BARNHART

LIFTING LETTER

www.barnhartcrane.com

VOL. 70

A Publication of Barnhart

TABLE OF CONTENTS

PG. 10 COMMERCIAL PROJECT PROFILE: Pedestrian Bridge

Barnhart staging a pedestrian bridge section at its yard.

While the Memphis location has extensive storage capabilities, including the white structure known as “the bubble,” many Barnhart branches nationwide have indoor and outdoor capabilities.

STORAGE CAPABILITIES

Despite your best-laid plans, there is always the unexpected event. For example, a project is delayed for months or canceled, or your equipment arrives early. Now you have oversized, expensive and heavy equipment or cargo sitting idle with nowhere to go. It’s become a storage emergency, and you’re left scrambling to find a place to offload and store your equipment for months or even years.

You might call a general warehouse, but it’s likely they won’t have the space or capacity to help. But that’s not the case with Barnhart. With a nationwide network of branches, we have the capability to transport, offload, store, maintain and load large industrial and commercial components. These might include chillers, generators, transformers, wind blades, telecommunications equipment or shipping containers.

Barnhart also offers long-term services for the storage, handling and logistics of critical operating spares for power plants, process facilities and other businesses. Our warehousing, labor, trucking and maintenance services offer customers a unique package for the safe storage of essential components.

Barnhart’s capabilities include:

- Almost 1 million square feet of indoor storage
- More than 50 locations nationwide with outdoor storage
- Facilities located in free trade zones in the central U.S., Great Lakes, Gulf Coast, Mid-Atlantic and Pacific Coast
- Access via land, water and rail
- Climate-controlled storage options
- Inventory management services

The next time you plan, allow for the unexpected and let Barnhart help before it becomes an emergency.

A TALE OF A TURBINE ROTOR

A power company had stored a GE turbine rotor at Barnhart’s Memphis facility. Its shipping stand was out of date and couldn’t be used over the road.

The power company found a stand for rent. Barnhart provided the transportation to retrieve the stand. Back at the Memphis facility, the crew pulled the 110,000-pound rotor out of the warehouse on skates.

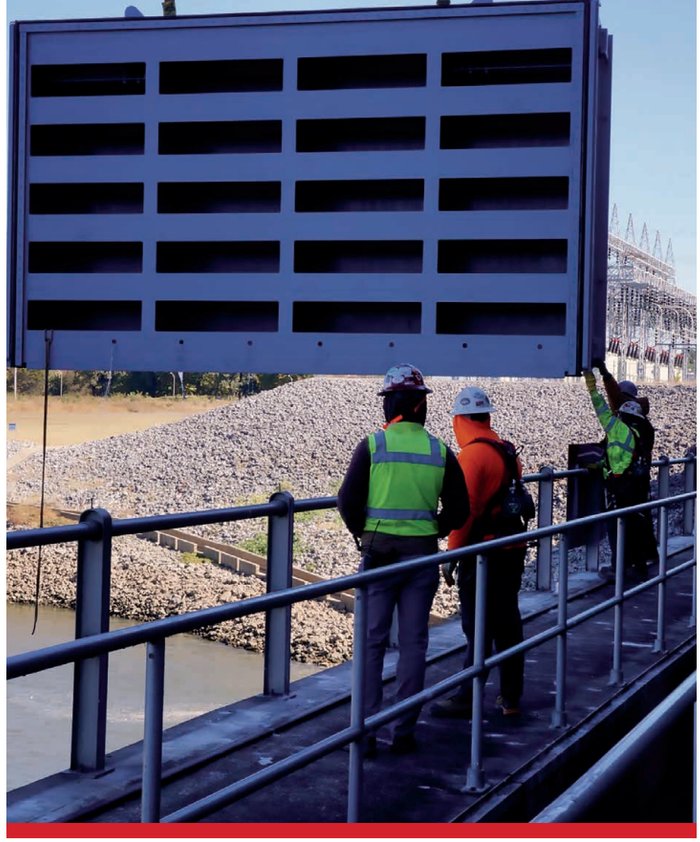
They craned the rotor from the old stand to the new one and placed it on a super trailer. Barnhart transported the rotor on the rented stand to the plant in time to install it during the spring outage.

Barnhart then load-tested the old stand and it passed. The crew took the recertified stand to the plant, loaded the old rotor onto it and transported it back to Memphis for temporary storage.

While the project started as just storage, because of Barnhart’s capabilities it became a transportation, load testing and storage again project, resulting in a satisfied customer.

