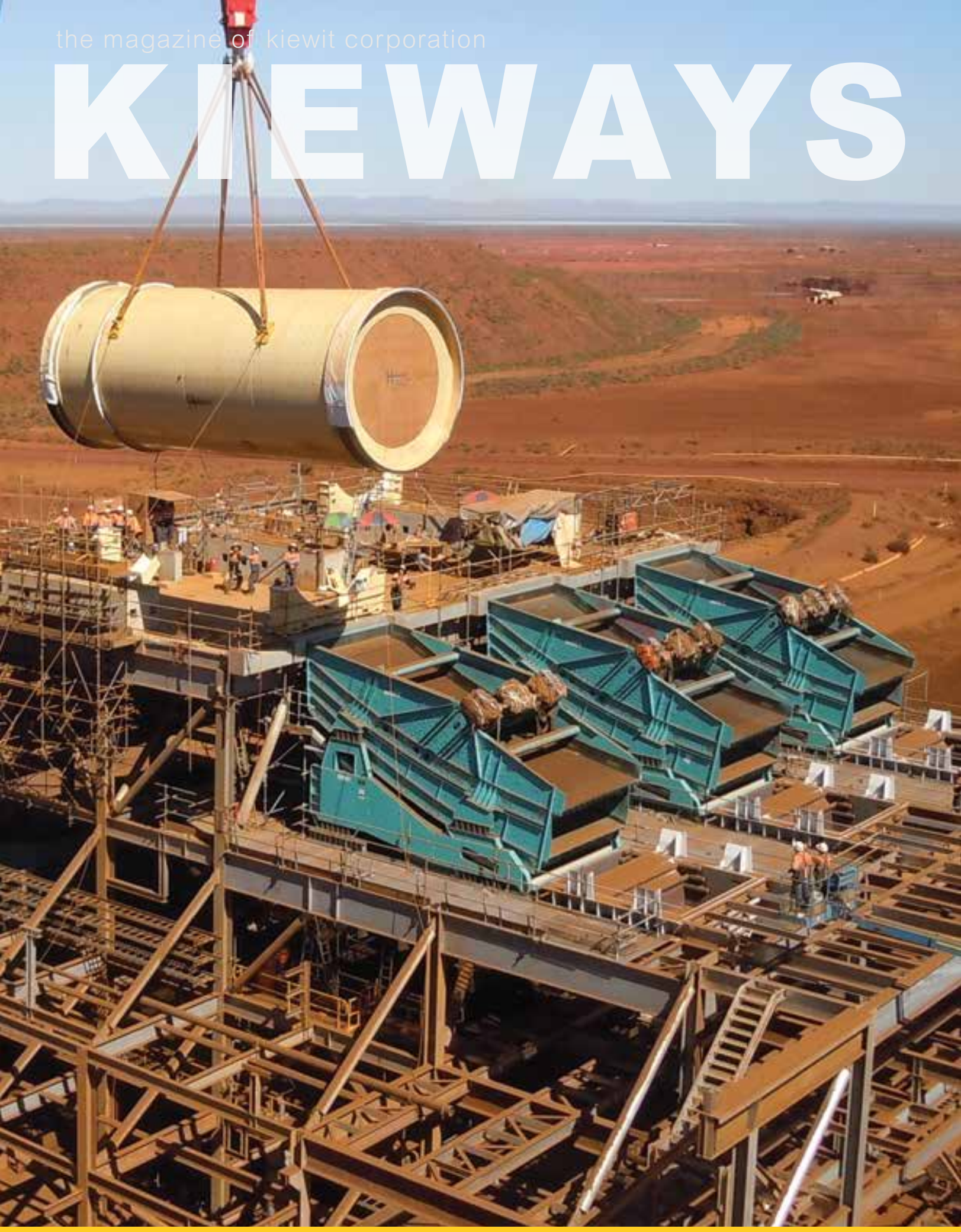
the magazine of kiewit corporation

KIEWAYS



2013 / Quarter 1

Kiewit

Kiewit is one of North America's largest and most respected construction and engineering organizations. With its roots dating back to 1884, the employee-owned company operates through a network of offices and projects in the United States, Canada and Australia. Kiewit offers construction and engineering services in a variety of markets including transportation, water/wastewater, power, oil, gas and chemical, building and mining. Kiewit had 2012 revenues of more than $11 billion and employs more than 30,000 staff and craft employees.

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KIEWAYS
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Winner Construction Marketing STAR

FSC

NICKEL PALACE
The massive Long Harbour nickel processing plant includes 10 separate buildings, each for a specific part of the process. Learn more about that process beginning on Page 24.

VALUING OUR CRAFT WORKERS

Recently our company held its annual stockholder meeting in Omaha. This is always a great opportunity to bring a large portion of our employee-owners together to reflect on the past year, learn from it and focus on the year ahead. Many of our key speakers this year spoke about the importance of valuing our craft workers and the expertise they bring to our work. I couldn't agree more.

Our safety and productivity depend on the engagement of our craft workers. They are on the front line. They bring years of experience to each project. They know the work and understand what needs to be done each day to build the project safely and productively. That's why we strive to engage our craftsmen, giving them a larger role in building and planning our work, cultivating the best of them to take on greater responsibility. It's the Kiewit way.

Wherever we build work, we rely on the talent and expertise of our craft personnel. And, as you'll see in this issue of Kieways, we build a variety of projects in diverse locations: a wet front end and ore wash plant in northwest Australia; a giant nickel processing plant in Newfoundland, Canada; and a transit improvement project at the historic Denver Union Station. This issue also features an article about our nuclear services capabilities in North America. No matter what we build or where we build it, our commitment to employee engagement at all levels means a safe and quality project for our clients.

BRUCE GREWCOCK
Chairman and CEO

MILE-HIGH MAKEOVER
An iconic Denver landmark gets a $360 million facelift. Story on Page 16.

IN THIS ISSUE

ON THE COVER

Kiewit ventures into the Pilbara Region for its first project in Australia — a new wet front end and ore washing plant at Fortescue Metals Group's Cloudbreak mine. Story on Page 4.

BREAKING NEW GROUND

Peter Kiewit was always looking for new opportunities, but he was cautious when choosing which of those opportunities to pursue. It's a philosophy that still resonates today. In this case, that means crews have headed to the land down under to complete the company's first project in Australia.

The Kiewit-led joint venture is a $247 million engineer-procure-construct contract for a wet front end and ore wash plant at the Cloudbreak Mine in northwest Australia. Cloudbreak is owned by Fortescue Metals Group, and the official handover took place in March. Fortescue is one of the largest iron ore mining companies in the area.

