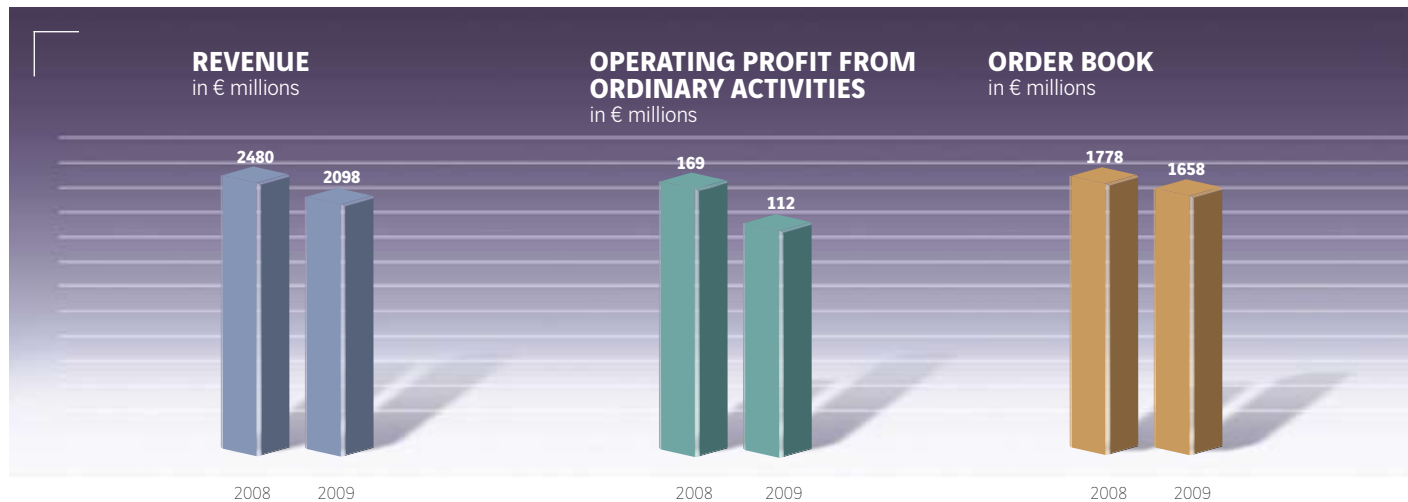
Didier Verrouil,
Director, Eurofrance Division,
Soletanche Bachy

*(1) On April 1st 2010, Bruno Dupety also became Chairman
and Chief Executive Officer of Soletanche Bachy*

(2) Remi Dorval resigned on April 1st 2010

(3) Until March 31st 2010

KEY



08 - 09

Soils

SOLETANCHE BACHY

Soletanche Bachy's business activity declined to €1,138 million in 2009, primarily as a result of the collapse of the Central and Eastern Europe and Dubai markets. Volume was also down in France (completion of the Le Havre port project, postponement of a large number of building projects) and the United Kingdom; it was stable in Spain. Conversely, revenue increased in the United States, Latin America and Asia and order intake turned up sharply at the end of the year with the signature of major infrastructure projects, coming in at over €1 billion for the year as a whole. This trend has accelerated in the first months of 2010.

MENARD

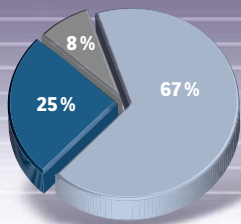
Menard's 2009 revenue stood at €124 million, down from 2008. Activity varied from one geographical area to another: it was down in France and on the export market and to a lesser degree in Canada and the United States, but remained stable in the Middle East and increased sharply in Australia (+53%). Large orders were signed in Kuwait, Algeria, Poland and Malaysia.

TERRE ARMEE

Terre Armee's revenue, at €150 million, was slightly higher than the previous year, reflecting the resilience of the business activity in North America, the international zone (especially Australia, India and Turkey) and Italy (thanks to the Tripoli, Libya ring road project). This compensated for the downturn recorded in France, Pakistan and South Africa. Order intake was satisfactory across all entities, enabling RECo in the United States to consolidate its positions in Texas and Florida at the end of the year.

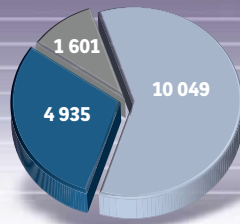
FIGURES

REVENUE by business line



■ SOILS ■ STRUCTURES ■ NUCLEAR

WORKFORCE by business line



■ SOILS ■ STRUCTURES ■ NUCLEAR

2,1 € billion
revenue

Structures



On the strength of an excellent order book following two good years, Freyssinet kept its business volume virtually stable compared to 2008, at €526 million. The economic downturn affected the company's business activities in different ways. The liquidity crunch and contract cancellations had a strong impact on building markets and on some geographical areas – the United Kingdom and the Middle East – while major project markets (in such countries as Canada, China, India, Morocco) and other geographical areas – primarily France, Mexico, Poland, the Netherlands and Australia – held up remarkably well.

Nuclear



With attention again focusing on nuclear energy, 2009 was another year of expansion for Nuvia. Revenue reached €167 million, up 8% from 2008, and the order book came in at €188 million. In France, activity increased by a substantial 40%, driven by the development of seismic reinforcement work carried out by NTS at a large number of sites, the start of construction of the Jules Horowitz research reactor at Cadarache and the strong growth of Essor. This momentum offset stable business at Nuvia Ltd, where strong marketing activity resulted in order intake of €92.5, representing more than one year £ of revenue.

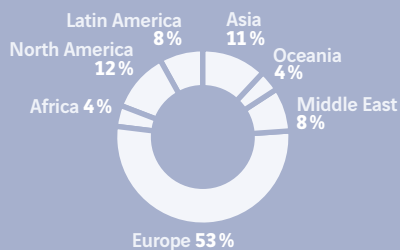
16 585
employees

80 locations in nearly
countries
and operations
in 100 countries

1,7 € billion
order book

The Soletanche Freyssinet group is a global network with 16,585 employees and some 140 companies located in about 80 countries. In 2009, its teams carried out projects on five continents.

REVENUE by geographical area



LOCATIONS

● Abu Dhabi	● Bulgaria	● Czech Republic	● France	● Hungary	● Japan
● Algeria	● Canada	● Denmark	● Germany	● Iceland	● Jordan
● Argentina	● Chile	● Dubai	● Guadeloupe	● India	● Kuwait
● Australia	● China	● Egypt	● Guatemala	● Indonesia	● Lithuania
● Belgium	● Colombia	● El Salvador	● Honduras	● Ireland	● Macao
● Brazil	● Costa Rica	● Estonia	● Hong Kong	● Italy	● Macedonia

LOCATIONS





2009 OUR STRATEGY

Building on our heritage of inventions and know-how that have put their stamp on the art of construction since the 1930s, we continue to develop exclusive solutions by generating synergies among our teams and technologies and by leveraging our main fundamental skill – innovation.

Resonance: making the most of our potential synergies

14 - 15

As leader in its markets across the world, Soletanche Freyssinet will be leveraging complementarities among its teams, networks and skills to open up new horizons.