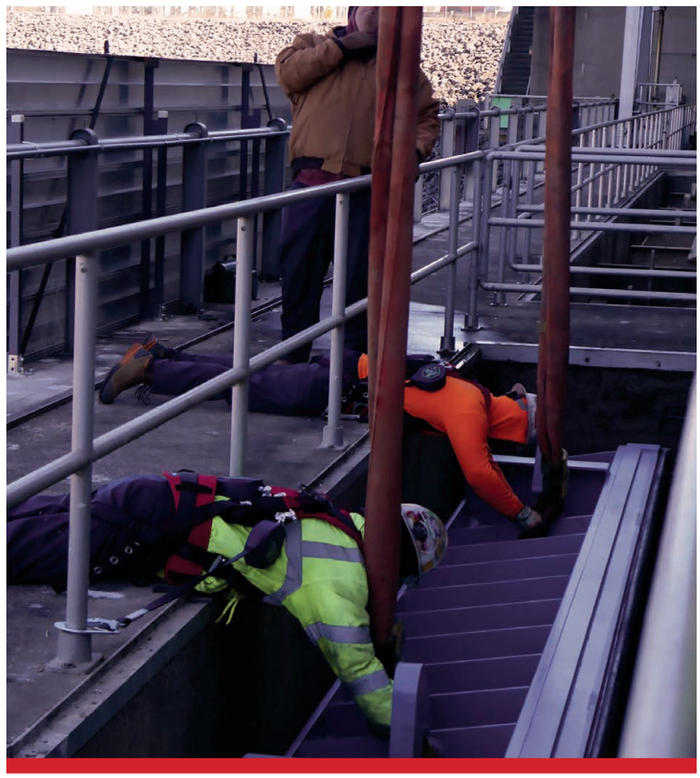
The Memphis crew loads the rotor onto a shipping stand.

1 Six draft gates needed to be set at a dam in Kentucky. Barnhart offloaded the gates at a nearby marina and loaded them onto a barge for transport to the dam.



2 The gates were moved to the dam from the barge by the Barnhart crew with a 4100 Manitowoc pedestal crane. Each gate measured 21' x 2' x 13' and weighed approximately 40,000 pounds per gate.

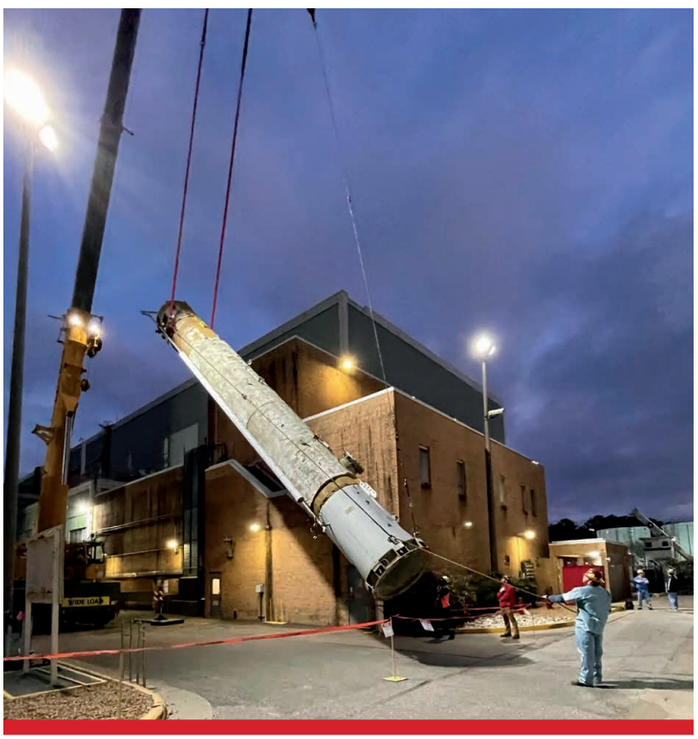
3 Barnhart landed the job because of its proposed method of using a barge crane was more cost effective than the competitor's approach of setting up in the parking lot and reaching over an office building.



4 The biggest challenge on the job was water levels, though low water levels worked in the crew's favor. While it was a first-time job for the Barnhart team, the six gates were set in one long day instead of the original three to five estimated days.

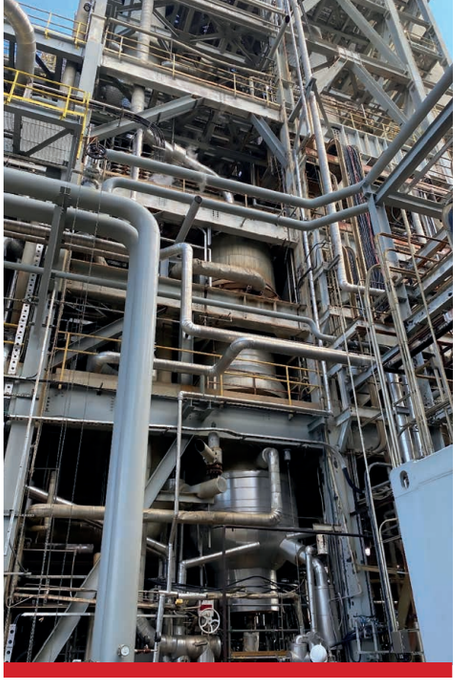
1 Barnhart was hired to remove a 45'-tall chemical addition tank weighing 10,000 pounds from a nuclear site in Virginia during an outage. Due to congestion, a truck crane was proposed to complete the maneuver, which eliminated the need for a second crane.

2 There were no rigging points on the tank, so Barnhart used 45K custom temporary trunnions to avoid having the customer weld lugs onto the tank. A spreader bar was used to keep the trunnions from imposing inward stress on the tank.