"We've been so fortunate to be able to work with Fortescue on our first project in Australia," said Jack Cotton, Kiewit Australia operations director. "They're such a respected company in the area. I think the adaptability of our people has made this a perfect match."

Ore mined from Cloudbreak's open pits is crushed and screened on site before being transported by rail to a port where it is shipped to various markets. Mining commenced at Cloudbreak in 2007.

The upgrade to the existing dry processing plant will allow Fortescue to process wet ore from below the water table and maintain annual production levels of around 40 million tonnes. The existing mine has remained fully operational during the project.

A NEW AREA

The Cloudbreak mine is located in the Pilbara region of northwest Australia, a large, remote, dry region known for its red earth and rich mineral deposits. Working in a new area can present its own unique challenges.

While the views its landscape provides can be pleasing to the eye, the area is hot, dry and dusty, with temperatures sometimes climbing as high as 49 degrees Celsius (120 degrees Fahrenheit). In fact, the nearby town of Marble Bar holds the record — complete with documentation in the Guinness Book of World Records — for most consecutive days above 38 degrees Celsius (100 degrees Fahrenheit), reaching 38 degrees for 160 consecutive days in the 1920s. Other weather-related obstacles in the area include cyclones and rain that falls in heavy, short downpours during the region's "wet season," November through April.

These challenges mean crews sometimes have to get creative.

"The roads here are very susceptible to being washed out during the cyclone season," said Mike Casey, area manager. "When the roads are closed, transport is impacted. With so many projects underway in the booming mining environment, logistics can become challenging.

"So it becomes a matter of scheduling. We've made sure to have open lines of communication with everyone — from the client to our trades — so that we can remain ahead of the game, and if something comes up, we can make an adjustment. By scheduling ahead and staying on top of the situations, we're able to keep on track."

Big pieces of equipment were fabricated and assembled in different parts of Australia and overseas, which makes communication and scheduling all the more important. The thickener, for example, was fabricated and assembled

Scope of work

There are two components to Kiewit's scope on this project — the scrubbing facility and the desands/tails facility. The scrubbing facility is where clay is liberated from the iron ore. The desands facility processes iron ore to separate it from waste products. The scope of work on each facility included the following:

Scrubbing facility

- Transfer chute
- Three coarse ore storage bins
- Six conveyors
- An overhead crane
- Scrubber mills, double-deck wet scalping screens, switchrooms and more

Desands facility

- Interconnecting pipework to scrubbing facility
- Enhancements to the three existing modules
- A new fourth module
- New tailings thickener, process water tank and pump stations
- Three new switchrooms

in Tasmania, dismantled, shipped to Perth (southwest Australia) and transported to the mine to be built on site.

Another strength has been the people. Crews live in a camp near the site for three- and four-week installments.

“It’s not easy to put together a team of people in a remote environment like this,” said Cotton. “But everyone focuses on the goal, and it’s been a great experience for everyone involved.”

DELIVERY

Following a six-month design, constructability and budgeting phase, equipment and crews were mobilized to Cloudbreak in September 2011. The team’s first job was to prepare the site for construction commencement. This included the relocation of high voltage electrical lines that crossed their work path.

Before the 5,000 cubic meters (more than 176,000 cubic feet) of structural concrete and nearly 2,500 metric tonnes of steel could be installed, more than 5,500 cubic meters (more than 194,000 cubic feet) of dirt had to be excavated from the site.

“It has been a great first project for us here in Australia,” said Casey. “We were able to pour the concrete in less than six months, which was a major achievement for us. From the beginning, we’ve looked at the challenges of this project as opportunities.”

When the wet iron ore makes its way up the conveyors, new drum scrubbers remove the clay. The product is then sent through a series of processes to remove the iron ore from any lingering waste products using water and gravity. Kiewit’s scope included the thickener and water tank, 38 pumps, three belt feeders for the feed bins and a shuttle conveyor.

Cotton said the experience was a positive one.

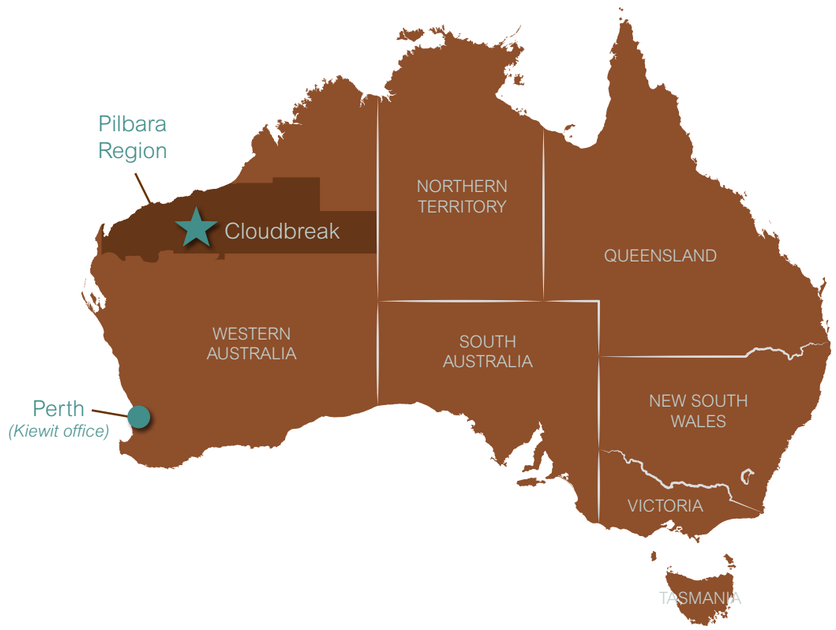
“Fortescue gave us our start in Australia and we’ll always appreciate that,” he said. “Fortescue will be able to sustain its annual production and, at the same time, they helped us increase our capabilities, knowledge and understanding of work in Australia.

“In just more than two years, we have trained people in construction means and methods, developed an exceptional workforce and, most importantly, learned valuable lessons about the logistics of working in Australia’s remote areas.”

Kiewit’s work down under

Cloudbreak is Kiewit’s first project in the Australian market and helped demonstrate an ability to execute work under very challenging project conditions in Australia’s Pilbara Region.

