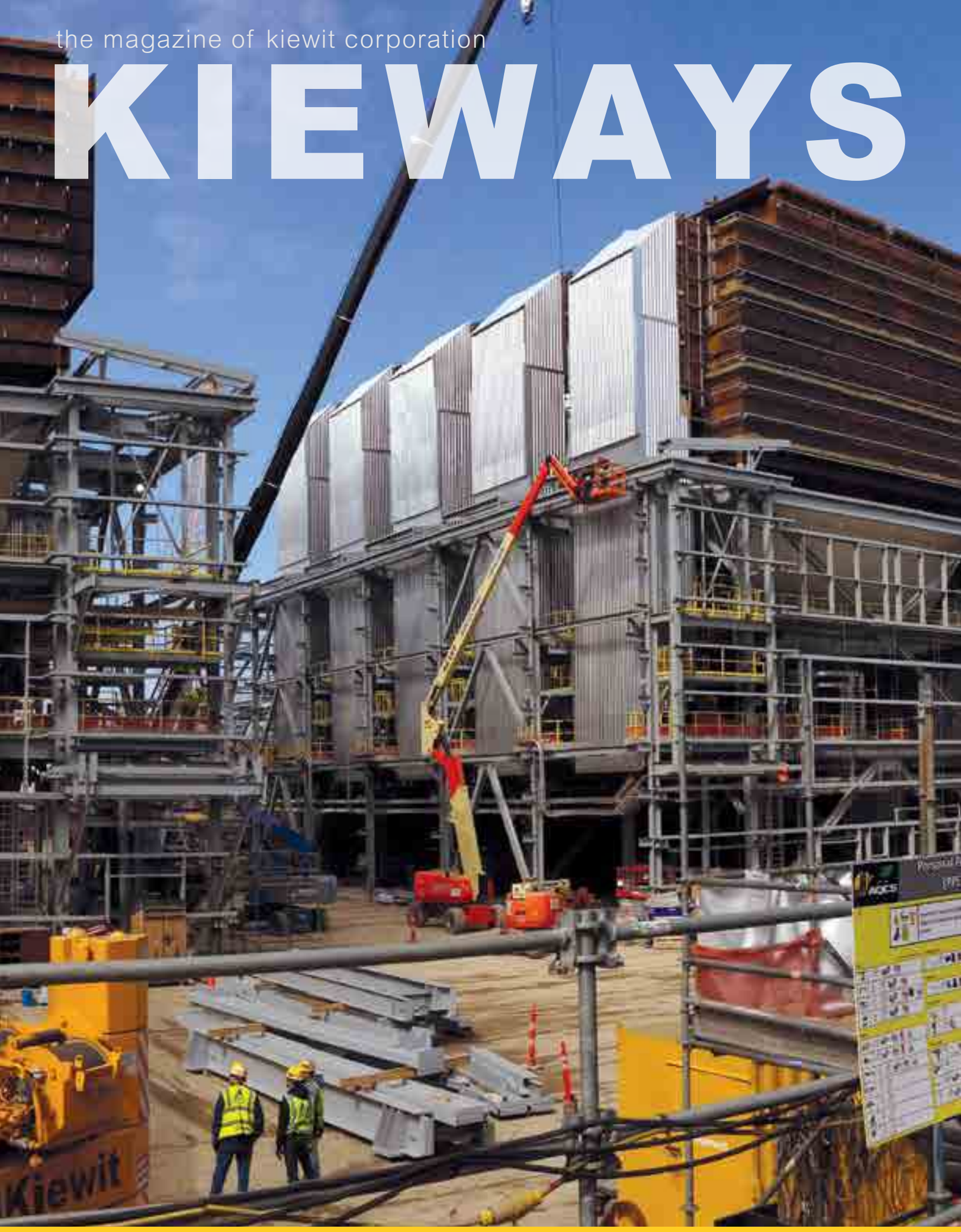
the magazine of kiewit corporation

KIEWAYS



2014 / Quarter 3

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 2013 revenues of nearly $12 billion and employs more than 33,000 staff and craft employees.

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KIEWAYS
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Winner Construction Marketing STAR

FSC

MAKING CLEAN RENEWABLE POWER
Kiewit provides clean renewable power to 13,000 homes on Vancouver Island, BC. Learn more on Page 16.

CAPITALIZING IN THE POWER AND ENERGY SECTORS

Although Kiewit has long been considered an infrastructure contractor, we've had a presence in power and energy since the 1930s, beginning with the first hydroelectric plant we built in North Platte, Nebraska. Not long after, Kiewit started its first coal-mining operation in 1943 near Sheridan, Wyoming.

To give you some perspective, Kiewit has constructed and provided start-up services for more than 1,200 power- and energy-related projects, totaling nearly $24 billion in contract revenue for the past decade.

In this issue of Kieways, we feature two projects in the energy and power sectors. Four Kiewit companies are working to upgrade a coal-powered plant in Homer City — a small coal-mining town located in western Pennsylvania. Once construction is complete, the plant will meet the Environmental Protection Agency's new sulfur dioxide emission levels (Page 22).

More than 3,000 miles to the west of Homer City is the newly completed Kokish River hydroelectric facility. Kiewit spent the past two years on rural Vancouver Island constructing a power plant that generates 45 megawatts of electricity from the Kokish River. More than 13,000 homes can now tap into this clean, renewable energy (Page 16).

Also read about how Kiewit is building a concrete-reinforced immersed tunnel under the Elizabeth River in Virginia to accommodate nearly one million cars each month (Page 6). The new Midtown Tunnel is only the second of its kind in the U.S. and a "once in a lifetime project" for those involved.

