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- Road construction in Norway
- Recycling in Belgium

The magazine of Hitachi Construction Machinery (Europe) NV



GROUND CONTROL

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NEWS

bauma 2016

Demand more from Hitachi at Bauma

The European construction industry will once again descend on Munich when Bauma 2016 is held from 11 to 17 April. The renowned international trade fair for construction machinery, building material and mining machines, construction vehicles and equipment is held every three years at Messe München.

The last event held in 2013 attracted a total of 3,420 exhibitors (1,346 from Germany and 2,074 from abroad) from 57 countries, who covered 570,000 square metres of exhibition space. Over 530,000 visitors from 200 countries visited the fair, setting a new attendance record in the process.

Hitachi Construction Machinery (Europe) NV (HCME) will be among the leading manufacturers at the event with a wide range of products and services at stand number FM515. There will be more than 40 machines on show, representing the full range of Hitachi construction machinery products.

The 5,600m² display – modelled on HCME's "No compromise" marketing campaign – will emphasise how owners can "demand more" from many new Hitachi -6 products, some of which will be unveiled to the general public for the first time.

Top of the bill will be a broad selection of the latest Zaxis-6 excavators. Joining the medium ZX250LC-6, ZX300LC-6 and ZX350LC-6 crawler machines will be the large ZX490LCH-6 and ZX890LCH-6 models. These product categories are highlighted in the special -6 range supplement enclosed with this issue of *Ground Control*.

In addition, the ZX145W-6 will be the first of the new Hitachi wheeled excavator range on show. This will be ably supported by the introduction of several new special application machines: the ZX300LC-6 super long front excavator; the ZX350LC-5 excavator (with a 30-metre telescopic arm); and the ZX135US-5 for tunnelling applications.

Sharing equal billing with the excavators will be six Hitachi ZW-6 wheel loaders: the ZW65-6, ZW75-6 and ZW95-6 compact machines (see page 7); the ZW220-6 and ZW310-6 medium models (also featured within the -6 range supplement); and the large ZW370-6.

Among the largest exhibits at Bauma will be one of Hitachi's market-leading mining machines. The EH1100-5 dump truck will be



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sure to attract thousands of visitors to the HCME stand, along with the new Hitachi Sumitomo SCX3500A-3 crawler crane.

Hitachi owners and other visitors will also enjoy browsing through the latest collection available from the merchandise shop and testing their operating skills on the excavator simulator (see right).

"The work for Bauma 2016 started right after the close of the previous event three years ago," says HCME President and CEO Moriaki Kadoya. "Our team has worked hard to assemble what will prove to be one of the most creative and distinctive stands, not only in HCME's history, but also at this year's trade fair. With around 40 Hitachi construction and mining machines on display – ranging from light compaction equipment to a dump truck – we are convinced that HCME will have something for everyone."



The HCME stand at BAUMA 2016 will feature an excavator simulator, which is based on the ZX250LC-6 and is an ideal tool for providing operator training. Designed with safety and productivity in mind, it is an efficient method of teaching users how to operate heavy machines.

It features training scenarios for operators with different capabilities, from beginners to experienced users. An integrated motion platform and the incorporation of genuine Hitachi parts provide an authentic machine experience.

The plug-and-play system makes it easy to move and set up on training sites. In addition, real-time simulation on the industrial-grade full HD 55" LED screen provides the best possible training scenario.

A powerful student management system (SMS) can be used to plan training and analyse performance. The simulator is also extremely versatile, with the option of simulation exercises that can be developed on demand.



NEWS



First Hitachi compactor in Norway

The first piece of Hitachi light compaction equipment in Norway has been purchased by Hamar-based contractor Dobloug. Supplied by the local Hitachi construction machinery dealer, Nasta, the Hitachi ZV350PR-De reversible vibratory plate is the latest addition to the company's fleet of Zaxis-5 excavators and a ZW wheel loader. The machine will be used largely in public sector road and general construction projects.

The Hitachi ZV-PR compactor range offers the highest centrifugal force in its class. It has been designed to produce a dynamic impact force thanks to a compact body and high-tensile, protective engine frame. The durable base plate helps to absorb shock, resulting in a longer life for the machine.

All models are fitted with a standard recoil starter to enable efficient and safe starting of the engine. However, the electric ZV350PR-De model is also equipped with the recoil starter as a backup so work can continue even if there isn't time to charge the battery.

"I first saw the new range of light compaction equipment on a visit to Hitachi Construction Machinery (Europe) in Amsterdam," says Joar Grini, Dobloug's Part-owner/Project Manager. "We use this type of compactor on a regular basis and I wanted Dobloug to be the first company with one of these machines in the Norwegian market. I believe that Hitachi's compaction equipment has the same high level of quality as its excavators."

A versatile performer

A large Hitachi Zaxis-5 excavator is at work in an Italian quarry, which produces rare and precious Nuvolato Etrusco marble for the restoration of buildings and monuments all over the world. A local example can be found inside the Siena Cathedral, located nearby to the Granital Siena site in Tuscany.

Granital Siena has been a customer of Hitachi dealer Scai for 25 years, and its fleet of Hitachi construction machinery includes two medium Hitachi excavators and one wheel loader. It took delivery of the ZX670LCH-5 in March 2015, which was supplied with HELP (Hitachi Extended Life Program) for three years/6,000 hours.

The new machine is utilised in the early stages of the process, removing the top layer of earth to access the marble. It is also required to extract the blocks, which weigh approximately 30 tonnes, once they have been cut using diamond wire. Finally, the ZX670LCH-5 is being utilised for earthmoving to complete the environmental restoration of the quarry.

"The Hitachi ZX670LCH-5 is a versatile all-rounder on this site," says Technical Production Manager Simone Bonechi. "Granital Siena is satisfied that it was the best choice, due to its capabilities in combined operations. It works well at full power and at the required level of productivity."







New ZW-6 compact wheel loaders

Three new Hitachi compact wheel loaders have been introduced following an OEM agreement between Hitachi Construction Machinery (Europe) NV and Mecalac Baumaschinen GmbH. Manufactured in Germany, the Hitachi ZW65-6, ZW75-6 and ZW95-6 have been designed specifically for the European market.

Fitted with a new Deutz Stage IIIB-compliant engine, each machine has low-maintenance requirements and is exceptionally reliable with a 500-hour engine service interval. The durable design incorporates a high-performance single arm with a low-torsion, rigid profile. Less torsion on the boom results in greater precision during levelling. The arm's hosing and wiring are located internally, protecting vital components.

Attachments can be connected quickly and easily with the electro-hydraulically operated quick coupler. This offers high levels of efficiency and highlights the wheel loaders' versatility. The new models are also easy to move between job sites, with a maximum height of 2.5m. In addition, the ZW65-6 and ZW75-6 models have optional 30km/h travel speeds.

HCME Wheel Loader Specialist Vasilis Drougkas says, "The new compact wheel loaders provide the best technology in this market sector. They offer exceptional levels of safety and visibility, thanks to the 360° panoramic view from the cab. The self-stabilising articulated pendulum joint increases stability and gives a perfect driving experience."

Hitachi excavator digs deep for charity

A Hitachi wheeled excavator was one of the main attractions at a recent charity event in The Netherlands. Supplied by the domestic dealer of Hitachi Construction Machinery (Europe) NV (HCME), the ZX170W-5 was part of Super Opkikkerdag, which is held for children suffering from long-term illnesses and their families.

"The goal is for the families to relax and have fun, and to think about something other than hospitals and sickness," says Carel Koopman, a volunteer for Stichting Opkikker. The Almere-based organisation hosts up to ten events like this each year for between 50 to 60 families. "The positive effects of this one day can last for a long time," he adds.

Approximately 300 people attended the beachside location in Almere. Children were invited to sit in the cab of the Hitachi excavator and use the controls with help from a professional operator. Several other machines were available for demonstration on the day, including vehicles from the army, police and Marine Corps of the Royal Netherlands Navy.

HCME Domestic PR & Marketing Coordinator Esther Navest says, "We were delighted to put the Hitachi wheeled excavator at the disposal of Stichting Opkikker for the day. The ZX170W-5 was chosen because it is an impressive size for the children taking part, and it is also easy to manoeuvre safely around the site."



The charity event was organised by Stichting Opkikker



NEWS



High productivity in DRC

Sub-contractor MCK Mining is using a fleet of Hitachi excavators at its cobalt and copper mining operation located 20km outside Lubumbashi in the Democratic Republic of Congo (DRC). The current line-up includes an EX1200-5, two ZX870LCR-3s and two ZX870LCH-3s.