- Almost every day in the summer, temperatures exceed 32 degrees Celsius (90 degrees Fahrenheit)
- Red dirt gives it a Mars-like look and provides for stunning landscapes
- The Pilbara town of Marble Bar holds the world record for most consecutive days with temperatures over 38 degrees Celsius (100 degrees Fahrenheit) — 160 days



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>
> **JACK COTTON,** KIEWIT AUSTRALIA OPERATIONS DIRECTOR

SERVING NORTH AMERICA'S GROWING NUCLEAR INDUSTRY:

KIEWIT POWER NUCLEAR

With 103 nuclear reactors, the United States is the world's largest producer of nuclear power, accounting for more than 30 percent of worldwide nuclear electricity generation. In 2011, 19 percent of the nation's electricity generation came from nuclear power, which makes up more than 70 percent of the country's clean energy.

Nuclear energy produces zero emissions and, unlike its green energy counterparts such as wind, hydro and solar energy, it has the capacity to produce energy on a much larger scale without the help of a back-up energy source. Just one pellet of uranium — about the size of a pencil's eraser — can produce the same amount of energy as 17,000 cubic feet of natural gas, one ton of coal or 126 gallons of oil.

The U.S. reactors reside in 31 states and are operated by only 30 different power companies. Canada, meanwhile, has only 19 reactors in three provinces, but about 15 percent of its electricity comes from nuclear power. Kiewit competes in this marketplace through Kiewit Power Nuclear, a group tailor-made for the nuclear industry.

BUILT FOR NUCLEAR

KPN's advantage revolves around the services it provides — maintenance, engineering, modifications, construction and decontamination/demolition — and its ability to pool resources from across Kiewit to respond rapidly to clients' needs in online and outage conditions. It uses a self-perform team, a proactive approach to nuclear and industrial safety and, because nuclear is a heavily regulated, document-controlled environment, it provides field engineers who manage work and ensure compliance.

"It's rare to find a contractor that specializes in all areas of nuclear services while providing strong estimating, project controls and field engineering support," said Bob Rausch, president, KPN. "But clients can get that experience from Kiewit."

Clients can also expect that the team sent to deliver their project is a highly knowledgeable, talented team. Kiewit spends four times more than the industry average on training each year. This includes using tools and training such as the systematic approach to training process; Kiewit's Nuclear University; the National Academy for Nuclear Training e-Learning; and on-the-job training and evaluation. KPN team members take in about 240 hours of training per year — the typical amount of annual training for Kiewit's field personnel.

Talent is not the only advantage that makes KPN stand out. The group brings extensive experience in engineering and construction, including a successful track record for pressurized and boiling water reactors. KPN hand-picks its team of senior reactor operators, quality assurance managers, construction managers, engineers and more to form the perfect team for each project.

HANDS-ON APPROACH TO MAINTENANCE & MODIFICATION SERVICES

When KPN has a service contract with a client, such as a maintenance and modification contract, its field engineers take on a heavier, hands-on role. Having field engineers onsite to handle documentation and support the client's engineering needs is one of KPN's keys to success.

At Omaha Public Power District's Fort Calhoun nuclear plant in Nebraska, Kiewit recently won a three-year maintenance and modification contract. Kiewit provides labor and performs maintenance and modification work each time OPPD issues a release for maintenance. Within the first three months, the team received more than 50 maintenance releases covering a variety of disciplines.

EFFICIENT OUTAGE CONSTRUCTORS

Often the best time to perform work — from water intake modifications and substations to new cooling towers — is when the plants go offline.

"Every 18 to 24 months, nuclear plants shut down for refueling outages," said Rausch. "These outages last around 30 days and are often used to perform maintenance and construction work. Because a nuclear plant's downtime can result in less available energy on the grid, we know the importance of efficiency during an outage."

At Cooper Nuclear Station, part of KPN's responsibilities included removing and replacing the safety-related strainers, piping and supports on the plant's essential service water system. KPN also replaced the service water outfall. This involved the technical, challenging installation and dewatering of a cofferdam in an earthen and rip-rap canal connected to the Missouri River.

The scope was nothing new to the team. Kiewit has a history of installing concrete, metallic and high-density polyethylene-based underground utility systems and components. Its extensive portfolio of oil platform construction — with heavy rebar reinforcement and tendons

1. Pipefitters prepare to attach the base plate to the main steam line — part of the project's cooling circulating water (CCW) scope inside the plant's containment structure, nicknamed the can. 2. Inside this 4,160-volt switchgear room, large breakers feed power to equipment throughout the plant.

— involves a lot of the same elements that make up new nuclear station construction.

ENGINEERING AND FEASIBILITY STUDIES

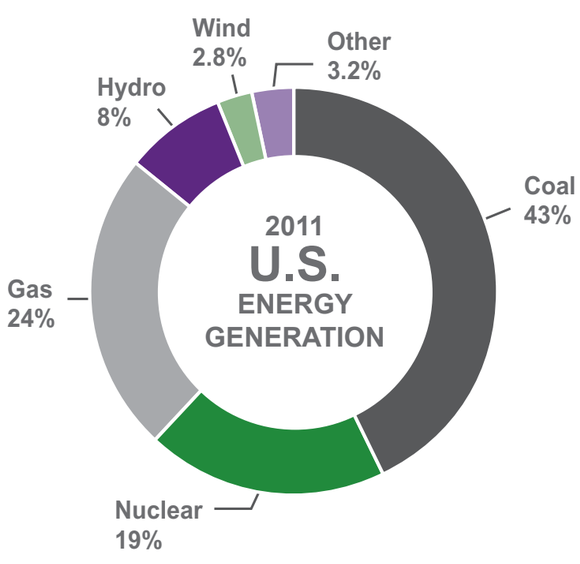
KPN also performs comprehensive engineering studies on how to repair and replace safety-related equipment within congested areas above and below ground. These studies often involve developing underground 3-D CAD models of structures, utilities and other piping. The team also has experience in feasibility studies. These can include studies on the development of an excavation design, from temporary supports and protection for exposed pipe and utilities to design of temporary missile shields and harsh weather protection devices for when equipment operability is required.

When a client wanted to uncover and perform non-destructive inspections on several different safety-related buried pipe segments, it hired KPN. The team analyzed alternate excavation locations and recommended the optimal locations. It also created a detailed excavation risk matrix, developed excavation design details and execution schedules and provided a detailed total cost estimate.

