



RECYCLING LABOR SERIES

High risk, hidden workforce

With fluctuating injury rates, and ongoing fatalities, MRFs remain a key safety challenge. Operators discuss efforts to change that through better training, tighter protocols and a lower dependence on temporary labor.

By Cole Rosengren

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Credit: simonkr via Getty Images

Editor's note: This is part of a series about ongoing risks and evolving labor issues in the recycling industry. Read more about the firsthand experiences of California workers and the complex medical claim process they face. Also check out a close look at the rise of advanced technology, including robotics, in U.S. facilities.

As recycling undergoes a generational shift, the fast-paced environment of MRFs has been featured in countless news reports and industry presentations. Yet the demands and dangers faced by the workers that run them are often hidden in plain sight.

MRF safety has reportedly become an even greater focus for industry companies in recent years, amid a tumultuous incident record and painful labor shortage. It's increasingly common to hear executives talk about new technology that can phase out many MRF positions entirely as a way to address both issues, with the underlying message that this workforce is in for major changes.

Still, even with this rising attention, it's less common to hear about the ongoing safety challenges these workers face. While collection workers continue to hold the difficult spot as the fifth most fatal occupation in the country, MRFs often experience multiple fatalities each year too. According to the Bureau of Labor Statistics (BLS), at least 25 MRF workers died on the job between 2011 and 2017.

"We always think of collection first ... but MRFs are definitely something we worry about on a constant basis because there's a wide variety of safety hazards at MRFs that can cause injuries or fatalities to employees," Solid Waste Association of North America (SWANA) CEO David Biderman told Waste Dive. "Safety at MRFs should be a constant concern."

In 2018, MRF workers had the second highest injury and illness incidence rate in the industry (4.9 per 100 people) after collection workers. The rate has been higher than collection for three of the

past five years with available data, including an especially high rate of 9.8 in 2017. BLS considers that particular spike not “statistically significant,” and the industry’s largest companies point to much lower rates themselves, but it has still raised questions.

MRF workers frequently have some of the industry’s highest injury and illness incidence rates

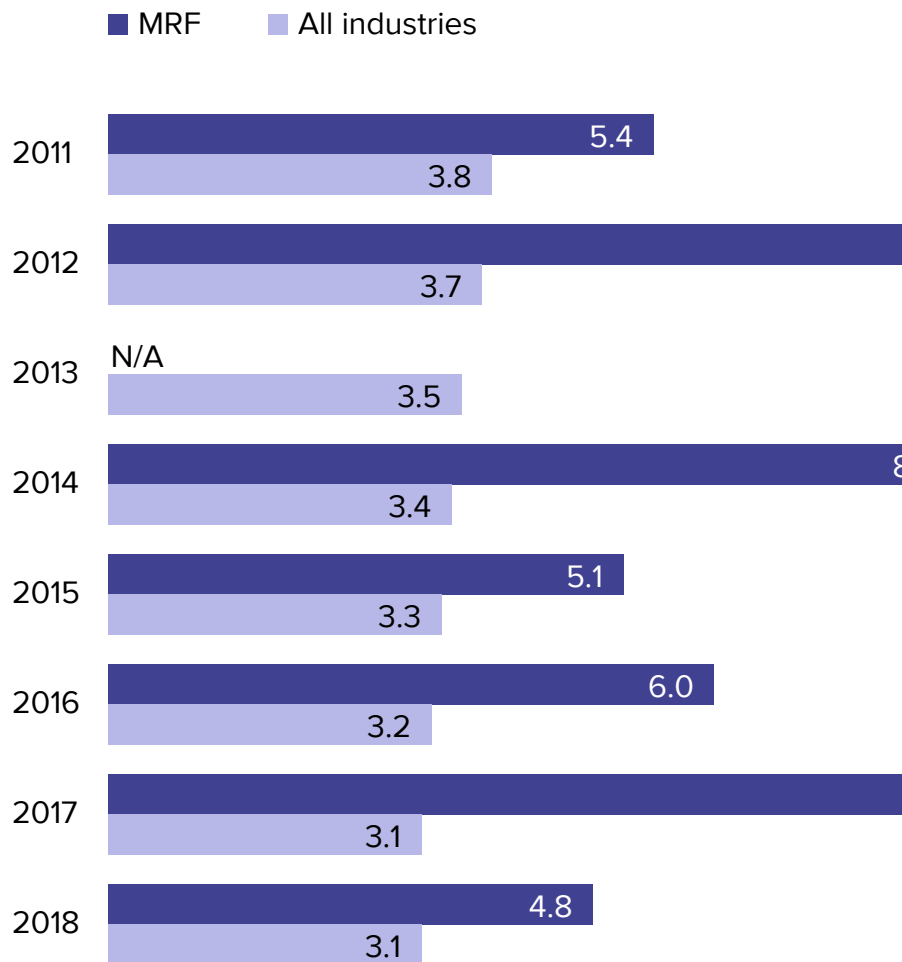
Nonfatal injury and illness rates per 100 workers. Click on one of the tabs below to compare other BLS classification codes against MRFs.

All industries

Solid Waste Collection

Solid Waste Landfill

Waste Management & Remediation Services



Credit: Nami Sumida/Waste Dive, data from BLS

MRFs have also been singled out by BLS for having some of the highest rates of days away, restricted or transferred (DART) among all occupations in the U.S. for three of the past five years. In multiple instances, other waste industry occupation codes either had lower DART rates or didn't appear on the list at all.

Biderman and industry safety professionals have pointed out that MRFs are more manageable than collection routes, from the perspective of having a captive workforce where supervisors can interact directly with staff. Yet at the same time, MRFs can also be

more unpredictable due to the nature of their roles in the flow of materials.