BRUCE GREWCOCK
Chairman and CEO

A 200-NAUTICAL-MILE JOURNEY
Water flowed into the Sparrows Point dry dock holding the first six out of 11 tunnel elements. The elements were floated down to Virginia at the beginning of June as part of the Elizabeth River Tunnels Project. Read more on Page 6.

ON THE COVER

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Staying true to its commitment to the environment, Kiewit is updating the Homer City Generating Station to provide cleaner and safer air.

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Learn how our market diversity and commitment to our core values drives Kiewit's success.

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With an underwater tunnel and the unmatched skills of key joint venture partners, the Elizabeth River Tunnels Project will provide a safer and faster commute for residents.

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Powered by the Kokish River, a Kiewit-built hydroelectric facility provides clean, renewable energy to nearly 13,000 homes.

OUR MARKETS

BUILDING | MINING | OIL, GAS & CHEMICAL | POWER | TRANSPORTATION | WATER/WASTEWATER

What began in 1884 with two hardworking brothers has grown into a Fortune 500 construction, mining and engineering powerhouse. As a multi-billion dollar organization, Kiewit can tackle projects of all sizes, in any market. Here's a few interesting facts about Kiewit.

WORLD'S LARGEST WATER RESERVOIR

How do you take saltwater from the Pacific Ocean and create 50 million gallons of drinking water per day? Scheduled to open in 2016, the pipeline and desalination plant at **Kiewit's Carlsbad Desalination** project will deliver water to residents in San Diego County using the world's largest water reservoir.

UNDER THE SPOTLIGHT

Kiewit received Kansas City Power and Light Company's (KCP&L) Prime Supplier of the Year Award for the **La Cygne Environmental Retrofit** project. This award is the highest honor KCP&L gives in its Supplier Diversity Program — the technical term for contracting with diverse and small businesses.

This project was recently featured in Kieways — check out the 2014 Quarter 1 issue to read more.

$11 BILLION

In the past five years, Kiewit completed nearly $11 billion of work in the oil, gas and chemical market.

Our experience and capabilities in today's complex energy market allows us to focus on three main sectors: **upstream, midstream and downstream**.

Kiewit has mined more than

750 MILLION TONS

of coal in the last 70 years — enough to power every home in the U.S. for almost two months.

DID YOU KNOW?

In the 1950s, Kiewit built **more lanes of interstate highway systems than any other contractor** in the U.S. at the time, prompting *Forbes* magazine to nickname Peter Kiewit "The Colossus of Roads."

A LOOK BACK IN TIME

In 1924, Kiewit landed its first million-dollar contract — the 10-story **Livestock Exchange Building** in the South Omaha meat-packing district.

The building served as the center of the livestock industry in Omaha from its opening in 1926 through 1976, when the last major packing house closed.

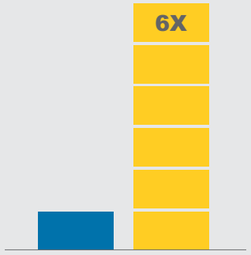
OUR VALUES

PEOPLE | INTEGRITY | EXCELLENCE | STEWARDSHIP

For 130 years, Kiewit's culture has thrived on strong principles. From generation to generation, the torch has been passed down and carried by the hands of our leaders and workforce. Today, our core values — People, Integrity, Excellence and Stewardship — remain our company's cornerstone and are the way we run our business.

KIEWIT PEOPLE AT A GLANCE

We care for the well-being of our people and help them grow in their ability to be successful.



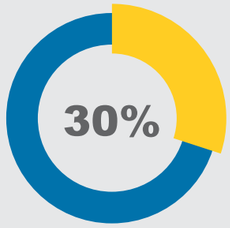
We believe in training and development — Kiewit spends almost **six times** what other organizations spend.

AVERAGE YEARS OF EXPERIENCE:

27	EXECUTIVES
23	SR. MANAGERS
15	PROJECT MANAGERS
11	SUPERINTENDENTS

Our people make Kiewit a career — the average tenure is an impressive **27 years** for executives, **23 years** for senior managers, **15 years** for project managers and **11 years** for superintendents.

Internships can build your career — **24 percent** of Kiewit interns were converted to full-time staff employees during the last three years.



Kiewit is new-grad friendly — **30 percent** of new hires over the last three years have been recent college graduates.

INTERESTED IN WORKING FOR KIEWIT?

We provide the tools you need to succeed in and out of the workplace.

- **CAREER AND PERSONAL DEVELOPMENT**
  Customized training to grow your skills and career with Kiewit
- **EXPOSURE TO NEW INTERESTS**
  Our diverse work provides multiple areas for you to explore
- **TOP-TIER HEALTH, DENTAL AND VISION INSURANCE**
  Available day one with programs to lower your premiums
- **RETIREMENT SAVINGS PLANS**
  Build your wealth with a dollar-for-dollar company match
- **EMPLOYEE PERKS AND DISCOUNTS**
  Offering you more ways to save money
- **PAID TIME OFF**
  Begin accruing day one so you get the personal time you need
- **RECOGNITION**
  From a pat on the back to prestigious awards, you'll be recognized for the work you do
- **JOIN A FAMILY**
  Be more than an employee and a co-worker

Apply online at kiewitjobs.com

UNDERWATER ROADWAY

— a journey below the Elizabeth River.

Commuters in the Hampton Roads region are familiar with driving under the Elizabeth River through a series of underwater tunnels. They're also familiar with heavy traffic and congestion along that route. When the Elizabeth River Tunnels Project is completed in early 2018, commuting between Norfolk and Portsmouth, Virginia, will be safer and faster.

The project involves three parts: building a new, two-lane, concrete-reinforced immersed-tube highway tunnel under the river, expanding the Martin Luther King (MLK) Freeway and rehabilitating the existing Midtown and Downtown Tunnels.