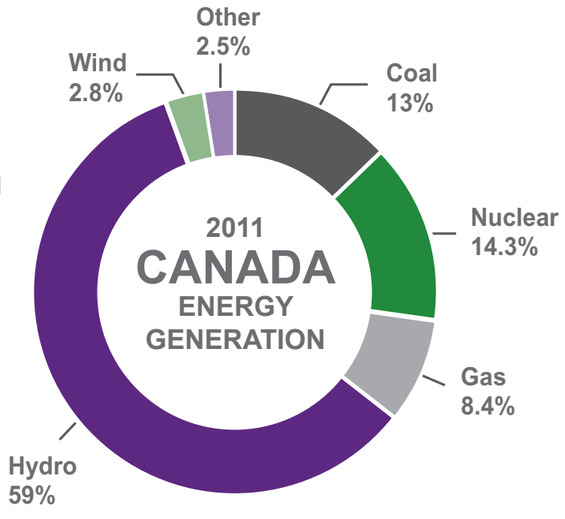
An innovative example of Kiewit's engineering capabilities is its usage of 3-D laser scanning to support the installation of radiological shielding within a nuclear facility. The information is used by clients to analyze alternative concepts for installing additional shielding while minimizing schedule and cost impacts. The state-of-the-art laser scanning equipment and software is owned and operated by Kiewit.

A proven power

Nuclear plays a major role in North America's renewable energy market. It is the greenest, most reliable form of alternative energy, producing zero emissions with the capability to generate power on a massive scale without the help of a back-up energy source. In the United States alone, nuclear makes up more than 70 percent of the nation's clean energy.



The United States has **103 nuclear reactors** located in **31 states** — the most reactors of any country in the world.



Canada has **19 nuclear reactors** in three provinces, accounting for nearly **15 percent** of its electricity. Canada's annual electricity use is about **14,000 kilowatt-hours per person**, one of the highest levels in the world.

Source: World Nuclear Association

DECONTAMINATION AND DEMOLITION

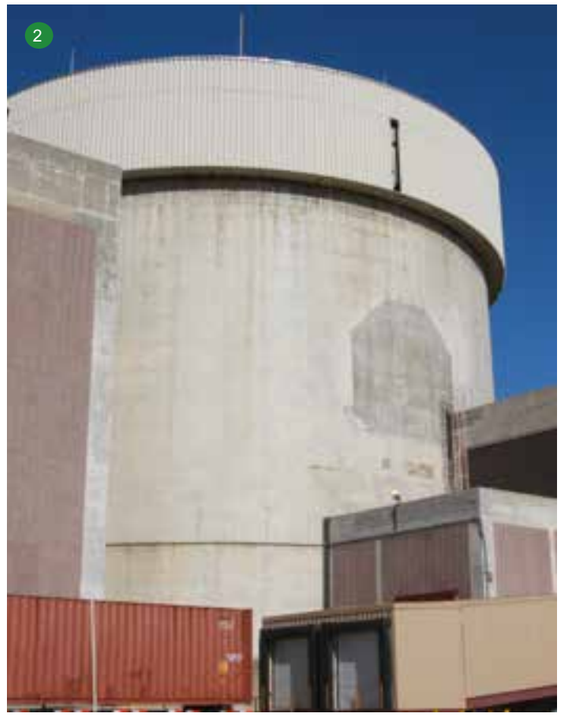
KPN's nuclear portfolio goes even deeper. It also includes significant experience in deep excavations, water control, scabbling of contaminated concrete and demolition of concrete/steel structures, all of which are required for safe and efficient decontamination and demolition-related work.

KPN's engineering team, with its ability to draw from Kiewit's construction personnel and equipment resources, ensures the approach chosen for decontamination and demolition work is executed in the most cost-effective manner.

BRIGHT FUTURE FOR NORTH AMERICAN NUCLEAR INDUSTRY

Following a 30-year period in which few new reactors were built, the World Nuclear Association reports that 4-6 new units may come online by 2020, the first of those resulting from 16 applications made since 2007 to build 24 new reactors. Tennessee Valley Authority's Watts Bar Unit 2 is expected to go online this year. The association also reports that Canada plans to expand its nuclear capacity within the next decade by building two new reactors.

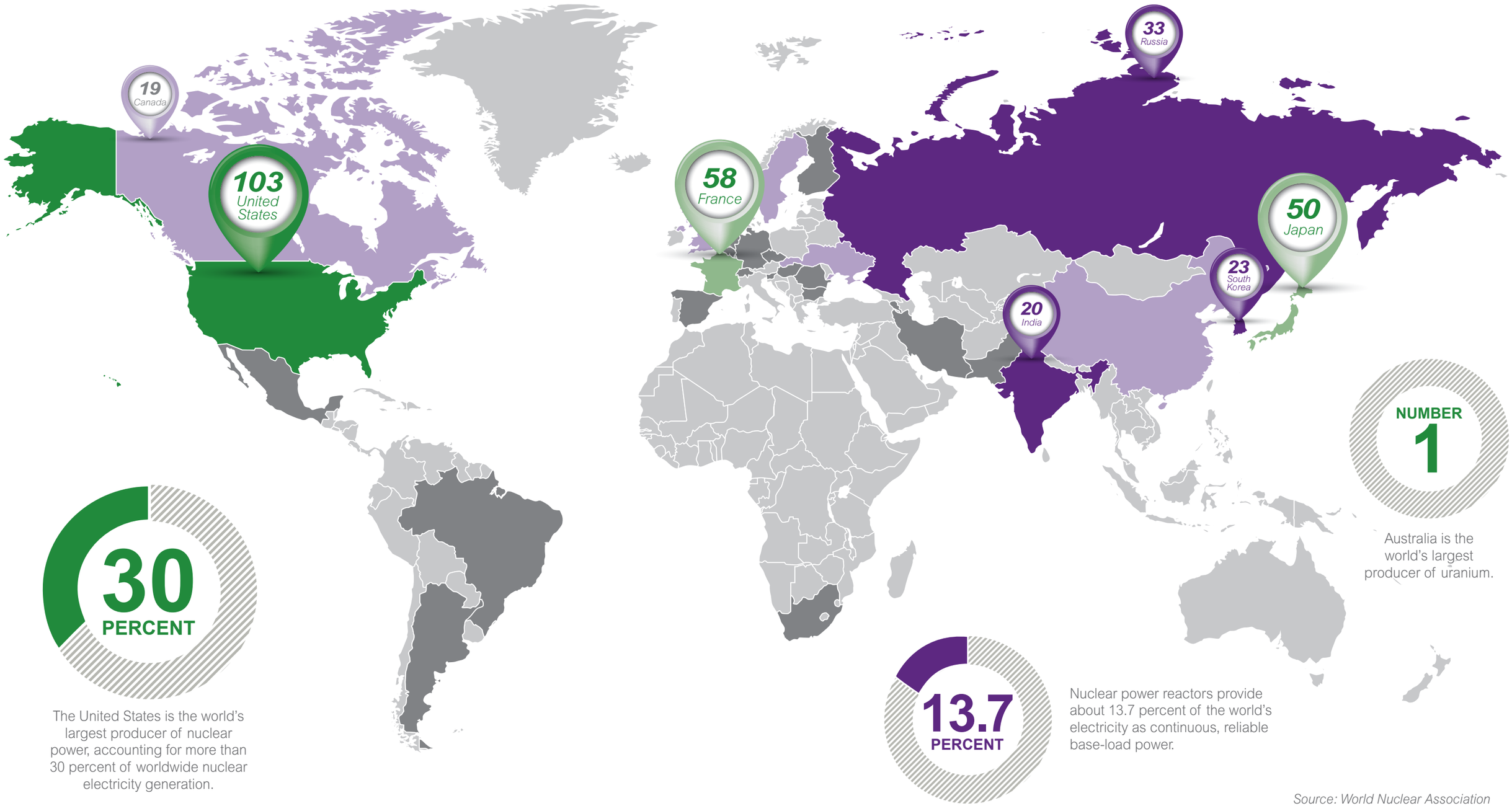
"We see where the market is headed," said Rausch. "Nuclear is a clear option for power generation that continues to gain public support. It's a green energy, and the public is beginning to understand the safe approach that we've taken in the United States and the improvements that have been made to stations. I'm pleased with the work we've done in this space, and excited about the opportunities we're prepared to handle in the coming years."