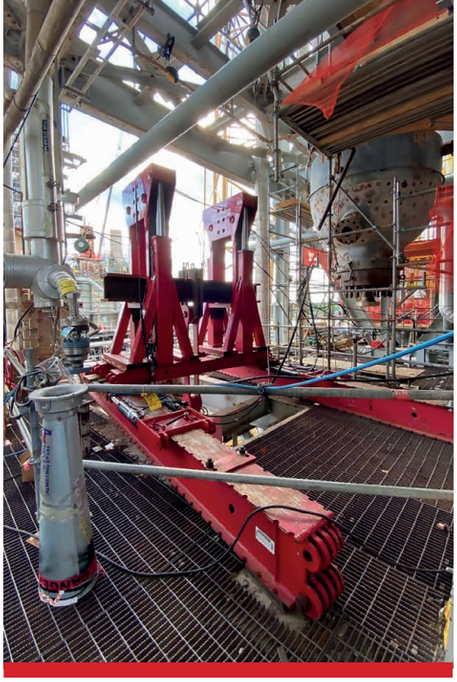
3 The truck crane was used to downend the tank from vertical to horizontal. A Barnhart custom Bear Paw clasp helped with self-tailing the tank.

4 Once the tank was set on the trailer, it was transported out of the protected area and shipped off-site. In addition to eliminating the need for a second crane and having to install rigging points, Barnhart's solution also reduced the overall job site footprint during the outage.

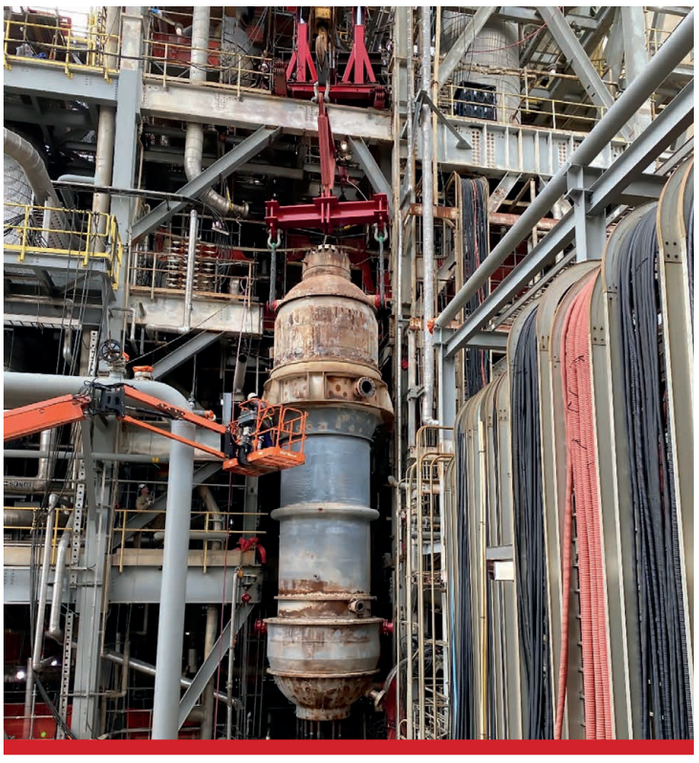


1 Barnhart was hired to remove and replace three vessels at a chemical plant in Georgia. One in particular, a 313,000-pound stripper, posed a challenge as it was encased behind structural steel building elements and piping.

2 Barnhart engineering had to devise a unique approach to removal and replacement. The first challenge was safely crossing an underground electrical tunnel on the approach to the crane setup area. The crew had to partially assemble the crane and then use a Goldhofer trailer to move the house, car body and tracks over the tunnel using Barnhart's bridge jumpers.



3 A second crane, which is normally used to assist the main crane in the handoff operation, could not be used due to site constraints. Barnhart used a Tri-Bar to connect to the stripper, then ran the rigging up to a set of pull-up gantries sitting on top of a 500-ton slide system.

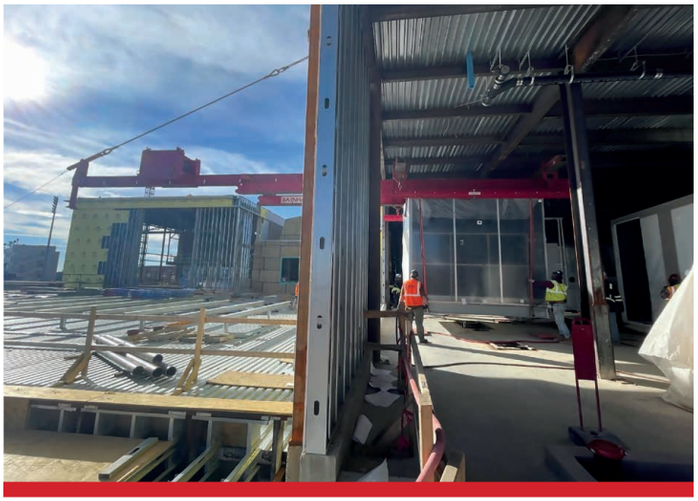


4 The 41' long and 12' diameter piece was drifted horizontally 5 feet and then rotated 45 degrees and lowered as it was passed to the crane for removal. Using 3D mapping, Barnhart was able to create the path, which only allowed for as little as a quarter-inch of clearance in some areas.

