BARNHART

LIFTING LETTER

www.barnhartcrane.com

VOL. 53

A Publication of Barnhart

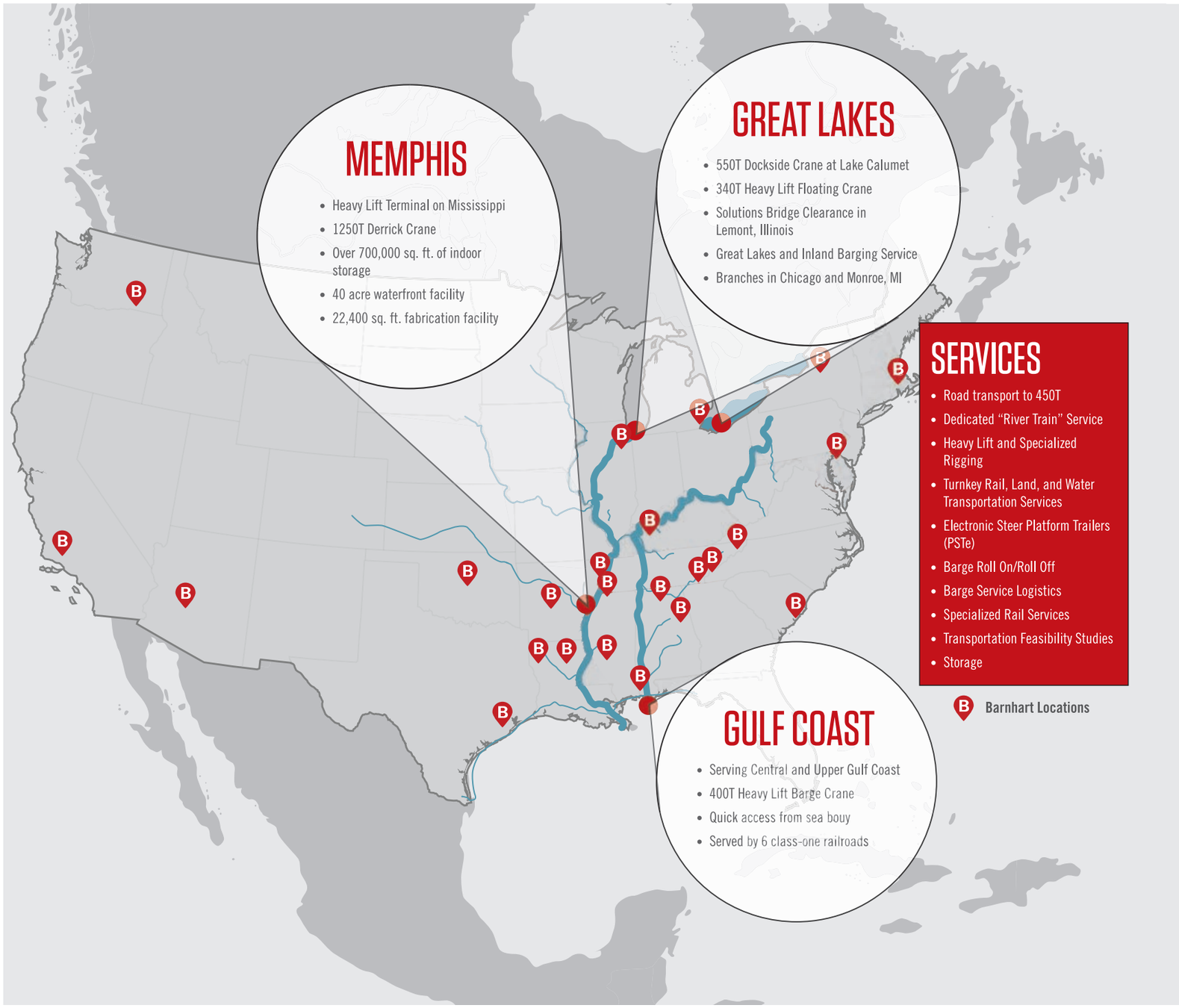
PROJECT CARGO LOGISTICS

Providing the Tools and Team to get it done

COVER STORY

Transporting over-dimensional or heavy-lift cargo economically and efficiently from ports of entry across the United States is complex and requires thoughtful collaboration with a knowledgeable partner. Shippers and logistics service providers must plan for success. If not planned properly, multimodal logistics projects can create scheduling and budget nightmares. Since transit requirements vary for road, rail, and inland waterways across the continental United States, it's important for shippers to work with transportation specialists that are knowledgeable about the varying DOT rules and regulations and the permits needed to transport over-sized cargo. Every project is unique and requires an individualized approach. It is critical to select a company that understands all of these challenges and can design custom-tailored multimodal solutions. Some third party logistics companies broker work with any number of agents and subcontractors and can add layers of bureaucracy, unnecessary costs, and may result in expensive scheduling delays. One factor in choosing a cargo logistics provider is to determine whether or not that provider is able to coordinate rail, over-the-road and waterway transport, and consolidate it all into a single billing. Barnhart's teams of experts in port and multimodal transportation can handle every stage of a project. We offer turnkey solutions for inland transportation and installation of over-dimensional project cargo from anywhere in the world. We are working to help our customers develop efficient and smart transport plans that can lower a project's overall costs and eliminate potential transportation nightmares.