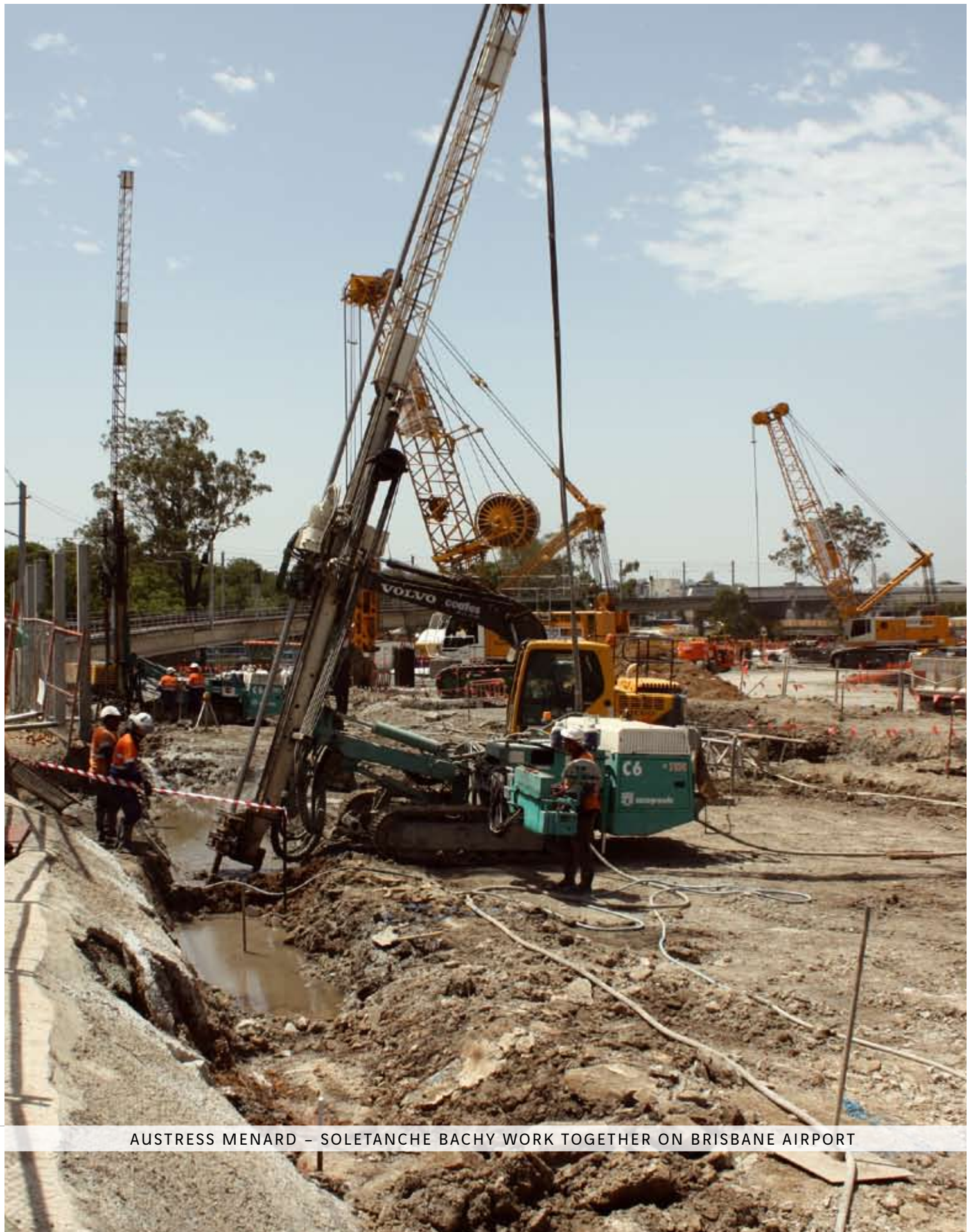
Complementary cultures,
networks and
expertise

Creating momentum

At the end of 2008, Soletanche Bachy and Freyssinet joined forces to form Soletanche Freyssinet, the world's leading group of companies specialising in soils, structures and nuclear business lines. With the number and size of its projects, its high-quality expertise, its well-established brands and its wide-ranging network, the new entity leads the market. Above all, the group stands out as a result of its unrivalled potential for commercial, geographical and technical synergies driven by its complementary cultures, networks and areas of expertise. From its inception, the tie-up was focused on exploiting this potential and putting it into practice operationally. ►



An opportunity to build foundations at Brisbane Airport brought Soletanche Bachy back to Australia, where it formalised its cooperation with Austress Menard by setting up a 50-50 joint venture, Menard Bachy (see p. 17).



AUSTRESS MENARD – SOLETANCHE BACHY WORK TOGETHER ON BRISBANE AIRPORT

□ In Mexico City, Cimesa (Soletanche Bachy) and Freyssinet de México are working together on the Reforma 90 project.



► This is the purpose of the Resonance Plan, initiated in early 2009. In the first phase, 27 working parties brought together employees from all the entities to review the existing situation and draw up an action programme. At the same time, a variety of initiatives were taken: meetings and technical seminars explored avenues for joint research and defined and implemented development projects.

In the field, capabilities and entities resonate with each other, pooling know-how, developing tools, engineering alternative solutions and executing projects together.

The group's first convention, held in Paris in October 2009, then focused on broadening this momentum. Presentations covered the commercial prospects opening up in response to

the new activities being developed by existing locations (see description below) and the outlook for technical innovation based on interaction between foundations and structures and cross-fertilisation of the expertise offered by the various entities.

The use of prestressing in diaphragm walls for port structures and the combination of diaphragm walls and prestressed floors in the construction of car parks were discussed as ways to develop the offering in the medium term. These solutions are in phase with the current drive to increase performance and conserve natural resources. In the field, capabilities and entities resonate with each other. On the Guangzhou-Shenzhen-Hong Kong Express Rail Link project, Soletanche Bachy proposed Nuvia's specialised deconstruction expertise to extract 300 piles driven to a depth of 30 metres. Other successful common offerings were described. In the Americas, for example, as soon as VINCI's acquisition of Soletanche Bachy was announced, Soletanche Bachy's Mexican subsidiary Cimesa, which had won the contract to build the infrastructure of a high-end building in the centre of Mexico

City, joined forces with Freyssinet de México to design a global solution bringing together Cimesa's expertise in diaphragm walls and piles and Freyssinet's expertise in prestressed floors.

This solution was approved by the client and the partners continued to work together, drawing up bids on two other projects in the Mexican capital - the Deportivo Chapultepec and Republic Square car parks, where the combination of expertise was again successful. In another example, Nicholson

RESONANCE

Construction Company (Soletanche Bachy), invited to bid on a foundation project in February 2009, successfully teamed with DGI Menard to design a more competitive alternative solution using controlled modulus column (CMC) soil consolidation.

In Australia, Austress Menard, which has operated in Sydney for many years, called on Soletanche Bachy to jointly bid on a deep foundation project at Brisbane Airport.

(Return to Australia)

The initiative extended beyond the project, with Soletanche Bachy returning to the country after an absence of many years in response to market growth. In early 2010, Soletanche Freyssinet acquired a 100% interest in GFWA, a deep foundations company based in the south-western city of Perth in which Soletanche Bachy held a 15% interest; meanwhile, Austress Menard and Soletanche Bachy set up a 50-50 joint venture called Menard Bachy. With its comprehensive technical offering (soil consolidation, jet grouting, diaphragm walls) and extended geographical coverage, the new entity is poised to make the most of market opportunities. It has set a good example that the group can follow to enhance its presence in other parts of the world.