The $1.5 billion project — one many involved say only comes around once in a career — dates back to April 2007. For the project to become a reality, it was procured as a public-private partnership (P3). As the shorthand suggests, a P3 is a partnership between a public organization and a private company.

The private company assumes the responsibility to develop, design, construct and operate facilities such as parks, convention centers or, in this case, a transportation project. Creating this type of partnership helps make possible large-scale projects that can positively impact communities.

The P3 for the Elizabeth River Tunnels Project includes the Virginia Department of Transportation (VDOT), the owner of the infrastructure, and Elizabeth River Crossings OpCo, LLC (ERC), the private company that agreed to finance, design, construct, operate, and maintain the project for a term of 58 years. In turn, ERC partnered with joint venture contractor SKW Constructors, JV (SKW) — formed by Skanska, Kiewit and Weeks Marine — to complete the design and construction phase.

“This is the most significant transportation project in the region over the last 20 years,” said Greg Woodsmall, ERC chief executive officer.

1. Workers at the Sparrows Point, Maryland, dry dock complete the first six of 11 concrete tunnel elements. The blue steel frames, called the main form traveler (left) and the egress form traveler (right), are used to form the concrete into the element shape. 2. Construction on tunnel elements 3, 4, 5 and 6 is completed in dry dock. 3. Flooding of the Sparrows Point dry dock began at the beginning of June 2014, with the elements towed one-by-one to Virginia.

ADDRESSING THE NEEDS OF THE AREA

Since the original Midtown Tunnel was completed in1962, the population in the Hampton Roads region has increased nearly 70 percent and tunnel traffic has grown by 600 percent. Nearly one million vehicles pass through the existing tunnel each month, making the thoroughfare the most heavily traveled two-lane road east of the Mississippi River. Not surprisingly, VDOT has long been focused on improving the infrastructure between the Norfolk and Portsmouth communities.

When the project is completed, it's estimated that commuters will save about 30 minutes round-trip. The addition of the new tunnel will eliminate bi-directional traffic in the existing Midtown Tunnel, reduce congestion with two lanes of traffic traveling the same direction instead of only one lane, and extend the life of the current tunnel roadway by dividing overall traffic between the two tunnels. The expansion of the MLK Freeway will help provide a seamless connection to Interstate 264 and offer alternate routes for traffic.

BUILDING THE RIGHT TEAM

ERC understood the magnitude of this project for the area, and knew it needed a contractor with the right experience and reputation. ERC chose SKW to complete the design-build work. Together, the experience of the three joint venture partners is unmatched, completing 74 percent of the immersed tube tunnels in the United States since 1964 — that includes19,700 feet in the Hampton Roads region alone and covers a total of 52,500 feet across the U.S.

Uniting three major companies into one joint venture is bound to have its challenges, but the SKW staff is proud to have successfully merged the individual cultures into a cohesive team.

"We [SKW] had to learn from each other and take the best practices from each partner to create what we have today," said Hank Kelly, SKW commercial manager and a 36-year Kiewit employee. "We have built a good working relationship between the different groups of employees and have really integrated ourselves into a team and culture that is SKW."

ONCE IN A LIFETIME

The concrete-reinforced immersed tunnel is unique — this one is only the second of its kind in the U.S.

"This project is a once-in-a-lifetime opportunity," said Mike Hall, SKW tube fabrication project manager and a 36-year Kiewit employee. "Tunnels like this are rare and not something that are built every day."

The original Midtown Tunnel is a concrete-encased steel tube tunnel. Because the price of steel has gone up sharply since the original tunnel was constructed, ERC and SKW had to find a more cost-effective way to build a tunnel. Used extensively across Europe, the concrete-reinforced tunnel allowed ERC and SKW to provide the same strong, durable structure as the original tunnel, but more economically.

DEVELOPING THE MIX

If you ask anyone working on the Elizabeth River Tunnels Project about the most interesting aspect of the job, most will say "the immersion of the concrete tunnel." If you ask

Elizabeth River Tunnels Project by the numbers

The Elizabeth River Tunnels Project is one of extreme proportion, from the creation of the tunnel elements and the installation process, to the community impact. Here is a breakdown of significant numbers as part of the project.