HANDLING YOUR U.S. PROJECTS FROM TOP TO BOTTOM



KNOCKOUT DRUM BARGE TRANSPORT

Ice Cutter

PROJECT FEATURE

The biggest challenge in delivering cargo through the Great Lakes in winter is ice. Barnhart moved a 220,000 lb. knockout (KO) drum that was 72′ long, 18′ high and 21′ wide to a refinery in Ohio in spite of adverse weather conditions. Barnhart loaded the drum onto a hopper barge at the Port of Catoosa to transport it by river to Chicago. The low profile barge was required to pass under one of the bridges along the route and could be used only on inland waterways. It reached Chicago after only 19 days. Barnhart's 550-ton Demag TC 3000 lattice boom crane offloaded the KO drum and loaded it onto an ABS-certified Barnhart deck barge for transport to the Port of Toledo. Barnhart faced a compressed window of opportunity to deliver the cargo in the Great Lakes area because of high winds and ice in the region. The barge and its tugboats encountered Mother Nature's polar vortex. Parts of the shipping lanes were frozen. Barnhart worked with US and Canadian Coast Guard ice cutters and, as a result of their collaboration, the team safely delivered the cargo. B

BARNHART DELIVERED A KNOCKOUT DRUM BY BARGE ON THE GREAT LAKES EVEN THOUGH THE 2013 POLAR VORTEX FROZE PARTS OF THE SHIPPING CHANNELS AND IMPACTED THE SHIPMENT.

KNOCKOUT DRUM BARGE HAUL: Special Report

CHEMICAL PROCESS: Temporary Trunnion Urea Reactor Lift Job

MISSISSIPPI

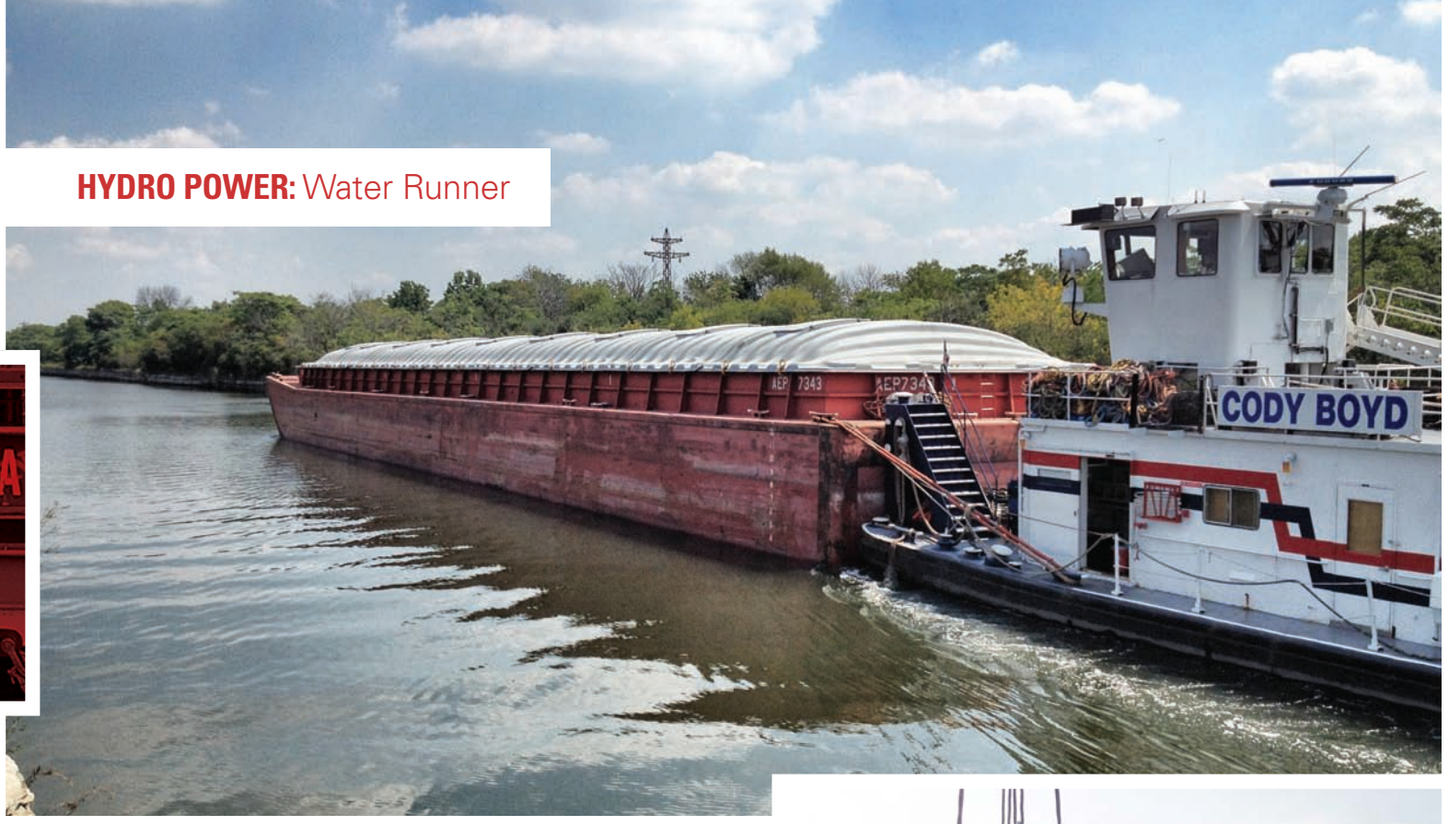
Barnhart was contracted to remove a 270,000 lb. urea reactor from an existing structure at a chemical plant for refurbishment. The team planned to use temporary trunnions, but the customer did not want Barnhart to weld a tail lug to the bottom of the reactor. There was concern that welding the tail lug would damage the integrity of the reactor. Our engineers designed and fabricated a tail beam that was bolted to the bottom of the reactor frame so no welding had to be done to the reactor itself. The team used the Demag CC2000 with Superlift to remove the reactor and tailed the vessel with a Grove GMK 5275. Then we transported the reactor on a 10-line PST Goldhofer to the laydown yard where we offloaded and staged it on powered rollers for refurbishment. After the customer refurbished the reactor, we transported it back to the structure and set it. B