Supplied by DEM DRC, a subsidiary of Belgium-based Hitachi construction machinery dealer DEM Group, the machines are deployed across the site on a variety of tasks to produce materials for Chinese company Ruashi Mining. MCK Mining Project Manager Elliot Mkwahleka believes Hitachi machines are the best for reaching high levels of productivity, due to their reliability and speed, but versatility is also an important factor.

"We mainly use the machines for earthmoving," he explains. "However, if we need to perform another task, there's no need to switch machines – we just change the attachment. The Hitachi excavators are extremely versatile and user-friendly, and our operators enjoy working in the comfortable cabs."

Elliot is also satisfied with the support he receives from DEM DRC. "We have a close working relationship," he says, "and our dealer makes it easy for us to get the spare parts we need in DRC. This helps us to minimise downtime and reach our target of 460bcm [bank cubic metres] per month."

A fresh start in Finland

Production at one of Finland's largest nickel mines restarted in September 2015 with support from a fleet of Hitachi ultra-large excavators and rigid dump trucks. The mine in Sotkamo had been closed for almost two years due to the bankruptcy of its former owners, Talvivaara Sotkamo Oy. Government-owned company Terrafame Oy acquired the mine and its assets in August.

The target for production in 2016 is 18mt of ore and over 15,000t of nickel. Ore and waste rock are loaded and transported by two Hitachi EX3600-6 excavators and eight Hitachi EH3500ACII dump trucks. The machines were commissioned between 2008 and 2010, and the earliest models have been used for more than 30,000 hours. An additional new EH3500ACII was scheduled for delivery before the end of last year.

Rotator Oy, the Finnish distributor for Hitachi Construction Machinery (Europe) NV, has had a maintenance and repair contract with the mine since the start of its operation. Maintenance and major overhauls are planned months in advance together with the mining company to ensure the highest possible availability and productivity.

"Our team of 20 experienced service technicians operates in two shifts, seven days a week," says Foreman Anssi Heikkinen, a member of Rotator's maintenance team. "In addition to the Hitachi excavators and dump trucks, we also carry out servicing on other mining equipment."



Strengthening the dealer network



Two new dealers have been appointed for customers of Hitachi Construction Machinery (Europe) NV (HCME) – in Greece and the Czech Republic. Ergotrak and NET are now supplying the complete range of Hitachi construction equipment, including Zaxis excavators (mini, medium, large and wheeled), ZW wheel loaders and Hitachi Sumitomo crawler cranes.

Combining years of experience in their respective markets with excellent after-sales service, the two companies are valuable additions to the HCME dealer network. HCME CEO Moriaki Kadoya says, "We are looking forward to developing successful working relationships with Ergotrak and NET, and growing our market share in both countries. We rely on our dealers to combine Hitachi expertise with their local culture, and to act as a bridge between us and our customers."

Ergotrak has been supplying Hitachi mining excavators and rigid dump trucks in Greece since 2004. Established in 1958, it has 95 employees who are based at three locations in Athens and Thessaloniki. With 30 years of experience in the Greek earthmoving market, it is currently strengthening its position in this sector.

Sales Manager Spiros Andarakis says, "We are delighted to build upon our already successful cooperation with HCME. Our customers will now benefit from the full range of Hitachi construction equipment, which is renowned for its reliability and durability, and is therefore ideal for the tough conditions in our territory."

NET spol. s r.o. is located in Huštěnovice, Babice, in the southeast

of the Czech Republic. With its subsidiary, Moreau Agri, it has eight branches and 13 service centres throughout the country. The newest site opened in Prague in 2015 and it employs 160 people.

"We have increased the number of our service centres to ensure that we can be closer to our customers," says Product Manager Igor Sýkora. "Our main aim is to sell high-quality products that respond to our customers' needs. We are delighted to now offer a wide range of Hitachi machines, which are renowned in our growing market for high productivity, operator comfort and advanced technology."



NEWS



Knowledge at your fingertips

Consite is an automatic service report emailed monthly to owners of Hitachi construction machinery, summarising operational information for each model in their fleet. Developed as part of Hitachi's Global e-Service online monitoring application, it supplies detailed analysis of data such as daily working hours, swing ratios and fuel consumption. By providing a regular insight into the performance of individual machines, it can help to enhance the efficiency and productivity of not only the Hitachi fleet, but also the entire business operation.

An early adopter in the UK was Hampshire-based TJ Group, which specialises in transport, waste management and recycling. It has a fleet of five Hitachi medium excavators and four ZW-5 wheel loaders working across several sites in southern England.

Having relied upon Hitachi excavators since 2000, the company has a long-established working relationship with Hitachi Construction Machinery (UK) Limited. Managing Director John Gosling says: "Our company ethos is 'we don't do average'. We rely on premium products, tried and tested by the industry, and with excellent back-up."

The TJ Group was introduced to ConSite by Karsten Beckmann, Customer Support Representative at HCM (UK), almost two years ago. John has already recommended it to other businesses: "It brings a cost benefit, so it affects our purchase decision. ConSite means lower running costs over the lifetime of each Hitachi machine."

The amount of data in the monthly report can be customised according to individual requirements, but John prefers to access

all that is available: "It builds a database, so we can learn more about our equipment and operation. And it's available at the push of a button, for health and safety, maintenance and budgeting purposes. From a budgetary point of view, we need to predict when the next service is due, and when we need to replace our fleet."

After checking the general overview, John assesses the individual machine figures for hours, idling, temperatures, fuel consumption and CO_2 emissions: "The hours are useful because equal utilisation of machines across the fleet is important in terms of depreciation. One site might have two machines and the operators might favour using one over another, which means one model is clocking up more hours.

"The hours also show how busy a particular site is. So perhaps we need to swap machines to other sites, look at staffing levels, and check if we have the right model working there."

Monitoring fuel consumption is also vital for the TJ Group, which has a fleet of 140 trucks for its transport business. "We have always focused on the fuel efficiency of our lorries, and now thanks to ConSite, we can focus on the fuel efficiency of our construction machinery too," says John. "Previously, we had to estimate fuel, but now we can accurately predict it.

"We are able to see the remaining fuel levels at the end of each day, so it's possible to see when the machine is refuelled," he adds. This has implications for efficiency on site: "We prefer our operators to fuel up at the end of each shift, not when lorries are waiting."

The company's employees fill in time sheets for both hours and fuel used, which can be checked against the ConSite report. This

has also had a positive effect. "They are becoming more diligent in filling out time sheets and how they use the machines," adds John. "We're also now encouraging our operators to use the Hitachi fleet more efficiently."

Efficiency is evident at one of the company's indoor recycling facilities in Tipner, Portsmouth. Approximately 130 lorries visit the site per day, where a ZX130LCN-5 and ZX85US-5 are used to sort waste materials including wood, plastic, metals and soil, six days a week. The ZX85US-5 loads a hopper that transfers waste to the picking station. The ZX130LCN-5 is fitted with a grab attachment to select materials for separate stockpiles.

According to the latest ConSite report, the ZX130LCN-5 has a 20% non-operation ratio, well below the UK average, and an exceptionally efficient idling ratio (A rating). It also highlights a very high swing ratio (70%), due to the work it is required to do.

The swing ratio, fuel economy, operating and idling time are among the variables that Operations Manager Jason Strudwick checks using ConSite. "I want to find out more about the usage of each machine, and try to find the most effective way for them to operate.

"I love ConSite. At the click of a button, I know what each machine has done that month. We have the knowledge at our fingertips, and it helps to provide training for operators, assisting us in becoming more efficient."







Giving the light

Greenland is a country like no other. While its landscapes are awe-inspiring and its terrain is abundant in minerals, it is the world's least densely populated country and its climate is extreme. *Ground Control* visits the southwest of the country to see how Hitachi machines are helping on a demanding mining project

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LNSG's ZW310-5 and ZX290LC-5 are at the heart of the Aappaluttoq operation



"Hitachi machines are ideal for the type of work we do in such an isolated location"

Peter Madsen, Project Director, LNSG To even the most casual of travellers, it is impossible to ignore how remote Greenland is. Arriving by plane in the country's capital, Nuuk, requires detailed logistical planning. However, the effort is worth it. Glimpsing the iconic Sermitsiaq mountain rising above the city as the sun begins its long descent certainly makes a lasting impression.

On arrival at Nuuk Airport, two things become apparent. Firstly, it is easy to see how the country's founding fathers discovered great beauty in such isolation. Indeed, the name Green-land reflects how welcoming the country appeared to its first inhabitants. Secondly, its impenetrability is staggering. A vast ice sheet covers around 80% of its enormous landmass and weather conditions can take a turn for the worse at any time.