$1.5 billion — Total design-build cost

3.4 million — Man-hours

more than 500 — Direct jobs and 1,000 indirect jobs

58 years — Length of ERC operations/ maintenance contract

72,000 cubic yards — Concrete tunnel elements

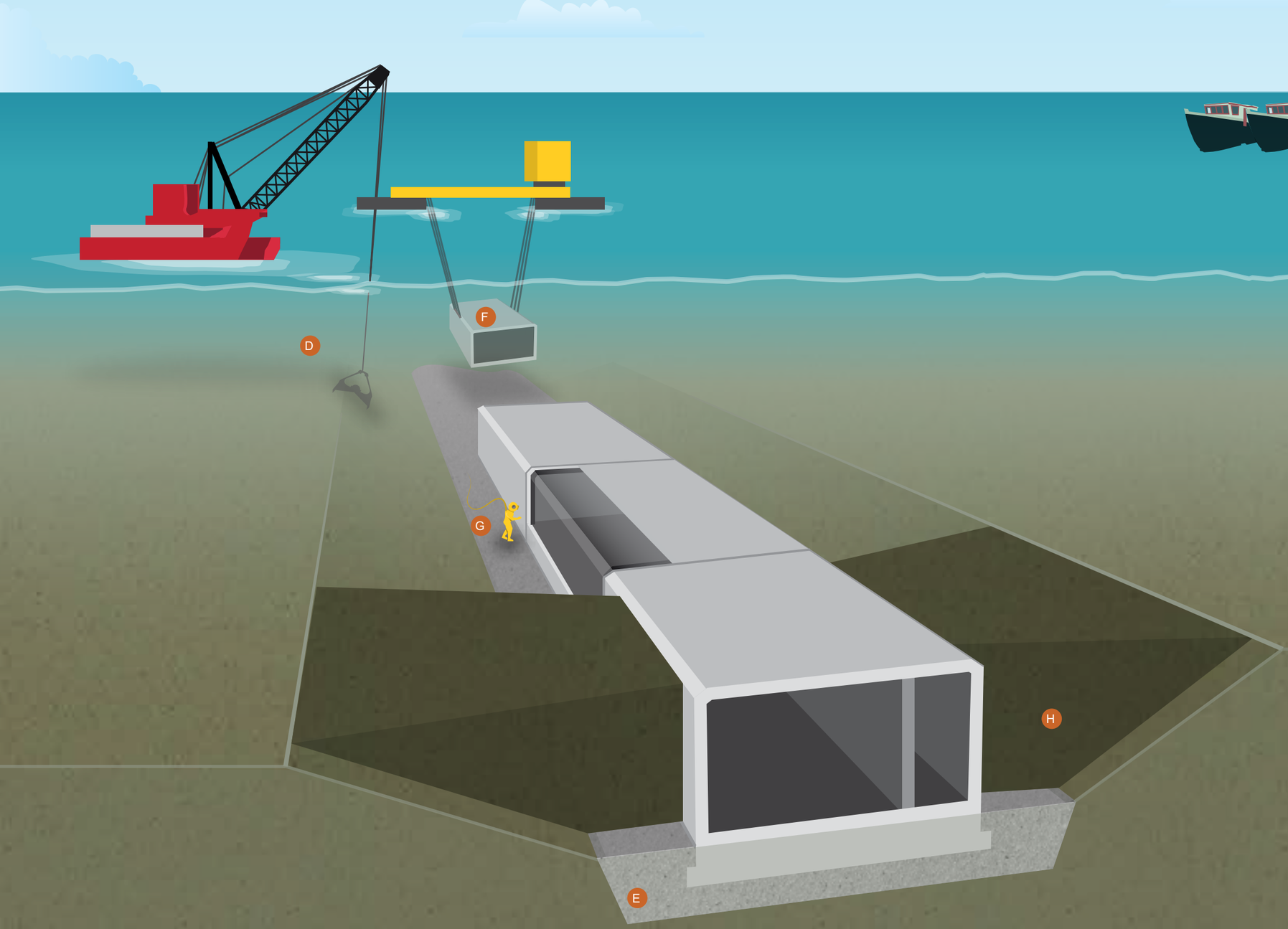
1.5 million cubic yards — Dredge

67 — Jet fans installed in the four tunnels

26,750 tons — Rebar

Constructing a tunnel under the Elizabeth River

The new Midtown Tunnel will be constructed using 11 reinforced concrete tunnel elements, each 350 feet long and displacing 16,000 tons. Construction happens in two places — the dry dock facility located in Sparrows Point, Maryland, and the tunnel location under the Elizabeth River between Portsmouth and Norfolk, Virginia. While the elements are being constructed in dry dock, work is completed along the Elizabeth River to prepare for immersion.



DRY DOCK FABRICATION & IMMERSION PROCESS

- **A** Concrete tunnel elements are fabricated in dry dock
- **B** End bulkheads are installed in dry dock
- **C** Dry dock is flooded and tunnel elements are towed to Virginia
- **D** Tunnel area is dredged and soil is off-loaded at upland and offshore sites
- **E** Gravel is placed and graded through a process called “screeding”
- **F** Each element has four ballast tanks which are used to lower the element into place
- **G** Underwater work is performed to connect the tubes
- **H** Backfill is completed around the tunnel and back to the original river bottom
- **I** Joint chambers are dewatered and bulkheads are demolished to begin the interior tunnel finishes

anyone what's the most challenging part, you will hear "the concrete tunnel."

It took more than 100 trial batches to develop the final concrete mix used to create the tunnel elements.

"Finding the right ratio between water, cement and the other ingredients was challenging," said SKW Tube Fabrication Project Engineer Daniel Francis, a 10-year Skanska employee. "It's kind of like baking. You need the perfect balance of ingredients for it to turn out right. We completed multiple mock-ups and trials to make sure our process was right before starting the work on the actual elements."

To ensure quality, the team mobilized two concrete batch plants. The last pour on the first six of 11 tunnel elements was completed in March 2014. Once the concrete is set, the team works on the next phase of the process, which includes sealing and waterproofing the elements, installing four temporary, interior ballast tanks (the size of large swimming pools) in each, and installing temporary bulkheads on each end allowing the elements to float.

The tunnel elements are fabricated in Sparrows Point, Maryland, about 200 nautical miles — or a four-day tow trip — from Portsmouth and Norfolk. The location was chosen because it was the largest dry dock in the area and allowed SKW to produce six elements at one time.

In June, the first batch of six elements began the tow to Virginia to be immersed under the Elizabeth River. Within five days of the first batch leaving, the fabrication team began work on the second batch. Those last five elements are expected to begin the tow to Virginia in March 2015.

