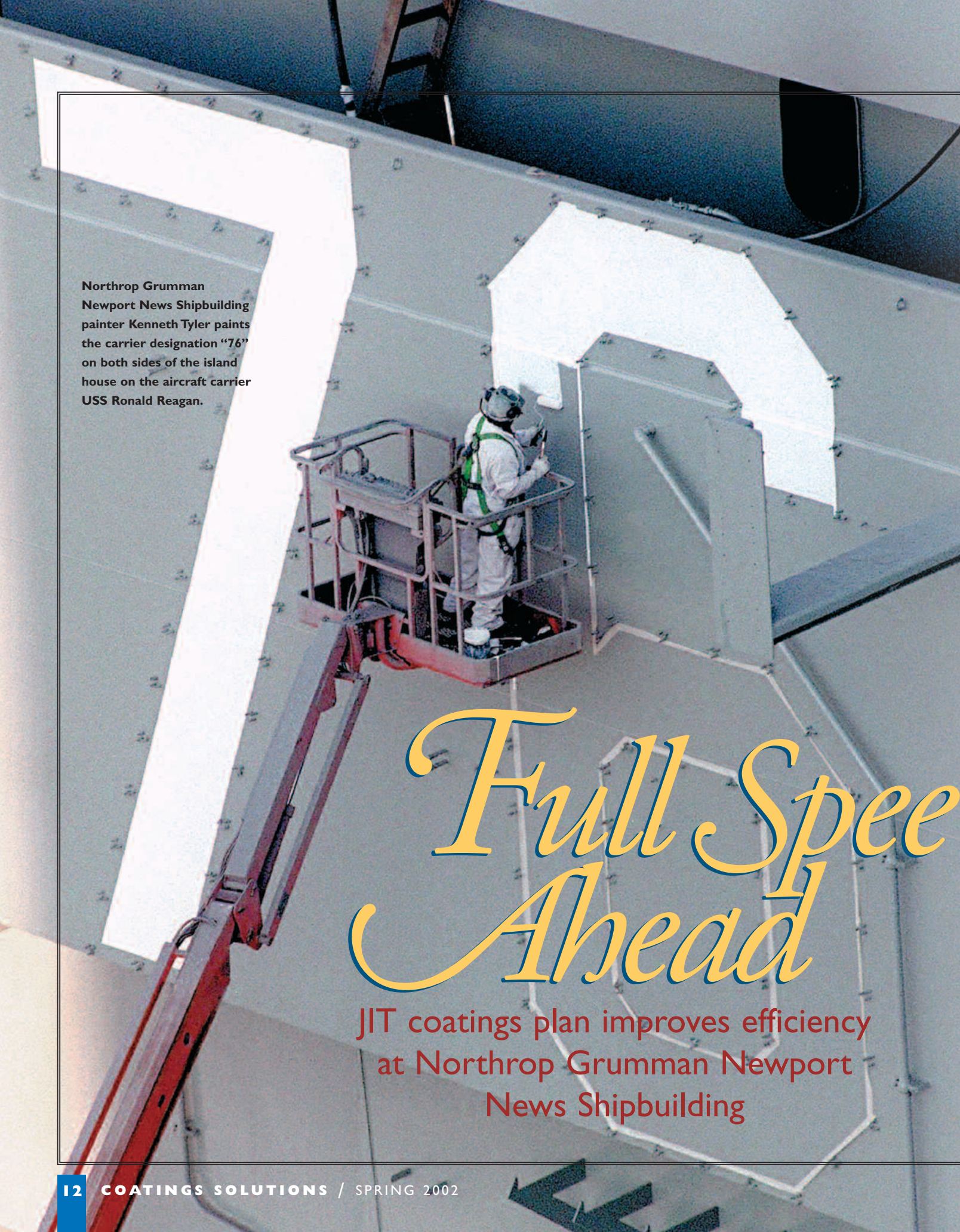

Northrop Grumman Newport News Shipbuilding painter Kenneth Tyler paints the carrier designation "76" on both sides of the island house on the aircraft carrier USS Ronald Reagan.

Full Spee Ahead

JIT coatings plan improves efficiency at Northrop Grumman Newport News Shipbuilding

This could be a story about the incredible challenges that go along with building and painting aircraft carriers for the United States Navy, the most powerful military force on our planet's seas. Paint specifications as thick as phone books, regular "white glove" inspections and the need for coatings that can withstand conditions ranging from severe salt exposure to extreme heat are part of the drill when complying with their exacting standards.

But for Virginia-based Northrop Grumman Newport News Shipbuilding (NGNN), such a story would hardly be newsworthy. You see, they've been building vessels for the U.S. Navy for 115 years and satisfying their primary customer has become a matter of routine.

Rather, this is a story about coatings management, the value of quality and how NGNN, a company that applies nearly 1 million gallons of paint a year, refined and updated its painting operation, saving hundreds of thousands of dollars. The keys to its most recent coatings successes are the use of just-in-time (JIT) strategies and the 99.39 supplier quality rating — the highest of any supplier of any product in the history of NGNN — of coatings supplier Sherwin-Williams.