Land of plenty

For many years, Greenland has also been noted for its rich mineral deposits and there are ongoing projects assessing gold, oil and gas prospects. In addition, feasibility studies are being conducted into whether harvesting diamonds, iron ore, uranium, lithium and zinc is possible.

However, the cost of unearthing Greenland's buried treasures is relatively high. Compared to other nations with significant volumes of natural resources, the country's harsh terrain can often be detrimental to a project's success.

This means that some high-profile ventures – despite being well financed and researched – often never begin. However, as certain materials become increasingly sought after on the global market, the country may look more appealing to investors in the future.

One successful mining story is located 130km south of Nuuk, near the settlement of Qeqertarsuatsiaat. Once the initial infrastructure work has been completed, the Aappaluttoq ruby and pink sapphire mine is scheduled to be in operation by spring 2016.

Rubies were first identified in Greenland in 1966, and apart from their immediate worth as jewellery, they are also used as bearings in watches and as computer components. The majority of the yield from Aappaluttoq is expected to be sold to private buyers, or in its raw form to other companies.

The mine is owned by the Canadian company True North Gems Inc. (TNG), which has been surveying the area for gemstones since 2004. TNG has a mining licence at the site for the next ten years and has commissioned LNS Greenland AS (LNSG) to build – and operate – the mine on its behalf (LNSG owns a 27% share of TNG). Mobilisation of equipment and general construction began in September 2014.

LNSG has unique experience of similar projects, having operated in Spitsbergen (Norway) and Antarctica for several decades. It was one of the first Greenlandic companies to provide services to those operating in the country's mineral industry. Today, it specialises in a range of logistical solutions to support companies working in Greenland.



Selecting the best machines

LNSG's Project Director, Peter Madsen, is experienced in dealing with the demands particular to Greenland. He has worked in the industry for over 20 years, the last 15 with LNSG. One of his most vital concerns when undertaking any assignment is to have machinery that can cope in such an unforgiving environment.

Peter receives equipment and first-rate support from Danish supplier HP Entreprenørmaskiner A/S (HP). HP is the official dealer of Hitachi construction machinery to Denmark, Greenland and the Faroe Islands. Originally formed in 1976 as Brøyt Danmark A/S, HP has supplied mining equipment in Greenland for more than 25 years. Product Manager Kurt Hansen is HP's main point of contact in the country, and has worked in the region since the late Seventies.

Six Hitachi machines are currently on site in Aappaluttoq, including a ZW310-5 wheel loader and a ZX290LC-5 medium excavator. The latter was the first Hitachi machine to be delivered to the site in September 2014.

"We chose Hitachi machines because of the excellent relationship we have with HP," Peter explains. "I have known Kurt for around 15 years and we receive a fantastic service from him and his colleagues." The combination of reliable machinery and support is a key factor for Peter.

"Hitachi machines are ideal for the type of work we do in such an isolated location," he continues. "The maintenance work is easy to carry out and our technicians find it straightforward when it comes to replacing spare parts. The wheel loaders and excavators are the most construction work was completed, so that the mine could open on time.

Approximately 2-3,000 tonnes of ore were due to be extracted from the mine in the last quarter of 2015. The process begins with waste blasting, followed by diamond cutting to carve out blocks of ore (weighing up to 10-12 tonnes) into smaller fragments.

Next, the fragments are placed in industrial-sized plastic containers filled with hydrofluoric acid. These are spun for around one to two days to remove the extraneous material, leaving only rubies and pink sapphires. If that wasn't testing enough, at least 10-15% of the final output must be finished to government standard: "Extracting the raw materials is difficult," says Peter. "We will only know in a few months exactly how hard this procedure will be."

During *Ground Control*'s visit last autumn, the final touches were being carried out to the infrastructure work and there was no room for error: "Once the fjord leading to the mine freezes over during winter, the site will be cut off," Peter continues. "At this point, it will only be possible to fly resources in by helicopter, which is of course more expensive."

The ideal fleet

In addition to the ZW310-5 wheel loader, a ZW220-5 and a ZW75 are also being deployed by LNSG. Excavators on site include the ZX290LC-5, a ZX520LCH-3 and a ZX65USB-5. In October 2015, blasting was taking place to create a channel between two lakes on



reliable option, and are particularly robust given the tough conditions. The fuel efficiency of each machine is also a positive."

This is something that LNSG's Head of Business Development Gunnar Moe agrees with: "We find the Hitachi machines to be reliable and economical. The number one benefit is that the machines are straightforward to look after. Due to the remote location, easy maintenance is vital for the operation."

Extracting the gemstones

Accessible only by helicopter or chartered speedboat, the Aappaluttoq site covers 12km². This includes 8.5km of road, a workshop (under construction), the open pit and accommodation for 48 people. From a total of 44 employees, there are 32 people on site at any one time (requirements are to work three weeks, with one week of leave). Twelve-hour days have been necessary to ensure the initial

site. The mine is situated on the same level as the larger lake, which had to be lowered by around ten metres to ensure safe access to the pit opening.

At the beginning of the process, the ZX520LCH-3 filled the site's only dump truck with larger, waste rock produced by blasting. These rocks were transported to another location where the ZW310-5 piled and sorted the material for the ZX290LC-5.

From an elevated position, the medium excavator loaded this into a crusher, which produced three sizes of materials. The wheel loader also moved these to help lay foundations for the workshop. The ZX65USB-5 distributed the smaller materials evenly to build up the base of the building.

The other Hitachi medium wheel loader on site – the ZW220-5 – was being used on essential preparation work, such as gritting the roads and transporting construction materials. For example, fitted with a

"Last winter we operated for three months in -25°C conditions and the machines started every morning. They run really well and are completely reliable"

Jonny Jensen, Chief of Construction, LNSG

The ZW310-5 offers excellent visibility, which improves safety at the remote site

Customer

fork attachment it could be used to move large piping.

HP also supplied other attachments for the ZW220-5 relevant to the tough conditions, including a snowplough. Other modifications were made to both wheel loaders and the ZX290LC-5 to ensure maximum productivity. Some 230-volt engine heaters were available, which could be plugged in when the machines were turned off. This maintained the temperature of the engines at an optimum 25-40°C.

Specialist filters were also fitted to preheat the fuel, which is another useful adaptation to ensure maximum uptime of the machines. Other consumable parts, such as filters are kept on site.

Reliable support

Despite the remoteness of the Aappaluttoq mine, LNSG has peace of mind that downtime can be kept to a minimum on all machines. Every wheel loader and excavator is covered under a basic service contract, while the ZW220-5, ZW310-5 and the ZX290LC-5 are protected by the Hitachi Extended Life Program (HELP).

This extended warranty spans five years – or 8,000 hours – and means that LNSG benefits from fixed costs and knows that any repairs carried out by HP will use Hitachi genuine parts. All units are monitored remotely with Global e-Service, providing useful information concerning the performance of each machine.

For LNSG's Chief of Construction Jonny Jensen, this is all part-and-parcel of the overall package from Hitachi. "The support from Hitachi is top class here in Greenland," he explains. "It is the only company that can deliver a reliable service in such a location."

Jonny also believes Hitachi is the perfect fit for the job: "I have had dealings with HP for over 35 years," he continues. "I know all the people and what they stand for. That was one of the main reasons we chose Hitachi. Also, last winter we operated for three months in -25°C conditions and the machines started every morning. They run really well and are completely reliable."

Quick, comfortable and powerful

On such a trying job site, the opinion of the operators is also crucial. Peter reports that his colleagues are delighted with the machines: "Our operators love working with the Hitachi wheel loaders and excavators, because they find the cabs so comfortable."

Wheel loader operator Carsten Folmer Jensen is also quick to praise the functionality of the ZW220-5 and ZW310-5: "The Hitachi wheel loaders are comfortable and move quickly around the site. This makes them suitable for the conditions and the work we do here. They are powerful enough to carry out the tasks on this site and the quick power switch is also beneficial."

On such a hazardous job site, safety is essential for Carsten: "For me, the best thing about the wheel loaders is the rear-view camera. I also get an excellent all-round view from inside the cab. I have used other machines in the past, but generally I've been more satisfied when working with Hitachi equipment."