PLACING AND FINISHING THE TUNNEL

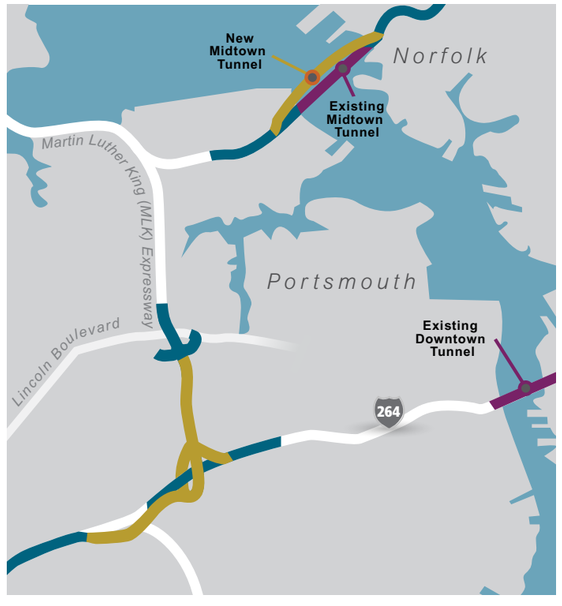
When the tunnel elements arrive in Virginia, the project team will begin the installation and immersion process. To prepare for the placement of the tunnel segments, a trench on the bottom of the Elizabeth River was dredged. Through a process called "screeding," gravel is placed into the trench and graded to the same elevation as the bottom of the tunnel element, once the element has been set in place.

Once the screeded gravel is at the proper grade, the team will lower the tunnel elements one by one, gently placing them into the dredged trench. An element is connected to four lowering falls (hoists) supported by a catamaran-style placing barge. Then water is added to the interior ballast tanks, making the element negatively buoyant, and ready to be lowered into position by the barge.

The end of each tunnel has two seals, called a Gina Gasket and an Omega Gasket, to ensure the joint between each element is watertight. Once the element is in place, workers can begin the finishing work inside the tunnel by simultaneously removing the water in the ballast tanks and replacing the water weight with concrete on the bottom of the tunnel. Once the tanks are dismantled, the walkways, electrical, fireproofing and remaining interior finishing items are installed.

Project Map

The Elizabeth River Tunnels Project includes the construction of a new Midtown Tunnel parallel to the existing Midtown Tunnel, expanding the Martin Luther King (MLK) Expressway, and rehabilitating the existing Midtown and Downtown Tunnels connecting the communities of Portsmouth and Norfolk, Virginia.



Exisitng Midtown and Downtown Tunnels maintenance and safety improvements

At-grade roadway improvements

New MLK Expressway and new Midtown Tunnel construction

1. As Element 1 arrived in Virginia, workers secured the tunnel element with lines to a Portsmouth wharf along the Elizabeth River. Immersion of the first element is scheduled to occur in late September. 2. Work continues on the Portsmouth side of the Elizabeth River — the crane situated on top of a barge is dredging to prepare for the immersion of the first tunnel element. 3. An aerial view of the Elizabeth River Portsmouth approach for the new Midtown Tunnel.

The new Midtown Tunnel is expected to be completed by mid-2016. Traffic from the existing tunnel will be diverted to the new tunnel so SKW can begin work on rehabilitating and upgrading the original Midtown Tunnel. As soon as the rehab work is done, the construction phase of the Elizabeth River Tunnels Project will be complete.

BUILT BY **KIEWIT**

Look around. From the roads we drive to the power we use, the projects that Kiewit builds have been positively impacting millions of people for the last 130 years. Here's a snapshot.

ANYTIME, ANYWHERE
More than 33,000 employees help Kiewit build innovative and high-profile projects across North America and Australia. Working in strategically located offices and job sites, our people are always ready to mobilize for any project in any location.

STREAM ON
Upstream. Downstream. Midstream. We have our clients' oil, gas and chemical needs covered — from offshore drilling rigs to gas processing and petrochemicals.

TURNING ON THE LIGHTS
Since 2000, more than 14 million homes have been powered because of natural gas-fired generation built by Kiewit. We also build alternative energy sources such as hydroelectric, solar and wind farms.

POWER HIGHWAYS
Above ground or below, the transmission and distribution lines that Kiewit installs deliver power to homes and businesses across North America.

TAKE FLIGHT
Taxiways, aprons, control towers, runways, terminals, parking garages and beyond — Kiewit builds all aspects of airports.

EQUIPPED TO SUCCEED
Our $2.6 billion equipment fleet helps us build some of the world's most amazing engineering marvels.

THE BASIC NECESSITIES
An industry leader in vertical construction, Kiewit builds the offices, schools and hospitals that people use to work, learn and heal.

NOW THAT'S ENTERTAINMENT
Kiewit knows fun, constructing luxury hotels and resorts, world-class zoos, sports stadiums and arenas, entertainment venues, museums and more.

ROAD WARRIORS
We've built more interstate highway miles than any other contractor in the United States. Whether it's one lane or 24, highway or scenic byway, urban or rural, emergency repair or extensively planned, our infrastructure road work across North America is second to none.

BRIDGING THE WAY
From the world's widest cable-stayed bridge to North America's longest floating bridge, Kiewit doesn't just build bridges — we build crucial pathways that the traveling public relies on every day.

A BEAUTIFUL MINE
Copper, gold, nickel, phosphate ore, aluminum, coal and diamonds. Kiewit mines and builds infrastructure to support the excavation of these and other important commodities for worldwide markets.

NOBODY GETS HURT
Kiewit's safety record is more than five times better than the U.S. construction industry average.

OUR BEST INVESTMENT
As an employee-owned company, investing in our people is crucial. Employees receive an average of 240 hours of training each year, almost six times the industry average.