5 The piece was then lowered until it could be tailed safely down onto a Goldhofer self-propelled trailer. The process was reversed for the new stripper, which required different rigging because it was not identical to the old one. By finishing three shifts early, **Barnhart saved the customer $1.5 million.**

1 A client had contracted with Barnhart to set multiple air handling unit (AHU) modules in the seventh-floor penthouse of a new-construction STEM building on a university campus in Mississippi. The project involved a total of 31 AHU modules along with multiple additional pieces of duct and accessories.

2 There was very little headroom in the structure where the units were going. Barnhart brought in its moveable counterweight cantilever system (MOCCs). The AHUs also had multiple pick point configurations, and the crew used multi-pick spreader bars to save time when a different configuration was needed. A 350-ton crane lifted the MOCCs and AHUs into the penthouse.

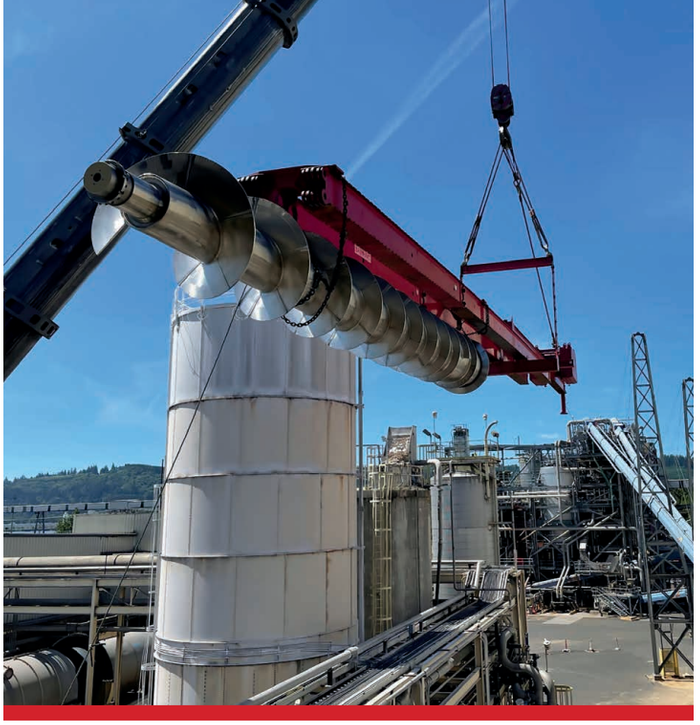


3 The client removed some shin-high concrete to create an opening and removed some pipes above to allow more headroom. The units were flown in with rigging as short as possible. While the AHU sections were not heavy, they were bulky and had to go through a narrow opening.

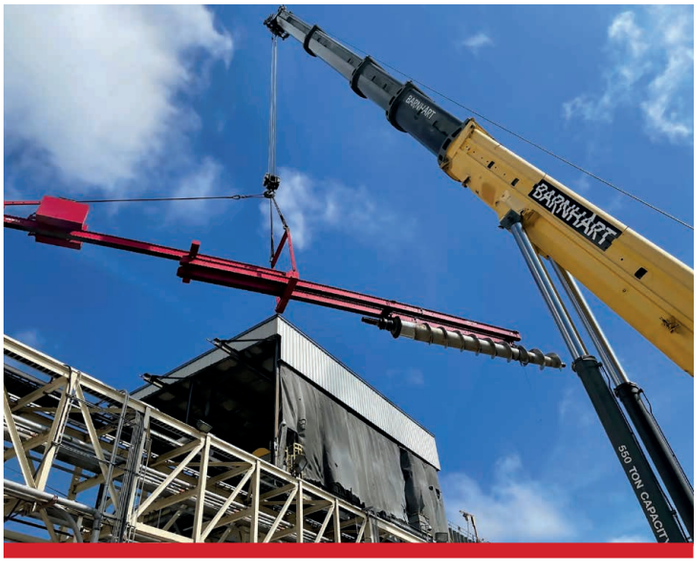
4 The sections were placed onto low-profile air skates, which were used to transport them across the floor to their final location.

A CLIENT CONTRACTED WITH BARNHART TO SET MULTIPLE AIR HANDLING UNIT (AHU) MODULES IN THE SEVENTH-FLOOR PENTHOUSE OF A NEW-CONSTRUCTION STEM BUILDING ON A UNIVERSITY CAMPUS.

1 A pulp and paper mill in Washington needed to remove and replace two sludge screws. Each screw was 39' long and weighed 22,000 pounds and was inside a structure with 2' of clearance on each side.



2 Barnhart set up a 550-ton crane in a tight work area and had to move around some obstacles in the yard. The crew used its moveable counterweight cantilever system (MOCCs) to reach inside the fourth floor of the structure and remove the screw.



3 The old screw was then transported to a laydown yard where it got hauled off to the warehouse.

4 The process was reversed for the replacement of the screws. Barnhart was awarded the job because of its innovative approach of using the MOCCs, which enabled the job to be completed in just one day. The client has since reached out about future work.

