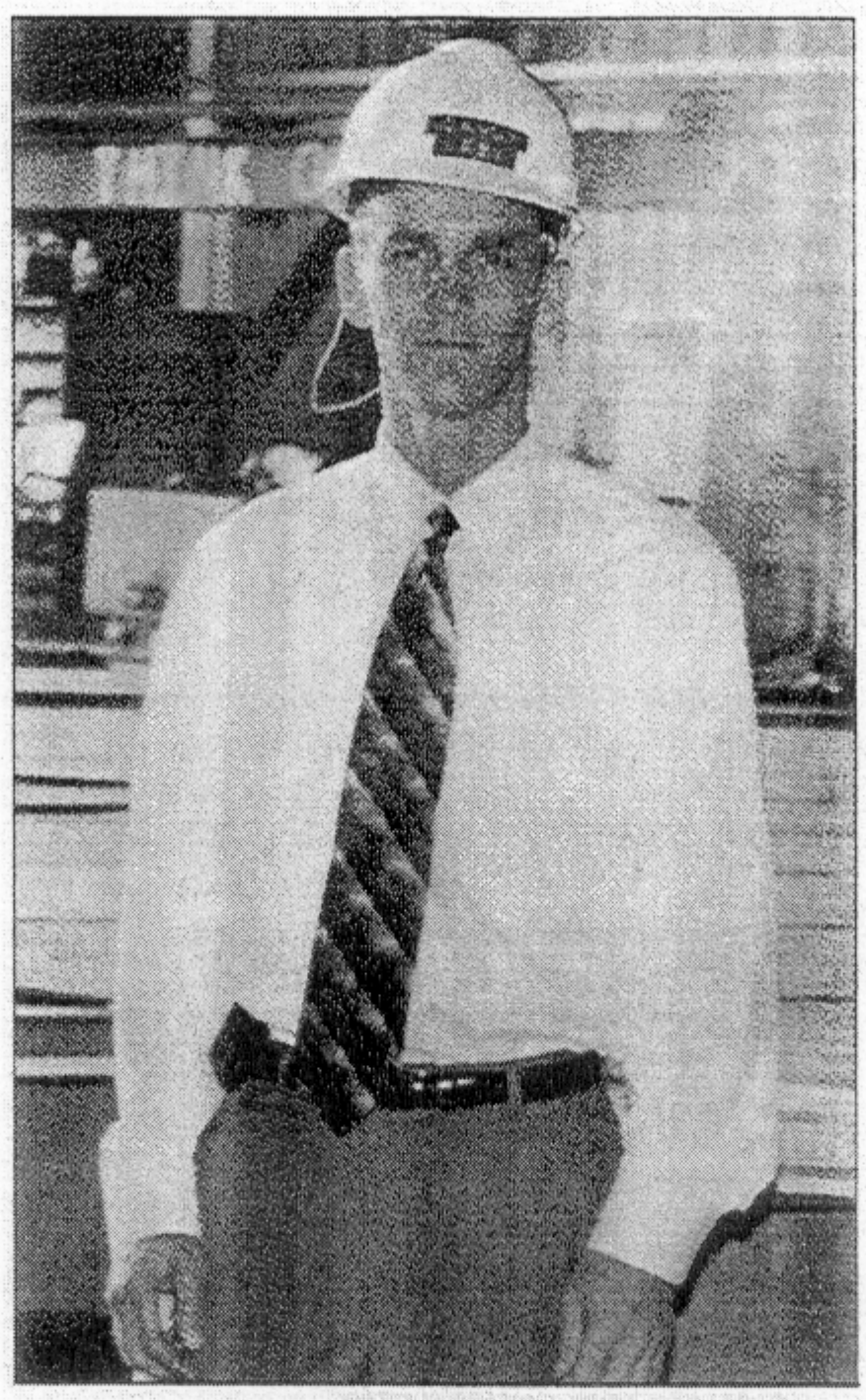
With 500 New Hires and 100 New Welding Machines