POWER GENERATION: Major Outage - Crane Service

LOUISIANA

Barnhart's West Monroe, LA office received a contract to provide around-the-clock crane services during a major outage at a combined cycle power plant in the spring of 2013. Barnhart's Memphis, Little Rock, and Logistics branches worked with the West Monroe team to mobilize ahead of schedule. The scope of work involved using one Liebherr LTM 1400 500-ton crane at the steam turbine and two Grove GMK 5165 165-ton All-Terrain Hydraulic Cranes at the two gas turbines. A second Liebherr LTM 1400 500-ton crane was relocated back and forth during the outage between the two gas turbines along with the two 165-ton cranes. Barnhart's onsite cranes made lifts ranging from 500 lbs. up to 125,000 lbs. When the customer experienced a last minute problem with one of the gas turbine's rotors, Barnhart was tasked with an additional scope of work – to leave one 500-ton crane onsite in position until the rotor could return from the repair facility. As a result, the team was ready to lift and install the repaired rotor straight off the truck and conduct the around-the-clock reassembly of the turbine. B

HYDRO POWER: Water Runner



LOUISIANA, ILLINOIS AND MICHIGAN

Barnhart was tasked to transport a 28' diameter x 16' high, 300-ton water runner and a 24' diameter x 3' high wearing ring from the Port of New Orleans to a plant in Michigan. Ship's gear on a heavy lift vessel transloaded the cargo to a hopper barge. Using a dedicated tug, the hopper barge transported the equipment to the Port of Chicago. After the hopper easily cleared the usually difficult bridge in Lemont the team used the TC3000 with 138' main boom and full Superlift to transload it to the Barnhart deck barge. The deck barge carried all Barnhart's equipment, safely crossed Lake Michigan in rough weather to the customer's plant for roll-off, and eliminated trucking costs. The team unloaded the wearing ring using the RT crane and used the RGN trailer to transport it to the 410-ton gantry crane. A 14-line single wide PSTe Goldhofer was used to roll-off the water runner and to transport it to the gantry crane where it was unloaded and staged for replacement during the outage. B

CHEMICAL: Vessels Haul and Set

KENTUCKY

Barnhart safely and successfully completed a project in the chemical industry to offload five large vessels from trucks in a laydown yard and stage them on pipe stands and staging beams using a 44a gantry. The next phase of the project was to use the 44a gantry and pick the five vessels in the laydown yard, set them on Goldhofer trailers, transport them ¾ mile to the job site, and rough set the vessels using the CC2000 crane with Superlift, a 500-ton crane and the gantry. The team used two 6-line Goldhofer bolster-to-bolster to transport the longest vessel, which was 171'. They used one 6-line Goldhofer to transport the remaining four vessels. They set the 171' vessel with a 500-ton crane two legs of the gantry to tail it. They set the remaining four vessels with the CC2000 with Superlift as the main crane and the 500-ton crane as the tail crane. Our highly satisfied customer continues to rent Barnhart cranes for daily use in their facility. B

