



BARNHART

LIFTING LETTER

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SERVE LOCALLY

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GROWING TO SERVE LOCALLY

COVER STORY



Unique equipment like the Moveable Counterweight System, which can significantly reduce schedules and costs, are available through Barnhart's local branch network system.

Barnhart has grown significantly in the last 20 years, and that's clear by the number of locations we now have – 38 across the country. Every branch we have added since our initial founding in 1969 has been fueled by one primary motivator – to improve customer service at the local level.

One of our strengths has always been the ability to mobilize equipment and teams to remote locations, but we also know that some customers are best served by a “local” provider. We at Barnhart have grown our footprint so we can be national and local at the same time. We want to provide better service for local projects large and small.

Our individual locations allow us to learn more about our local customers' needs and gear our equipment inventory around the requirements of that area. And our diverse tool box is one of the reasons Barnhart is different. Not only do we have one of the largest crane inventories in the

U.S., but we have tools no one else has. Pull-up gantries, movable counterweight systems, GS-800 transportation system, tri-blocks, tip-sticks – are just some of the unique cool tools that can lift, turn, install and maneuver the needs of our local customer.

Finally, as we have grown, we realize that many of our local customers have long-standing relationships with other local crane and rigging vendors. Many customers are surprised to learn that Barnhart's local branches stand ready to enhance, not disrupt, those long-standing relations. Our ability to assist local crane companies by providing engineering and our below-the-hook cool tools have proven invaluable for many local customers.

Growth means many things for customers in our areas: better service, increased capabilities, and more options, which our local customers always welcome. **B**

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BRANCH NETWORK AND SERVICE AREAS



Outage, Project Rigging and Transportation Area



Outage, Crane Service Area

CHEMICAL: Deethanizer Offload and Set



KENTUCKY

1) Barnhart was tasked with offloading and setting a deethanizer and quench tank at a chemical plant in Kentucky. The work took place next to two live units and space was tight. The Barnhart crew first

set up gantries next to one of the units and offloaded the deethanizer from a truck using the gantries in a 2-beam configuration. The vessel was staged on pipe stands to allow the customer to insulate the vessel. **B**



2) After completing the quench lift transfer, Barnhart mobilized the 600-ton and 210-ton cranes with operators and set them up next to a live unit. The team assembled two legs of gantry for tailing operations. **B**



3) The deethanizer was set with the 600-ton in Superlift. Working in limited space, Barnhart had to quickly break down the entire system in two shifts to allow the customer to start piping and setting up gear. **B**

REFINING: Module Transport



LOUISIANA

1) Barnhart was hired to transport four steel modules by barge, each module weighing 100,000 lbs., from a fabrication facility in Lake Charles, Louisiana to a painting facility in Texas. **B**



2) The 87' long modules were loaded onto two 250' X 54' barges for transport using Barnhart's Goldhofer trailer with PSTe. **B**



3) Once the modules arrived in Texas, they were staged on barges for nine days while they were sandblasted and painted. Project overlaps at the painting facility resulted in delays to the project,

but eventually, Barnhart barged the four modules back to the dock in Lake Charles where they were rolled off the barge and delivered back to the fabrication facility. **B**

HEAVY INDUSTRIAL: Generator Removal and Installation



TEXAS

1) Barnhart was hired to remove and install three generators from an industrial site in Texas. For the removal, the team used a 500-ton one-shot gantry system and a 72' trap girder to move the generators to a hydraulic trailer. Three months later, the process was reversed. **B**

2) Precise engineering was needed on both the removal and installation, as the 72' trap girder reached 98% of capacity with the heaviest generator, which weighed 171,000 lbs. Tight conditions also proved to be a challenge. **B**



3) The install required precision, so Barnhart utilized its 200-ton swivel in order to manipulate the generators left or right, as well as forward and backward. Barnhart was able to twist the first generator around wires that would eventually provide power to the generators. This saved the customer the time and money involved in having to remove them. **B**

4) The 200-ton swivel proved to be essential in navigating the generators into final position. The results – a satisfied customer, and a project that was selected as a Barnhart Home Run. **B**

PULP AND PAPER: Boiler Transport Set



PROJECT PROFILES

ARKANSAS

1) Barnhart mobilized a team to West Point, Mississippi for a project that involved transporting a boiler to a pulp and paper mill in Arkansas. In Mississippi, the team assembled a 500-ton gantry system around the 311,000 lb. boiler and loaded it onto a 14-line Goldhofer THP. **B**