1. Electrician Ray Huckeby removes the cover of an electrical enclosure that protects the tube penetrations containing electrical wires, also known as a doghouse. The wires travel from the auxiliary building to the containment structure where the reactor is housed and atoms are split. 2. Inside of the plant's nuclear reactor — located within the containment building shown here — uranium is used to produce electricity. Just one pellet of uranium — about the size of a pencil's eraser — can produce the same amount of energy as 17,000 cubic feet of natural gas, one ton of coal or 126 gallons of oil.

A global energy source

There are currently more than 430 nuclear power reactors operating in 31 countries.



30 PERCENT

The United States is the world's largest producer of nuclear power, accounting for more than 30 percent of worldwide nuclear electricity generation.

NUMBER 1

Australia is the world's largest producer of uranium.

13.7 PERCENT

Nuclear power reactors provide about 13.7 percent of the world's electricity as continuous, reliable base-load power.

Source: World Nuclear Association

MILE-HIGH MAKEOVER

DENVER UNION STATION

In 1865, citizens of the small town of Denver were dismayed to learn that the new transcontinental railroad would bypass them and instead go through Cheyenne, Wyo. Reacting to the news, the Denver Board of Trade committed early funding toward a connecting rail line.

Four years later, construction of Denver's link to Cheyenne put the Mile High City and its iconic Union Station on the map. While the original station burned down, it was replaced in 1894 by the current downtown landmark.

Now, almost 150 years later, this historic building and its surrounding transportation elements are receiving a $360 million facelift — a transit rebuild as part of Denver's $7.8 billion multi-year transit expansion program, FasTracks.

"The Denver Union Station Transit Improvement project will be the crown jewel of FasTracks," said Darron Rolle, Kiewit Building Group sponsor. "It will connect all transit programs into one central hub."

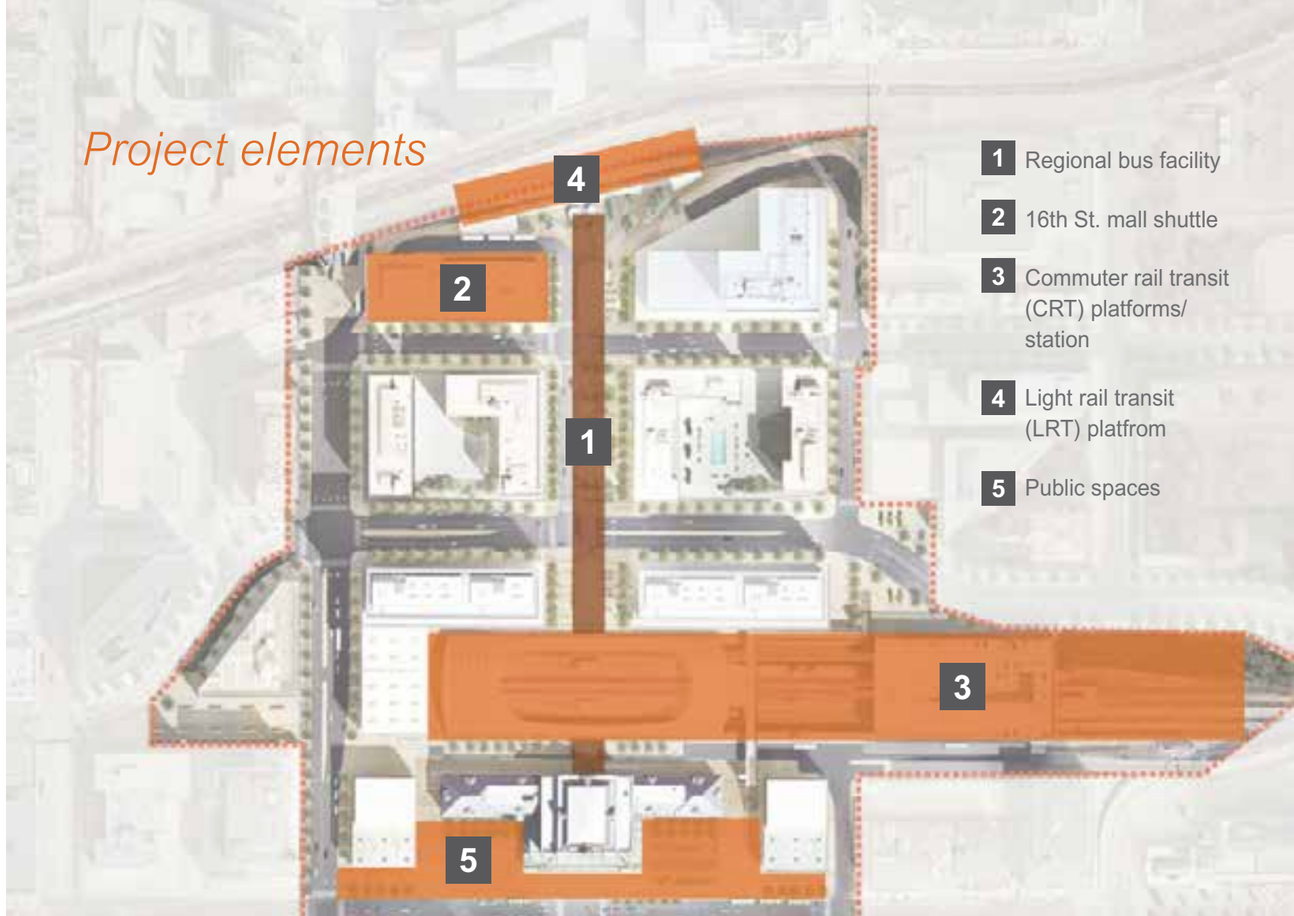
COUNTING CLIENTS

The Denver Union Station Project Authority (DUSPA) awarded Kiewit the Denver Union Station (DUS) contract in April 2009. Approximately one year later, a Kiewit-led design-build team began self-performing all earthwork, dewatering, structural concrete/precast and track work elements on the job.