REFINING: Shell Replacement

ILLINOIS

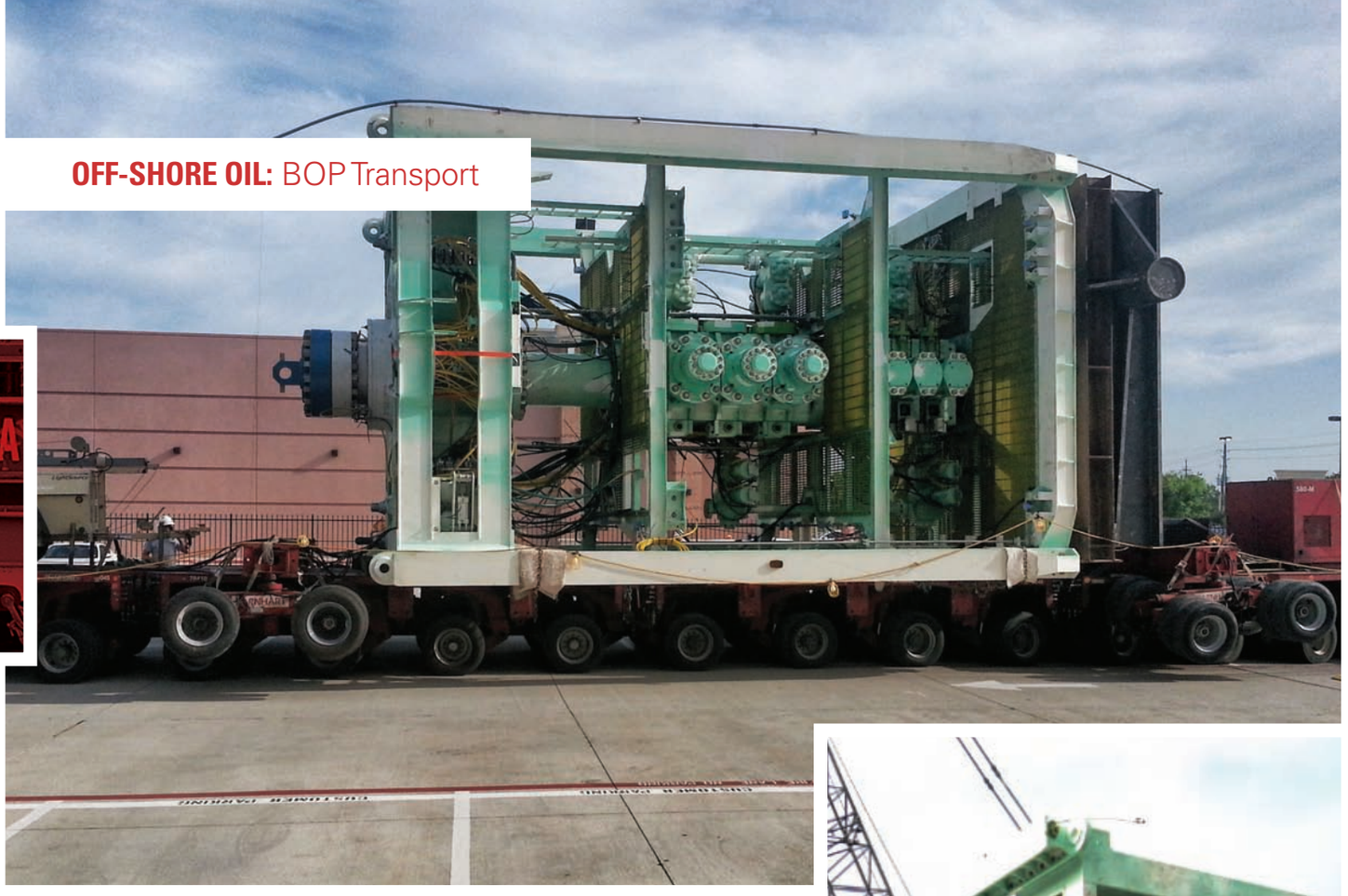
During the turnaround at a refinery, Barnhart removed and replaced four heat exchanger shells from the second level of a three-level structure. The shells which were 23' long, 40" in diameter, and weighed 15,000 lbs., were set side by side and were stacked two high. The project plan was to remove one shell at a time and replace them with new shells but the shells were set back 9' from the edge of the structure. Barnhart's rigging system had to remove and replace the shells while avoiding obstructions overhead as well as on the side. Barnhart's engineers selected their new moving counterweight cantilever for the job. The engineering team also designed wooden chocks to attach to the beam in order to insert it into the shells and pick them up with their weight supported on the beam. Using Barnhart's moving counterweight system cantilever beam, the team was able to complete all 8 lifts safely in a single 8-hour shift. B

CHEMICAL PROCESS: Kiln Replacement

ALABAMA

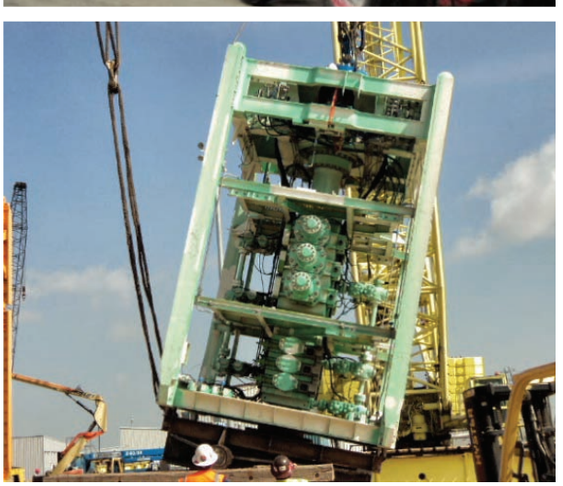
Barnhart worked on an upgrade and expansion project at a 50-year-old plant to remove outdated equipment and install upgrades to meet a critical path schedule. The scope of work was to lift and place an 80,000 lb. kiln in one piece through a second story access opening. Ongoing work at the distribution space beneath the swing area of the crane could not be interrupted by more than one day. The work had to be completed quickly. There were also floor-loading concerns about placing the kiln in the plant. Our team used the Liebherr 600-ton All Terrain Crane with Barnhart's Quad-Block that allowed the piece to "float" into the building without having to use another crane hook. The kiln was placed at a 110' radius on Barnhart's 500-ton Slide System and hydraulic pushers guided the kiln another 53' to its final position. Barnhart assembled all the equipment and installed the kiln in just four days which allowed the customer to gain one week on their schedule. Barnhart's ability to install the kiln in a single piece saved the customer weeks of work. B