☐ In Philadelphia, the Nicholson (Soletanche Bachy) - DGI Menard partnership applied the CMC (controlled modulus columns) technique for the first time on a large scale.



**Synergies in Europe,
Mexico, the United States,
Australia and Hong Kong ...**

Innovation and R&D: our solutions stand out

18 - 19

The group's structures and projects, large and small, always afford an opportunity to develop original solutions based on common sense and on state-of-the-art technologies.

Materials, tools...

From the start, the group's entities have exhibited an outstanding passion for building and an exceptional ability to innovate, reflected in the steady technical progress they have made based on systematic research to remain on the cutting edge of technologies and on the innovations of their employees. These innovations constitute a unique asset, made up of a portfolio of 1,489 patents and a constantly expanding range of solutions developed to better respond to the problems at hand (see examples below). ►



Because sewer outfall pipes are maintained under difficult conditions, Soletanche Bachy worked with its specialised subsidiaries CSM Bessac and Sol Environment to design and develop a dedicated tool. The machine, called Proccope, was first used in 2007-2008 to clean the 6.5 km Sèvres-Achères collector main. It extracted 4,500 tonnes of materials in one-third of the time normally required.



PROSCOPE

□ Remote controlled dismantling operation at the SICN nuclear fuel site in Annecy



Safety,
methods...

COHESTRAND®: FREYSSINET'S DIFFERENT STAY CABLE

Perfected since its first applications to offer better fatigue strength and durability, the Freyssinet stay cable is a focus of research into further ways to use its advantages in other applications.

The Cohestrand® cable was developed for suspended structures in which the load is transmitted to the suspension cable through collars and hangers. To prevent the resulting tangential forces from damaging the cable, Freyssinet reinforced its anticorrosion complex and the adhesion of the components to each other. In 2005 the Cohestrand® cable was used in the Kanne suspension bridge in Belgium and then, together with its deviation saddles, in several cable-stayed structures. More recently the Cohestrand® cable was applied in a new area - stadium roof suspension systems where it offers architects unparalleled flexibility and weight savings and gives clients a service life of 100 years.



NUVIA: STATE-OF-THE-ART TECHNOLOGIES REMOTELY CONTROL MACHINERY

In their work on nuclear installations, Nuvia entities must control and limit the exposure of their employees to ionising radiation. With the support of their technical departments and their technology watch, they therefore develop

Remote control and automated operation

direct and indirect vision remote-controlled and even fully automated tools and processes. To adapt equipment (in dismantling operations particularly, this consists of proven industrial machines such as hydraulic rock breakers, handling systems and cable saws) and operating procedures, they require a broad array of technical capabilities in such areas as laser systems, biotechnologies and chemicals, which offer Nuvia an ongoing opportunity to develop innovative solutions.



□ A network of Cohestrand® cables will support the roof of the Olympic pool in New Delhi, India.

Durability,
productivity...

LIGHT TRENCHMIX: REDUCING THE ENVIRONMENTAL FOOTPRINT OF REINFORCEMENT WORK

In a move to secure its network after the 1999 storm, French power transmission network RTE launched a systematic campaign to check and reinforce its towers (pylons). Soletanche Bachy, which operates in this market using the micro-pile technique, undertook to broaden its market share by developing an alternative to the

“half-slab” method used for light reinforcements. The technique proposed by specialised subsidiary

A mixture of soil and cement rather than concrete

MCCF is derived from the Trenchmix process patented by Soletanche Bachy. Like half-slabs, it consists in placing reinforcement blocks in the foundation plates, but they are made of a mixture of soil and cement rather than concrete. The solution costs less, can be



□ Light Trenchmix reinforcement works

installed more quickly using the shovel-mounted Trenchmix tool, generates no excavated materials, requires no added materials apart from cement and water and complies with RTE's environmental protection and natural resource conservation standards.

ECOSTRAP®: REINFORCEMENT FOR RECYCLED BACKFILL MATERIALS

The Terre Armee® process consists in reinforcing backfill by using reinforcement connected to the facing panels. Developed in the 1960s, the technique has become a widespread cost-effective alternative to reinforced concrete retaining walls and has undergone steady improvement over time. The reinforcement and the system for connecting it to the panels, originally made of metal, are now synthetic (GeoStrap®, GeoMega®), enabling Terre Armee® to be used in corrosive environments (wharf walls, marine

□ EcoStrap® reinforcement withstands alkaline environments



(Improved durability)

atmosphere). To further broaden its use to recycled backfill materials, SoilTech, the Terre Armee R&D department, has developed new synthetic reinforcements called EcoStrap®, which offer substantially improved durability in highly alkaline environments. In 2009 these reinforcements were installed as part of the construction of the supply area at the DLB crushing site in Gonesse near Paris, where recycled demolition materials with a pH of between 11 and 12 were used as backfill.



□ Installing EcoStrap® reinforcement at the DLB site

□ Mars version 1 (2004).



□ Mars version 2 (2009).



Speed,
economy,
efficiency...

MARS: AUTOMATIC RELEASE AND IMPROVED MASS SEIZURE

The first soil consolidation process provided by Menard in the 1970s was dynamic compaction. This consists in consolidating the soil at great depth by means of very high energy waves generated when a mass of several tonnes is released from a great height. Adapted to the use of heavier and heavier masses and to the consolidation of underwater soils and other applications, the method was improved in 2004 with the development of Mars (Menard Automatic Release System), a process in which the mass is released in free fall and compaction energy is increased by avoiding energy losses due to cable friction. In 2009, Menard devised and developed version 2 of the process, which provides a variety of improvements: reliability of automatic release in the descent phase; safety of hydraulic hoses of the grab, thanks to the installation of reels; ability to install the system on various

types of cranes (with and without block and tackle), thanks to the development of an adapter; and lastly, power supply to the "Menard block" (automatic hydraulic system control) directly from the crane's energy supply (when used on the Liebherr carrier system). This version was successfully tested at the start of the A72 motorway project in Leipzig, Germany.

Tracking,
accuracy,
reliability...

ATLAS: SATELLITE SURVEILLANCE OF MILLIMETRIC SOIL MOVEMENTS

Designed some 15 years ago to provide real-time

surveillance of structures located in the immediate vicinity of worksites, the system is made up of sensors, acquisition devices and data processing software. It was developed by SolData, the Soletanche Bachy subsidiary specialising in instrumentation, and its application was gradually extended to meet the need for observing larger, more finely meshed areas. After the Cyclops, Centaure and Micron systems, the company worked in partnership with the French IGN national geographic institute to develop a new method, called Atlas, which uses satellite radar imaging to extend

the field of observation to entire cities.

These images, produced by radar interferometry, can be used to measure the vertical deformation of soil observed at natural points (roof apex, rail, etc.) with an accuracy of several millimetres.

Atlas: observation of entire cities by analysing radar images from satellites

Specially developed to meet geotechnical requirements, Atlas provides useful supplementary data for preparing a project (archive images available from 1992) or monitoring a structure (rail line, motorway, dam, tunnel, etc.) over time.



