

→ **EDITORIAL**



Despite the current global economic crisis, NFM Technologies is maintaining a strong position in world markets and autumn 2009 is an exciting time for us.

-Two new sites are bringing us ever closer to our customers. The *service center* in Shenzhen and the *project office* in Singapore should enable us to optimise our delivery schedules and provide better support at each individual stage of the process.

- NFM has also taken its first steps into the African continent with an order for a tunnelling machine for line 3 of the Cairo subway in Egypt. This contract, signed with the joint venture made up of two leading lights in the French public works industry - VINCI and BOUYGUES - confirms the confidence that the Construction and Public Works industry has in our company.

In general, our business during the first half of 2009 highlights our determination to build long-term, sustainable relationships with our customers. This includes the delivery of a second tunnelling machine to KAZMETROSTROY for the Kazan subway, a new contract with AIRBUS for NFM to provide international services, an increased presence in the Chinese market and the strengthening of our service business.

Going beyond simple contractual commitments, NFM Technologies believes in working alongside the client on each project, with the conviction that long-term stable partnerships are the key to future success.

Happy reading,  
Luc Devaux

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LINE 2 of the WUHAN Metro: The breakthrough of the NFM Technologies tunnelling machine on June 19, 2009 (see article on Page 4)

## THE DEPARTURE OF THE SECOND TBM FOR TATARSTAN



From left to right: Mr. Wang, Mr. Billardon, Mr. Rakhimov, Mr. Devaux, Mr. Burganov and Mr. Anciaux.

A launch event for the new tunnelling machine destined for the Kazan subway was held at the NFM Technologies Le Creusot plant on Friday 17th July. The event was attended by Mr. Burganov, leader of the Executive Committee for the city of Kazan; Mr. Rakhimov, Director of KAZMETROSTROY (the authority in charge of the construction of the subway); Mr. Anciaux, MP for the Saône-et-Loire region of France and Mr. Billardon, the mayor of Le Creusot.

A Russian delegation made the 3,500 km journey from the Tatarstan capital to Le Creusot to take part in this inauguration ceremony. The machine bears the Tatar girl's name 'Айсылу', meaning 'As beautiful as the moon'.

The delivery of this second machine extends a working partnership that began back in 2003 with the first NFM TBM for Line 1 of the Kazan subway. This machine, renovated and adapted having been used on the Copenhagen subway system, perfectly suited the requirements of KAZMETROSTROY. *"Its remarkable tunnelling capacity and the satisfaction you have expressed are testament to our ability to work together in an efficient, sustainable manner. [...] We would like this collaboration to open the way to new projects, building up a long-term partnership between our two companies."* said Luc Devaux, CEO of NFM Technologies to our customer, Mr. Rakhimov, who, a few minutes later, replied, "The first machine was chosen quite by chance. This machine was chosen from experience."

The TBM, which left the Le Creusot workshops in early August is due to arrive in Kazan towards the end of September.

### → The project

Kazan opened its first subway line in 2005, in the year of the city's 1000th anniversary.

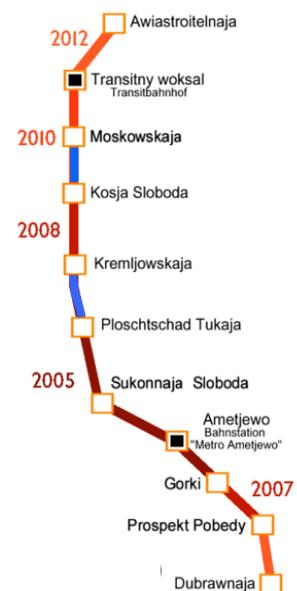
NFM Technologies was involved from the very start of the network construction project, and, in 2005 provided a 5.89m diameter Earth Pressure Balance tunnelling machine for line 1 of the subway system.

In 2008, as part of the extension work to the same line, KAZMETROSTROY ordered a second NFM machine, similar to the first. The line is to be completed in time for the Universiades 2013 event.

Eventually, Kazan will end up with a network of three lines covering more than 42km. The works, which began in 1997, are due to be completed in 2023.

The first TBM supplied by NFM Technologies has already excavated a 1,790m long tunnel between the *Kremlevskaya* and *Polash Tukaya*, stations, thus completing the first phase of work on Line 1.

The second machine will be used to extend this line: it will excavate the 2,000 metres separating the *Kozja Sloboda* and *Moskovskaja* stations to the west of the city.



**LINE 1 OF THE KAZAN SUBWAY**  
 Sections excavated by NFM Technologies tunnelling machines

## TWO NFM TECHNOLOGIES MACHINES FOR ILE LONGUE

NFM Technologies has designed and manufactured the SKIP 1 & 2 handling assemblies used to load and unload the M51 ICBMs to be carried onboard France's nuclear submarines, operating from the Ile Longue Strategic Naval Forces Base.

With the upgrade to the new generation M51 missiles, the transport and assembly systems had to be adapted to suit. The concept of the mobile SKIP - a rail-mounted convoy pulled by a locomotive - is perfect for movements within the base.

In 2003, EADS ASTRIUM\*, on behalf of the French Department of Defence, asked NFM Technologies to update the mobile equipment used to safely transport the missiles and swing them into a vertical position. NFM Technologies was one of the only companies in France capable of handling the design, construction and qualification phases of the equipment (both loaded and unloaded) in its workshops.