OFF-SHORE OIL: BOP Transport

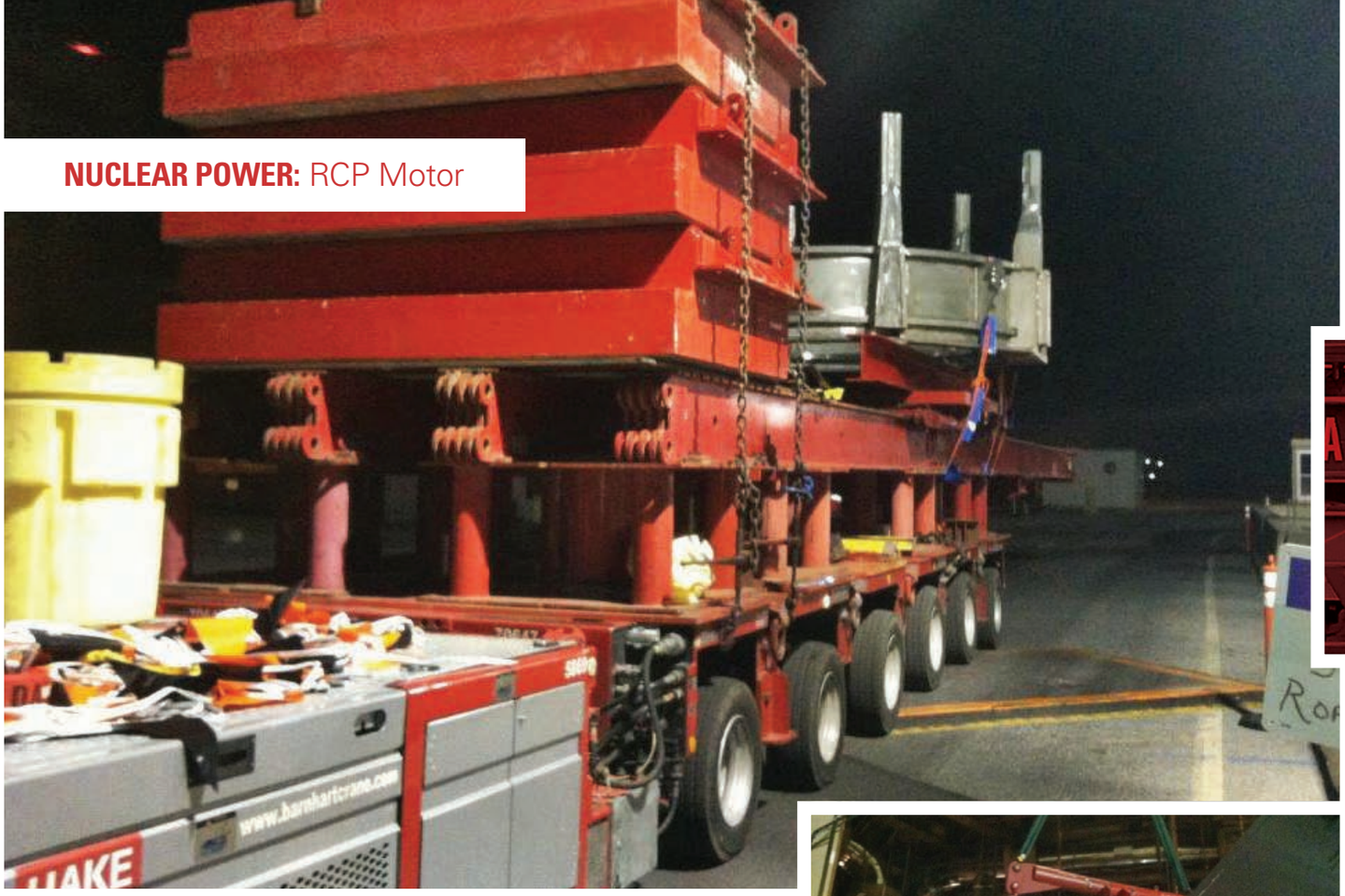


TEXAS

Barnhart transported a 505,000 lb. blow out preventer (BOP) stack that is 31' high and 21' wide from the job site 55 miles to the Texas Terminals. Engineering designed a method to safely downend and transport the stack in a horizontal position on Goldhofer trailer. Barnhart rolled the stack over with the customer's transport skid using gantries and using the customer's crane onto an 18-line THP Goldhofer with 8 dollies. They picked the stack straight up with their overhead crane and set it down on the tipping skid. Barnhart's rigging plan safely downended the stack onto the trailer in one piece. The 21'6" transport height of the stack on the Goldhofer posed transport challenges. In fact, there was only 1" clearance to travel the stack under one overpass on the haul route. The customer's 240,000 lb. lower marine riser package (LMRP) was hauled on Barnhart's custom-designed 12-line TexTrac trailer. Barnhart got all the permits and successfully completed the haul in just three weeks to meet the customer's timeline. B