☐ The Atlas measuring points are shown on a geographical display that can be a cadastral map or any readily accessible satellite image. The colour of the dot indicates the rate of deformation over the period under consideration: green (no change), red (subsidence), blue (rise). When the user clicks on a dot, a window opens showing the precise coordinates of the dot (longitude, latitude, altitude) and displaying a curve showing the time variation of the deformation over the period concerned.

Sustainable development: a constant quest for improvement

24 - 25

Our vision of the company, which is based on our approach to our activity, our focus on people and the role our business in the society at large, entails a constant quest for improvement.

Aiming
for global
performance

Soletanche Freyssinet's main objective – and the goal of its component entities from their inception – is to develop and propose the technical solutions that are best suited to its clients' needs and offer the best performance. Long before the concept of sustainable development became a household word, these solutions involved specialised reinforcement and repair techniques (structures) and consolidation and improvement techniques (soils) that represented superior alternatives to traditional methods in terms of cost, execution time, resource consumption and greenhouse gas emissions. This specific approach, deliberately opted for by the group, now enables it to meet its customers' environmental requirements and constraints and is reflected in its offering, in which the group develops know-how that directly



An alternative to pre-loading, which requires large amounts of materials and time, the Menard Vacuum soil consolidation technique was developed by Menard in the early 1980s and has been in widespread use ever since. It was recently employed to consolidate a 90,000 sq. metre area in the port of Brisbane, Australia.



SOIL CONSOLIDATION USING THE MENARD VACUUM PROCESS IN BRISBANE, AUSTRALIA

addresses environmental issues: decontamination, clean-up, decommissioning and waste treatment (nuclear division) and soil remediation and environmental monitoring (Soletanche Bachy specialised subsidiaries). In line with the sustainable development focus of the group's positioning and offering, the group continued to take significant action and introduced new initiatives in 2009, the first year of its existence, to boost the sustainable development focus of its organisation and operation.

Controlling risks

The group appointed a sustainable development project leader to reinforce its quality, safety and environment capabilities. Freyssinet developed a new tool, the Agir (Act) database, and rolled it out in the Technical and Major Projects departments and in the Freyssinet Product Company plant. Agir is a user-friendly method for more rigorously tracking quality programmes and improving procedures by capitalising on information feedback. Following

a trial run, the database will be translated into English and Spanish and offered to all group entities. In line with action taken over the past several years to reduce energy consumption in both direct and indirect business activities, the Freyssinet Product Company plant focused on optimising its lighting equipment and streamlining its shipping operations in 2009.

Meanwhile, in France and in other countries, Soletanche Bachy has continued its programme aimed at obtaining certification for its safety and environmental policy. Soletanche Bachy France, including the Paris-area Montereau equipment depot and the CSM Bessac specialised subsidiary, obtained dual OHSAS 18001 and ISO 14001 certification. In the United Kingdom, the Wakefield site and the Simplex subsidiary were included in the Bachy Soletanche Ltd ISO 14001:2004 certification. In another move, Bachy Soletanche Ltd set up a Sustainable Development Committee, which oversaw implementation of a broad action plan ►

□ Salvarem (Nuvia) training centre in La Hague



At Freyssinet, alongside the training programmes carried out at the Eugène Freyssinet centre in Auffargis near Paris and a variety of training programmes offered at the Saint Eusèbe Freyssinet Product Company site in eastern France, the head office in Vélizy and the worksites (shotcrete at the Coquelles terminal in conjunction with the repair of the Channel Tunnel), the Freyssinet Academy and the Post Tensioning Academy were launched in 2009. In a system designed to structure the company's training policy, the Freyssinet

throughout the year. In the field, efforts to limit environmental impact focused on pollution prevention, chemical storage, waste sorting (with rollout and use of the Tribbox system) and other programmes. Internal audits were systematically carried out on worksites to assess compliance with the measures taken..

Training

Training at Soletanche Freyssinet is commensurate with the high level of technical expertise provided by the group. At Soletanche Bachy, the volume of training hours increased 40% in 2009. Three-fourths of the training programmes were set up and managed internally. They contributed to the transfer of the company's specialised skills. Several new training courses designed for all categories of employees were added to the training catalogue.

Academy will provide training by area of expertise (worksite techniques, QSE, management, etc.) to all employees involved in France and in other countries, while the Post Tensioning Academy will take over Prestressing Installation training, adding practice modules and broadening its scope to cover operators and works directors (with training courses to be held at the Saint Eusèbe site). In the highly specialised nuclear division business line, Salvarem has opened a training centre at its site in La Hague to teach remote control and decommissioning. Set up in special premises in which the worksite environment can be simulated, the centre is dedicated to ongoing training of operators and initial training of



Frequency rate: 10.75
Severity rate: 0.65
2009 Soletanche Freyssinet safety results
 (scope: employees)

DEVELOPMENT

□ Installation of anchor ties at the Horse Hollow wind farm in the United States



newly hired personnel Salvarem also uses the facility to run in the new works techniques it develops before applying them on the worksite. At Pierrelatte, Essor, another Nuvia entity specialising in logistics, has set up a school along

40% increase in the number of training courses

the same lines where it trains not only its own personnel but temp workers as well. Lastly, in the United Kingdom, Nuvia Ltd has revised its “project manager” qualification upwards so as to enhance the image of the project director and the company, and has strengthened the apprenticeship training set up in Dounreay and Westlakes, extending it to the Risley site.

