Servall Leadership Team: *(l/r) Semiretired Operator Doug Dudley; his son Brad, president; Director of IT Services Jeremy Elshire; General Manager Jerry Mehrer; and Operations Manager Mason Thorson stand beside one of the company's trucks, which bears the image of nearby Mt. Rushmore.*

Monumental Progress—

Servall Uniform & Linen

Enhancing performance through technology and creative problem-solving

By Jack Morgan

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Servall uses these heavy-duty cardboard boxes with plastic bases and lids to store linens. They allow the company to 'cube out' space in its trucks by stacking them in groups of three. This leaves only a few inches of space from the ceiling.

An employee prepares to unload soiled linens from a box.

New boxes for future use are stored until needed. The boxes usually last at least a couple of years.

An employee prepares an onverhead conveyor arm to lift a sling of soiled linens out of the box.

Slings loaded with soiled linens are stored overhead, while they await processing.

Standing in Brad Dudley's mixed uniform/linen plant in Rapid City, SD, is a custom-built material-handling system that epitomizes this company's approach to moving textile goods through this facility. It's an automated distribution system for mats created through a synergistic approach that's empowering employees to do more with better equipment.

Auto mat delivery

In the mat-processing area of this 25,000 square-foot plant, employees place mats on rolling machines. Then they deposit them onto a machine that looks a little like a steamboat paddlewheel. The rotating wheel drops the mats onto a 60-foot long conveyor divided in two sections. Once a rolled mat drops onto the conveyor, it moves automatically to the left or right side of the system. Then it's whisked to a designated area, where it drops into a cart that's ready to roll onto a route truck once the bin is filled. "This is 50% of our volume *and sales*," says Dudley of the mat rental side of his business, which has seen productivity gains using this distribution system.

How does it work? The Positek software system interfaces with a programmable logic controller (PLC) in the mat conveyor equipment. This enables the machinery to read the radio frequency identification (RFID) chips in each mat and determine where they need to go. The conveyor and other hardware was developed by Production Design Products Inc. (PDPI). These vendors collaborated in providing the equipment to Servall. "If you get good quality rolling, you can get 300 mats an hour," Dudley says of the system, noting that it's saved the equivalent of two full time employees (FTEs). "To do this, all our mats are chipped. The software matches up with the needs of our routes, and puts them in the bins. If it doesn't match, an alarm goes off."

As if on cue, an alarm beeps as Dudley, Servall's president, shows the system to a *Textile Rental* correspondent. Such mistakes usually occur because a mat wasn't properly rolled before it was placed on the wheel that drops it onto the conveyor. The purpose

of the alarm is to make sure that the mat gets to its target bin.

Beyond increasing efficiency and throughput, Dudley says a key benefit of the system is that it saves on space. Mats can be kept in slings or at either of the company's depots in Chamberlain, SD, or Gillette, WY, until needed. "This whole room used to be filled with shelving for mats," he says. "A real advantage of this system is the savings we get in floor space."

The next step in enhancing Servall's mat rental program is expected shortly with the implementation of upgraded route-accounting software, Dudley says. The new ".NET" system from Laundry Logic/Fulcrum (see related story pg. 56) will inform Servall managers not only what routes the mat goes on, but whether it reaches its destination. "They'll be able to track the mat to the customer."

Servall strategy

Merriam Webster's Collegiate Dictionary defines the word, "synergy" as, "a mutually advantageous conjunction or compatibility of distinct business participants or elements." This definition applies to Servall's mat conveyor system and other equipment in this plant that's operated here since the early 1950s. "We've never stood by and said, 'What we've got is good enough'" says Dudley, a fourth-generation owner/operator whose family roots in the business date back to 1916. "We're always looking for new opportunities. I think you've witnessed that in the mat sorting system. That's the kind of thing we're always looking at. Any investment that's going to give us a savings in labor as well as improving synergistically the quality and level of service we provide to the customer."