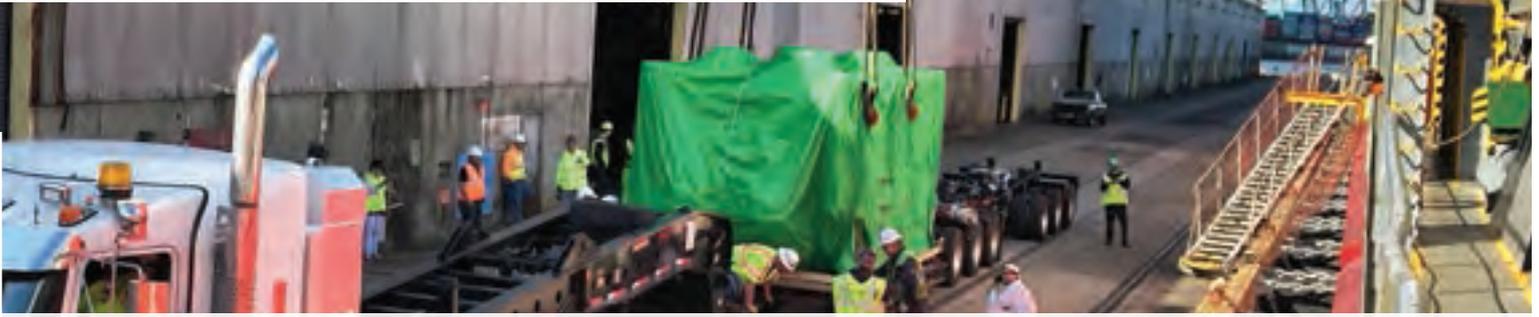
2) The boiler was transported 13 miles to the Tombigbee Waterway. The loaded height was 29' tall, so Barnhart had to coordinate with local utility and telecom companies to move the lines in order for the cargo to pass safely through. **B**



3) The team rolled the boiler onto a barge to be transported by waterway to Morrilton, Arkansas. The trip took two weeks and fluctuating water levels required Barnhart's engineers to take depth soundings and do some civil improvements at the roll off ramp to ensure a safe transition from the barge. **B**

4) The boiler was transported to the mill where it was set on the foundation using 500-ton gantries. **B**

PROJECT CARGO LOGISTICS: Industrial Components



TENNESSEE

1) Barnhart was hired to transport three components, a press crown, bed, and slide from Norfolk, Virginia to an industrial site in Tennessee. Barnhart first

mobilized an 11-line EasTrac trailer to Norfolk where the slide and bed were received from ship's gear. **B**



2) The bed assembly weighed 239,000 lbs. and the slide assembly was 150,000 lbs. Due to a late award, Barnhart had a short window for obtaining DOT permits. Both components were transported on the EasTrac to Tennessee. The trailer then returned for the crown. **B**



3) The crown was taller than the previous load at nearly 15' tall and there were bridge clearance issues along the route. Barnhart assembled a GS-400 girder system around the crown that would suspend it and get it lower to the ground. **B**



4) Transporting the crown to the Tennessee site proved to be a challenge starting in Norfolk, where a traffic plan ensured the streets and corners were clear of cars so the 16' wide trailer could make the route. Barnhart coordinated with police and

private escorts all along the way and identified numerous places to pull off in case of equipment problems or if a curfew was reached and the transport had to be stopped for the night. All these provisions ensured that all three transports were completed safely and on time. **B**

NUCLEAR: Heat Exchanger Removal and Replacement



WASHINGTON

1) Barnhart's engineering team was faced with a challenging project at a treatment facility for nuclear waste in Washington that involved the removal and replacement of heat exchangers. There were very tight clearances within the facility and the customer did

not want to remove any obstructions. To resolve the issue, Barnhart fabricated some beams that connected to the heat exchanger's existing front support and rested on cribbing on the back side of the heat exchanger so they could cut the saddle. The light slide system rested on the beams. **B**



2) The setup was extremely tight for the equipment, and the crew was working within tolerances of a quarter inch in several places. Barnhart used a bolster turntable to maneuver around obstructions and to rotate the heat exchanger 90 degrees. **B**



3) The heat exchanger was slid onto the light slide system to elevated pull gantries and then was slid approximately 80' on a heavy slide system to the roll-up door. **B**