Accident prevention and Safety

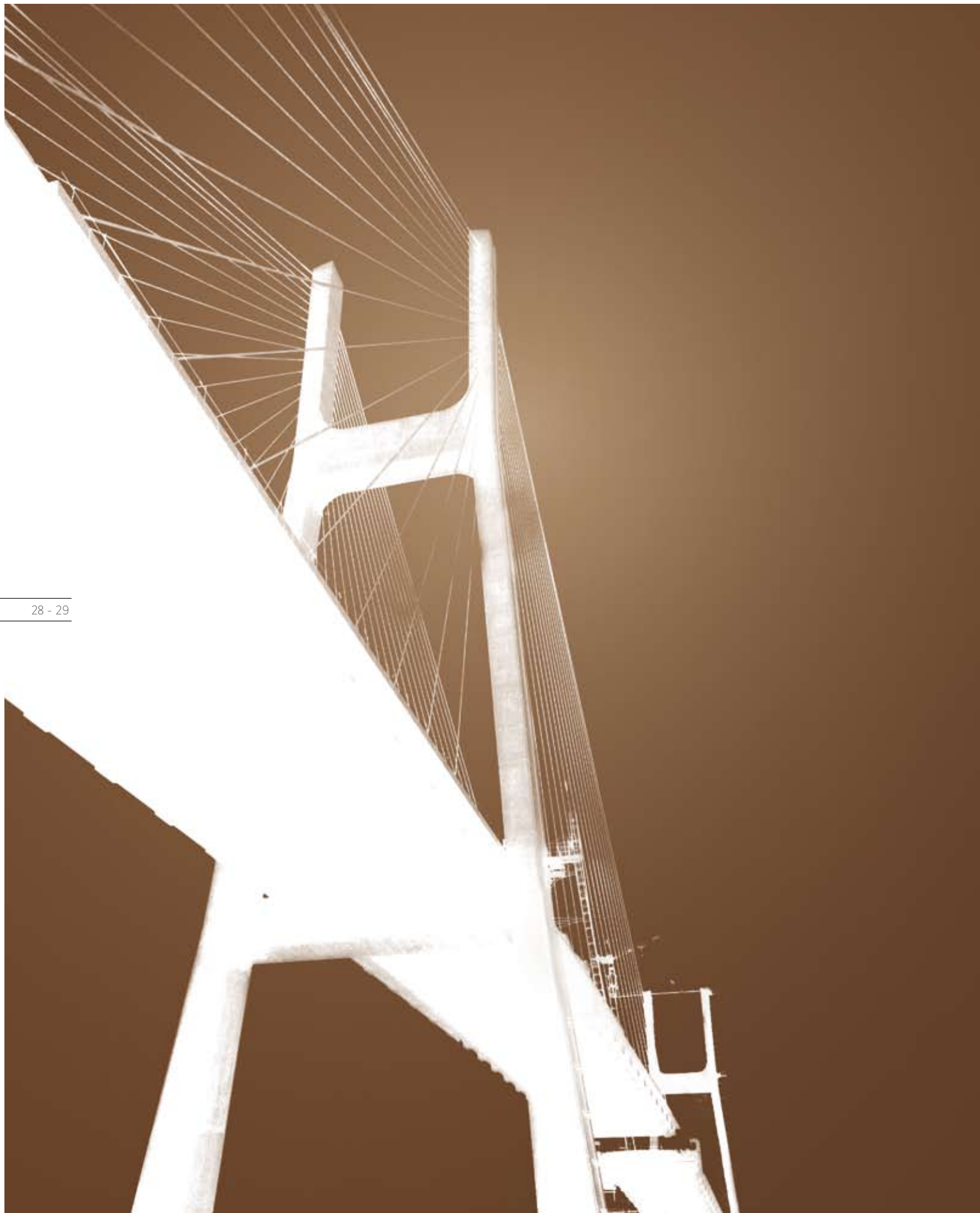
The Soletanche Freyssinet accident prevention and safety policy is focused on a single goal: Zero Accidents. This objective ties together all action taken by all group entities around the world and encourages them to share best practices. To gain a better understanding of the incidents and accidents occurring on its worksites, Freyssinet has developed and set up a dedicated reporting tool. The tool supports statistical monitoring of accidents involving employees as well as outside personnel and

subcontractors. It can be used to analyse the causes of accidents and incidents and propose corrective action that will benefit all group entities. In addition to this programme, Freyssinet has also introduced the Hazid Hazop accident prevention method, which involves project management as a whole in designing equipment and methods and in setting up an action plan before the start of work.

Soletanche Bachy has taken initiatives in its ongoing effort to improve accident prevention and disseminate the safety culture throughout the company, including the introduction of an Intranet safety blog and a variety of audio-visual tools that will be translated into several languages and widely circulated.



□ The Hazid Hazop method, applied to the design and application procedures of the ten gantries used to install the bridge deck of the Dubai light rail system, made it possible to place the 16,469 viaduct segment without notable incident.



2009 OUR ACTIVITY

In each of our business lines, we serve our customers by designing and implementing the expert solutions required for complex projects and non-standard operations.



IN SINGAPORE, SOLETANCHE BACHY is responsible for three of the six Phase 1 works packages of a new metro line. Each works package covers the construction –of one station and one tunnel section, mainly by the cut and cover method. In 2009, one of the highlights of the project was the construction of WP 908 (Cross Street Station), in which technical difficulties related to the terrain were compounded by the need to build a temporary surface viaduct to keep one of the main city-centre thoroughfares open to traffic during construction.



SOILS



Downtown Line / Singapore

SOILS



SOLETANCHE BACHY



MENARD



TERRE ARMEE

With its three world-renowned brands, our group has the broadest possible expertise in foundations and soil technologies. Soletanche Bachy offers the full range of geotechnical processes, special foundations, underground works and soil improvement and remediation. It makes its integrated skills available to major infrastructure projects under a variety of contractual arrangements. Menard stands out with its exclusive soil reinforcement and improvement processes that make it possible to build on land that could otherwise not be used for that purpose. Terre Armee is world leader in reinforced earth retaining structures.

32 -33



SOLETANCHE BACHY

Port 2000 (France)

1 > Two phases, ten berths

— In Le Havre, after handing over the four Phase 1 berths of the Port 2000 project carried out between 2001 and 2005, Soletanche Bachy continued work on Phase 2. Three of the six new berths were handed over at the end of 2009 and the others will be delivered by July 2010.