River-Barge Builder Rides a Rising Tide

River-barge business is booming, after several years of dormancy, and Jeffboat is riding the wave. At its Jeffersonville (Indiana) shops and yard covering more than a mile along the Ohio River across from Louisville, Kentucky, Jeffboat operates the largest inland-shipbuilding facility in the United States. Business hasn't been this good for a long time—as late as 1989, the shipyard remained shuttered. It closed in 1986 as the market for new barges had dried up due to an overbuilding during the 1970s and early 1980s. But as the barge fleet began to reach the end of its life cycle in the early 1990s, Jeffboat resurfaced. In 1995 and 1996, its hourly workforce climbed to 1,050, as 500 new employees joined the ranks over a 12-month time frame. Of the 400 welders working at Jeffboat, 100 came on board last year.

Hiring, training, and integrating so many new workers into the facility requires good management and communications. Much of the success for managing the frenetic pace of growth goes to Danny Irby, vice-president-production. Hired in January 1996 after spending 18 years with Bender Shipbuilding, a Gulf Coast builder of ocean-going vessels, Irby now directs a set of five managers—three production managers and two managers of the maintenance and marine-repair departments. Another 75 supervisors oversee hourly, unionized workers divided into work groups of 10 to 15 people.



Danny Irby, vice-president-production of Jeffboat, oversees 1,050 hourly workers that assemble river barges along the Ohio River. "An 8-month welder-training program showed us that we had significant opportunities to reduce our weld-metal volume by eliminating a lot of overwelding. Also, we were running nearly all shielded-metal-arc welding. Now we've switched over to the flux-cored process for a significant amount of welding."

Irby owns a Bachelor of Engineering Technology Degree in Marine Engineering from Mississippi State University. His career began at Bender as a project engineer. He later served as design-group manager, production manager, and vice-president of new construction. Studying management philosophies is one of Irby's hobbies—his office bookshelves house numerous books on the subject. In just 17 months at Jeffboat, Irby has incorporated much of his management wisdom to create a work culture at Jeffboat steeped in communication and process improvement that has yielded dramatic gains in safety, quality, and productivity.

WDF: While other manufacturers around the country complain that a shortage of skilled workers leaves them struggling to increase their welding crews by as few as two or three welders, you've managed to hire and train 100 welders in one year. How'd you do it?

Irby: When the yard started to ramp-up production in mid-1995, it tried to hire skilled welders. A low unemployment rate in the area created a shortage of skilled workers. So we decided to move in a different direction, and began a 'grow-your-own' program. We searched for workers with the right kind of attitude and aptitude, who we thought could learn the craft of welding and could work in this environment. Then, through partnerships with local technical schools and a new in-house training program, we were able to hire unskilled people and turn them into hardworking, skilled welders, all within a few months.

WDF: How did you get the in-house welder-training program going?

Irby: We brought in a consultant, Barckhoff and Associates, to work with our managers and supervisors. Through our continuing efforts to benchmark, we witnessed how the Barckhoff program (copyrighted as The Barckhoff Method)—we refer to it as 'the science of welding'—worked at a nearby manufacturer of hospital beds. Our welders begin their training with one to two weeks of basics at a local technical school, then we bring them into the yard as tack welders—what we call Class III welders. Then they can move up, through the internal-bidding system, to Level II downhand-only welders, and ultimately to Class I all-position welders.

For continuous training, we've established a dedicated welder-training center where internal weld trainers teach new hires and retrain welders who need their skills refined. This center houses 20 weld booths, complete with fume-extraction equipment and other state-of-the-art

equipment. It's quite an improvement over previous training facilities, which were little more than some weld booths located around the edges of our structural shop.

WDF: What benefits have you realized in your shops and in the yard due to the new formal training program?

Irby: When I came here, welder training focused very little on understanding the relationships between the parameters such as voltage, current, and travel speed. The 8-month welder-training program showed us that we had significant opportunities to reduce our weld-metal volume by eliminating a lot of overwelding. Also, we were running nearly all shielded-metal-arc welding. Now we've switched over to the flux-cored process for a significant amount of welding—the majority of our out-of-position applications now use flux-cored wire, gas-shielded in the shops and self-shielded in the yard. We've also installed, at 10 locations throughout the yard, workmanship-sample boards with weld samples for every weld procedure we use. Welders and supervisors use these samples to check weld quality, then review the recommended welding procedures. Next, we hope to convert most or all downhand welding that occurs in the yard, often in wet conditions, over to flux cored. The mission for our filler-metal

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supplier, Lincoln Electric, is to develop a flux-cored wire that can drive off moisture as well as a stick electrode. We're testing some wires now, and I think they're close to what we need—a moisture-tolerant $^{5}/_{64}$-inch-diameter wire for semiautomatic welding and a $^{3}/_{32}$-inch wire for automatic welding.