Another key component of Servall's strategy is improving access to information. Jeremy Elshire, Servall's director of IT services, oversees the company's data-collection efforts. Better management in this area helps Servall control costs, while maximizing customer service. "I think data is the key," says Dudley, who rotated off TRSA's Board of Directors in 2006. "I don't think it matters what form of data collection you use. Basically, you can't manage what you don't measure. And the data collection allows you that ability to measure and manage."

Soil starter

While many of Servall's innovations are tied to information technology (IT) upgrades, others flow from networking with other operators and seeing what works for them.

Dudley did just that in finding a way to get better use of space in his route trucks, which travel up to three days covering a territory that includes *130,000 square miles* and 250,000 people spread across South Dakota and Wyoming. Servall's solution to "cubing out" the trucks on its 17 routes came from an

An employee places mats on mat-rolling equipment.

Once rolled, mats are placed on this rotating wheel that drops them onto a coneveyor belt that takes them down to a cart designated by the plant's RFID system.

Mats are stored in bins after the are dropped off the conveyor system at left.

An employee places a rubber flow-through mat on a tying machine. These mats are processed separately from standard floor mats, which require less handling.

A computer monitor tracks the bins where mats are going so employees can see what goods are going on which routes.

Alaskan operator, Snow White Linen Supply, Dudley says. The idea is to use heavy-duty cardboard boxes instead of laundry carts. These boxes, produced by Shuert, come with a plastic base and lid for each unit. This enables easy loading by forklift. The boxes stack three high, leaving about six inches of ceiling clearance. "We can utilize the length of the truck," Dudley says of the system he's used since the late 1990s. "Three boxes—they stack right up to the top. They work very well." The boxes usually last more than two years, unless they're damaged during loading or storage. On the morning of *Textile Rental*'s visit, a forklift driver showed how quickly and efficiently the boxes can fill out the truck. A route driver added that uniforms, placed on hangers before going onto the truck, generally work best when placed in front, closest to the cab. Behind the garments go boxes filled with linens, shop towels and other flatwork.

Another Servall innovation is a system developed by the company's in-house engineer, Operations Manager Mason Thorson. This equipment consists of a disk-shaped press suspended from a hydraulic cylinder. It compresses soiled linens into a cylindrical shape to accommodate low overhead rail height, while making it possible to load washer/extractors. "It's allowed us to reach the 250 lb. sling weights we were after," Dudley says. "Our operations manager (Thorson) designed it." Other equipment includes:

A BobCo. Overhead rail system

Slings from Storms Industries

3 450 lb. Brim Laundry Machinery Co. Inc. washer/extractors

1 275 lb. Brim washer/extractor

1 900 lb. Ellis Corp. washer/extractor

A Sullair air compressor

A water softening system from Key Water

3 450 lb. Consolidated Laundry Machinery dryers

An employee checks a computer monitor on a material handling system that counts incoming soiled linens.

An employee directs an innovative piece of equipment that compresses soiled linens into a cylindrical shape so that Servall can reach the 250 lb. sling weights it needs when loading its washer/extractors.

An employee directs an overhead sling of soiled linens toward the door of a washer/extractor.

The employee opens the sling and soiled linens drop into the washer/extractor for processing.

An employee prepares to drop another load into a washer/extractor.

Environmental outlook

Operating a mixed plant in the Black Hills region brings with it a unique set of compliance challenges, says Dudley. For starters, many of his industrial uniform customers are engaged in mining. That means soiled goods often are laden with various minerals that can pose hazards. "It comes out of the earth, but they're treated as heavy metals as they come out in the wastewater process," Dudley says. Consequently, Rapid City water authorities require in-house treatment of Servall's wastewater. Another reason for this POTW's exacting standards is the body of water that receives treated wastewater. "Here in the Black Hills it's always going to be difficult because the POTW dumps into Rapid Creek. We have a fish hatchery here, so it's considered a warm-water gaming creek. As a result, the standards are much higher and it's much easier to go back on commercial customers as opposed to residential customers to control the wastewater."