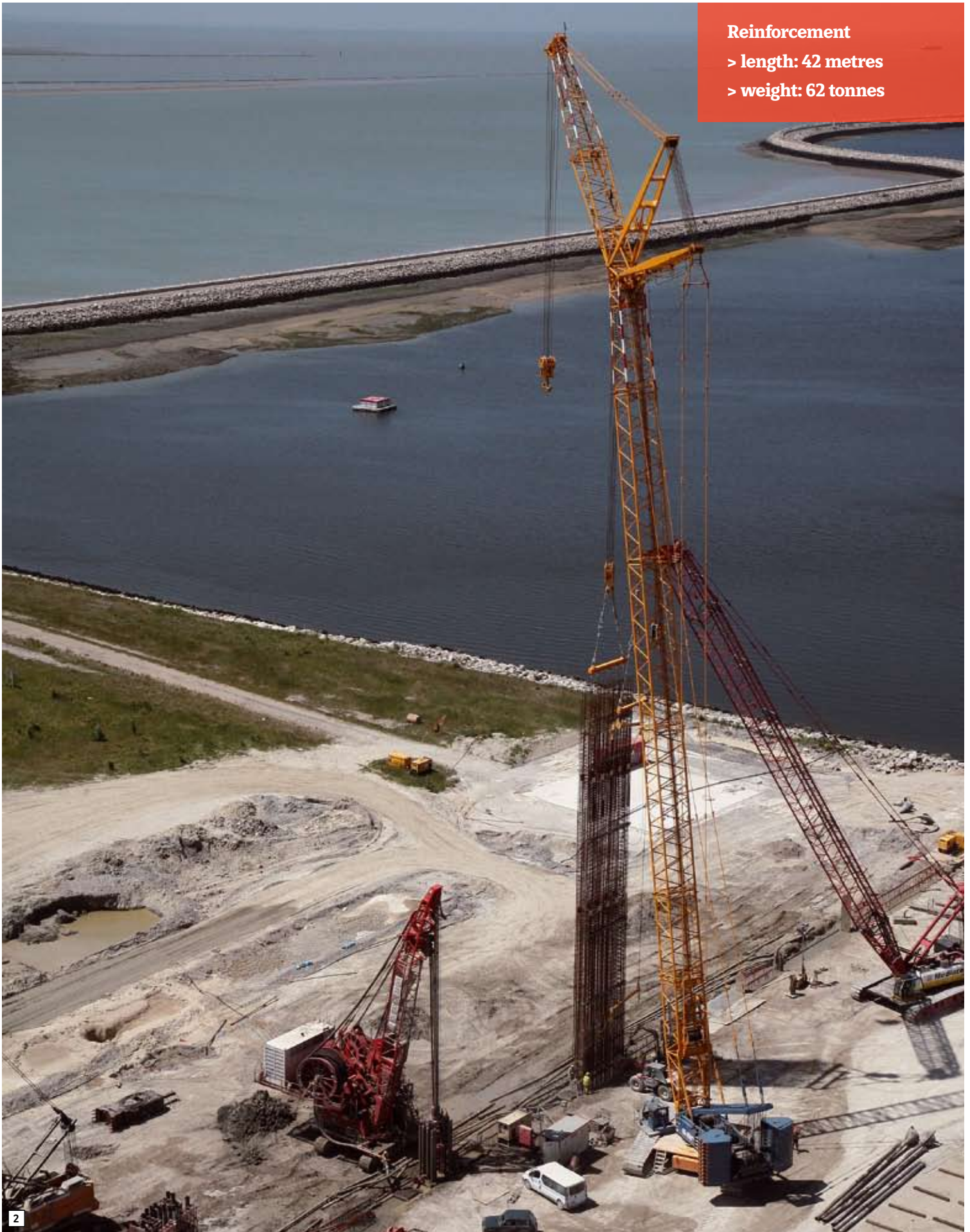
2 > High-lift system

— To place the 42 metre, 62 tonne reinforcement cages of the diaphragm wall without deforming them, a special lifting strategy had to be devised. It involved the simultaneous use of two mobile cranes of exceptional capacity.

Reinforcement

> length: 42 metres

> weight: 62 tonnes





SOLETANCHE BACHY

Liefkenshoek Tunnel (Belgium)

> Express rail line in the port of Antwerp

- Built under a public-private partnership (PPP) won by the Locorail consortium (VINCI Concessions, CFE, BAM PPP), the Liefkenshoek Tunnel is designed to facilitate rail traffic in the port of Antwerp. It will create a dual-track direct link between the left and right banks over a distance of more than 16 km. It is composed of an access tunnel to the existing Beveren rail tunnel under the Waasland Canal, two 6,000 metre single-track tunnels bored by tunnelling machine under the Escaut River and the B1-B2 Canal and, lastly, a right bank access ramp.

1, 2 & 3 > Left bank

- In a narrow space along the edge of major road arteries, Soletanche Bachy and its Belgian subsidiary Fontec have started work on the 95,000 sq. metre slurry cut-off wall that will prevent water ingress in the earthworks zones and the 145,000 sq. metre diaphragm wall of the future access tunnels to the Beveren Tunnel, supported by impressive struts.





SOLETANCHE BACHY

TEO project (Mexico)

1 & 2 > Deep shafts

— In Mexico City, Cimesa (Soletanche Bachy) is building all* or part** of six shafts as part of the TEO (Túnel Emisor Oriente) outfall project. These structures have a diameter of 20 metres and a depth of 75 to 100 metres. Diaphragm walls are built to a depth of 45 metres and thereafter the conventional method (arch and shotcrete shielding) is used.

** Shafts L10, L11, L13, L14. ** Shafts L12, L15.*





3

Adaptable TechSpan® arches
segments met needs



5



4

TERRE ARMEE

Somersby culvert (Australia)

3 & 4 > TechSpan® arches and Terre Armee®

— The Gosford, New South Wales City Council called on the Reinforced Earth Company Pty Ltd (Terre Armee) using a solution combining TechSpan® arches and Terre Armee® retaining walls to replace the Somersby culvert, a steel structure under the Pacific Highway with insufficient capacity.

MENARD

Fântânele wind farm (Romania)

5 > Soil improvement using CMCs

— At a 139 turbine wind farm in Transylvania, Menard improved the soil using CMCs (controlled modulus columns) for the foundations of 85 turbines. The CMCs range in depth from 5 to 25 metres.



1

MENARD

Al Falah Community Development Project (Abu Dhabi)

1 & 2 > Record surface area and lead time

— Between October 2008 and April 2009, Menard consolidated the soil over an area of some 5 million sq. metres to prepare the construction of a new town on the outskirts of Abu Dhabi. For technical and economic reasons, the dynamic compaction method was used. The project was handed over a month ahead of schedule. 120 operators and 11 machines worked around the clock six days a week for eight months on the project.



2



3



4

SOLETANCHE BACHY

Canton Dam (United States)

3 & 4 > Auxiliary spillway

— In Oklahoma, Nicholson (Soletanche Bachy), working as general contractor, built the backup spillway at the Canton Dam – a 200 metre wide, 15 metre deep channel; the diaphragm walls were built between May and August 2009.

TERRE ARMEE

**Denver FasTracks network
(United States)**

5 > Terre Armee® used in 60 structures

— In the Denver, Colorado metropolitan area, the construction of new suburban train lines and the extension of existing lines generated an order for the Reinforced Earth Company (Terre Armee) covering 22,000 sq. metres of Terre Armee® walls.