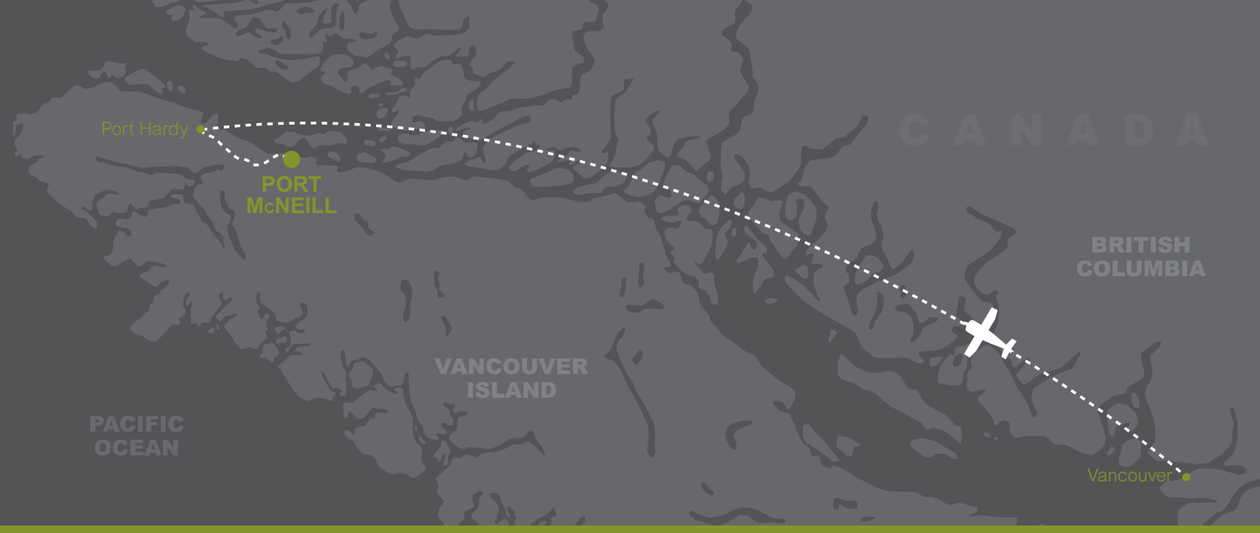
PIPING UP
Kiewit has been at the forefront of the water/wastewater market since we built our first canal in 1945. Kiewit's water portfolio runs deep, from treatment plants, and desalination and dam restoration, to sewer overhauls.

STAYING ON TRACK
When it comes to precious cargo — passengers or freight — our work in the rail industry helps keep North America connected in every direction.

WE DIG IT
Tracing back to the 1940s, our extensive experience in transportation and water/wastewater tunnels continues to grow.

THE TRUE NORTH:

POWERING VANCOUVER ISLAND



Vancouver Island, British Columbia — the 290-mile-long island that dips into the nook near Seattle — is home to only 760,000 Canadians, and less than .3 percent of that population lives near the Kokish River Hydroelectric Project.

Getting to the job site is no easy feat. Most employees set up residency in the nearby town of Port McNeill, but visitors have to board a puddle jumper in Vancouver, fly 50 minutes to Port Hardy, then drive an hour south to reach the project. The other option is to drive seven hours through the winding, mountainous island region.

The client, Brookfield Renewable, embarked on a partnership with the 'Namgis First Nation to develop this renewable energy project on their traditional territory. The partnership facilitated staffing for the project, helping overcome the relative remoteness of this job.

For two years, beginning in March 2012 and ending in March 2014, 200 employees put in more than 500,000 hours to complete the hydroelectric facility. The plant generates 45 megawatts of clean, renewable energy for area residents, including about 10,000 homes. Many of the 'Namgis First Nation members and Vancouver Island locals helped get the project completed on time.

"We were able to utilize some of the experienced workers from our previous hydro projects in all departments," said Project Manager Tim Huffman. "We were also fortunate to be able to use the help of some talented local hires, train them and move them on to other Kiewit projects."

RUN-OF-RIVER OPERATION

The facility is a run-of-river operation, which means that a portion of the river's water will be siphoned off and diverted through an underground penstock pipe. From there, it will flow through the powerhouse and then be added back into the river near the bottom.

Kiewit's project team installed 5.75 miles of 118-inch-diameter penstock pipe, constructed the intake facility and powerhouse, and built an access road to the intake facility. The team also cleared a steep hill in front of the powerhouse — a step that ensures enough head pressure is generated for the water entering the powerhouse.

"The intake facility includes three main parts: the intake box, coanda and overflow weir," explained Project Engineer Salim Semsarilar. "The coanda is where the water flows over the intake and into the penstock pipe, which is 59 meters long."

Kiewit started intake facility construction in August 2012 and completed it in November 2013, although employees had to build it in stages, as the river needed to be temporarily diverted.

"We diverted the river to build the coanda walls and the intake box," said Huffman. "Once we completed this, we diverted the river through the structure and completed the overflow weir wall."

To supply the 4,050-square-foot powerhouse, water from the Kokish River is first diverted from the intake through the penstock pipe. It enters the powerhouse at 82 cubic feet per second and spins four turbines, generating electricity for the grid. The water is then returned to the river through the nozzles, ensuring there are no major changes to the river's flows.

Since this is an environmentally committed project, a specific amount of river flow must be maintained at all times. This flow, called the Instream Flow Requirement, ensures that fish can continue to migrate and minimizes the impact on the environment.

ENVIRONMENTAL CONCERNS

Construction of the facility went relatively smoothly, although working on a river always has its challenges.

"One of our biggest obstacles was tying everything into the Kokish River during the fish window," said Huffman. "If we would have fallen behind on our schedule, it would have changed our entire timeline, as it would have delayed the project by a full year."

The Kokish River Hydroelectric Project has been an

What is run-of-river?

Unlike traditional hydroelectric facilities that require a dam or reservoir, run-of-river operations operate only when river flows are higher than the regulated Instream Flow Requirements. Water diverted into the steel penstock flows through electricity-generating turbines in the powerhouse and is returned to the river through a short tailrace (a water channel below the powerhouse). The Kokish River project will stop diverting water from the river and generating electricity when the river flows approaches the identified minimum level.