4) The heat exchanger was lifted with a 120k forklift and placed in a burial container. The crew reversed the process to install the new heat exchanger. Barnhart's extensive preparation resulted in the smooth execution of the project. **B**



MINING: Kiln Shell and Tire Replacement



MISSOURI

1) Barnhart's project to remove and replace a kiln shell and tire at an industrial plant began at the port of New Orleans. Barnhart received the new

components and transferred them to a waiting barge for the week-long trip to Missouri. The components were rolled off with Goldhofer-10 lines of THP. **B**



2) The work was performed during an outage. Minimal headroom was a challenge as the client didn't want to remove overhead ductwork which would have added to the outage schedule. Using a CC2000 and a CC2800, the team removed the old kiln and tire section. The new sections sat in a custom saddle designed and fabricated by Barnhart and was surrounded by scaffolding. **B**



3) The kiln sat at a 2.5 degree angle, so the team had to maintain the angle during the lift or the kiln and tire sections wouldn't fit through the removal window. The CC2800 in Superlift was operating at 98% of capacity, which posed a further challenge. **B**



4) Barnhart utilized 5' girders as a lifting beam and a custom adjustable length rigging system to remove the old kiln shell and tire. The old section was

transported to an onsite laydown yard via 10 lines of Goldhofer PST and offloaded with Barnhart's pull up gantries. The same rigging was utilized to install the new components. **B**

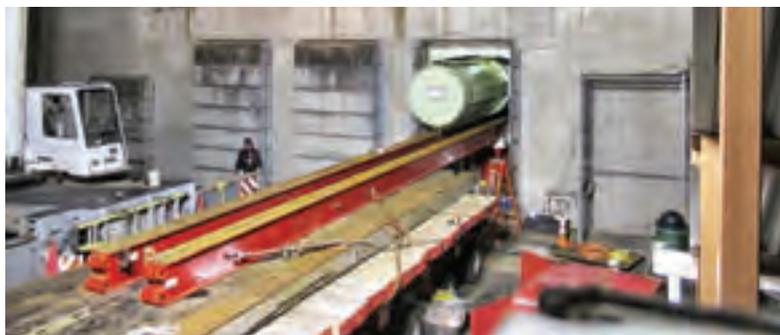
NUCLEAR: Heat Exchanger Replacement



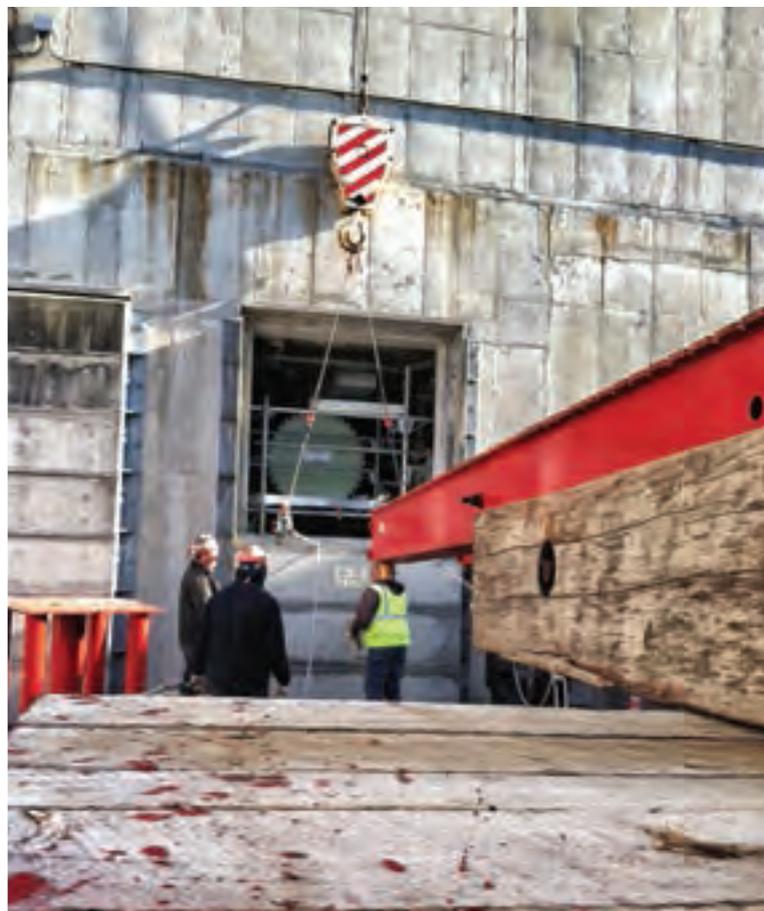
CONNECTICUT

1) Barnhart devised an alternate method to remove and replace a heat exchanger at a nuclear site in Connecticut, which proved to be better than the plant's original concept. The team first had to remove

concrete blocks to allow for access into the auxiliary building. Inside the building, access was limited and there was no over-head crane support, so Barnhart used 6 lines of PSTe to launch the slide track with custom-made saddles. **B**