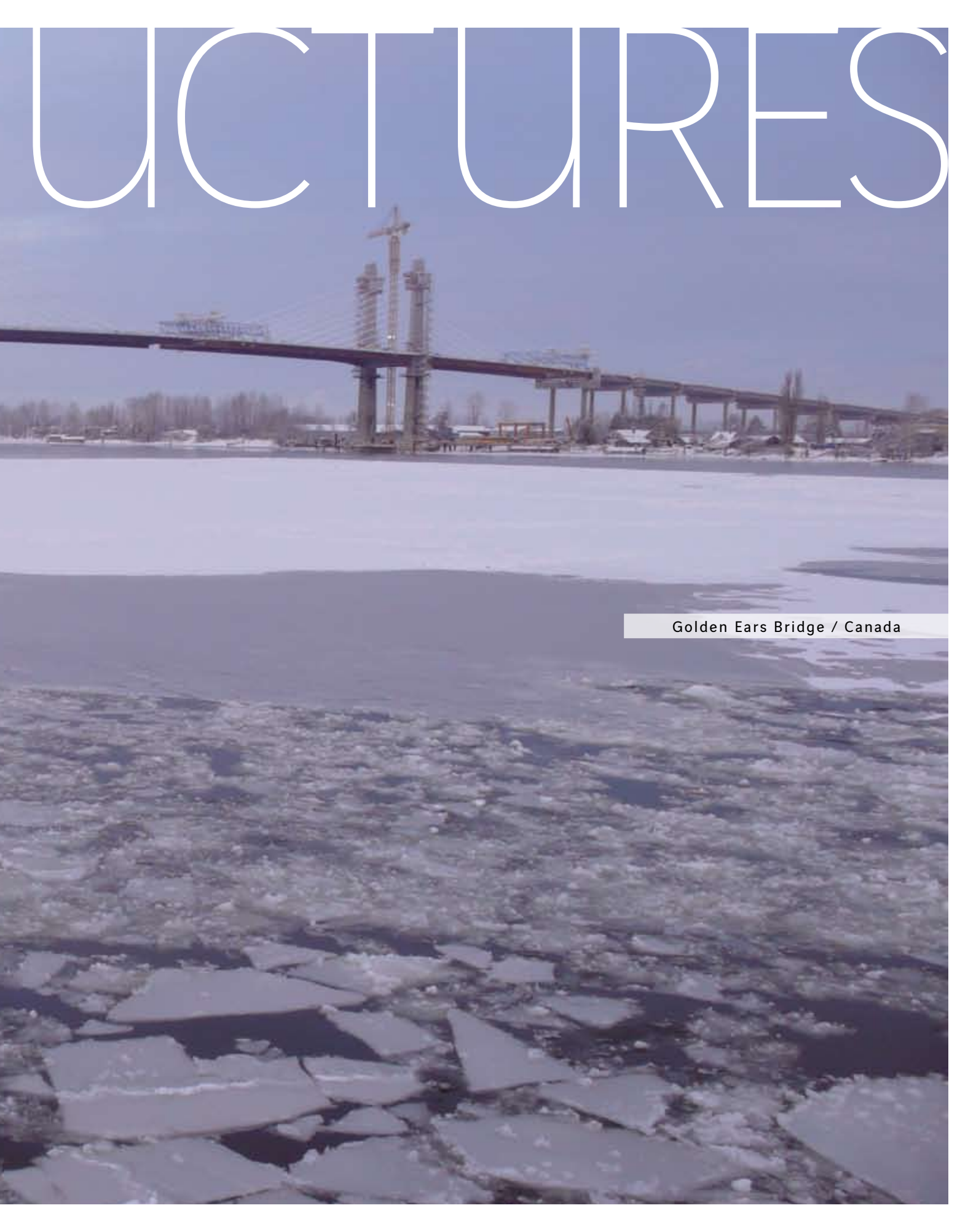
5

STR

40 - 41



ON THE OUTSKIRTS OF VANCOUVER, CANADA, **FREYSSINET** supplied and installed the prestressing of the access viaducts and pylon crossbeams and 160 cable stays for the Golden Ears Bridge. The hybrid structure has a length of 2.3 km including access spans. It was opened to traffic in mid-June 2009. Géopac (Menard) carried out the soil improvement works using vibro-replacement to prepare construction of the piers in the bed of the Fraser River.



STRUCTURES

Golden Ears Bridge / Canada

STRUCTURES



Building on its traditional core business line – prestressing – and its installation techniques and tools, Freyssinet developed a unique combination of expertise in construction, repair, reinforcement and maintenance of structures. Its services cover the full range of civil engineering structures, from major bridge and tunnel projects to nuclear power station containments, reservoirs, silos and hydraulic structures. The company's exclusive solutions are provided by a network of eight agencies and ten regional offices in France and 60 subsidiaries in the rest of the world.

42 - 43



FREYSSINET

REPAIRS: Channel Tunnel (France)

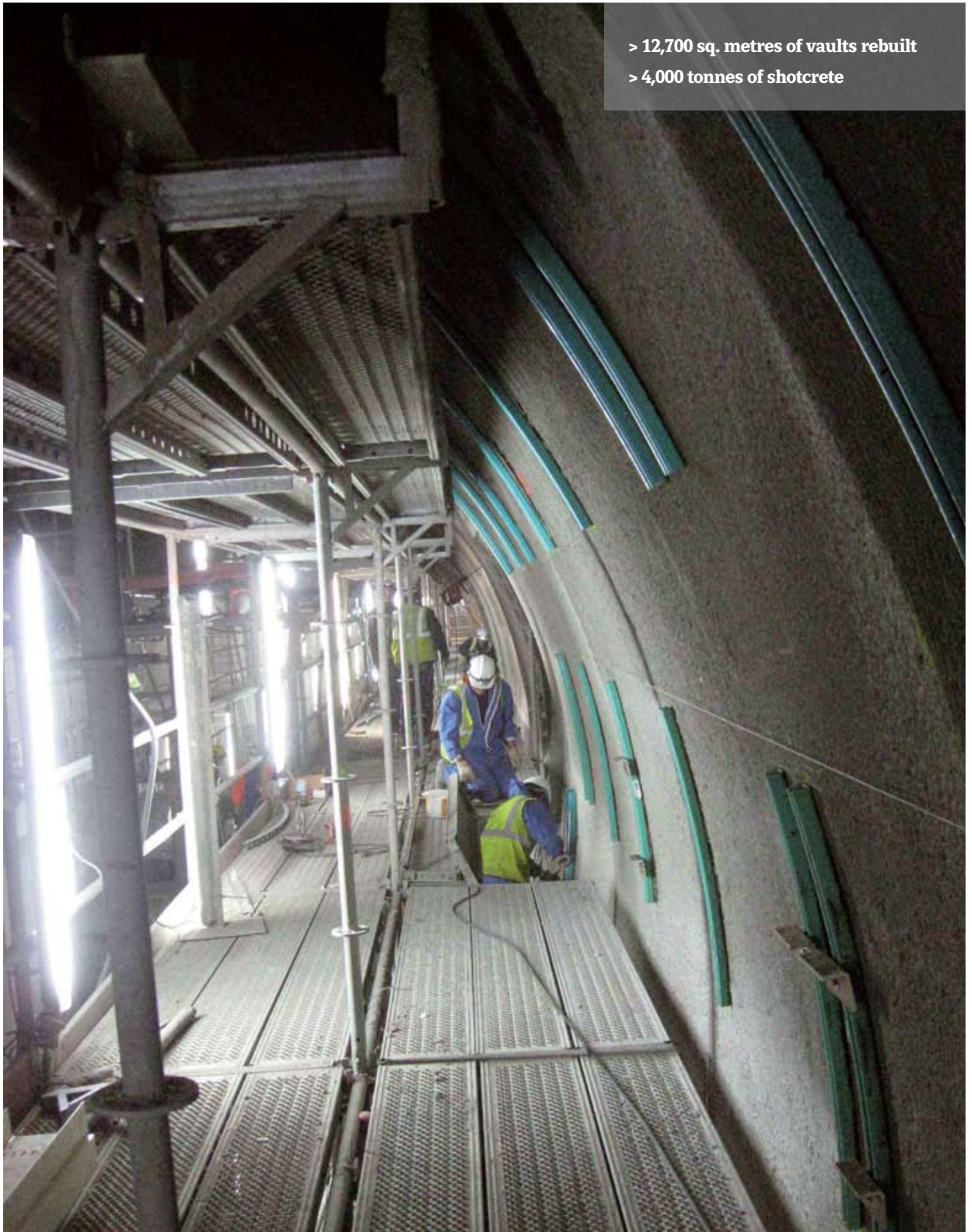
> Shotcrete record

— Following the fire in Interval 6 of the tunnel on 11 September 2008, Freyssinet France teamed with Soletanche Bachy, VINCI Energies and ETF Eurovia Travaux Ferroviaires to start vault and electrical and rail equipment repair work on 18 October. To speed the operation, Freyssinet innovated: hydrostrippers were used

to remove damaged concrete and a continuous scaffolding system was installed to facilitate the movement of personnel and machinery and ensure safety. Between 8 December 2008 and 11 January 2009, Freyssinet France spray nozzlemen broke their own record going back more than a decade, installing 4,000 tonnes of dry shotcrete (compared to 900 tonnes over the same period of time in 1997). The tunnel was reopened to traffic in mid-February.