BARNHART WAS AWARDED THE JOB BECAUSE OF ITS INNOVATIVE APPROACH OF USING THE MOCCS, WHICH ENABLED THE JOB TO BE COMPLETED IN JUST ONE DAY.

Photo courtesy of the ND Highway Patrol

1 Barnhart was hired to transport a turbine and generator from Duluth, MN to Moose Jaw, Saskatchewan Canada, a journey of nearly 2,000 miles. The crew put together a convoy composed of prime movers, Eastrac trailers and a GS-800 Dreamliner.

2 In October, the generator was hauled 2,000 miles through Minnesota, South Dakota, Montana and across the border 120 miles into Canada. The dimensions of the load were 210' long, 24'10" wide and 18'6" tall. The weight of the entire convoy was 642,144 pounds.

Photo courtesy of the ND Highway Patrol

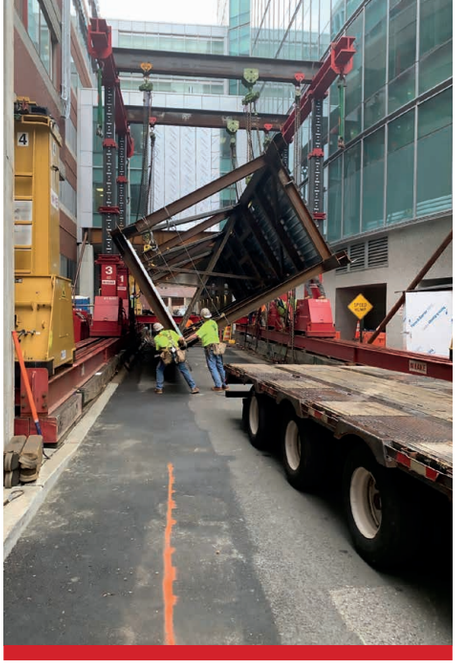
3 In November, it was the turbine's turn. The route was 1,800 miles through Minnesota, South Dakota, North Dakota, Montana and into Canada and took three weeks. The gross weight of the entire transporter load was 976,800 pounds. Its size was 344'10" long, 24'10" wide, and 18'6" tall, which spanned the entire width of a two-lane road.

Photo courtesy of the ND Highway Patrol

4 Several months of planning and coordinating with local DOTs, counties, cities and utility companies were needed to map out and prepare the route. The crew also battled the snow and extreme terrain of the Midwest and customs to cross the border before winter set in. But both hauls were completed safely and without incident due to exceptional teamwork.

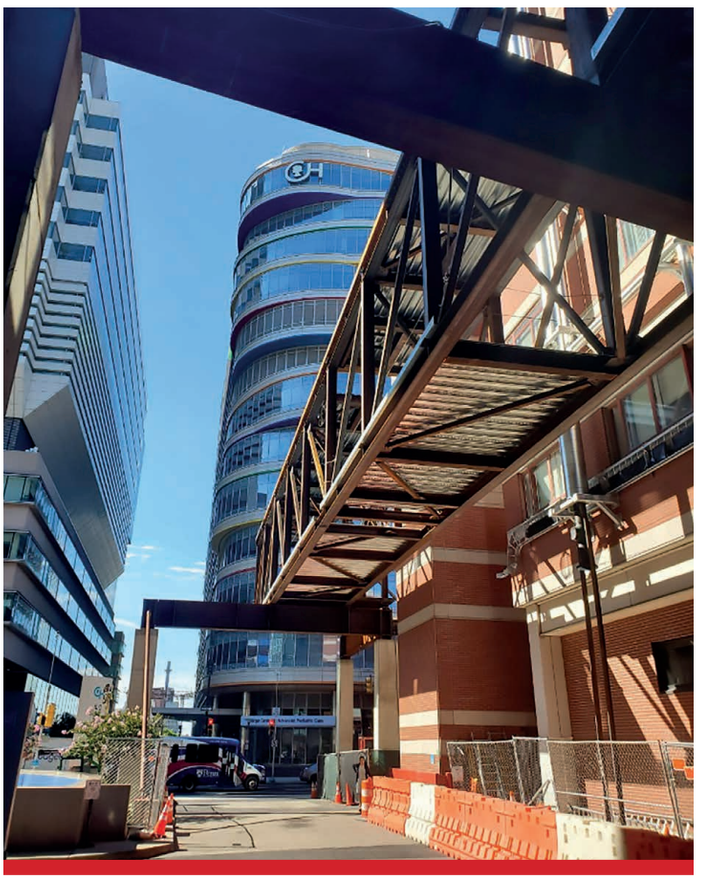
1 A pedestrian bridge linking two wings of a hospital needed to be installed in an alley in Philadelphia. The customer first chose another company to do the project, but when that proposed approach was unworkable, they came to Barnhart for a solution.

2 In the first phase, Barnhart staged the two bridge sections at its yard. Due to height issues, the sections had to be transported on their sides. Each piece was lifted and rotated using 300-ton gantry legs and offloaded to a transporter.