To see a movie of the Hitachi machines in Greenland, please visit www.youtube.com/user/ HitachiConstruction. To receive a digital version of *Ground Control* with new movies, please register online at www.igroundcontrol.com/subscribe/en





Carsten Folmer Jensen, operator, LNSG



Customer

A powerful force in quarrying

A Norwegian producer of high-quality aggregates has added a new ZW310-5 wheel loader to its formidable team. *Ground Control* visits Hamar Pukk og Grus to see this powerful performer in action







N orway has an abundance of natural resources, none more so than its supply of hard rock aggregates. In 2013, 97million tonnes were sold at a turnover of NOK 13billion/€1.4billion (Norwegian Geological Survey).

Aggregates in Europe are generally local products that are limited by the cost of transportation to a regional geographical area around the quarry. However, the Norwegian market differs with its materials being shipped thousands of kilometres by sea to meet demand elsewhere in Europe.

NOK 7.6billion/€0.8billion of aggregates are sold abroad with the main export markets being Germany, Denmark, Poland, The Netherlands and UK. Demand is high not just because of a lack of materials in these countries, but also because of the quality and quantity of aggregates available in Norway.

Hamar Pukk og Grus is a successful Norwegian company

working in this sector. It was established in 2000 after a merger and there are now two equal partners: Veidekke Industri (an asphalt company) and Gunnar Holth Grusforretning (concrete).

It has five quarries producing a wide range of aggregates and its 60-hectare site on the outskirts of the town of Hamar – 130km north of Oslo – has been in existence since 1950. Six of the company's 15 employees are responsible for excavating 120,000m³ of materials and producing 250,000 tonnes of aggregates per annum.

The materials are loaded into a primary crusher to remove sand that is then used for the production of concrete. The secondary crusher removes some of the larger stones and these are sold as 20/120 for road and general construction sites. The remaining materials go through a third crusher to produce 0/4, 4/8, 8/11, 11/16 and 16/22 aggregates, which are used for roads, concrete, foundations and drainage work.

High-capacity loader

Hamar Pukk og Grus uses a Hitachi ZW310-5 – delivered in April 2015 – for loading customers' trucks and trailers with their required materials. This is not only the first machine that has been supplied by the Norwegian dealer Nasta to the company, but also the first Hitachi that it has purchased in its history.

"We wanted to try something different to our previous machines and this approach was welcomed by the owners," says Rune T Lund, the General Manager at Hamar Pukk og Grus. "We were able to test a larger model, the ZW330-5, beforehand thanks to Nasta and this helped us to make our purchase decision.

"Hitachi is a good brand, and the ZW310-5 has already proved to be a good choice and the right size for our site. It's comfortable for our operators and a powerful machine, with a strong traction force for driving into materials."

Technician Tore Bergrud was driving the machine on the day of *Ground Control*'s visit. He has been working on the site for 27 years and gained his licence for driving wheel loaders in 2005 to cover for the regular operators as and when required.

"I really like the ZW310-5 and it is as good as any other machine that I've driven," explains Tore. "It has a high capacity for the loading process and it is especially effective at driving into the stockpiles. It is also easy to manoeuvre and very smooth for turning on full lock in a tight space.

"The Hitachi is also advantageous for load-and-carry operations and travels relatively quickly uphill compared to other larger machines. The visibility to the front and rear is good, and I have found it to be user-friendly."



To see a movie of the ZW310-5 in Norway, please visit www.youtube.com/user/HitachiConstruction. To receive a digital version of *Ground Control* with new movies, please register online at www.igroundcontrol.com/subscribe/en

Round-the-clock

Shubarkol Komir relies on the support of the authorised Hitachi dealer in Kazakhstan, Turkuaz Machinery, to maintain its fleet of four mining excavators and 14 rigid dump trucks. Its dedicated service team helps to keep the machines running 24 hours a day and make invaluable cost savings for the remote coal mining operation

uroasian Resources Group Sarl (ERG) is a leading diversified natural resources company that celebrated its 20th anniversary in 2014. It has a portfolio of production assets and development projects on four continents, serviced by over 75,000 employees.

The company is a pillar of economic growth in the Republic of Kazakhstan, representing more than 4% of the country's GDP and approximately one third of its metal and mining industries. It is also a principal supplier of electricity, and two of its major assets are Shubarkol Komir and SSGPO (see page 36).

Shubarkol Komir is one of Kazakhstan's largest semi-coke and

thermal coal producers with 2,700 employees. The mine commenced operations in 1985 and produced 10.3 million tonnes of coal in 2015, an increase of more than 70% since 2010. Its total measured and indicated resources are estimated at 1.5 billion tonnes, with the site having an estimated lifespan of up to 70 years.

There are 2,100 of the company's employees working on the site, which measures 6.5×3 km at its longest and broadest points respectively. With large seams measuring at depths of between 30 and 100m, there is a low stripping ratio of $3m^3$ of overburden per tonne of coal.

Job site



Reliable partners

The overburden and coal are extracted by four Hitachi ultra-large mining excavators supplied by Turkuaz Machinery: an EX1900-6 (delivered in 2009, 37,000 working hours in September 2015); an EX3600-6 (2011/27,000); an EX3600E-6 (2013/17,000); and an EX3600E-6 (2014/8,500).

These materials are loaded on to a fleet of Hitachi rigid dump trucks: six EH1100-3s (delivered in 2013, 10-14,000 working hours in September 2015); two EH3500ACIIs (2014/10-12,000); four EH1100-5s (2015/up to 1,000 hours); and two EH3500ACIIs



(2015/up to 1,000 hours). The loads are either taken to a conveyor, where they are transported for delivery to customers by rail, or a stockpile for temporary storage.

"We have been working with Turkuaz Machinery and Hitachi Construction Machinery (HCM) since the delivery of the EX1900-6 six years ago," says Shubarkol Komir's President, Tuleugen Akbayev. "We consider them to be our reliable partners and are very satisfied with the equipment.

"The number one benefit that Hitachi machinery brings to our business is reliability, which is of course vital. Turkuaz also has the experience to know how to manage the tough conditions and the other challenges at the mine.

"We try to keep everything in-house. In fact, the only activity we outsource is the maintenance of our machines, as it is not cost-effective for us to manage this ourselves. We are very happy with the Turkuaz team.

"They are always on site and this is important. The main aim is to prevent downtime by carrying out the necessary maintenance and repairs. This undoubtedly has a positive effect on the availability of our equipment."

Monitoring, maintenance and repair

Turkuaz Machinery's main point of contact at Shubarkol Komir is Chief Mechanical Engineer Vladimir Kvyatkovskiy. He's been working for the mine since 1998 and has been in his current role for four years.

Based at the company's headquarters in Karaganda, central Kazakhstan, Vladimir makes the 500km journey to the mine on a monthly basis. He is in daily communication with on-site mechanics and has overall responsibility for the technical condition of the mining equipment.

"When the Hitachi EX1900-6 was delivered, we carried out all of the maintenance work in-house," he says. "Then we realised that this situation needed to change after the EX3600-6 arrived two years later. We opted to start with a technical support contract in 2012, because of the size and complexity of this machine."

The MMR (monitoring, maintenance and repair) contract covers all of the Hitachi EX-6 excavators on a 24/7 basis. Turkuaz Machinery's Project Manager is Ryspek Baizhanov, one of the authorised Hitachi dealer's 14 employees based at the site. Seven staff (six technicians and a parts stock manager) cover each shift from 8am to 8pm and are on standby round the clock.

"The technical support includes the diagnostics, routine maintenance and repairs, plus warranty support and helping the customer to control the level of parts stock," explains Ryspek. "We carry out a daily inspection of the machines to analyse how they are working and go through a detailed checklist every 50 working hours. We also communicate regularly with the operators, which is vital to learn of any unknown issues."

Technical maintenance takes place every 250 working hours and this is planned at least one month in advance with Shubarkol Komir's approval. The aim is to ensure that each machine will work for the next 250 hours without any downtime.

Then, every 1,000 hours there is a performance test to check all aspects of the machine's normal operations, such as the movement of the front attachment. In addition, all planned repairs are carried out to components that must comply with Hitachi's recommended standards.

"If there is an issue, and it can be postponed, then we will try to carry out the work during technical maintenance," explains Ryspek. "This includes any small repairs that we may spot during monitoring. It's vital not to interrupt the production process and so we also aim to do what we can during the lunch break, shift changes and at other convenient times."

24/7 machine availability

The main challenge faced by the Turkuaz Machinery team is to prepare the machines for the extreme weather conditions, which vary dramatically from -40 to +45°C. To prevent any unscheduled repairs in winter, it adheres to Hitachi's recommended cold weather package, which for example heats the hydraulic oil and electrical systems. In summer, the hydraulic system runs at a much higher temperature and so the radiator is kept clean during the regular technical maintenance checks.