> 12,700 sq. metres of vaults rebuilt
> 4,000 tonnes of shotcrete





FREYSSINET

REPAIRS: replacing cable stays on the Penang Bridge, (Malaysia)

> Repairs under traffic

— Between the beginning of 2008 and the end of 2009, Freyssinet replaced the 117 stay cables on the Penang Bridge, an 8 km structure built in 1985 consisting of a viaduct and a cable-stayed bridge supported by four towers. The tricky operation consisted in replacing the existing stay cables with state of the art (HD2000) equipment, working simultaneously on all four towers.



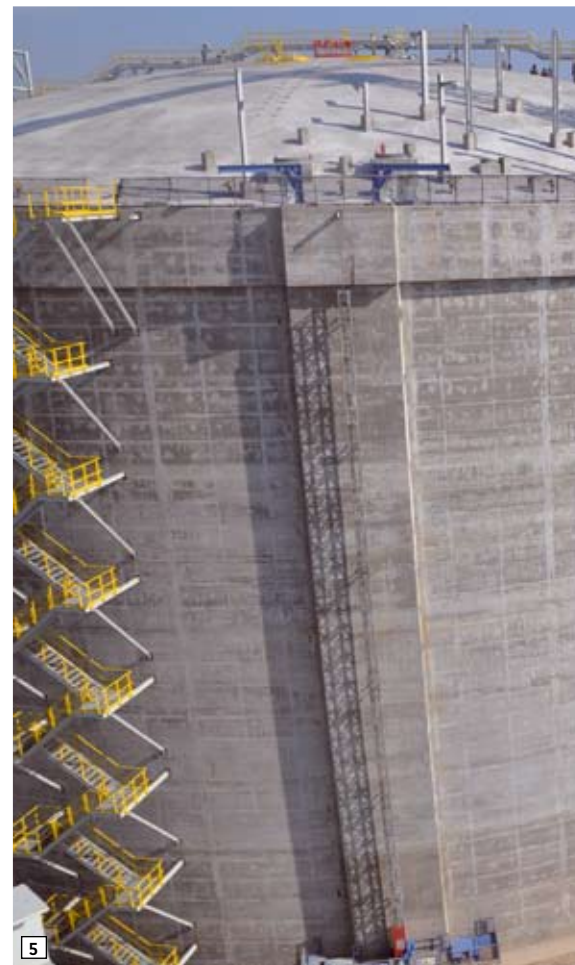


After placing a provisional stay cable, the existing strand was cut and brought down in one piece. The tower and deck anchors were then removed by core drilling. Freyssinet manufactured five special machines to facilitate the operation, which was made more difficult by the heavy concentration of steel in the structure.

The Technical Department designed special mobile equipment to facilitate the work of the teams and ensure their safety on the towers and under the deck.

Throughout the project the bridge remained open to traffic (daily average: 135,000 vehicles). Special measures – including a video surveillance system – were taken to ensure safety of motorists and work teams.





FREYSSINET

REPAIRS: replacement of the hangers on the Bridge of the Americas (Panama)

1, 2, 3 & 4 > High-tech stay cables and an innovative method
 — Near Balboa, at the southern end of the Panama Canal, the Bridge of the Americas, built in 1962, was the only physical link between North and South America until the cable-stayed Centennial Bridge was opened in 2004. In 2009, Freyssinet replaced its original hangers with Freyssinet H 1000 parallel strand cables connected to 19T15 anchors. The system used to install the new hanger between the four original cables made it possible to limit the duration of the work to a 13-month period.





FREYSSINET

NEW STRUCTURES: prestressing on the Map Tha Phut tanks (Thailand)

5, 6 & 7 > prestressing for 160,000 cu. metre LNG tanks

— 200 km south of Bangkok, Freyssinet Thailand supplied and installed the prestressing for two liquefied natural gas (LNG) tanks with a capacity of 160,000 cu. metres each. Overall, 1,600 tonnes of steel were installed in each tank, i.e. 252 horizontal prestressing cables embedded in six grooves and 240 vertical prestressing cables in a U layout.



BETWEEN OCTOBER 2009 AND JANUARY 2010, NUVIA TRAVAUX SPECIAUX installed 195 anti-seismic supports at the Jules Horowitz Reactor (RJH) under construction at the French Atomic Energy Commission's Cadarache site in southern France. The supports are made of fretted elastomer and equipped with plates designed to control loadings on the nuclear power station. In addition to installation, Nuvia Travaux Spéciaux handled engineering studies, testing and supply of the equipment, for which the qualification phase lasted from 2006 to 2008.



NUCLEAR



RJH reactor / France

NUCLEAR



The Nuvia brand, created in 2008, brings together the expertise of its six entities (Salvarem, Nuvia Travaux Spéciaux, Mecatiss, Vrac, Essor and Millennium) in the fields of dismantling, decommissioning, radiation protection, engineering, nuclear facility design and construction, waste management, specialised civil engineering works and project management, fire protection, waterproofing and biological protection. This complementary expertise, provided on either side of the English Channel by Nuvia France and Nuvia Ltd respectively, enable Nuvia teams to work at all stages of the nuclear facility life cycle: construction, maintenance, operation and decommissioning.

50 - 51



NUVIA FRANCE

Decommissioning of the extraction batteries in Room 60 at Marcoule (France)

1 > From engineering studies to works
— After carrying out the studies for the operation in 2004, Salvarem (Nuvia) started work on the operational phase in June 2009.

The work is aimed at dismantling the extraction batteries in Room 60 at the CEA's Marcoule site in southern France.

The operation is expected to take two years to complete. It involves primarily the dismantling of the facility's chemical "batteries".

NUVIA LTD

Waste treatment at Winfrith (United Kingdom)

2 > A first for a private-sector operator — Nuvia Limited is the only private contractor in the UK to have designed, built, commissioned and operated an intermediate level waste (ILW) treatment plant. Under contract to UKAEA (now RSRL) the plant was built to deal with ~ 300m³ of 'active' sludge generated during the operational lifetime of the Winfrith Steam Generating Heavy Water Reactor (SGHWR). The sludge is fluidised and then pumped from the tanks to the plant where it is encapsulated in cement; allowed to 'cure' and then transported to the treated radwaste store located on another part of the site. This now holds over 1,000 drums. The plant is due to complete operations in 2010.



NUVIA LTD

Removal of the WAID (West Air Inlet Duct) Pile 1 Sellafield (United Kingdom)

3 > Scabbling (High force sand-blasting) — The WAID was formerly used to cool the Pile reactor. During the reactor fire in 1957 many of the reactor's supporting structures were contaminated, including the WAID. Demolition of the WAID is critical to the next decommissioning phase of work in Pile 1 so it is being removed. The Nuvia project team has developed the most environmentally acceptable approach to decontamination and demolition of the WAID which includes large-scale concrete scabbling (high-force sandblasting) and diamond wire size-reduction.

The WAID consists of an external Y section and an internal channel consisting of approximately 3,200 tonnes of reinforced concrete and steel plate. Most of the waste will be consigned as High Volume Very Low Level (HVVLL) Waste with some Low Level Waste and exempt material. The £2 million demolition project started in April 2009 and is scheduled for completion in June 2011.





SOLETANCHE FREYSSINET

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