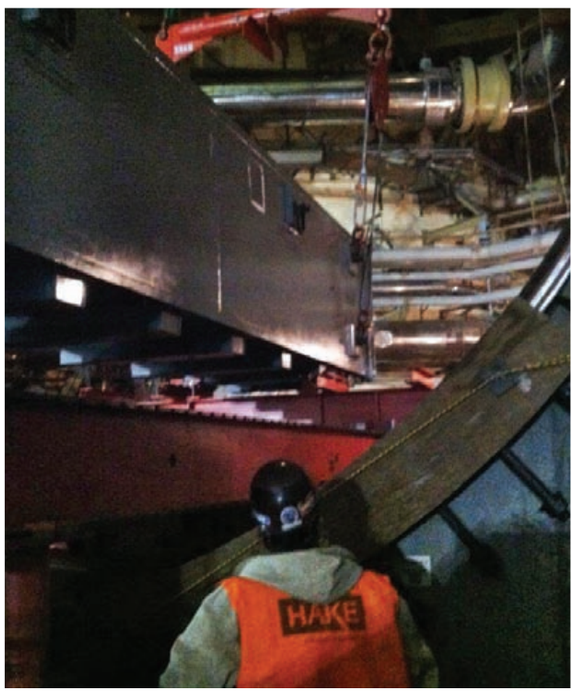


NUCLEAR POWER: RCP Motor

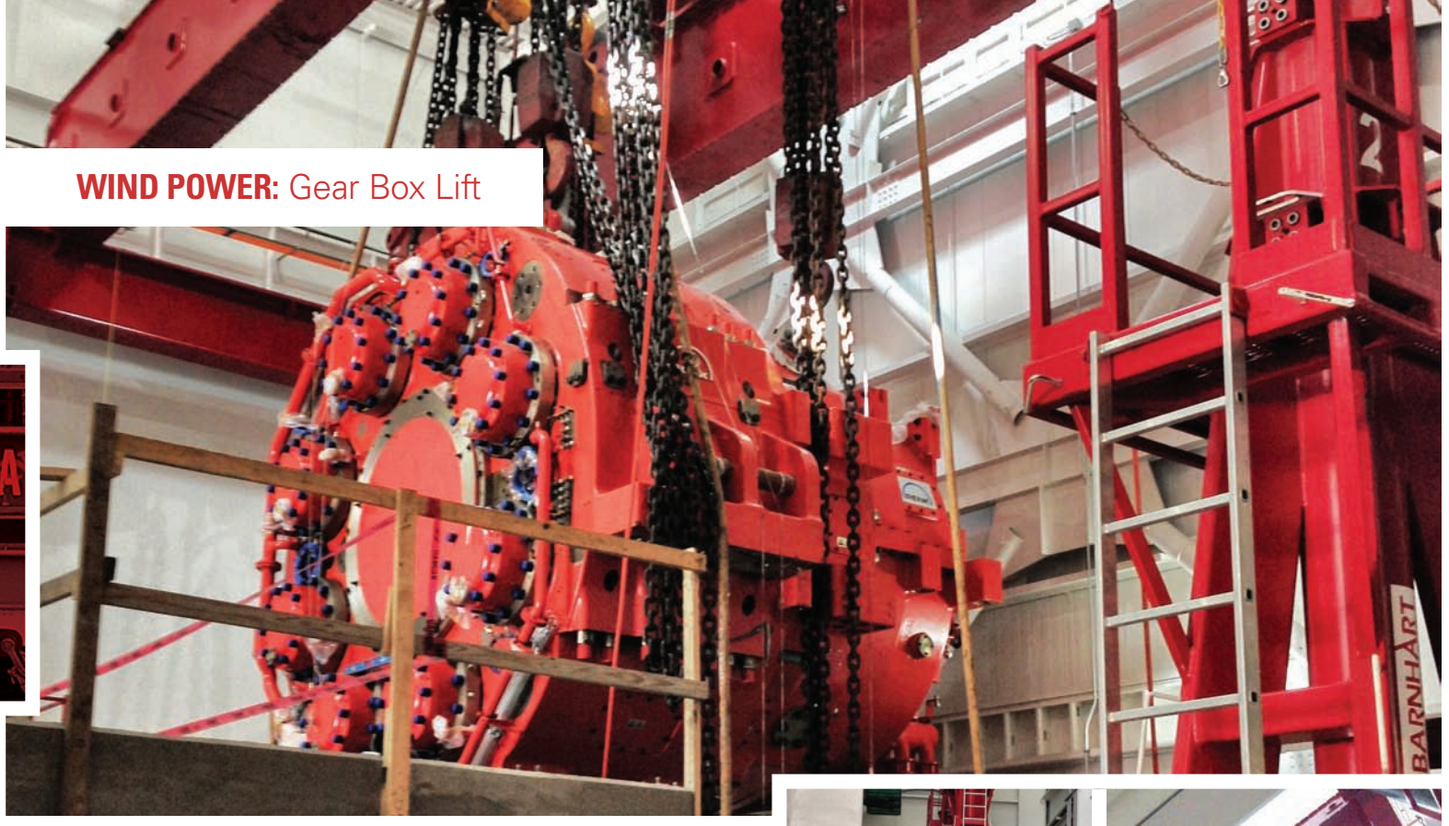


PENNSYLVANIA

Barnhart transported and rigged a reactor coolant pump (RCP) motor, seven control rod drive mechanisms (CRDM), one HydraNut tooling stand, and a reactor vessel internals storage stand (RVISS) into the reactor building at a nuclear plant through the equipment hatch. The engineering team designed a Goldhofer Cantilever system using a 6-line PSTe, pipe stands, and the Barnhart slide system so no load was placed on the metal grate inside the hatch. In addition, Barnhart's system was removable and would allow other equipment to be handled at the hatch. The RCP motor had to travel into the building in a vertical configuration and the CDRM boxes had to be upended to a completely vertical configuration when they passed through the hatch. The team also designed and fabricated several components – a sliding tray to handle the RCP motor, RVISS, and HydraNut tooling stand incorporating secondary containment and preventing excess contamination, an upending frame to lift the CRDM boxes through the hatch, and a saddle to rest inside the hatch. B



WIND POWER: Gear Box Lift



SOUTH CAROLINA

Barnhart's scope of work was to install a 617,000 lb. gear box (GBX) on a stand 24' above ground level at a wind turbine test facility in Charleston, SC. The work involved setting up 75' of gantry track elevated 12' above the floor using pipe-stands. The team made the 24' GBX lift using the one-shot gantry system and four 100-ton pneumatic air hoists. Then the GBX was moved 35' along the gantry track and set into position at a 6° offset from horizontal using Barnhart's slide system. The lift posed several challenges and the team was concerned about floor loading. Barnhart's team mitigated risks throughout the project that involved different types of lifting devices by having a clear order of communication. To save costs for the customer, Barnhart stored equipment at the Charleston branch. B

REFINING: Stacked Heat Exchanger Removal

CALIFORNIA