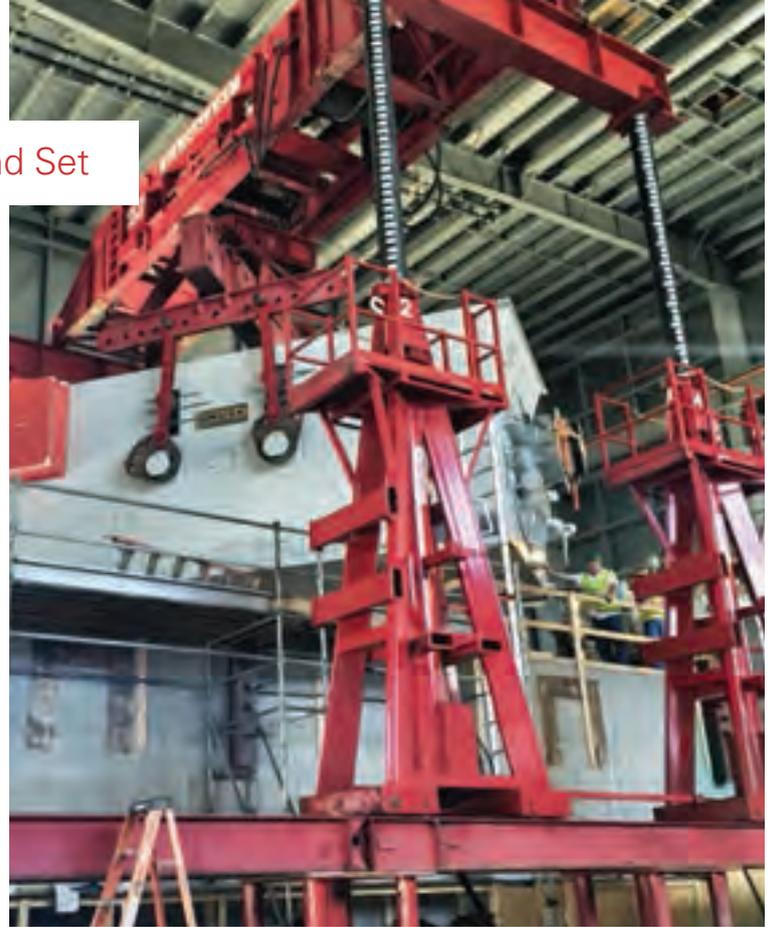
2) The existing heat exchanger weighed 80,000 lbs. and was over 47' long. It was in a low dose area so there were restrictions within the work space. Barnhart also had to work around critical plant equipment with tight working conditions and tolerances up to 1/4". **B**



3) Barnhart used a 180-ton hydraulic crane to transport the old heat exchanger from the auxiliary building to a staging area. The new heat exchanger was transported and put into position with 6 lines of PSTe. **B**

4) Once the new exchanger was put into position, Barnhart had to disassemble the rigging equipment and reinstall the concrete blocks in the auxiliary building. Despite delays in the schedule, Barnhart executed the job safely and with no incident, resulting in a "flawless execution of a rather complex evolution," according to the client. **B**

POWER: Steam Turbine and Generator Lift and Set



MASSACHUSETTS

1) Innovative equipment helped Barnhart land a project at a power plant in Massachusetts. The project scope was to lift and set two steam turbine generators weighing 511,000 lbs. and two turbines weighing 158,000 lbs.