DUSPA was created by the Denver City Council in 2008 to serve as the financing and contracting entity for the construction elements. The Authority's board of directors includes members from the Regional Transportation District, the City and County of Denver, the Colorado Department of Transportation, the Denver Regional Council of Governments and the Union Station Neighborhood Company.

"It is a unique contract because it's as if we have five clients," said Tim Mackin, project sponsor. "Everyone has an interest in a different element of the project. All of us working as one team is what has made this contract a success."

1. Upon completion, Denver Union Station will be a major multi-modal transportation hub, increasing the mobility of everyone who uses mass transit in the city. It will be the largest LEED-certified transportation project in North America. 2. Public spaces, or "people spaces," will provide links between transit elements.



PROJECT ELEMENTS

"This project is unique because it's multi-disciplined," said Taylor Nelson, project engineer. DUS incorporates heavy civil, structural concrete, structural steel, high-end building finishes, paving, track and utilities.

As part of the DUS scope, Kiewit is responsible for six important elements:

- Regional bus facility: Construction of a new underground regional bus facility with 22 bays.
- 16th Street mall shuttle: Extension of the free shuttle to a location adjacent to the new light rail platforms, providing easy connections between transit elements (completed August 2011).
- Commuter rail transit (CRT) platforms/station: Construction of CRT train hall with eight at-grade tracks and five platforms.
- Light rail transit (LRT) platform: Relocation of LRT tracks and platforms to accommodate west, southeast and southwest light rail service (completed August 2011).
- Public spaces: Construction of new public spaces within the site designed to be "people spaces," which provide links between transit elements and enhance traffic and pedestrian flow.
- AMTRAK: Temporary relocation of AMTRAK to make room for the construction of the bus facility and new commuter train hall.

"It's a major multi-modal transportation project," said Mackin. "It will not only increase the mobility of people who use mass transit, but it will also spur economic development through the creation of jobs and retail, residential and commercial developments. It's really going to invigorate the LoDo (Lower Downtown) district of Denver."

HISTORIC IMPLICATIONS

Construction of each transit element presented its own concerns, compounded by the extremely close proximity of the existing station building.

“Digging more than 20 feet down, only five feet away from a hundred-year-old historic landmark, has its challenges,” said Nelson.

To excavate and make room for the underground bus facility, a 40-ton steel shoring wall had to be constructed to keep the station in place. Vibration monitors and inclinometers were used to ensure excavation didn’t cause any movement of the station. Even an inch of movement would cause total project shutdown.

“Another major concern was dewatering,” said Nelson.

Because the bus facility is located below the commuter rail and 27 feet below ground, it is located under the water table. Similar to the buoyancy of a ship, the facility would be at risk of “floating” atop the groundwater. To provide a stable foundation for the structure, its base concrete slab had to be four feet thick. Extensive dewatering was conducted prior to pouring the thick slab, as well as daily monitoring of the dewatered soils.

Water removed from the site had to meet strict discharge water standards — even more stringent than drinking water standards.

Even the view of the historic station presented a design challenge for the project. A Denver ordinance requires that all buildings on 17th Street not obstruct the view of the station. Because of this, the project team could not build any of the three bus facility pavilions higher than the second-floor windows of the station.

“The canopy will be an iconic structure,” said Nelson. “This entire facility will be a shot they use on a Monday Night Football broadcast.”

COMMUNITY INVOLVEMENT

“As one of the most visible projects in all of Denver, public interest in this high-profile project continues to grow throughout the entire community,” said Hunter Sydnor, public information manager. “They see the project as a great improvement to the city.”

Sydnor, in coordination with the client, offers public tours twice a month during the summer. Since the project began, she and others on the job have given more than 65 walking tours.

“The feedback is overwhelmingly positive,” she said. “Everyone is highly impressed not only with the project, but also with the cleanliness and organization of our job site.”

The DUS team, including clients and subcontractors, also participates in a charitable holiday program. It kicks off around Thanksgiving, when money is raised to buy and deliver turkeys to the Denver Rescue Mission.

During December, the team holds a canned food drive, culminating in a “Can Build” party where the team constructs a well-known Denver building with the cans. The donations are then delivered to the Food Bank of the Rockies.

Giving continues throughout the year with members of

Denver Union Station by the numbers

363 thousand — Cubic yards of dirt excavated from the DUS worksite – enough to fill Denver’s Pepsi Center arena more than nine times

32 — Number of concrete pours for the base slab of the underground regional bus facility; each pour required 100-150 truckloads of concrete

37 — Truckloads of rail delivered to DUS in October 2010

6 thousand — Size of the shotcrete wall, in square feet, that held Union Station in place

> “It is a unique contract because it’s as if we have five clients. Everyone has an interest in a different element of the project. All of us working as one team has made this project a success.”
>
> **TIM MACKIN,**
> SPONSOR

the team serving breakfast at the Denver Rescue Mission one morning a month. “We’re committed to our community,” Sydnor said. “And the client appreciates that.”

A MODEL KIEWIT PROJECT

“From the very beginning, our goal was to be a model Kiewit job,” said Chet Haptonstall, project manager. “We wanted to set the highest standard in safety, environmental sustainability, quality and training.”

With this goal in mind, the project team encouraged the client to incorporate LEED (Leadership in Energy and Environmental Design) certification into the program, and they were receptive.

“We wanted to demonstrate our team’s ability to follow through the on client’s promise to the community to deliver a sustainable project,” said Rolle, “and we were able to do it cost-effectively.”

To ensure LEED certification, the DUS project team will be recycling more than 95 percent of construction waste and demolition debris onsite. Other sustainable efforts include light sensors in the bus terminals and variable frequency drives, which power the ventilation fans, monitor air quality and vary the speed of fans within the bus facility — all of which help eliminate wasted energy.

The team has also employed strategies to reduce water usage at the station by 30 to 40 percent from baseline building cases by using low-flow sinks, urinals and toilets.

Upon completion, the DUS project will be the largest LEED-certified transportation project in North America.