\* EADS ASTRIUM is responsible for the development, production, operating systems and maintenance of the M51 ICBM.

The manufacturing work on SKIP 1 got underway in the Le Creusot plant towards the end of 2005, after 2 years of study. The equipment was delivered to Ile Longue in June 2007.

In January 2008 a second order was placed for SKIP 2, identical to the first machine in all respects. Delivered in April 2009, it is currently completing its on-site tests.

The convoys have a total length of 35 metres. When loaded, each of the machines weighs more than 300 tonnes.



### → OPERATING PRINCIPLES

#### > THE MAKE-UP OF THE MISSILE

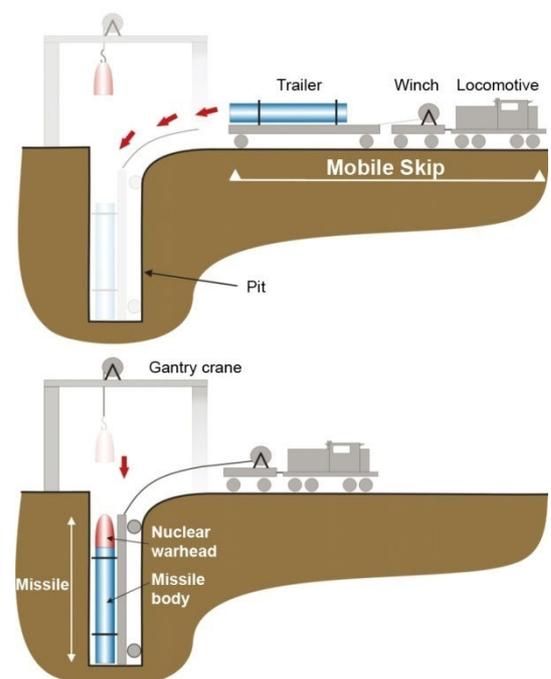
Once the 'pyrotechnic' stage of the missile (the main body) has been loaded onto the SKIP trailer, it is swung through to vertical in a pit, using a trolley winch. The nuclear warhead is then mated to the body to complete the missile, then the whole assembly is swung back down to a horizontal position.

#### > TRANSFER

The convoy then travels along rails to the submarine pens. A turntable system allows the SKIP to reverse into the pens.

#### > LOADING

The missile is swung to a vertical position before loading into the submarine using the same swing principles.





## THE ENVIRONMENT:

### NFM TECHNOLOGIES' COMMITMENT.

NFM Technologies is committed to an environmental approach aimed at reducing and controlling the impact of its activities on the environment. This project will, in time, lead to ISO 14001 certification.

The protection of the planet and the preservation of its resources are major issues we face today, and industry is well aware of the role it must play. In a context where its partners and clients are already involved in the protection of the environment, NFM Technologies wishes to actively invest in this area.

We are already taking into account increasingly strict environmental regulations. In addition to the valorisation of waste products, which has been in place for several years, we have signed several partnership agreements committing ourselves to the principles of long-term sustainable development within our projects.

The launch of a process which conforms to ISO 14001 towards the end of 2009 therefore completely fits in with our business strategy. This process will allow NFM to continue to work within the strict reference frameworks imposed by our clients whilst satisfying all their needs in terms of the environment. NFM will continue to increase and improve its efforts to reduce the impact of its activities and products, whilst ensuring that all of our employees and partners are aware of the need to act responsibly in all areas.

Going beyond simply fulfilling standards, NFM Technologies is determined to take a proactive role in the preservation and protection of natural resources, with the ultimate objective of setting up a process of continuous improvement of environmental performance.

## > NFM TECHNOLOGIES IN BRIEF



**Corporate** > NFM Technologies has opened a dedicated service sector branch in Shenzhen, China. This branch was created jointly with SHMG and ensures the management of

services provided across the southern part of the country, from Shenzhen to Wuhan.

**Aeronautics** > NFM Technologies has signed an order with AIRBUS for the construction of 123 new transport units to be used to move sections of the new Airbus A350. This equipment will be capable of transporting the aircraft sections manufactured on Airbus's 14 European sites to the assembly workshop in Toulouse by air, sea or road. The contract includes the design, manufacture and delivery of these tools for the 2010-2015 period.

**Underground work** > The NFM Technologies TBM finished excavating the section between the Fanhu and the Hankou Railway stations on line 2 of the Wuhan Metro system (China) last June. The 1,068 metre long tunnel took just three months to dig through water-saturated clay soil. The client, B1, was very pleased with the performance of this 6.28 metre diameter EPB boring machine, the efficiency of the on-site teams and the levels of cooperation with NFM Technologies.

The tunnel boring machine is currently being re-assembled on-site with the aim of extending the tunnel another 1,200 metres in the other direction.

## > CALENDAR 2009/2010

→ **STUVA TAGUNG** (Hamburg), from 1<sup>st</sup> to 3<sup>rd</sup> December, 2009.

→ **BAUMA 2010** (Munich), between 19<sup>th</sup> and 25<sup>th</sup> April, 2010.

→ **WORLD TUNNEL CONGRESS** (Vancouver) between 14<sup>th</sup> and 20<sup>th</sup> May, 2010.