Barnhart first set their equipment – a 500-ton hoist, 500-ton one shot gantries (which don't lose their capacity when fully extended), and a multi-purpose spreader bar with swivel adapter – onto a pedestal utilizing the building's overhead crane. Barnhart lifted the components off of a platform trailer perpendicular to the pedestal. **B**

2) The units were then lifted and rotated. It was tight working conditions, and access in and out of the building was an issue, but Barnhart's swivel hoist allowed for the rotation of the units in their proper orientation. This capability enabled Barnhart to win the job. **B**



3) The gantry trolleyed on its track and the hoist lowered the units down onto the foundation pedestal. The equipment was broken down

using the overhead crane and set up on another pedestal and the process was repeated for the other components. **B**

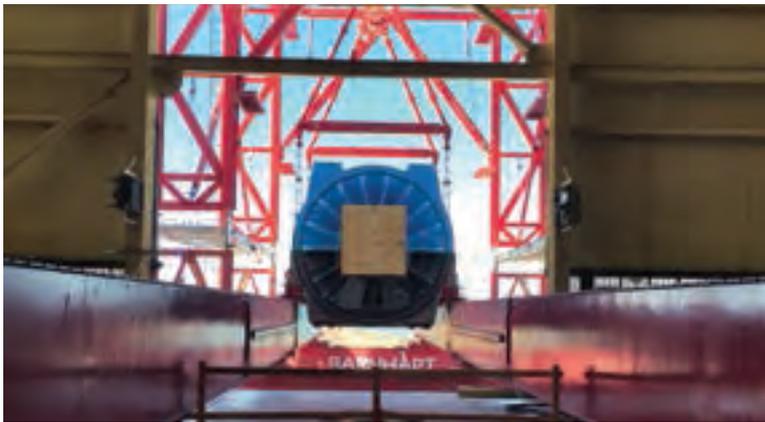
NUCLEAR: Stator and Rotor Removal



ILLINOIS

1) A nuclear plant in Illinois hired Barnhart to remove a 560-ton stator and 200-ton rotor from a turbine building and haul each component to an onsite laydown area. Barnhart utilized its 800-ton gantry system and

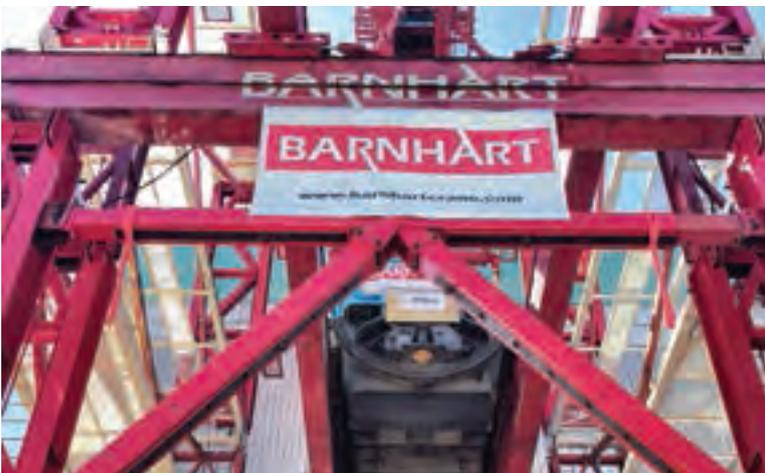
1,000-ton slide system to lift, stage, and slide the stator to align with a wall opening between two columns. The gantry lift and slides had to accommodate the set position of the stator which did not align with the wall opening. **B**



2) The stator was lowered to Barnhart's 5-foot girders and slid across the turbine floor to the wall opening where the 650-ton strand jack lift system took over. **B**



3) The ground outside the turbine building initially would not support Barnhart's proposed Modular Lift Tower (MLT) loadings. Barnhart's engineering team worked with the client to complete the civil improvements needed to support it. **B**



4) The 5-foot girders that supported the stator blocked its ability to be lowered. Limited real estate onsite would not allow for a longer MLT configuration. So the MLT was designed so that the girders could be slid apart after the strand jacks had been rigged to the piece. **B**