THE KOKISH PENSTOCK ALIGNMENT

Weholite® penstock pipe

Steel penstock pipe

PENSTOCK INTAKE

At the top of the hill sits the intake. Weholite® penstock, enclosed piping that reduces friction and maximizes flow to the turbines, is used to help water flow to steel penstock piping.

As water flows down the hill to the powerhouse, enclosed steel penstock piping transports water to the turbines.

POWERHOUSE

Kokish River Hydroelectric Project

1. An aerial view of the diversion channel, where the river is diverted in order to complete the intake concrete works. 2. Construction of the intake structure (stage two). Water enters this structure and is diverted into the penstock piping, which then flows to the powerhouse. 3. Completed turbine and generator components inside the powerhouse (generators on the left and turbine inlet valves on the right). This building houses the turbine and generator components that create power. 4. An aerial view of the pre-engineered powerhouse building. Turbines and generators collectively work in this building to supply power to the grid. 5. The Kokish River, powerhouse and switchyard. Water flows are monitored 24 hours a day to ensure the river doesn't get too low or too high and to maximize the power generation while protecting the fish. 6. Two excavators installing the steel penstock piping. Penstock is enclosed piping specifically designed to transport water to the turbines.

> The relationships have been great between Brookfield and Kiewit. I've been in this business for many years, and I will remember this job as the best coordinated and most fun. They've become friends of ours, and that's a great outcome of a fairly challenging job.

TOM VERNON,
BROOKFIELD
PROJECT MANAGER

environmentally sensitive endeavor from the beginning. Normally with facilities of this type, a waterfall or higher feature will prohibit fish from entering the intake building. Since the Kokish project does not draw water from a waterfall, Kiewit and its designers implemented additional environmental protection measures.

"At the intake building, we installed a fish ladder that allows fish to swim upstream, coanda screens to prevent fish from entering the intake box, and a trash rack to prevent big fish from entering the penstock pipe if they were to somehow get into the intake box," said Semsarilar. "We also installed fish screens at the powerhouse, which will prevent fish from entering the tailrace area."

PUTTING SAFETY FIRST

Even with the special schedule to work during fish windows, crews worked efficiently and, most importantly, safely.

"The introduction of the CVIS [Craft Voice in Safety] Committee had a crucial impact to the project," said Huffman. "We had fewer incidents, more craft engagement and a satisfied client, which resulted in a positive atmosphere. Our client, Brookfield, has very high safety standards, but our policies fell right in line with theirs."

That alignment in safely philosophies was evident. Kiewit received the highest marks ever given by Brookfield's internal safety audit system.

Tom Vernon, Brookfield's project manager, confirmed Kiewit's dedication to safety.

"We do two internal audits per year: one environmental and one safety," he explained. "We were among the top scorers at a North American Brookfield facility. This is an excellent achievement. I was most intrigued by the CVIS program Kiewit applied here, and I really liked it. I'll be taking this program to my next Brookfield job."

In addition to Kiewit's safety practices, Vernon couldn't have been happier with the Kiewit team overall.

"This is a project that's enjoyed a lot of collaboration," Vernon said. "The relationships have been great between Brookfield and Kiewit. I've been in this business for many years, and I will remember this job as the best coordinated and most fun. They've become friends of ours, and that's a great outcome of a fairly challenging job."

"Kiewit does what they said they'd do," he added. "We brought this job in on time with a lot of positive feedback. We should be quite proud for what we've achieved here in two years."

BETTER
THAN BEFORE

Nestled in the hills of western Pennsylvania are four power stacks, three cooling towers and mounds upon mounds of coal. They all belong to the Homer City Generating Station and are helping to power more than two million homes. Kiewit is adding six 150-foot silos and two "scrubber" facilities in an effort to make the station operate within current environmental regulations.

PROJECT BACKGROUND

Units 1 and 2 of the Homer City Generating Station were completed and placed into service in 1969. A third unit was added nine years later. In 2011, the Environmental Protection Agency (EPA) passed the Mercury Air Toxic Standards, an addition to the Clean Air Act of 1990.

This addition set the first-ever national standard for coal and oil-fired power-plant reductions for mercury and other toxic air pollutants. Coal plants across the country now are required to find ways to clean their emissions and remove pollutants, which can level out production and maintenance costs.

"What the law did was basically even the playing field," said Todd Kollross, project manager for GE EFS, a General Electric subsidiary and the plant's majority owner. "Everyone's got to scrub. It's a game changer."

"The coal industry was always willing to clean up the emissions, but we needed to know the rules and requirements," continued Kollross.

Unit 3 had been scrubbed since 2001. But with the new environmental regulations, GE needed to implement an emission cleaning system on Homer City Units 1 and 2. In April 2012, GE entered into an engineering, procurement and construction (EPC) contract with Kiewit to build a scrubbing system for the remaining units. Kiewit had already been onsite since the previous December, beginning design and engineering ahead of the contract signing in order to keep the project on schedule.

SCRUB-A-DUB-DUB

When you think of a scrubber, you might think of a sponge with lots of tiny bristles or a heavy-duty home cleaning appliance. For the Homer City air quality control system (AQCS) project, the scrubbers — officially known as NIDs (Novel Integrated Desulfurization) — are actually two 26,417-square-foot facilities. Each one houses 10 individual NID compartments supplied by Alstom Environmental Control Systems. If you're looking for cleaning power, Alstom's NID desulfurization technology has it.

"Scrubbing isn't something new to the power industry," said Bill Bodnar, Kiewit sponsor for the Homer City AQCS project. "Scrubbers are used to remove particulates and harmful gases from industrial exhaust."

Not only is Kiewit building the NIDs for Units 1 and 2, but the lime and byproduct silos, too. Additionally, the team is constructing air compressors for powering the new system and a duct system that will move flue gas from the plant to the NIDs and out to the stacks.