EXCEEDING DBE GOALS

The project team also expects to exceed DUSPA’s goals for DBE (disadvantaged business enterprise) participation. More than 125 DBE firms have been contracted for a total value close to $60 million.

“At first, Kiewit was perceived by the local small business community as a monster company out of Omaha that didn’t care about them,” said Mackin. “This project changed that perception.”

Numerous team members are active with minority associations. Rolle, who serves on the Black Construction Group, says there’s a sense of pride in doing so: “We have fostered really good relationships and received positive community feedback.”

Capacity building workshops, held once each quarter, further these relations. The workshops, created by the Kiewit Colorado Diversity and Inclusion Council, are aimed at sharing construction business knowledge with small businesses to increase their work capacity and be more efficient.

“Ultimately, we will get better bids from them,” said Sydnor. Workshops offer training topics such as cost control, estimating and project closeout.

The team has already received numerous awards recognizing this commitment, including the Safety Award for a large contractor from the Hispanic Contractors of Colorado (HCC) in March 2012. The honor recognizes large contractors in the community for their commitment to HCC and to safety.

“We represent the commitment Kiewit has to being a positive contributor to diversity in the Denver community,” said Rolle.

The work on the DUS project was key in other recent Colorado awards, including the National Corporate Citizen award given by the Conference of Minority Transportation Officials, recognizing dedicated service to the transportation industry. Another honor was the Robert Jackson Annual Breakfast General Contractor of the Year Award for Kiewit’s involvement with the Colorado Black Chamber of Commerce and Black Construction Group members.

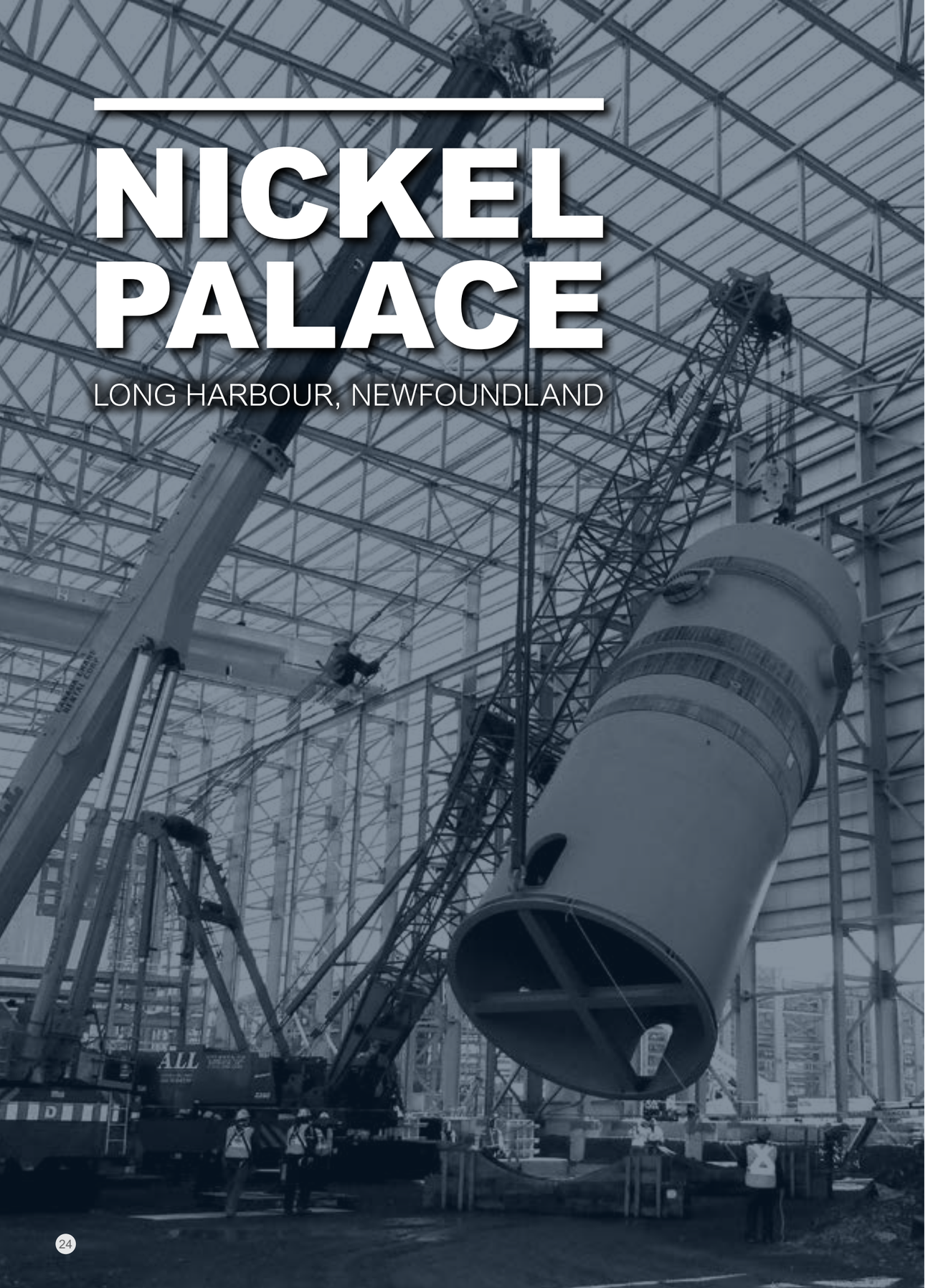
PROJECT COMPLETION

The project is on schedule for completion in spring 2014.

At project completion, this world-class, multi-modal transit hub will cover seven city blocks.

It’s expected that with the completion of the FasTracks program in 2030, there will be 200,000 transit trips per day through Denver Union Station.

“When I first found out Kiewit would be a part of this project, I told my boss I would chew my arm off to work on it,” said Rolle. “I still feel that way today. A project like this comes around so rarely in a career. I knew I had to take advantage of it.”



NICKEL PALACE

LONG HARBOUR, NEWFOUNDLAND

Kiewit (and its joint-venture partners) goes where the work is, asserting itself as one of the most adaptable contracting organizations in North America. People from all over the continent come together to build the biggest projects. This attitude trickles down to each individual project, and it has been important to the success of KBAC Constructors on the Long Harbour nickel processing plant.

KBAC Constructors, a Kiewit-led joint venture, is constructing the process facility in Long Harbour, Newfoundland, for Vale Newfoundland, a nickel, cobalt and copper mining company. Scope of work includes the installation of the structural steel, concrete, mechanical, piping, electrical and instrumentation on 10 separate buildings, each with a different purpose in the process of extracting nickel and other elements from the nickel concentrate. The nickel concentrate will arrive by boat and be transported to the plant by a conveyor belt.