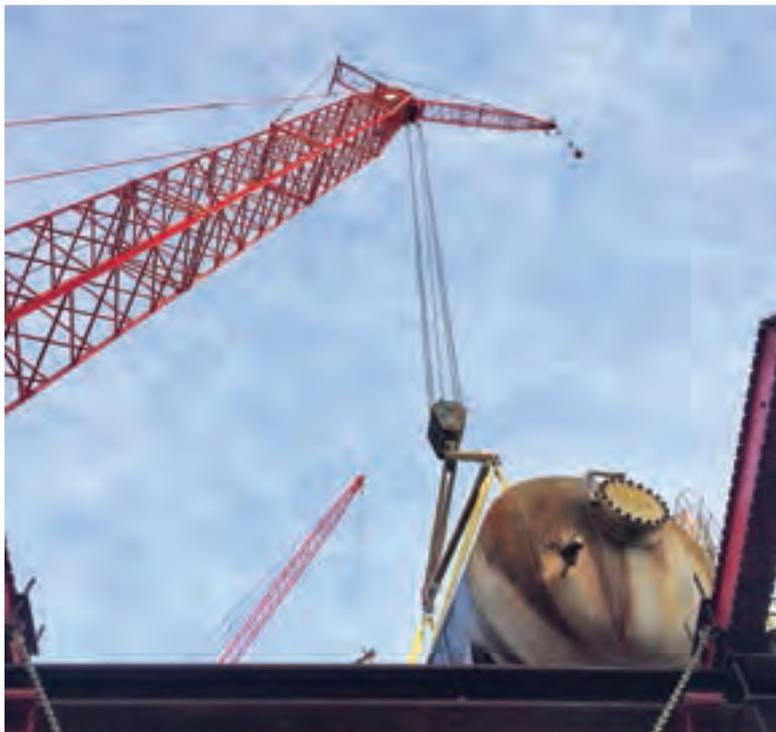
5) This created enough space for the stator to be lowered to a Goldhofer PSTe where it was then hauled to an onsite laydown area. The same steps were repeated to safely remove the 200-ton rotor. **B**

REFINING: Drum Removal and Replacement



ILLINOIS

1) A customer at a refinery in Illinois needed to remove and replace a Preflash Tower Reflux Accumulator, otherwise known as a drum. The project required that Barnhart develop a plan that did not involve removing additional equipment or platforms above the drum. There was also limited work space on the drum platform. **B**



3) The drum was then rigged to the gantries and slid out to an open area where it was handed off to a crane hook. **B**



2) After identifying and removing obstructions, the Barnhart engineering team developed a plan that utilized an elevated slide system so that the 30 kip gantries could be used to slide the drum out of the surrounding structure. **B**



4) The crane then lowered the drum onto a trailer. Barnhart's field crew worked closely with the refinery's maintenance contractor to complete a difficult project safely and on schedule. **B**

POWER: Boiler Transport



ALABAMA

1) This project for a power company in Alabama started in 2015 when Barnhart offloaded a new 228,000 lb. package boiler from rail and set it on stands and beams at the company's yard. A year later, the

team returned to transport the boiler to new construction at the company's other site 25 miles away. Barnhart transported the boiler to a waiting barge using 10 lines of Goldhofer THP. **B**



2) The team mobilized their heavy lift crane and barged north 25 miles to the company's other site. There, the boiler was unloaded to waiting Goldhofer and hauled 500 yards to the plant. **B**



3) Using gantries, the boiler was set to the foundation. **B**

CIVIL: Gate Removal and Replacement



ALABAMA

1) Barnhart was hired to perform a project at the Armistead I. Selden Lock and Dam on the Black Warrior River to provide the lifting systems for

removing and replacing two 60-year-old downstream miter gates. Each gate was 61' wide x 46' tall and weighed 426,000 lbs. **B**



2) The work was performed using a Modular Lift Tower and a girder system in conjunction with a 500-ton hoist and slide system. Barnhart used a 300-ton crane with Superlift to assemble the girder system. The girders were 150' long spanning the 110' width of the lock. The gates were suspended using an adjustable rigging system attached to the hoist. **B**



3) The gates were removed from the pocket using the hoist then slid into position to allow for downending onto the barge for transport. Tugs were used to support the lower end of the gate while they were upended and downended on barges. **B**

4) The new gates were delivered to the hook of the hoist by barge and upended using a 500-ton hoist. The slide system helped slide the gates back into the pocket. Being a water-based operation, the project required extensive coordination between Barnhart, the tug company, the barge company, the U.S. Army Corps of Engineers and the maintenance company. **B**

NUCLEAR: Clarifier Support



LOUISIANA

1) Barnhart's innovative engineering solutions were on display for a rigging project at a nuclear plant in Louisiana. Barnhart had to design a lift system that would span the 178' inside diameter tank to support the 600,000 lb. projected weight of the clarifier while its 16 lateral supports were removed. The project utilized both a Heavy Lift