3 The alley at the site was just 16' wide, so there was limited space among the equipment, bridge sections and a pedestrian walkway. A pathway for ambulance traffic to an adjacent ER also had to be left open.

4 The team used the 300-ton gantry legs to rotate and raise the first two bridge sections to height, which was 31' in the air. A 110-ton mobile crane lifted and set the second two sections in place. The work was performed over two consecutive weekends.



5 The work had to be completed between Friday night and Sunday afternoon. The team was able to optimize efficiency during the second phase to complete the project 1 ½ shifts ahead of schedule, saving the customer time and money.

1 Barnhart was hired to install a 933,000-pound generator at a power plant in Illinois. On site, the team assembled a Modular Lift Tower with a 550-ton crane, creating a stable tower system. Simultaneously, a crew assembled gantries at a rail spur to receive the new generator.

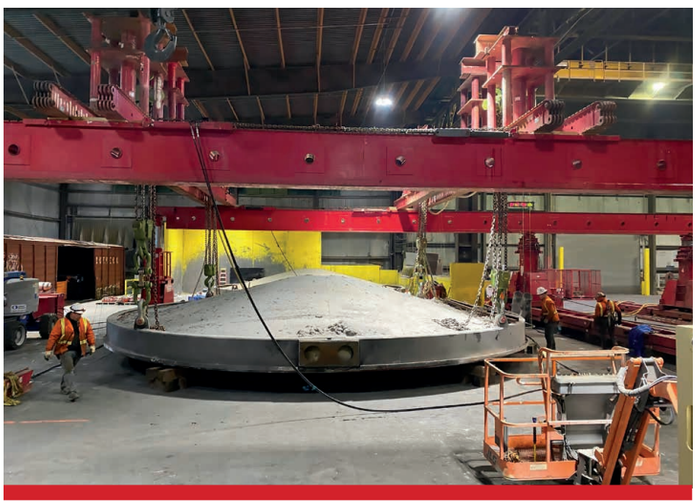
2 The generator was loaded onto an 18-line platform trailer and transported to the site.

3 The new generator was lifted from the trailer with girders and an adjustable rigging link system, used for high-capacity loads. The generator's final location was behind a three-story metal structure.

4 The generator was lifted over the structure, clearing it by only 14 inches. It was set within a tight schedule window, and Barnhart's method allowed several components to be installed prior to the generator, saving time on the construction schedule.

1 Barnhart was contacted about a project to remove and replace a furnace roof at an aluminum plant in Tennessee. It was 36' in diameter and weighed 280,000 pounds. Challenges included limited headroom and access around the work area. Additionally, Barnhart job leaders were required to coordinate lift system assembly/disassembly efforts with the plant operators in order to have minimum impact on production.

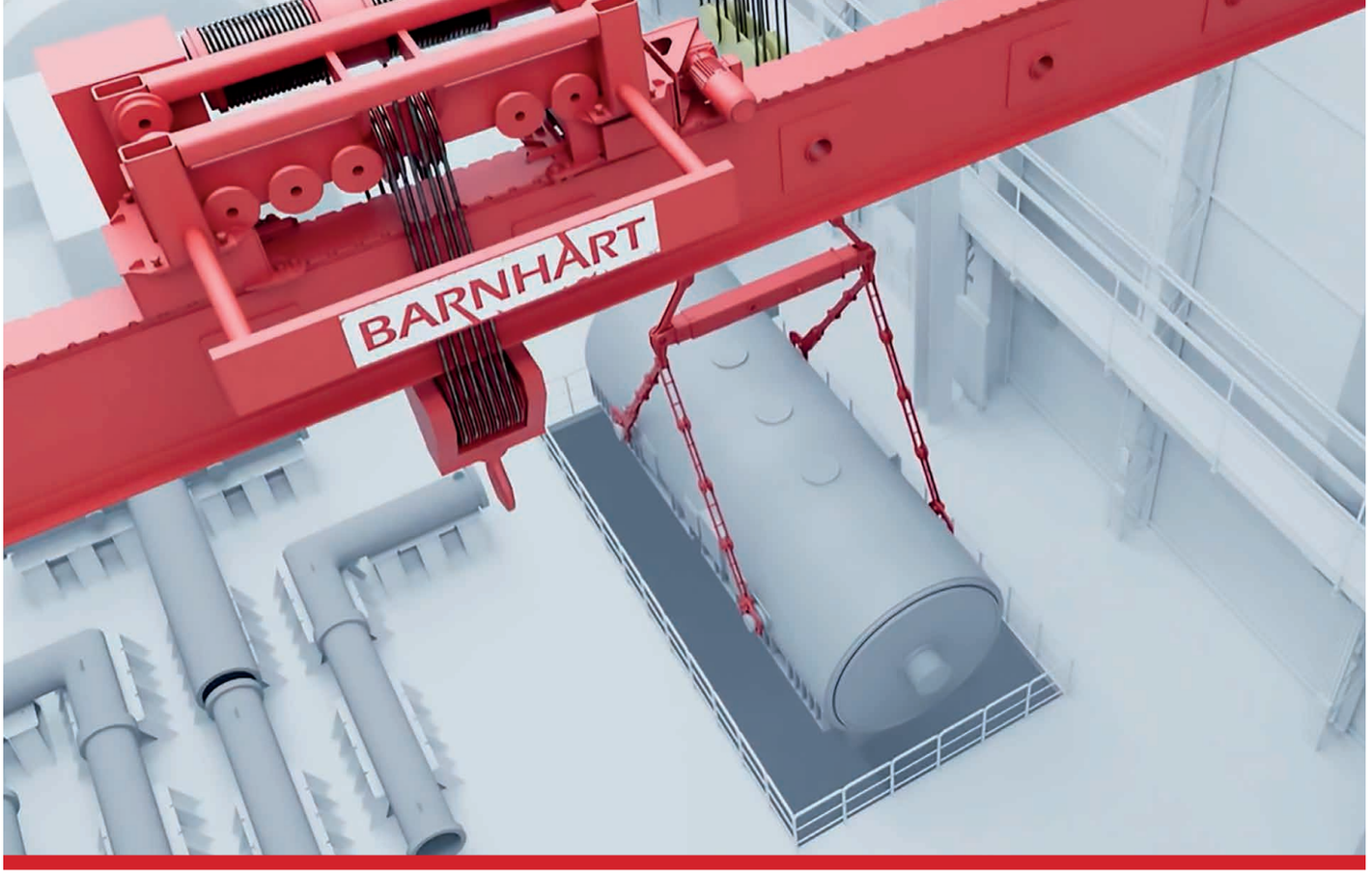
2 The team assembled a lift system composed of hydraulic gantries and a hydraulic jack system over the furnace. Rigging hardware was attached to the existing roof, and it was lifted from the top of the furnace.