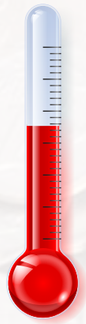
"This project is a unique challenge because of its size," said Pierre Jerome, project director. "Kiewit is a good choice for a project like this simply because of its size, its systems and its available equipment. But the real key has been our people and their ability to adapt."

'STRONG PEOPLE WITH STRONG BACKGROUNDS'

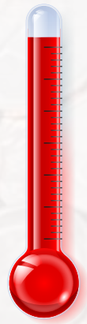
Currently, the huge project employs 3,600 craft workers who live across Newfoundland and Labrador — including many who live in an on-site camp — and more than 450 staff. With so many employees and so many moving pieces, people management – and adaptability – is paramount.

"We've got strong people with strong backgrounds," said Patrick Bourgeois, construction manager. "Everyone wants each other to succeed. It's almost like a competitive environment, and it makes this a great place to work.

"The safety culture is very strong. There is complete participation, all the way from the staff to the craft. Everyone feels like they have a share in our success, and that's why many people have said this is a great project to work on."



Nickel's melting point: 2,647º F (1,453º C)



Nickel's boiling point: 4,946º F (2,730º C)

Nickel facts

Nickel and materials that contain nickel offer stronger resistance against corrosion, better toughness, more strength at high and low temperatures (nickel's melting point is 2,647 degrees Fahrenheit) and many unique magnetic and electronic properties. That's why nickel use grows about 4 percent each year, and that's why nickel is used in more than 300,000 consumer, industrial, military, transport, aerospace, marine and architectural products and applications. About 65 percent of nickel produced is used in stainless steel. Common uses for nickel and nickel alloys include:

- Pots and pans
- Kitchen sinks
- Buildings
- Food processing equipment
- Medical equipment
- Equipment plants
- Electronics
- Batteries
- Coins*

*Interestingly, a United States nickel is made up of only 25 percent nickel – the other 75 percent is copper.

Source: Nickel Institute

1. The massive Long Harbour nickel processing plant includes 10 separate buildings, all with a different function. 2. When all is said and done, more than 125 tanks will have been installed. Many of them require multi-crane lifts in tight quarters. Kiewit Engineering Co. has been instrumental in the design of some of these lifts. 3. Each of the plant's 10 buildings are connected by pipes, which are supported by large racks. The material moves through the pipes from station to station until there is a final product.

The Long Harbour plant will be one of the largest of its kind in the world, and it will produce 50,000 tonnes of finished nickel per year in a more economical and environmentally friendly manner, while also producing smaller amounts of associated cobalt and copper products. Each of the refinery's 10 buildings serves a different purpose in the process, from water treatment to extraction to neutralization. The buildings are all connected by pipes, through which the material moves from station to station, until there is a final product.

All in all, the project will involve installation of 2,000 pieces of equipment, 1,600 instruments, 545,000 meters (more than 1.7 million feet) of electrical cable, 4,600 tonnes of steel and 65,000 meters (more than 213,000 feet) of pipe.

Project Controls Manager Paul Cormier says that the group of people working on the project is one of its strengths.

"Communication is key on every project," he said. "To manage a big job like this within a moving environment, adaptability is going to be another necessity. Our people are great communicators and they have adapted at every turn. We've got a great workforce made up of the most qualified people."

Jerome said with so many employees coming from so many different places (employees come from each of the joint venture companies) training is important. Every day, there are tours of portions of the job site focusing on safety and quality. The photos of those tours are shared with everyone.

"With Kiewit, there's always a family atmosphere," said Jerome. "We have a very tight schedule, and consistent communication is important. We have town hall meetings and hold social activities for everyone. New people, who might be from different cultures and different companies, are able to adapt quickly."

KECO PROVIDES A 'LIFT'

As part of the project, more than 125 major tanks need to be installed. To get this done effectively as part of the tight schedule, KBAC developed a heavy lifting campaign. Many of the tanks required multiple-crane lifts, and some lifts had to be performed in tight quarters after the building around them had already been built.

Kiewit Engineering Co. (KECo) was brought in to help with the design of some of these lifts. KECo is Kiewit's in-house "engineering company" that provides estimating, design, geotechnical and construction services. Jerome called the

Processing nickel

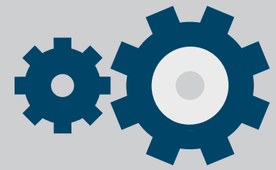
From start to finish, nickel will go through many processes at Long Harbour.

STEP 1
NICKEL CONCENTRATE

Nickel concentrate arrives in the harbor by boat and is sent up to the plant on a conveyor belt.

STEP 2
NICKEL TREATMENT

The nickel concentrate goes through a crushing and grinding process followed by a pressure leaching process.



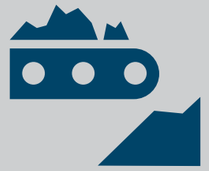
STEP 3
SOLID/LIQUID SEPARATION

Solids and liquids are separated and neutralized, and extraction of each of the metals begins.

STEP 4
TREATMENT CYCLES

Cycle A: Copper extracted, copper metal produced

Cycle B: Cobalt separated from nickel, cobalt metal rounds produced



STEP 5
FINAL NICKEL PRODUCT

Nickel metal rounds are produced and shipped to customers.

campaign “some of the most innovative work we’ve done on the project.”

“We’ve done quite a bit of unique heavy lifting,” he said. “With KECo, we’ve got the people who can figure out the design and the logistics that we need to fit these challenging lifts into our schedule.”

‘ONE-OF-A-KIND PROJECT’

When the refinery is complete — it’s scheduled for completion in 2013 — the project team will have exceeded more than 5 million craft man hours and 1.3 million staff man hours. It will bring more than 450 permanent jobs.

Bourgeois called this a “one-of-a-kind” project and a “great place to work.”

“It’s such a big project and such a unique project, and we’ve got such a great group of people here,” he said. “For us, a challenge means an opportunity. We’ve all got the same goal, and it’s just a matter of communication and execution.”

He also echoed a common theme.

“Kiewit has the mindset to do what it takes,” he said. “We’ve got the systems, the equipment and the people. And the people on this job have shown the best quality of all — adaptability.”

> “Kiewit has the mindset to do what it takes. We’ve got the systems, the equipment and the people. And the people on this job have shown the best quality of all – adaptability.”
>
> **PATRICK BOURGEOIS,** CONSTRUCTION MANAGER

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Kiewit core values:

People.
Integrity.
Excellence.
Stewardship.