Barnhart was awarded a contract to replace two heat exchangers that were stacked on top of one another in a refinery. The stacked heat exchangers (SHE) weighed approximately 280,000 lbs. and were located in a congested area of the refinery. The traditional method to remove attached heat exchangers is to remove obstructions and pick each individually with a large heavy lift crane adding more time to the critical path of the turnaround and severely limiting access to the area for ongoing turnaround activities. Barnhart engineers chose an innovative alternative to the crane using a method that had never been executed in the plant. The team used Barnhart's own pull up gantries to pick up the SHE off its foundation while using trapezoidal girders with an integrated slide system to remove the equipment out from under the overhead obstructions. After the team lifted the SHE and slid it out, they set it on Goldhofer PSTe for transport to the laydown yard. Using the reverse process, the team rough set the new SHE onto the foundation. B

COMMERCIAL MANUFACTURING: Stretcher Set

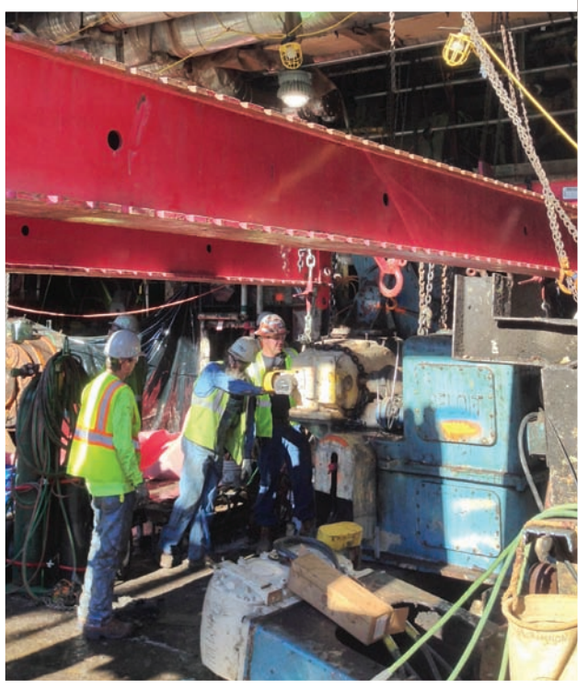
ALABAMA

Barnhart was contracted to unload, haul, and set three pieces of heavy machinery: a roller leveler, moving stretcher head, and a fixed stretcher head. The heaviest unit was 170,000 lbs. Despite very short notice, Barnhart was able to quickly mobilize a 210 ton crane and Goldhofer to unload and haul the components into the facility. The erection of the plant equipment featured the Barnhart-designed single stage 500 ton gantry system. Each component was rotated and set with the new gantry system safely and on-time. B

PULP AND PAPER: Gear Box Replacement

SOUTH CAROLINA

The scope of the project was to remove and replace four paper machine drive gearboxes during an outage at a paper plant. It was the first time the gearboxes had been removed and replaced since the plant startup in the 1960s. The plant had considered removing the aging equipment by taking the roof off and using a much larger, more expensive crane. Our engineering team determined Barnhart's new Moving Counterweight Cantilever Lift Beam would be the best tool to lift the gearboxes – the largest of which weighed 24,000 lbs. – because it allowed removal and replacement of the gearboxes through an opening in the building wall. Using Barnhart's cantilever lift beam reduced the overall project schedule, costs and the critical path activity. B