The overall aim is to keep the machine running continuously and the supply of Hitachi Parts also plays a significant role according to Ryspek: "Our daily monitoring system helps us to plan ahead with regard to the supply of parts for stock at the mine. In addition, we recommend which parts to order for use in our annual maintenance plan."

Training plays a vital part in Turkuaz Machinery's comprehensive Hitachi Support Chain after-sales programme. "When the machinery is supplied, our specialist trainer will help to develop the operators' skills – both in theory and in practice out on the site. In addition, our team receives regular training from HCM for excavators and dump trucks, which enables us to develop at the same time as the machines." Ryspek and his colleagues are also passionate about the support they provide to the mine. "We love our jobs and our work – that's why we do it," enthuses Ryspek. "We can only be professional, as we're so enthusiastic about our machines and feel that we contribute to the success of our customer's operations. We believe in the importance of teamwork and that we can achieve anything together."

Reduced running costs

At the time of *Ground Control*'s visit in September 2015, Shubarkol Komir was managing the maintenance of the Hitachi rigid dump trucks. However, since the arrival of the latest EH3500ACIIs and EH1100-5s, the company was in the process of assessing an alternative arrangement.

"Due to the success of the MMR excavator contract with Turkuaz, we are currently considering a similar agreement for the dump trucks," says Vladimir. "This will only be required for the amount of time spent on maintenance rather than on a 24/7 basis. This is because we can be more flexible with the availability of the dump trucks."

With the difficult market conditions experienced by the mining sector in recent years, the MMR contract also allows Shubarkol Komir to make significant savings. By keeping a stock of parts on site and planning for this in advance, there are no hidden costs. In addition, when the parts are required, they can be quickly and easily accessed to save time and money.

"Hitachi excavators are the ideal mining machines, with excellent levels of productivity and reliability," highlights Vladimir. "After evaluating them against the main competitors, we have come to the conclusion that they are the best on the market for us.

"We like the design of the excavators, and more importantly, the location of the parts and components leads to easier maintenance. Using Hitachi Parts is also effective in prolonging the life of our machines."

Due to the instability of the market, Shubarkol Komir doesn't have any current long-term plans for investment, but as Vladimir points out, "The delivery time for Hitachi mining equipment is good. It is more flexible and open to the needs of the market with faster manufacturing, delivery and assembly times."





A truck for all seasons

Unveiled at the 2014 CONEXPO-CON/AGG trade show in Las Vegas, the EH1100-5 rigid dump truck features several advanced technological features to satisfy the requirements of Hitachi's quarrying and mining customers. The new truck has been designed to offer a more comfortable and safer operating environment, easier access for service and maintenance, and higher levels of productivity than previous models.

Shubarkol Komir took delivery of four EH1100-5s last year to complement its existing fleet of six EH1100-3s. Operator Kanat Kazhibekov has three years' experience of driving both models and says, "The best thing about the EH1100-5 is the overall comfort in the cab.

"The heated seat and mirrors are ideal for the extreme working conditions at this site, and there is more than enough leg room. There is good access to the cab and the monitor is user-friendly – there is more information available and it's easier to find the required functionality.

"I use the monitor most for basic details, such as the fuel and lubricant levels, and the weight of the loaded materials. The rear-view camera enhances my visibility of the site and it comes on automatically when reversing.

"The machine performs really well in all conditions. The braking system is excellent, even if the haul road is slippery or if I have to stop suddenly. When fully loaded, the auto-transmission is invaluable – it is more comfortable for me than a manual transmission and it helps me to feel less tired after a 12-hour shift."



To see a movie of the Hitachi mining equipment in Kazakhstan, please visit **www.youtube.com/ user/HitachiConstruction**. To receive a digital version of *Ground Control* with new movies, please register online at **www.igroundcontrol. com/subscribe/en**

Driving the market forward

The Hungarian construction industry is regaining momentum and Hitachi Construction Machinery (Europe) NV is helping to drive the market forward with the support of its dealer MPH Építögép Kft. *Ground Control* assesses the positive feeling emanating from three of the central European country's leading construction companies

Output in the Hungarian construction market experienced 14% year-on-year growth in 2013 and 2014 according to a report by PMR (Construction sector in Hungary 2015 – development forecasts for 2015-2020). Civil engineering and non-residential construction are identified as the sectors most likely to drive Hungarian construction in the near future.

The MPH Építögép Kft team, with István Mándity (left) and Krisztián Pölz in the orange ties

Thanks to the increasing number of tenders in the civil engineering sector – particularly for transport infrastructure and environmental protection-related construction projects – Hungarian construction output will continue to grow at a steady pace. Road construction is forecast to be the main generator of funding and orders in the years to come. The 2014-2020 EU budget is relatively favourable for Hungary and will stimulate public investment and employment in the economy.

This is a positive trend for the construction industry at large, including the country's authorised Hitachi dealer, MPH Építögép Kft. The timing of this upturn is also beneficial for the company's co-owners, István Mándity and Krisztián Pölz. They formed MPH in 2014 with the overall aim of developing the awareness and recognition of Hitachi construction machinery.

"From 1997 to 2005, the Hungarian market was strong and growing every year," explains István. "However, from 2006 onwards we suffered from the recession and a decline of 70% over the next five years. Based on the assumption that seven poor years should be followed by seven good years, there is certainly room for optimism from the results in 2013-14.

HITACHI

HITACHI

"Krisztián and I have worked together since 1997. The strength of our partnership offers customers a wealth of experience and expertise, especially as we have been in close contact with the Hitachi brand since 2006. Now we are seeking to build a long-term working relationship with HCME and develop our company's sales and support activities in accordance with the high standards set by Hitachi."

"Our approach to sales is very much focused on the added value that Hitachi products offer our customers," reveals Krisztián. "Hitachi construction machinery has a certain prestige in the industry, and the products are known for their quality, reliability and advanced Japanese technology.

"We place great emphasis on the high price/quality ratio and the favourable running costs of Zaxis excavators and ZW wheel loaders. It's also important to stress that Hitachi makes all of the original parts and components for these machines.

"We are taking a long-term view on increasing Hitachi's market share. As we are so well known in the market, we have built up excellent working relationships with construction companies and especially quarries."

The company's customer base includes some of the country's leading construction companies. *Ground Control* visited three of them to find out about their positive experiences with Hitachi construction machinery.

Reliability is the key

Based in the town of Tiszakécske, Duna Aszfalt is one of the biggest contractors in Hungary and part of a group of 15 companies. It has more than 600 employees and specialises in mainly public sector projects, including road and bridge construction, quarries, and concrete and asphalt plants.

The group's Chief Engineer, János Rozsnyai, is responsible for the transportation of its 180 machines to work on Duna Aszfalt's projects all over the country. With an average availability of 65%, the majority of the company's fleet of excavators, wheel loaders and other machines work between 1,000 and 2,000 hours per annum.

Duna Aszfalt's first Hitachi machine, a ZX140W-5, was delivered in 2015 and is one of only three wheeled excavators at his disposal. "We have a relatively small proportion of these machines," says János, "but we would like to add to this number as we need the versatility that they bring to our road construction projects.

"We have known the owners of MPH for over 30 years and we enjoy a high level of cooperation with them. Our company keeps its older machines, as we need a wide range of equipment to service our customers' requirements. However, some of these products are nearing the end of their life span and every year we invest at least €3million in renewing the fleet.

"There is a strong price/quality ratio with Hitachi excavators. The most impressive attribute of the ZX140W-5 is its reliability and this is vital due to the deadlines we have to meet. It offers us a high level of availability, safety and productivity. The machine has also lived up to our expectations with excellent fuel consumption and low running costs."

"The most impressive attribute of the ZX140W-5 is its reliability and this is vital due to the deadlines we have to meet"

János Rozsnyai, Chief Engineer, Duna Aszfalt



"We need a wheel loader that is completely reliable and available 24/7, and the Hitachi fits the bill"

Árpád Barabás, CEO, Barabás



Availability 24/7

Barabás is one of the top three concrete paving block manufacturers in Hungary with 40 different types of products sold through the building trade on a national basis. The Veszprém-based company has 70 full-time employees and 15 casual workers spread across its two production plants.

Between 2012 and 2014, Barabás doubled its turnover year on year despite a total market increase of only 20%. With a 19% market share and an order book that is 40% higher than its current production capacity, business is booming for owner and CEO Árpád Barabás.

The ZW140-5 delivered at the end of 2014 is the first Hitachi purchased by Barabás to feed materials into the smaller of its two production facilities. "We need a wheel loader that is completely reliable and available 24/7," says Árpád, "and the Hitachi fits the bill.