3 The existing roof was moved to the bay northwest of the furnace, lowered to the concrete slab and moved 80 feet for demolition.

4 A few weeks later, the crew returned for the removal and replacement of the adjacent furnace roof. The replacement roof was relocated over the furnace and rough-set utilizing the same method. Both phases of the project were completed successfully on schedule with no incidents.

THE REPLACEMENT ROOF WAS RELOCATED OVER THE FURNACE AND ROUGH-SET UTILIZING THE SAME METHOD. BOTH PHASES OF THE PROJECT WERE COMPLETED SUCCESSFULLY ON SCHEDULE WITH NO INCIDENTS.



This animation (link below) demonstrates Barnhart's temporary overhead crane in action.

TEMPORARY OVERHEAD CRANE

Barnhart's temporary overhead crane is a custom-designed tool that can help you improve plant outage efficiency and schedule. It will keep you moving when your existing overhead crane isn't available, or you need additional lifting capacity.

For example, you have lift needs, but your main crane must keep on critical path items or your overhead crane goes down, but you still need to work while you're waiting on repairs. The temporary overhead crane can also work in tandem with your existing crane to maximize productivity.

The system is powered by two end trucks with a beam that covers the crane span. Telescopic ends allow for easy installation on your existing runway. An electric winch system and hook has a lift capacity of 20 tons.

The system is highly configurable and has been designed to optimize installation. Its use can minimize floor congestion and increase safety.

The temporary overhead crane system can be used in a variety of industrial settings, including power production and pulp and paper.

SCAN THE CODE TO SEE AN ANIMATION OF THE OVERHEAD CRANE IN ACTION.

An all-terrain crane mobilized to Naval Station Norfolk to load supplies to the USS Wright.

CHESAPEAKE, VIRGINIA

Situated in the heart of Hampton Roads, the Barnhart Chesapeake branch offers a local presence with a nationwide inventory of resources.

Combining crew knowledge and experience with in-house engineering skill to satisfy the constraints of the most difficult projects, the branch is uniquely positioned to serve a variety of customers. From nuclear power and marine cargo, to innovative transport solutions and complex rigging, the Chesapeake team understands the keys to a successful project.

Since acquiring Lockwood Brothers in 2017, the branch has intentionally invested in developing the right mix of equipment and people to provide quality service to its customers. While the safety of its crews and the public remains the highest priority, it is the branch's commitment to executing with excellence that makes it stand out in the region.

Barnhart actively engages with the local community, volunteering with local nonprofits and securing grants through the Barnhart Cares initiative. They believe that community is imperative for the long-term success of the branch.

While the branch specializes in projects in the Coastal Virginia area, its service area extends into Raleigh-Durham, Morehead City, Washington, D.C. and Baltimore.

"I'm proud of the work we're doing here in Chesapeake and surrounding Hampton Roads. We're blessed with a talented team, skilled craft and first-class field leaders who understand the value of executing with excellence. It's incredible to see how the trust and our commitment to each other at the branch translates to our customers every day," says Branch Manager Robert Gibbs.

The Chesapeake branch specializes in the following services:

- Outdoor/indoor storage
- Transformer hauls and setting to pad
- Component moves at the port
- Nuclear facility upgrades and replacements
- Barge roll-on, roll-off activities
- Project engineering support

As an established and respected crane and rigging company, Barnhart's Chesapeake branch is a first call for projects that need world-class service through a local presence.

Lifting an 834,000-pound Siemens generator from a rail car using 500-ton one-shot gantries at the Norfolk International Terminal.