In the early 1990s, Servall experienced compliance trouble due to the high standards of the POTW. The company responded by developing a gravity-fed coagulation wastewater treatment system that's still in use today. This system has a large footprint. In fact, a separate room in the plant was built specifically to accommodate it. Developed by engineering consultant Maggie Pritchard, the treatment equipment keeps Servall in compliance with local wastewater standards. The same goes for its daily output of five cubic feet of treated sludge (roughly 200 lbs.) that goes to the local landfill. "A polymer substance is used to encapsulate the metals so they don't leach into the landfill," says Dudley. The system is maintained in cooperation with Dober, Servall's chemical supplier. Given space limitations in the plant, which processes 180,000 lbs. per week, Dudley would like to install a dissolved air floatation system that would produce comparable quality and take up less room. However, for now, "We already have the system in place," he says. "It's working perfectly. It's keeping us well within our limits … with a lot of margin. So, I think that for the short run, no. There won't be any changes."

Instead, Dudley focuses on other areas, such as water and energy

A view of Servall's custom-designed, gravity-fed coagulation wastewater treatment system

A view of the plant's heat-reclamation equipment

A shaker screen used to filter out impurities from water

This computer monitor is part of the plant's chemical injection system.

A view of the plant's boiler system

conservation. The plant's wastewater equipment includes a heat reclaimer from Thermal Engineering of Arizona that provides tempered water for reuse at about 105º F. The heat reclaimer is generating significant savings on natural gas costs. "We used to get 85º-90º so we have a good 20% improvement," Dudley says. "Our cold water comes into the plant at 45°-50° F. By the time we're done with the heat reclaimer, it goes up to 105°." Servall typically launders textiles at 150°. Water from the rinse cycle of the washer/extractors is kept in storage tanks for reuse. Dudley estimates that the plant reuses about 30% of its water.

Uniform tracking

Like its mats, Servall has chipped its entire inventory of uniforms, including a small quantity of NOG goods (with customers' permission). Uniforms also are barcoded as a backup, in case an RFID chip should detach from a garment. "If you lose one, you still have the other," says Dudley of this dual-tracking system for workwear provided by Positek RFID.

The RFID equipment features a two-sort batch system that tracks uniforms from soil room to packout. All linens and uniforms are automatically counted as they come into the plant. Though they are not chipped, linens are counted using a Colmac Count on Us autosort system. The RFID reader counts uniforms and establishes batches of garments for assembly on the finishing side of the plant. "It has a virtual batch that it's creating for the clean side of the plant," Dudley says. "Each batch contains up to 11 lots in our sorting area, with each lot containing 32 men from one company or many."

After the uniforms emerge from the wash aisle and the finishing department, the sorting machinery gives an on-screen prompt that tells the operator the numbered hook on which he or she should place the item. A robot-like voice also announces the number. Once the clothing is placed on the finishing-side overhead rail system provided by White Conveyors, it undergoes a second sort so that it's ready for route delivery. "The second batch sort is a horshoe device that sorts each 32-man lot to the individual,"

A view of the plant's water-softening equipment

A view of the plan's air compression equipment

An employee monitors the plant's small/large piece folder that automatically folds and stacks goods as they come through the ironer.

Another view of the small/large piece folding/stacking equipment

Dudley says.

Before packout, most apparel goods are processed through a Colmac steam tunnel. Specialty items, such as chef coats, are finished on a Colmac triple buck press. Dudley says the current two-sort batch system is more efficient than the old program that required three sorting operations. The plant currently produces roughly 150 lbs. per operator hour for its combined inventory of mats, uniforms and linens.