"It does everything that is required of it and yet is only working up to 60% of its capacity, so it will have an excellent lifetime value. I am really happy with the relationship that is in place with MPH and have complete trust in the two owners. When they tell me something, I believe them – and this is so important.

"We are planning to expand with a new production line that will help us to increase our current output by a factor of 2.5. In addition, we have some exciting ideas to create and export new technologies. To meet this level of demand, our investments will include the acquisition of at least three new wheel loaders and so we hope to further develop our relationship with MPH and Hitachi."



of this machine is the favourable price/quality ratio"

József Kólya, owner and CEO, TAM-BAU Kft

Exceptional running costs

"In the town of Tamási, we're doing well in the business of general construction," says József Kólya, the owner and CEO of TAM-BAU Kft. With a loyal team of 90 employees, TAM-BAU has retained the flexibility of a small company with the efficiency of a larger firm through its civil engineering and construction work.

It specialises in public-sector projects surrounding water, such as environmental protection, flood control, slope finishing, drainage and river maintenance. Within its fleet of 50 machines – many of which are older models – is a Hitachi ZX290LC-5 medium and a ZX170W-3 wheeled excavator.

The ZX290LC-5 is one of the contractor's biggest machines, but it is still legally and therefore easily transportable by road. "This is a versatile machine," says József, "not just for earthmoving, but also for many other jobs, such as landscaping and slope finishing.

"I really like the ZX290LC-5, as it is low on fuel consumption, easy to maintain and more efficient than the other excavators. The most beneficial aspect of this machine is the favourable price/quality ratio – and the running costs are exceptionally good. We're aiming for high standards, both technically and in terms of expertise, and we expect Hitachi to help us achieve these goals.



"Our machines are like members of the family, so they are well respected by the operators and kept in good condition. We also have an excellent working relationship with MPH, and as we bought the first Zaxis-5 excavator in Hungary, don't be surprised if we're the first to buy a -6 model too!"



To see a movie of the Hitachi machines in Hungary, please visit **www.youtube.com/user/ HitachiConstruction**. To receive a digital version of *Ground Control* with new movies, please register online at **www.igroundcontrol.com/subscribe/en** The three ZH210LC-5s on the eight-hectare sludge recycling site in Flanders

A perfect match

The Belgian-based DEME Group is a leader in environmentally friendly construction techniques and projects, such as the recycling of sludge materials. Its fleet of five Hitachi hybrid excavators, working for subsidiary DEC, are the perfect complement to its sustainable business philosophy

DEME's (Dredging, Environmental & Marine Engineering) activities originated with its core dredging business almost 170 years ago and its portfolio has broadened substantially over the decades. Today, the group's activities also encompass land reclamation, hydraulic engineering, services for the offshore oil, gas and renewable energy sectors, and environmental works.

DEME is firmly rooted in Flanders (the Dutch-speaking region in Belgium), a unique location at the crossroads of Europe that has led to great prosperity over the centuries. To facilitate economic growth in this low-lying land, a thorough understanding of hydraulic engineering and water management has been crucial, and this is still the case today.

DEC (DEME Environmental Contractors) was initiated in 1989. It has

250 employees and specialises in: soil and groundwater remediation; sediment treatment; hydraulic engineering; recycling techniques; capping and remediation of landfills; waterworks; environmental dredging; and the redevelopment of brownfield sites.

The recycling process

DEC has opened nine dedicated soil and sediment recycling centres in Belgium and abroad. One of the six sites in Flanders has been in existence on the banks of the River Scheldt at Zwijndrecht, near Antwerp, since 1994. The eight-hectare facility recycles 80,000 tonnes of sludge per year.

In October 2015, the materials were being supplied from a lake only three kilometres from the site. The sludge is dredged and

and has to be turned by three of DEC's new Hitachi hybrid excavators. It breaks up as it is neatly piled in 1.5m-high rows by the ZH210LC-5s in the base of the lagoon and the increased exposure to the elements further accelerates the drying process through oxidation.

This process is repeated up to ten times by the hybrid machines depending on the preceding weather conditions and the consistency of the sludge. Heavier materials such as sand dry quicker, because they don't flow away as far from the dumping site as the finer materials.

Dried and ready for use

Chris Van Hoof, DEC's Works Manager, who has responsibility for this and two other sites, says: "The most important aspect of the process is to reduce the volume of the sludge, and then dry and reuse the materials for DEME Group's own projects. The incoming loads come in with 30-40% dry matter and this has increased to 65-70% by the time it's taken away.

"As an example of how the volume reduces, 80,000 tonnes of incoming sludge equates to 55,000 tonnes of outgoing dried materials. However, this varies slightly according to the percentage of the clay and sand, with the latter easier to process than the former."

Samples are taken from the sludge for testing by an external laboratory. This is to ensure that there is no contamination from harmful substances, such as oil, metallic substances, PAHs (polycyclic aromatic hydrocarbons) and PCBs (polychlorinated biphenyls). Non-contaminated dried materials are loaded by the

"Hitachi offers a high standard of quality and value for money in this class"

Chris Van Hoof, Works Manager, DEC



loaded on to trucks, and then dumped into one of six lagoons at DEC's facility.

The bottom and sides of the lagoons are lined with 2mm-thick polyethylene. This forms the base for a 50-70cm layer of sand that contains a series of drainage tubes.

The trucks only dump the loads of sludge at specific points, as the bottoms of the lagoons are built on slopes. This allows the material to settle evenly across the pit and the water flows across to the drain at the other side. The excess water from the sludge and rainwater is stored in ponds before it is channelled to a treatment plant and then released into the river.

The top 30cm of sludge dries relatively quickly due to the natural effect of the wind and sun. The next 2-3m layer is black hybrid excavators on to trucks for reuse, while contaminated materials are sent to landfill sites.

The recycled materials are distributed to many different sites in Flanders. These range from the large-scale Terranova Solar project - the transformation of an old spoil heap to the largest solar farm in the Benelux countries - to constructing dikes and capping landfill sites.

DEC's Hitachi hybrid excavators, supplied by the Belgian Hitachi dealer Luyckx in September 2015, clearly play a vital role in the process at Zwijndrecht. There are normally two ZH210LC-5s excavating and loading on this site, but a third machine is drafted in when demand is high.

Favourable on fuel consumption

Before DEC decided to invest in the Hitachi hybrid models, it undertook a detailed comparison between them and three different conventional 20-tonne excavators. In doing so, it was calculated that the lifetime value – based on fuel consumption – of a ZH210LC-5 with 8-10,000 hours was significantly better than a conventional machine. This enabled a clear recommendation to be made to the board of directors.

The hybrid model is the first of a new generation of Hitachi excavators that has been designed to deliver reliable performance with fewer emissions and less fuel consumption than the conventional ZX210LC-3 (the previous machine employed on the site). More economical for DEC, easier for its operators and better for the environment, the ZH210LC-5 incorporates advanced technologies adopted from hydraulic, electric and battery-powered excavators. The result is the TRIAS HX system, which reduces fuel consumption and CO_2 emissions by up to 31 per cent.

These benefits match part of DEME Group's corporate objectives for reduced energy consumption and lower CO_2 emissions. DEME is striving for an efficiency improvement of 7% in 2022 when compared to 2011. It has already achieved the highest level of five on the CO_2 performance ladder, an instrument that helps companies to reduce emissions.

"The order for these five Hitachi hybrid excavators fits within





the measures that DEME is taking to achieve its intended improvement in efficiency," says Dirk Ponnet, DEC's General Manager for the Flanders region. "As a specialist in soil remediation, sludge treatment and groundwater purification, we will always prioritise sustainable techniques and solutions. The use of energy-efficient equipment is therefore entirely in line with our business philosophy."

DEC has been a long-term user of Hitachi construction machinery and the 20-tonne machines in particular. "Our other Zaxis excavators have always been extremely reliable and we have enjoyed a good level of service from Luyckx," explains Dirk. "Hitachi offers a high standard of quality and value for money in this class. This is an excellent size and weight – due to the ground pressure – for our needs and it is also the most popular model in our fleet.

Sustainable and cost-effective

"Our biggest challenge is to be cost-effective in a sustainable way. In the long term, we believe we can find the right balance between these two goals and that this approach will count. The new Hitachi hybrid excavators are therefore proving to be beneficial. After only one month, they are already 30% more fuel-efficient than our previous models and we are happy to be on track."