COMPLICATED TASK

Ann Hughes is the general foreman in charge of material acquisition for all surface preparation and treatment activities, tasks that require the efforts of roughly 1,200 employees at Newport News. Among her jobs is the procurement of paint that will be used on aircraft carriers and submarines, and it's a complicated task.

It starts with the Navy, which requires that potential coatings suppliers pass its standards before the supplier's products can be sold to shipbuilders. Products must be submitted for testing by Navy personnel, who will also inspect the facilities where the products are manufactured.

Should a coatings product pass those tests, the product will be added to the Navy's Qualified Product List (QPL). That doesn't mean they'll be specified or that their testing days are over — far from it, in fact. But it does open the door for Hughes to purchase a coating product from a QPL vendor.

There are numerous products on the QPL by design. A coatings specification for an aircraft carrier really is as thick as a phone book. And product from more than 100 different coatings batch combinations totalling some 350,000 gallons are necessary to finish an aircraft carrier.

If a coatings product is specified, Newport News Senior Chemist Walt Fortenberry draws a pint from every batch of that coating brought on the premises, whether it be 1 gallon or 5,000 gallons, for another round of testing. The eight-point test measures general condition, weight, viscosity, dry time, sag resistance, color, dry film appearance and hardness.

"The tests are fairly simple," says Fortenberry. "But the methodology ensures that we receive coatings that attain a high level of quality and consistency."

Coatings that don't make the cut — and Fortenberry estimates that 7 percent of all supplied products, coatings and otherwise, do not — are returned to the supplier.

The aircraft carrier USS Harry Truman at sea. The vessel was built and finished by Northrop Grumman Newport News Shipbuilding.

LITTLE STORAGE SPACE

For Hughes, there was a day when coatings that didn't pass Fortenberry's lab presented a logistical headache. In fact, it compounded an existing headache that stemmed from the fact that the Newport News shipyard, despite its sprawling appearance, has little room for paint storage.

"Two years ago, this shipyard was full of paint," says Hughes. "We needed a guy here whose job was simply to inspect and protect the coatings we had on the premises. We had difficulty creating environmentally controlled storage areas to maintain the coating quality and some was stored outside because we had no place else to put it. As a result, there were safety concerns as well as environmental concerns given our proximity to the James River."

Matters only got worse when a paint batch was rejected by the company's lab. Given that the entire batch was already on the premises,

At a Glance

COMPANY
Northrop Grumman Newport News Shipbuilding, Newport News, Va.

SPECIALITIES
Building and finishing aircraft carriers for the United States Navy

Hughes had to wait while the entire batch was loaded back onto trucks, shipped back to the manufacturer, remanufactured or replaced by a new batch, shipped back to the company and tested again.

"That could set us back weeks," says Hughes. "When our guys are on a shipbuilding schedule, they don't like to be set back a day, not to mention weeks."

Meanwhile, some approved product that was already on the premises would be rendered unusable because of the lack of adequate storage facilities and imprecise paint forecasting needs.

"Due to schedule changes, sometimes the paint sat so long that it no longer met our standards," says Hughes. "Not only had I already paid for it, I now had to pay to have it scrapped and removed from the yard."

IN NEED OF JIT

The situation begged for a coatings supplier with JIT capabilities and the know-how and resources to make quality issues disappear. Newport News found one right in the neighborhood.

The shipbuilder had been doing business with SeaGuard, a respected marine coatings manufacturer based in nearby Portsmouth, Va., since 1978. After Sherwin-Williams acquired the SeaGuard product line in 1996, Newport News representatives approached vendors about the possibility of storing their paint inventory, then delivering it on an as-needed, JIT basis. With Sherwin-Williams facilities and the local SeaGuard facility nearby, Hughes instantly recognized the advantages of such an arrangement with Sherwin-Williams. She was suddenly out of the paint storage business, although some around her weren't so sure.

"There are 12 other general foremen that I work with on this level and I was the only one of them that wasn't nervous about this project," says Hughes. "They liked the comfort of knowing where the paint was on-site if they needed any."

Added Fortenberry, "At first we had guys squirrelling it away, keeping their own little cache. Our records would show we had paint that wasn't being used. Ann had to go down to the waterfront and remind the general foreman about paint already on the premises."

Hughes, Newport News staff and a team of Sherwin-Williams personnel led by Tom Nichols eventually won over the skeptics. All the foremen found that with reasonably accurate forecasting, they could make product requests and consistently have their product the next day, sometimes on the same day.

A worker blasts old paint off the island house of the USS Ronald Reagan.

For Hughes, the storage issues and their environmental and safety concerns were gone, with a pleasant byproduct.

"We saved more than $200,000 just in man-hours and the costs of removing scrap paint we didn't use," she says. "I can't tell you how much easier that made my job. And it sure looked good on us, too."

And an additional byproduct of the JIT venture was product quality. Since Sherwin-Williams runs the same battery of tests Fortenberry does on every batch before it leaves Sherwin-Williams facilities, rejected product rarely even arrives at the company. As a result, Sherwin-Williams has achieved a remarkable 99.39 quality rating at Newport News, placing it in the exclusive "preferred vendor" category.

"That's just phenomenal," says Fortenberry. "We don't have another vendor near that level. Sherwin-Williams' commitment to quality is a big plus for us."

The U.S. Navy wouldn't have it any other way.