Crawler Crane and a telescoping Hydraulic Crane to assemble the lift system. The "backbone" of this lift system featured Barnhart's 8' girder sections that were connected on the ground to a total length of 180'. Once assembled, these 8' girders weighing up to 225,000 lbs. were set to the clarifier walls with tandem lifts by the aforementioned cranes. **B**



2) Due to the compromised structural stability of several grey lateral supports holding the 600,000 lb. clarifier, worker safety prevailed as the facility would not allow access inside the unit. Therefore, the clarifier had to be supported from above allowing for the safe removal of the lateral supports. **B**



3) Barnhart custom fabricated stability kickers for the 8' girders on the wall, deflection load spreading rockers for the girder contact points and various spreader bars to accommodate the complicated rigging design challenges. With all the rigging in place, the clarifier was lifted and held in place while the lateral supports were removed. **B**

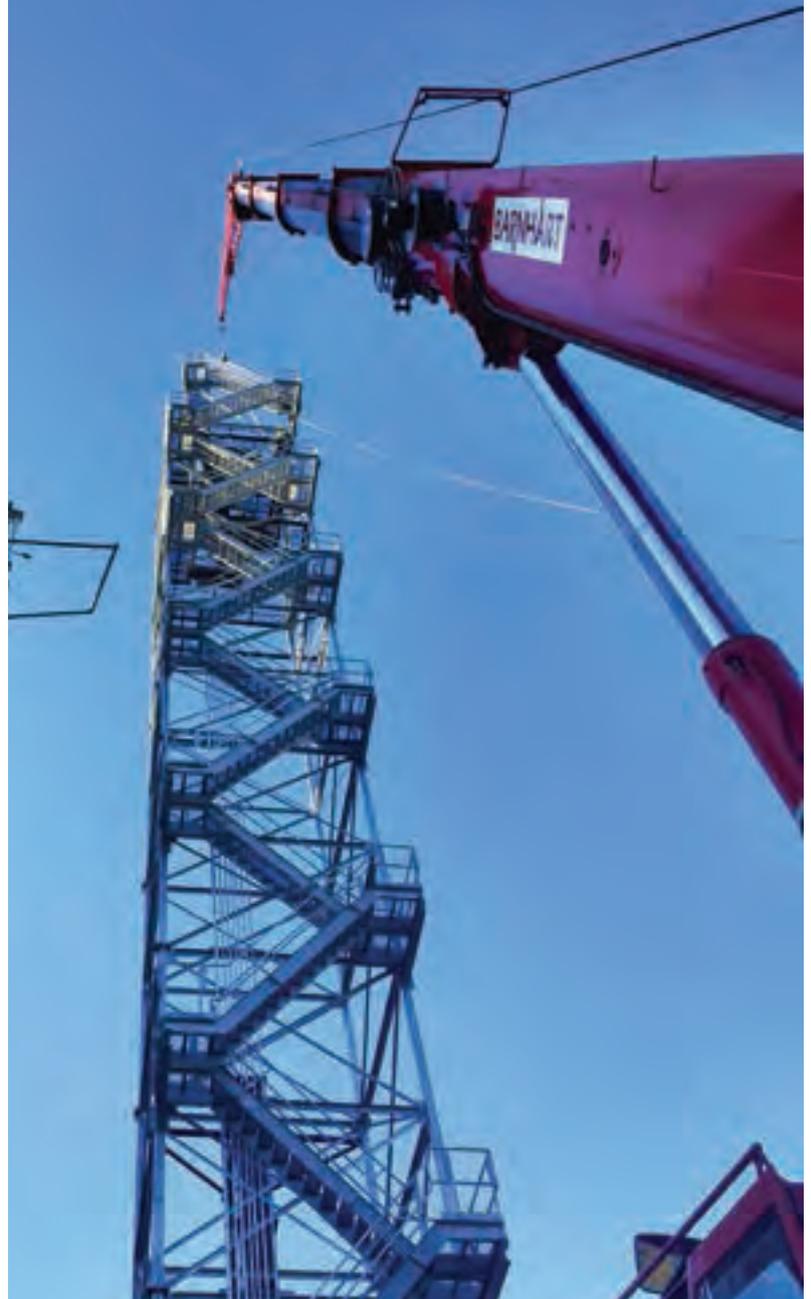


4) With the lateral supports removed, Barnhart positioned pull-up gantries and 5' girders to support the clarifier from beneath. Then, the overhead girder/

lift system was disassembled and removed. Once the new lateral supports are in place and connected, the gantries and girders will be removed allowing this Clarifier Unit to go back into service. **B**

BRANCH PROFILE: Des Moines

BRANCH PROFILES



Barnhart's Des Moines office is a full-service branch that has been serving customers in central Iowa and other locations for 15 years, formerly as Crane Rental & Rigging. They have a seasoned team ready to handle projects large and small.