WDF: What new welding equipment have you purchased to ramp-up production?

Irby: To switch over to flux-cored-arc welding, we purchased new constant-voltage welding power supplies; we use AC-DC constant-current machines for shielded-metal-arc welding. And we bought several booms, each of which we equipped with a pair of wire feeders. Recently, we invested in a gantry machine for triple-wire submerged-arc welding to fabricate bottom sections of barges. The machine makes one-side butt welds up to 40 feet long on plate to $^{5}/_{8}$ inch thick. It replaces a two-wire machine and gives us better penetration control and weld quality.

WDF: You've dedicated a lot of time and effort into training and integrating so many new welders, while at the same time making a significant change in welding processes. Through all of this, how have you managed to satisfy your customers with on-time delivery of a quality product?

Irby: It's true that a lot of our workers are new, but they are all, from the day they start here, focused on helping Jeffboat to become the low-cost producer. By conducting face-to-face discussions with the workers in regularly-scheduled trips through the yard and shops, I keep everyone informed of our goals and how successful we are being at reaching those goals. I give them data on income, our safety record, quality, and productivity measured as man-hours per barge. We find that so many of the younger employees today want to feel that they are a part of what's going on, and that management listens to and responds to their concerns. Research says that if they're not satisfied, they'll move on. We've found that informed workers will enthusiastically work with management to improve operations.

WDF: How do you harness that enthusiasm and turn it into shop improvements?

Irby: Several years ago, the plant initiated a worker-suggestion quality-improvement program called Opportunity for Improvement (OFI). These could be suggestions related to the smallest shop item to a recommendation that we cover the entire yard—in fact, someone actually suggested that we cover the yard, and we considered it. In 1995, we asked for 2,000 OFI suggestions from the workforce over the course of the year. We came up a bit short of our goal for OFIs in 1995. In 1996 we doubled the goal to 4,000 OFIs, or four per employee, and achieved it. In 1997, we again doubled the goal, to eight OFIs per employee, and we're on track to exceed that goal.

WDF: With so many new workers, safety must be a concern. How is the yard's safety record, and what steps have you taken to protect the workers?

Irby: We've reduced our number of injuries throughout the yard by 40 percent over the last year, mainly due to changing the attitudes of everyone here. Our philosophy is, every accident is preventable, and we constantly remind people of that. Supervisors meet with their crews every Monday morning to discuss safety. We give all of the supervisors safety reports from the week before that cover the entire operation. They then share this information with their crews so that they can learn from events in other areas of the yard. We then ask each supervisor to address safety issues in a brief 5-minute meeting with their crew every day after lunch, asking each employee to be careful for the rest of the shift. And, we also ask the supervisors to touch base with each of their workers face-to-face at some point during the day to discuss some particular detail related to safety. We have also instituted an in-house certification process where we certify each area of the facility every-other month to ensure that it complies with OSHA standards.

WDF: Can you offer any examples of changes made that have made this a safer place to work?

Irby: Most of the changes are small, but over time they have made a big impact. For example, we've worked hard on housekeeping. When we recently visited a railcar-remanufacturing plant in Kentucky, as part of our efforts to benchmark successful practices, our supervisors and union stewards saw the benefits that can come from keeping a plant clean. That visit convinced all of us that paying attention to housecleaning chores can pay dividends. Workers now diligently pick up electrode stubs, cups, and other garbage and scrap. They carefully inventory and stack materials and parts, and better organize their work areas. Not only does this prevent injuries, but it has also improved efficiency and productivity since they can find the tools and parts that they need for a job without having to step over materials or move scrap out of the way. ■