Finishing side

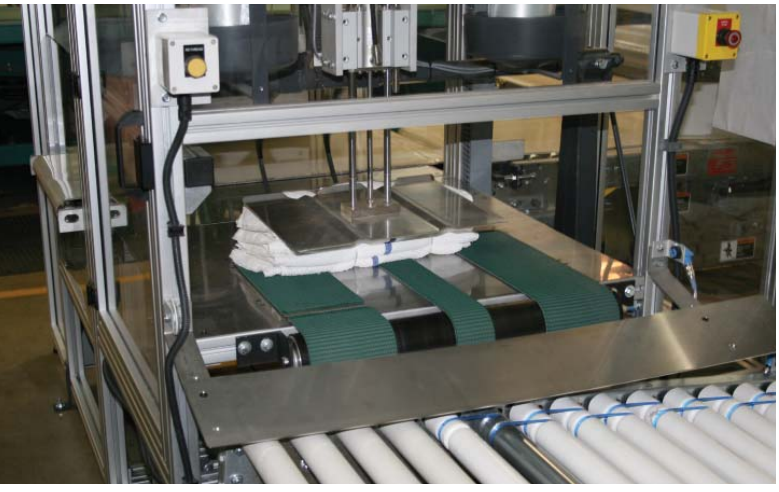
New equipment on the clean side of the plant has boosted efficiency in the processing of flatgoods. For example, when *Textile Rental* visited, Servall was completing the installation of a new Softrol PPS monitoring system in the plant. This program features the placement of tracking software and computer screens on its Super Sylon ironer and related equipment so employees know whether they're meeting production goals. "Every monitoring station will have a clear number," says Dudley. "We can monitor our production. It let's people know where they stand. It's much easier to say, 'The standard we need is this.'" During a shift, employees can look at the monitors and mark their progress on a real-time basis. In cases where a group of employees are feeding flatwork into an ironer and removing stacks of folded goods for packout, the Softrol system can monitor the team's progress as well.

With a product mix of roughly 50% mats, 25% industrial uniforms, 20% hospitality goods and 5% miscellaneous flatwork such as shop towels, a single 8-roll ironer is sufficient to meet production demands for flatwork. "We're not that into linen," Dudley says. "In our part of the country, you don't have that much fine dining."

However, the limited production doesn't mean Servall has neglected the need to improve efficiency in flatwork processing. An important addition on the finishing side is an automatic tying machine from Felins USA. This equipment was purchased last June during the Clean Show in Las Vegas. During *Textile Rental*'s recent visit, it quickly and efficiently wrapped plastic cords around

Automated finishing equipment prepares to fold a textile item as it emerges from the ironer.

A stack of barmops moves through an automatic tying machine that was purchased at last summer's Clean Show.



Another view of textile goods moving through the tying machine

A tied stack of barmops is about to drop onto a conveyor belt for the next stage in processing—packout and distribution to a customer.

bundles of barmops as they moved on a conveyor belt. The system also works for aprons, shop towels and patient gowns.

Another piece of machinery that helps boost throughput is a Lavatec small/large piece folder that automatically folds and stacks goods as they come out of the ironer. "Basically it adjusts to any dimension, which permits us to process the variety of product we service through a single FWI, (ironer)" Dudley says.

Two other pieces of equipment located in the dry fold department also are improving efficiency. These include a Jensen Triple Sort Butterfly Folder and two Chicago Dryer "Mr. Bundle" folders. The Jensen machinery automatically folds bath towels, bath sheets and patient gowns. The Mr. Bundle folder is designed for smaller items such as barmops and shop towels. Previously, these linens were folded by hand. Now, once they're fed into the ironer, the equipment does the rest. "We find we're saving an FTE, if not 1.5 FTE," Dudley says. "Now it's a matter of getting the equipment set up."

Route round up

The Servall plant boasts a host of high-tech synergies—mainly in the form of laborsaving machinery and software systems—that are enabling the company's 66 employees (33 in production) to improve efficiency. These innovations extend to the route too. As noted earlier, a new Laundry Logic route-accounting package will improve inventory control and simplify billing. "We hope to have all our routes on handhelds by the summer of next year," says Dudley. Currently, the company mails out paper invoices, but that will soon change. "We are getting ready to move toward e-mailing of monthly statements, to eliminate the postage the envelope stuffing, the printing, all of that. So we're actually collecting more and more e-mail addresses from our customers that will permit us hopefully to send statements out at the end of the month. It's going to be an e-mail process."