"We will take out a bunch of ductwork that ties directly into the stack now and add sections of ductwork to connect to the NIDs," said Kiewit Project Manager Keith Rahe. "Instead of going straight out of the stacks, the flue gas will be sent into the NID and back out to the new fans that push the clean air out of the stacks."

The $585 million Homer City AQCS project is set to be completed in 2016.

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>
> **TODD KOLLROSS**, GE EFS PROJECT MANAGER

Homer City at a glance

$585 million
in contract value (project cost)

More than
700 employees & 75 subcontractors
at the height of construction

15,000 cubic yards
of excavation

15,000 cubic yards
of concrete foundations

5,000 tons
of structural steel

30,000 linear feet
of underground piping

80,000 linear feet
of above-ground piping

1.5 million linear feet
of electrical cable and wire

254,724 square feet
of duct work

43 miles
of welding

CLEAN AIR FOR ALL

Once the NIDs are operational, there will be a significant reduction in emissions from the stacks of Units 1 and 2 at Homer City, providing cleaner, safer air to the region.

Kiewit has experience in a variety of AQCS projects across the country, including the Neal Unit 3 AQCS project in Sioux City, Iowa; Brayton Point Unit 3 AQCS project in Somerset, Massachusetts; and LaCygne Environmental Retrofit project in LaCygne, Kansas. The Brayton Point project also used the same NID technology as the Homer City AQCS project. With growing environmental regulations, Kiewit is proving to be a leader in helping make the environment cleaner and safer.

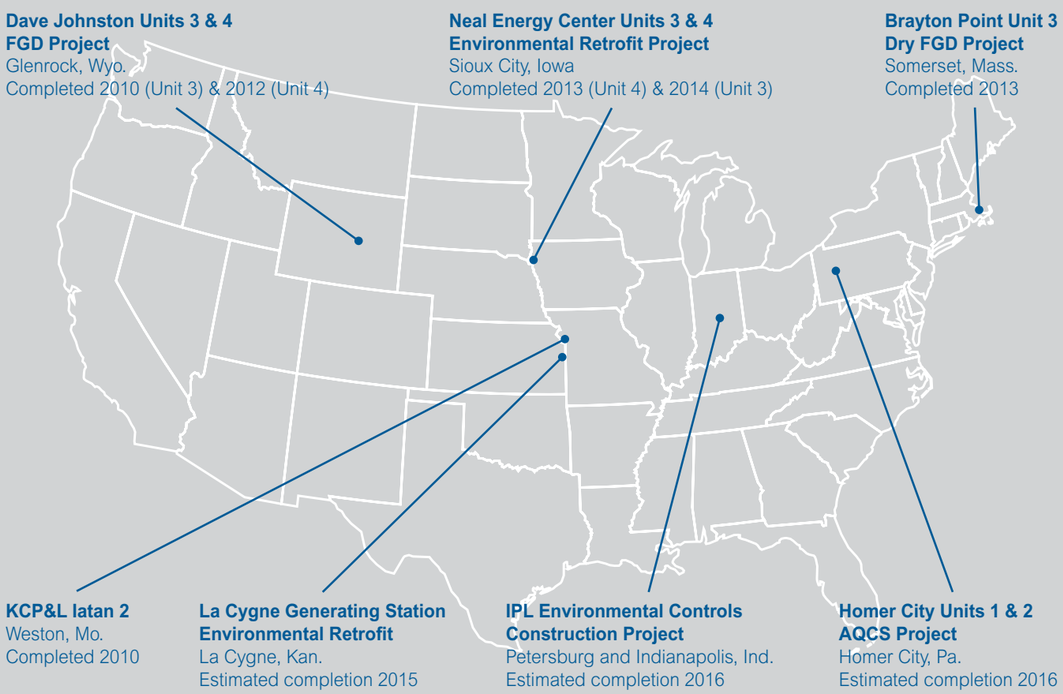
"Clean air regulations, along with the cross-state air pollution litigation, will likely allow us to see more opportunity to partner with AQCS technology providers throughout the decade," Bodnar said.

MORE THAN JUST ANOTHER JOB

The Homer City AQCS team isn't only helping the environment through their work. They're striving to help the community as well. The team is heavily involved in both the Indiana County United Way and CureSearch for Children's Cancer, an organization committed to raising funds for children's cancer research. For the United Way, the project team specifically earmarked a majority of the donations for Indiana County.

"We're all fortunate enough to work and have steady employment, so we want to give back to the community," said Mary Bluemle, Kiewit project engineer. "We really got involved with the United Way here to make this our

Recent Kiewit AQCS construction projects



> The success of the project depends on the people, and we have a great team at Homer City. The engineering and design team, field staff, client representatives, labor unions and community leaders — all of the stakeholders — knew their role, worked hard and produced positive results.

BILL BODNAR,
KIEWIT PROJECT SPONSOR

community for the time that we're here."

To raise funds for the United Way, the project held bake sales, a chili cook-off, and even a pie-in-the-face competition, raising $40,500 for the organization in the past year alone. In 2013, the team raised more than $80,000 for CureSearch through a Jakefest golf tournament, named in honor of Jacob "Jake" Koenigs, son of a Kiewit employee, who passed away in December 2006 after a fight with children's cancer.

With the Homer City Generating Station a central focus in the region, Kiewit also hosted Community Days in 2013 to educate family members and local citizens about the work at the plant. Stations were set up to teach the more than 1,000 attendees about various portions of the project.

"The success of the project depends on the people, and we have a great team at Homer City," said Bodnar. "The engineering and design team, field staff, client representatives, labor unions and community leaders — all of the stakeholders — knew their role, worked hard and produced positive results."

Kiewit and the Homer City team have been dedicated from the beginning to leaving the community even better than when they arrived — in more ways than one.