The branch's specialty is day trade crane service. They run 14 cranes out of the Des Moines and Ames locations, including a new 500-ton crane. As part of the Barnhart team, they have access to the combined resources of all our branches, able to access specialized equipment if needed.

Projects for industries including new construction, agriculture, ethanol, chemical plants and wind maintenance are a part of the company's repertoire. The branch handles a high volume of projects, with timelines ranging from two hours to two months or more. These jobs can vary from swinging trusses for residential construction to setting large vessels inside agricultural processing plants.

The primary service area of the Des Moines office includes the central portion of Iowa, plus southern Minnesota and northern Missouri. **B**

NEW TOOLS: Hydraulic Turntable



EQUIPMENT PROFILE

HYDRAULIC TURNTABLE

Barnhart's hydraulic turntable is an essential tool in Barnhart's equipment arsenal. The 10' diameter heavy platform is hydraulically driven on low-friction sliding pads.

It is often used in combination with slide systems to change direction and orientation of large equipment in order to fit through particular openings or around obstructions.

The turntable was used with great success in a project at a pulp and paper mill that won Barnhart the SC&RA Rigging Job of the Year in 2016. The project was to receive, install and set the boiler at the mill, but it involved traveling down a 20 foot-wide alley to an elevated wall opening.

The Barnhart team elevated the boiler down the alley on the 750-ton turntable and slide system, which was lifted by 450-ton gantries to the opening. There the boiler was rotated on the turntable and slid into the building, with clearance on all sides no more than a few inches.

The turntable also came in handy in the removal and replacement of two feedwater heater bundles at a nuclear plant. Working conditions and tolerances were tight up to ¼" because the plant wanted to minimize cutting of pipes and removal of obstructions. The bundle was maneuvered through a small opening in the building on a 16" slide track on top of the 750-ton turntable. The bundle had to slide and rotate multiple times in order to make it into the building. **B**

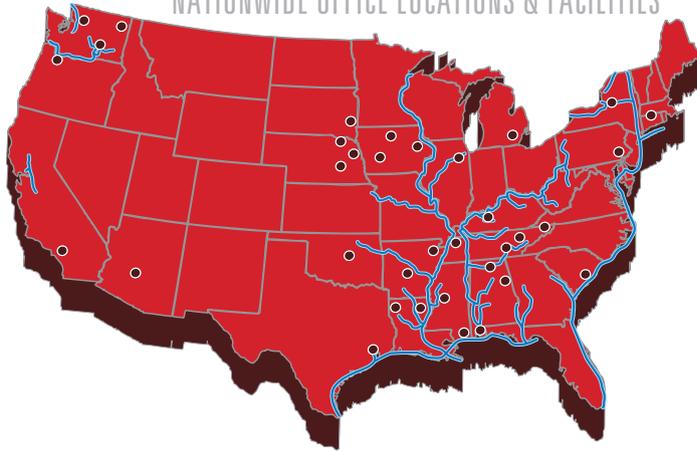
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- GADSDEN, AL FULL SERVICE
- MOBILE, AL FULL SERVICE
- PHOENIX, AZ RIGGING & TRANSPORT
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- LITTLE ROCK, AR FULL SERVICE
- LONG BEACH, CA RIGGING & TRANSPORT
- MIDDLETOWN, CT FULL SERVICE
- CHICAGO, IL RIGGING & TRANSPORT, HEAVY LIFT TERMINAL
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- LADD, IL (CATTANI) FULL SERVICE
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- CEDAR RAPIDS, IA FULL SERVICE
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- COLUMBIA, TN SALES
- HOUSTON, TX RIGGING & TRANSPORT
- MT. VERNON, WA FULL SERVICE
- RICHLAND, WA RIGGING & TRANSPORT
- SPOKANE, WA FULL SERVICE



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
- Barge Crane – Gulf Coast
- Barge Crane – Great Lakes
- 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 1800 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