Bernard De Graef has been an operator for over 35 years, 19 of which have been spent working on this site. He has also noticed



a difference in fuel consumption. "A full tank of fuel used to last for approximately 1.5 days with the ZX210LC-3, whereas it's around three days with the new ZH210LC-5.

"I really like the hybrid machine and especially the orange colour - I'm always proud to work with something new. It's spacious, with more than enough legroom and a comfortable seat. The controls are easy to use and the rear-view camera is always visible on the monitor, which helps with one of our most important goals - safety. It also loads a truck in the same time as the previous machine."

To summarise, Chris explains how the DEC team feels about the new additions to the fleet: "We are very proud of the hybrid machines - it's new technology and we're happy to follow our company's lead to reduce emissions.

"One of DEME Group's core values is technical leadership and it's exceptional to have so many of these machines at our disposal. We want to be the first, the best and the pioneer of such cutting-edge technology."



To see a movie of the ZH210LC-5s in Belgium, please visit www.youtube.com/user/Hitachi Construction. To receive a digital version of Ground Control with new movies, please register online at www.igroundcontrol.com/subscribe/en

nvaluable assets

The view from the cab of a Hitachi machine in Norway is usually a good one – and this is especially the case for the operators employed by Vågå-based contractor Skogen. Not only do they enjoy stunning scenery, but they also benefit from the latest technology and high levels of comfort in the cabs of their Zaxis-5 excavators

A ZX135US-5 and ZX210LC-5 working on a new road for a log-cabin developme

Vågå is a 1,330km² municipality in Oppland county. It lies in a mountainous region just to the north and west of the Jotunheimen and Rondane national parks, and south of the Dovrefjell mountains. As well as being recognised as one of the country's premier

hiking and fishing regions, Vågå is also home to local construction company Skogen. Skogen was set up in 1982 by owner Ola Skogen, who initially worked on agricultural contracts. "I had one machine, which was versatile enough to complete small drainage, road construction and earthmoving projects," Ola explains. Gradually over the years, Ola has developed Skogen into a successful construction and utilities contractor. "I employed my first member of staff in 1986 and the current workforce numbers 20 employees. Our business is now firmly focused on general construction for the public and private sectors: groundworks and roads, as well as foundations, drainage and utilities for log cabins." Ola takes responsibility for managing his company's projects and job sites - and occasionally steps in to operate the excavators. He also looks for new business, including the completion of tender processes.

> "I am proud that we have such a good team in place," he says. "In my opinion, it's preferable to have a relatively small company with an established and experienced team on board.

> "We take our time to ensure that we find the best people and the latest recruits fit seamlessly into their new working environments. I regard Skogen's employees as the company. They all have specific roles to fulfill and it's therefore vital that they are all happy at work.

> "Our operators are motivated, ambitious and loyal – some of them have been with us for more than ten years. They also look after their machines extremely well, which is of course important. One of our operators – with 40 years' experience – is so happy that he rates the ZX85US-3 as the best machine he has ever worked with."

100% Hitachi medium excavators

Skogen bought its first Hitachi excavator, a ZX140W-3 wheeled excavator, in 2011 from the authorised Hitachi dealer in Norway, Nasta. The contractor's medium excavator fleet is now 100% Hitachi and includes a ZX140W-5 wheeled excavator, as well as two ZX135US-5 and two ZX210LC-5 medium excavators.

"The current Hitachi model line-up is perfect for our immediate requirements, both in terms of capacity and flexibility," Ola continues. "As the machines are made in Japan, they are reliable products and offer a high level of performance.

"They are also user-friendly and the hydraulics are really smooth. In addition, they are excellent value for money, and offer a good return on investment and high resale values."



"The two machines are working well together and they have proved to be a strong combination for this job"

Rune Morten Ryen, operator, Skogen



Skogen's strategy is to utilise relatively new machinery and so the fleet is updated after each model reaches approximately 6-7,000 working hours. "This is especially the case for the latest generation of Zaxis excavators," adds Ola, "which have comparatively low fuel consumption and overall running costs.

"Some of our competitors have older fleets of machines and their own workshop facilities. However, our priority has always been to have wash bays to keep the machines clean and looking new. This is also good for the image of the company."

Skogen's Zaxis excavators are supplied with HELP (Hitachi Extended Life Program) extended warranty and service contracts. With a duration of five years/8,000 hours, this level of cover allows the contractor to plan ahead with fixed costs and well maintained equipment. Nasta also arranges routine checks and maintenance to be performed on the machines at convenient times (such as Friday afternoons) when they are in less demand.

Nasta's main point of contact, salesman Kai Ronny Løvtjernet, has formed an excellent working relationship with Ola, who says: "Kai Olav Kjaestad, operator, Skogen





Ronny and the rest of the team at Nasta do a great job, especially as they go out of their way to help us when the need arises. It's about the whole package, with many things contributing to the success of our Hitachi machinery."

Ground Control joined Skogen's operators on two of its significant projects in August 2015: the 36km E6 road construction project (through its role as a sub-contractor); and a forestry project that will culminate in the construction of new log cabins.

First-class for road construction

Skogen has been engaged on the E6 by one of the project's two main contractors, Aurstad. It has responsibility for the 12km section between Vinstra and Sjoa (excluding the concrete structures and asphalt). The total project is worth 1.6 billion Norwegian krone and it was the biggest contract in the country when it started in early 2014 (it is scheduled to finish in October 2016).

Delivered in April 2015, Skogen's new ZX140W-5 was purchased specially for this contract and had only been used on the E6 site. The

wheeled excavator's operator Olav Kjaestad has worked with the previous model – also owned by the company – the ZX140W-3.

The machine's versatility is apparent by the range of jobs that it covers under Olav's supervision. "The ZX140W-5 does everything well," he says, "from drainage work to levelling the ground, and from digging trenches to backfilling gravel.

"I have five attachments at my disposal for this project: three buckets, a fork and a grapple. It's a first-class machine, with a comfortable cab. I like the ergonomic control panel, the all-round visibility and the amount of legroom. There are also many different functions that I use on the monitor.

"However, the highlight of this new ZX140W-5 is the hydraulic system. It means that the machine is really responsive, and allows me to operate in a smooth and precise way."

Versatile team players

In July 2015, Skogen had deployed two medium excavators to the Sjodalen valley, where the Sjoa river runs rapidly through the mountainous pine forests. The ZX135US-5 and ZX210LC-5 were working in unison on a new road that is being built to service the first half of a log-cabin development.

The 92 new 120m² lodges are being built to order and the project is scheduled to be completed within 12 months. Rune Morten Ryen has been working as an operator with Skogen for 15 years and – in Ola's words – "he does everything at this site". Before he started working with the brand new ZX210LC-5 two weeks previously, Rune had spent a year working with a ZX135US-5.

"The ZX135US-5 is so versatile," he says, "that you can use it wherever you want – in gardens, between buildings and even on this project. The cab is spacious and well equipped for our needs. It's easy to turn and manoeuvre, plus the short-tail swing is hugely beneficial in confined spaces.

"The ZX210LC-5 is very stable, powerful and obviously offers more capacity. This is the machine's first job and it's been useful to test it with different attachments, such as the hammer, which is only required occasionally to break up rock. The monitor is also useful for checking information and the rear-view camera is ideal.

"The two machines are working well together and they have proved to be a strong combination for this job. They can operate in restricted areas and there is enough power when we need it. We are also able to take care not to damage our immediate working environment."

While the scenery in the region is stunning, the challenge for the local construction industry is to overcome the harsh weather conditions. It is common for temperatures to dip as low as -30° C in Vågå, and the average temperature is usually between -20° C and -25° C in winter.

"The main issue for Norwegian construction companies is that 75% of our turnover is achieved in the second half of the year," concludes Ola. "Our smaller projects grind to a halt in winter, but we can replace some of these with snow removal work. The advantage of the larger jobs, such as the E6, is that the contractors can overcome the arctic conditions and we can continue to work reliably with our fleet of Hitachi excavators."



To see a movie of the Skogen's fleet in Norway, please visit **www.youtube.com/user/ HitachiConstruction**. To receive a digital version of *Ground Control* with new movies, please register online at **www.igroundcontrol.com/ subscribe/en**

The art of mining

The authorised Hitachi dealer in Kazakhstan, Turkuaz Machinery, has supplied a large fleet of Hitachi mining equipment to the SSGPO iron ore mine in the north of the country. *Ground Control* charts the success of this operation and the expansion of the EX excavator and EH rigid dump truck line-up

The Republic of Kazakhstan is the world's ninth largest country, covering an area of 2.7million square kilometres, and borders Russia to the north and China to the east. The vast, landlocked nation is rich in natural resources and a leading global supplier of iron, uranium, copper, coal, cobalt, lead and zinc.