NEW TOOLS: The GS-800

GS-800 GIRDER TRANSPORT SYSTEM

One of the most complex tools Barnhart has created to date, the GS-800 Girder Transport System, was designed and manufactured in-house and is the flagship of Barnhart's Heavy Transport Division. The GS-800 can be assembled, disassembled, and operated with a crew of 3-4 people and doesn't require cranes for assembly. The GS-800 adjusts on the fly to accommodate wide loads (up to 21' wide in the well) and the girders have roughly five feet of vertical lift to raise and lower the load. The transport system, which has been static-load tested up to 975,000 lbs., incorporates the Barnhart-designed THP/CA dual-lane running gear for maximum permit payload. The GS-800 features self-steering with an integrated tracking device, axle spacing compliant with West Coast DOT regulations, and bolsters for maximum maneuverability. It can transport cargo in reverse to avoid obstacles and is optimized for use in all states including California. The GS-800 has a low tare weight allowing for higher payload capacity.

The GS-800 design has been optimized so it can travel to a jobsite as a complete trailer system requiring only a forklift for final assembly, eliminating the requirement for flatbed trucking or assist crane for assembly. If the GS-800 has to travel far from home, it is transported to the jobsite in two sections – each on a flatbed, and the inserts and trailer are shipped separately. Even in this scenario, the GS-800 can self-offload from the flatbed trailers and self-load directly to the THP/CA running gear, again, only requiring a forklift for final assembly! These mobilization enhancements, along with the ability to self-load and offload cargo, lead to expedited assembly and loadouts which save time and money. B

SCAN TO WATCH OUR GS-800 GIRDER TRANSPORT VIDEO.

BARNHART: Owensboro, Kentucky

Barnhart's Owensboro, KY branch is located on the Ohio River in the middle of the Ohio Valley and provides services throughout Southern Ohio, Illinois, Indiana, and Kentucky. The Owensboro team specializes in heavy lifting projects, heavy hauls, and heavy civil work and, as a union contractor, stands ready to assist customers. Branch Manager Clay Ellis said, "With our strategic location at the Owensboro Riverport, we are poised to serve coal-fired facilities and power facilities throughout the Mid-Atlantic States." Not only does the branch have removal and replacement capabilities to serve the power generation marketplace during utility outages, the Owensboro branch also provides full engineering support from front end engineering design (FEED). The branch also provides outage crane support to local plants and mechanical contractors during their outages or shutdowns. Ellis said, "Our close proximity to Barnhart's Memphis headquarters and Barnhart's nationwide equipment inventory offers added value to customers." The branch offers 285 acres of laydown storage space and a warehouse and has all the equipment needed to facilitate roll on and roll off of heavy cargo for inland transport and also provides multimodal transportation to move any cargo by rail, road, and water. B

BARNHART

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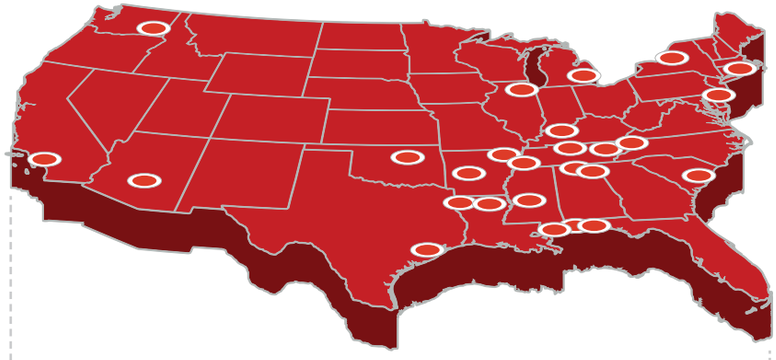

- DECATUR, AL FULL SERVICE
- FAIRHOPE, AL SERVICE CENTER
- GADSDEN, AL FULL SERVICE
- MOBILE, AL FULL SERVICE
- PHOENIX, AZ RIGGING & TRANSPORT
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- LONG BEACH, CA RIGGING & TRANSPORT
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Hydraulic Gantries to 800 tons
Sliding Systems from 100 to 1000 tons
Fork Lifts to 120,000 lbs w/ hydraulic booms
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110 cranes from 17.5 to 80 tons
25 cranes from 100 to 180 tons
15 cranes from 210 to 600 tons

LATTICE BOOM CRANES
Crawlers from 250 to 700 tons
Truck cranes from 125 to 800 tons
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TRANSPORTATION SERVICES
Capacity of over 6,500 tons of Hydraulic Platform Trailers, including SPMT and PSTe
Barge and Rail Loading and Securement
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Temporary Bridges to 152'
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500,000 Square Feet of Indoor Warehousing
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GREAT LAKES
Heavy Lift Terminal and Barge Crane

MARINE SERVICES
Memphis, TN - Heavy Lift Terminal with1,250-ton Derrick Crane, Rail and Heavy Storage
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Decatur, AL - Barge Dock, Cranes to 500 tons, RO/RO

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