In addition to deploying machinery innovations to enhance efficiency, Servall's route reps aggressively market add-ons to boost profitability. Among these are restroom paper products and air

An employee processes chefcoats through a tunnel finisher.

An employee places pants on hangers for processing through the tunnel finisher.

An employee places chef coats on hangers before they go through in the tunnel finisher.

This computer monitor, as well as an automated voice prompt, tells employees the numbered hook on which they should place an apparel item.

An employee feeds flatwork goods into an ironer. Newly installed computer monitors (above/left) soon will track the productivity of everyone in this department.

fresheners. One hot product for restaurants and retail outlets is the "Terminator" flycatcher by Paraclipse. This system consists of a metal box about the size of a small microwave oven. Inside is an ultraviolet light that draws in bugs, especially flies. Once they land on a specially treated plastic strip inside the trap, they're stuck. The route rep can open the flycatcher and replace the strip just as you would a cloth roll towel. While unusual, the flycatcher is a popular rental product here. "We're very rural," says Dudley. "We do a lot things differently than you would in New York or San Diego."

Family ties

Servall has operated in Rapid City since 1938. Brad's cousin Bob and Uncle George operate Appeara, a textile service company some 400 miles away in Norfolk, NE. That's where the Dudley family business was founded 91 years ago by their great-grandfather George Dudley. Today, the two companies operate separately. Brad's grandfather, Darrel Dudley established Servall in Rapid City with two partners, Art Tarr and Al Wieshapl. Brad's father, Doug, now semiretired, started working in the business at a young age. "When did I start? … It seems like forever," he says. "I used to go down and sort aprons." Doug began working full-time for Servall in 1951. The following year, the business moved about a block to its current location.

For several years, Brad wasn't involved in the business. He earned a Certified Public Accountant degree and worked as a financial adviser in Portland, OR. Why did he come back to the family business? "I got a phone call," says Brad with a laugh and a glance at his father during an interview in his office. "I was getting tired of tax season. It was time to begin creating the numbers as opposed to reviewing the numbers. And I felt there was a lot of opportunity here. We've had fun and we've had some good challenges and we've grown a lot. We've acquired three of our competitors since I've returned. Two of them because they couldn't meet the local wastewater requirements."

Doug Dudley says he's delighted to have his son in charge at Servall. "It's been like the difference between night and day since

An employee prepares to load apparel items on hangers onto a route delivery truck.

An employee places hangered apparel goods at the front of truck, where they're less prone to jostling.

An employee guides three boxes loaded with linens into the truck. Virtually no space is wasted.

An exterior view of the Servall Plant (at right) and parking lot in downtown Rapid City, SD.

An employee prepares to take his route truck on the road.

Brad came back," Doug said, "He's simplified matters so much because the continuity is so much better. Then there's all of his knowledge that he brought back to the company too."

Brad says if either of his two children, daughter Tori, 16; or son Chase, 10, want to join the business, they'll need to gain experience in jobs outside Servall. "Whether or not they'll come into the business, who knows?" Brad says. "But if they do decide to, they'll work outside the family business for a minimum of two years—after completing college."

Should either wind up at Servall, they could find that the company they know today will have undergone dramatic changes. The plant is "landlocked" in its current location, says Brad. Local parking ordinances mandating a set number of spaces per 1,000 square feet of building make it virtually impossible to expand at the current site. A future relocation, or the development of a new plant is a possibility. Regardless, Servall will continue making improvements to enhance productivity and profitability.

Today, Servall is making progress by creating synergies between staff and equipment that's enabling the company to serve its customers faster and better than before. Given Servall's large, sparsely populated market, its space limitations and ever-increasing costs for energy and labor, the prospect of long-term growth seems like a monumental task. But the people at Servall understand what it takes to succeed: teamwork, innovation and a refusal to settle for the status quo.

"Technology-wise, servicing the mix that we do it's a little difficult," says Brad. "That's why we've gone with the RFID, and we've gone with the autosorting on the mat system. We've installed technology for monitoring productivity. Given those, it allows us to do a good job of managing the company and thereby manage the future growth of the company." TR

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