However, these reserves have yet to be fully explored and Kazakhstan is in the process of improving its infrastructure to extract and transport these products. The country produced 52.6million tonnes of iron ore in 2012 and has extensive reserves of approximately 2.5billion tonnes.

ERG (Eurasian Resources Group Sarl) is a huge stakeholder within the Kazakh mining industry (see also page 20). Its SSGPO (Sokolov-Sarbai Mining Production Association) subsidiary is a leader within the CIS for the extraction and processing of iron ore, with reserves of 1.5billion tonnes.

80% of Kazakhstan's iron ore

Based in Rudniy, the company is also the biggest iron ore producer in Kazakhstan, accounting for about 80% of the country's output and employing more than 19,000 people. Among its mining facilities is the Kachar open pit near Rudniy in the north of Kazakhstan, from where the group's heat and energy plant supplies its mining operations with reliable, low-cost power.

Around 3,000 of SSGPO's employees are based at the Kachar site. The pit extends 3,200m from north to south and 2,800m from west to east, with a current depth of 430m. With 1.3billion tonnes of reserves, there is enough mining work estimated for at least another 60 years.

"Five years ago, we were producing up to 17million tonnes of ore per annum," explains Vladimir Podgaetsky, SSGPO's Deputy Director of Production. "We are currently producing 14million tonnes due to decreasing market demand, but we plan to launch a new conveyor system that will reach 23million tonnes per year."

The excavation work at the mine ore rock area is carried out by two EX5500E-6 and five EX3600E-6 ultra-large Hitachi excavators. The former were delivered in 2008 and 2013 respectively, and now have over 45,000 and 18,000 working hours, and the latter were delivered from 2009 to 2014 and now with between 45,000 and 5,000 working hours.

The operator of each machine assesses the quality of the materials and then signals to the Hitachi EH3500ACII dump truck driver to indicate if he's loading overburden or iron ore. The type of load will determine which of the pit's stock areas will be used to dump the materials.



Once the ore has been loaded on to the train, it is then transported to the factory in Rudniy for the production of the final products. The ore contains 33% metal, but after processing in the factory, the resultant 0/75mm material's metallic content goes up to 66%. This is then dispatched to customers in the steel industry, with one plant in Kazakhstan and other customers across the border in China and Russia.

SSGPO also makes pellets from the final stage of the process, which removes the other metals at high temperature. These materials contain 63% metal and are also sent to customers' steel production facilities.

High level of productivity

Vladimir has been working at Kachar since 1993, and when looking out across the vast open pit describes the impressive site as "the art of mining". He is currently responsible for all aspects of the production process and the technical condition of the mining equipment, as well as human resources, and general health and safety issues.

He has been heavily involved in the purchase, delivery, assembly and installation of the Hitachi fleet since the arrival of the first machine, an EX5500-6, in 2008. "At that time, I was the

chief engineer and we prepared the technical specification of the machinery that was required, so that management could make the final purchase decision.

"Our main request was for a high level of production and the lead time for the delivery of the EX5500-6 was relatively short. We also visited other Hitachi customers in the Ukraine and Turkey to see similar machines. To consider buying a new type of [hydraulic] excavator was a key decision in our history and the positive feedback that we had from other mines was important."

The EX5500-6 made a huge impression on the SSGPO team. The mine had previously worked with rope shovels at an output of 100,000m³ per month. The new excavator was capable of delivering the same volume in one week!

"This was an excellent choice of machine and led to the purchase of the first EX3600-6," continues Vladimir. "We did look at other manufacturers, but opted to stay with the same brand. While both machines are very reliable, the smaller footprint of the EX3600-6 is better suited to the size of the benches at this mine. As a result, we use the EX5500-6s at the upper levels of the pit and the EX3600-6s further down."

SSGPO then gained an understanding of what was required to complete the fleet: the Hitachi EH3500ACII rigid dump truck. "When

the Hitachi excavators were fully operational, we realised that we could increase productivity with larger trucks. It was necessary to transport the overburden faster and the new machines had the desired effect of accelerating this process.

"We selected the Hitachi truck, because of how well it matched the same brand of excavator in terms of capacity. In addition, it made sense to have one after-sales support team from Turkuaz Machinery to cover both products. We also chose the best operators from the older dump trucks to ensure that the initial order of five machines worked well."

The operators' choice

Now that the fleet has grown to 21 EH3500ACII trucks (delivered in phases from 2010 to 2014 and now with between 6,500 and 32,500 working hours) to accompany the seven excavators, SSGPO has noticed another trend. "Word has spread quickly after the decision to run with Hitachi machines – so much so that we now have an abundance of potential new recruits," says Vladimir. "This allows us to be more selective and we also work closely with Turkuaz Machinery on an in-depth training programme for the operators."

Two of the most experienced operators, Victor Trotsenko and Ivan Veselkovsky, were working in tandem on the day of *Ground*





Control's visit. Victor's EX3600-6 was loading lvan's EH3500ACII, before the latter embarked on his 4.5km haul to the dump site at the mine's stock area.

"I have worked with Hitachi excavators over the past seven years and they are very good machines," says Victor. "The EX3600-6 is comfortable and easy to operate, thanks to the ergonomic levers and excellent visibility. With four cameras, it is easy for me to watch the monitor and ensure that there are no obstacles when turning the machine.

"It's also highly productive and I can carry out my regular operations quickly, for example by turning and moving the boom at the same time. After blasting, the materials are not difficult to excavate and I can easily lift five buckets to load each truck in around three minutes with the 21m³ loading shovel."

Ivan has been driving the Hitachi dump trucks for 18 months and says, "It's an excellent machine from an operator's point of view: the cameras allow me to see clearly all around; and the braking system is reliable and helps the truck to feel stable. Both of these features help me to feel safe as a result.

"The traction is strong and ideal for powering uphill, even in the

most severe conditions. It also accelerates quickly, which helps me to complete today's 9km loading, hauling and dumping cycle in under 30 minutes. The temperature in the cab is easy to control, and the combination of the seat, visibility, controls and accessibility make this a comfortable working environment."

Excellent support

The decision to opt for Hitachi mining equipment has been of huge benefit to the mine's management team as well. "We cannot go anywhere without Hitachi," adds Vladimir, "and even go to sleep and dream of these machines! In addition, we are also very satisfied with the high level of after-sales support.

"In one word, the relationship with Turkuaz Machinery is excellent and they are a big help to us. We understand each other well and can always find a compromise when required.

"Sometimes, we also have visitors from the Hitachi factory in Japan. It's good to have a two-way discussion. They can obtain some useful information to update and improve the machines, while we receive recommendations to help us improve the process."

Turkuaz Machinery's Chief Supervisor is Dmitriy Zavarukhin, a



former SSGPO employee, who joined the Hitachi dealer in 2013 as a mechanic. He heads an on-site team of 28 personnel, including supervisors for both excavators and dump trucks, mechanical and electrical engineers, a parts manager and an administrator.

"We supply the customer with a 24/7 technical support contract," explains Dmitriy. "We check the excavators daily, and assess the dump trucks on Friday afternoons when there is a blast on the site and the trucks return to the workshop. There is also a technical schedule to adhere to every 250 hours and we prepare a report for the customer on a weekly basis.

"It's essential to isolate and prevent any technical issues. We also ensure that we have the customer's approval for the timing of the maintenance work, so that it won't affect productivity.

"While the products are already designed for the toughest conditions, we also ensure that they are prepared for the extreme variance in temperatures – from +40°C to -46°C – and keep them in an excellent working condition. This also involves our annual recommendations and agreement on the parts to be supplied for technical maintenance."

The importance of the Hitachi dealer's team to SSGPO is

highlighted by the Mine Director, Andrey Alexandrovich Safonov, who says, "The relationship between Turkuaz Machinery and the mine is extremely important, as they are essential to the effective running of our operation. We have been working with Hitachi machines for a long time, and have found them to be very reliable and of the highest quality.

"My biggest challenge is to increase the efficiency of the mine, by ensuring a safe working environment and decreasing costs. The Hitachi equipment certainly helps with this due to the fleet's effectiveness and productivity. They are an ideal combination – faster and more productive than any other machines that we have on this site."



To see a movie of the Hitachi mining equipment in Kazakhstan, please visit www.youtube.com/user/ HitachiConstruction. To receive a digital version of *Ground Control* with new movies, please register online at www.igroundcontrol.com/ subscribe/en

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