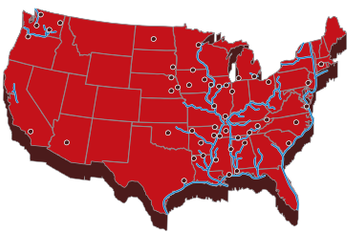
The Chesapeake crew on a project to move a battleship gun barrel to a display site. Pictured left to right: Phil Logan, John Saville, Julien Brownlow, Ian Newton, Daniel Jordan and Rob DeGroat.

BARNHART

2163 Airways Blvd.
Memphis, TN 38114

www.barnhartcrane.com
1-800-587-3249
sales@barnhartcrane.com

NATIONWIDE OFFICE LOCATIONS & FACILITIES



- DECATUR, AL | FULL SERVICE
- GADSDEN, AL | FULL SERVICE
- MOBILE, AL | FULL SERVICE
- BLYTHEVILLE, AR | FULL SERVICE
- EL DORADO, AR | FULL SERVICE
- LITTLE ROCK, AR | FULL SERVICE
- SPRINGDALE, AR | FULL SERVICE
- PHOENIX, AZ | RIGGING & TRANSPORT
- LOS ANGELES, CA | RIGGING & TRANSPORT
- MIDDLETOWN, CT | FULL SERVICE
- CEDAR RAPIDS, IA | FULL SERVICE
- DES MOINES, IA | FULL SERVICE
- MASON CITY, IA | FULL SERVICE
- CHICAGO, IL | RIGGING & TRANSPORT
- EAST MOLINE, IL | FULL SERVICE
- LADD, IL | FULL SERVICE
- ELKHART, IN | FULL SERVICE
- FOWLER, IN | FULL SERVICE
- OWENSBORO, KY | RIGGING & TRANSPORT
- SHREVEPORT, LA | FULL SERVICE
- WEST MONROE, LA | FULL SERVICE
- MONROE, MI | RIGGING & TRANSPORT
- ST. LOUIS, MO | FULL SERVICE
- COLUMBUS, MS | FULL SERVICE
- JACKSON, MS | FULL SERVICE
- PASCAGOULA, MS | FULL SERVICE
- LINCOLN, NE | FULL SERVICE
- OMAHA, NE | FULL SERVICE
- SOUTH SIOUX CITY, NE | FULL SERVICE
- MANDAN, ND | FULL SERVICE
- CANTON, OH | FULL SERVICE
- COLUMBUS, OH | FULL SERVICE
- OKLAHOMA CITY, OK | FULL SERVICE
- PORTLAND, OR | FULL SERVICE
- PHILADELPHIA, PA | RIGGING & TRANSPORT
- CHARLESTON, SC | RIGGING & TRANSPORT
- SIOUX FALLS, SD | FULL SERVICE
- CHATTANOOGA, TN | FULL SERVICE
- JACKSON, TN | FULL SERVICE
- KINGSPORT, TN | FULL SERVICE
- KNOXVILLE, TN | FULL SERVICE
- MEMPHIS, TN | FULL SERVICE, SERVICE CENTER, HEAVY LIFT TERMINAL
- HOUSTON, TX | RIGGING & TRANSPORT
- CHESAPEAKE, VA | FULL SERVICE
- KENT, WA | FULL SERVICE
- MT. VERNON, WA | FULL SERVICE
- RICHLAND, WA | RIGGING & TRANSPORT
- SPOKANE, WA | FULL SERVICE
- SUPERIOR, WI | FULL SERVICE

IF YOU WOULD LIKE TO STOP RECEIVING THE LIFTING LETTER, PLEASE EMAIL US AT SALES@BARNHARTCRANE.COM

BARNHART EQUIPMENT

ALTERNATIVE HEAVY LIFT
- MODULAR LIFTING TOWER
- PULL-UP GANTRY
- HYDRAULIC SLIDE SYSTEM
- JACKS & RAMS
- 4-POINT GANTRY SYSTEM
- STRAND JACKS
- MODULAR HOISTS

TRANSPORTATION SYSTEMS
- DUAL LANE TRANSPORTERS
- GOLDHOFER PSTE
- HYDRAULIC DOLLY SYSTEMS
- BARGING
- RAMPS AND TEMPORARY BRIDGES

MARINE HEAVY LIFT
- DERRICK CRANE – MISSISSIPPI RIVER
- HEAVY LIFT TERMINAL – GREAT LAKES
- HEAVY LIFT CRANE – HOUSTON

TELESCOPIC BOOM CRANES
- FROM 7 TONS TO 650 TONS

LATTICE BOOM CRANES
- CRAWLERS FROM 100 TO 1,800 TONS
- TRUCK CRANES FROM 115 TO 800 TONS
- RINGER CRANES FROM 360 TO 1,800 TONS

OPERATED CRANE SERVICE
- OVER 450 CRANES
- LATTICE BOOM TO 1,760 TONS
- TELESCOPIC BOOM TO 600 TONS
- FULL TURNAROUND SERVICES
- NATIONWIDE NETWORK OF CRANE BRANCHES