“There is a lot more risk in a MRF possibly than a residential route out on the street,” said Michael Hughes, corporate vice president of safety for Casella Waste Systems. “There’s more moving people, more moving equipment, more moving pieces. And they change every day.”

While it’s too early to know whether operational changes due to recent market shifts had any notable safety effect (multiple companies claimed they didn’t) it’s clear this event is shining a spotlight on the labor situation. MRF operators are looking for more ways to maximize quality and efficiency to offset low commodity pricing. In some cases, this may mean investing in technology, or even spending more to move away from potentially lower-skilled temporary labor, but these changes are far from universal.

For many workers, even at the most well-run facilities, it remains a challenging and potentially hazardous job to serve as the U.S. recycling system’s linchpin.

Torrent of risks

The costs of contamination are a major talking point in the recycling industry today, often directly correlated to higher pricing for customers. While educational efforts are beginning to show promise in certain areas, with the potential for an even wider reach in the future, the issue continues to have a very direct human cost as well.

Whenever someone puts an item in the recycling stream that's not accepted, it's usually someone else's job to take it out. Even with durable gloves and other personal protective equipment provided by employers, working on the pre-sort line is inherently difficult.

"Any time you touch material you have an opportunity to have an injury. And so the number of opportunities in these facilities is great," said Susan Eppes, president of EST Solutions, who is viewed by many as one of the leading authorities on MRF safety.

According to Eppes and others, the sheer variety of incoming surprises is an issue for both the workers and the effectiveness of the entire facility itself.

"Somebody's got to handle that and that's a risk to our employees," said Brian Haney, vice president of safety and compliance at Leadpoint — a company that provides work teams for MRFs run by Republic Services and others. "You pick up a shoulder strain pretty easily trying to pull a car bumper off a pre-sort line."

Commonly encountered items found on pre-sort lines that hinder MRF performance

- All chains, wires, cords, garden hoses, chain link fencing, ropes
- Pipes or any scrap metal (excluding aluminum cans)
- Large plastic bags
- Bulky rigid plastics
- Unopened bags
- Large amounts of yard debris
- Tires and large automotive parts
- Household electronics
- Hazardous materials such as fuels, ammunition and explosives

Large concrete blocks

Credit: Susan Eppes

While smaller items coming along such as needles can also be dangerous, the common array of plastic bags and other tangles may be similarly insidious.

“Whether it’s textiles, whether it’s Christmas lights, Walmart bags, whatever it is ... That forces our workers to go in and perform lockout/tagout, and go in and clean the screens and put themselves in additional risk because of that contamination,” said Haney, describing the required lockout/tagout (LOTO) process of controlling various forms of hazardous energy when shutting down machinery for maintenance.

Eppes said it’s increasingly important for MRF operators to be realistic about expected contamination levels in their service area when designing new facilities or retrofits. Even using the best technology, she said, facilities can still run into issues with quality and extended downtime for maintaining equipment.

“It’s a rough business. It’s rough material to run through anything,” said Eppes.

MRF workers also face numerous ongoing challenges beyond the pre-sort line, according to a 2015 report by groups including the National Council for Occupational Safety and Health (COSH) and other reporting. Common issues include exposure to dangerous materials, extended shifts in unhealthy positions, extreme temperatures, respiratory hazards and noise exposure.

Interacting with equipment is often a more dangerous fact of life for MRF workers, for a variety of reasons, and it's one that can come with higher potential for serious injury than handling the material itself. Beyond general risks from conveyor belts — as seen in 2018 deaths at a Friedman Recycling MRF in New Mexico and a Waste Connections MRF in New York — workers are also exposed to many other pieces of heavy machinery.

A worker at Casella's Boston MRF lost a hand in August 2017, according to a U.S. Occupational Safety and Health Administration (OSHA) inspection report, while installing a paddle seal on an air lock. Casella confirmed the incident was due to a failure in LOTO procedure.

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By Susie Neilson • Dec. 11, 2019

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The 2015 National COSH report also described multiple examples of MRF employees losing other body parts in such incidents while other facilities have experienced similar situations, or close calls, in recent years.

“We’ve been fortunate that we haven’t had a hand or an arm, but candidly we’ve had fingers. Guys lost the tip of a finger because

they're putting their hands some place they shouldn't," said Jim Olson, senior vice president of safety for Republic Services.

Asked for comment on the scope of responsibility in LOTO-related safety incidents, an OSHA spokesperson pointed to resources on protecting against amputations and said that, "Employers are responsible for ensuring machines are properly safeguarded to prevent worker amputations and other fatal injuries."

The spokesperson also noted that while federal law "requires employers to provide workplaces that are free of known hazards that could harm their employees," it also requires that workers comply with all related rules and directives "as they apply to the employee's actions and conduct."

A separate situation cited by Olson as potentially having more risk following new market standards is interacting with finished bales. Given the increased focus on quality, it's becoming more common for workers to "dress" or clean bales before shipment.

Working with these bales, which can weigh one ton or more depending on material type and are often stacked upon each other, presents an inherent risk at any facility. The temporary increase in stockpiling bales (sometimes in exterior areas) and breaking them open for reprocessing amid market difficulties can further exacerbate that risk.

"When you have to put stuff outside and you have to constantly move things and restack things you don't have enough room to stack bales safely," said Eppes. "That's where you run into problems with them falling and crushing people."



Credit: Waste Management

Republic experienced one such incident at a Fort Worth, Texas MRF in January 2019. Olson said it was unrelated to market factors, instead attributing it to “failures” in normal operating procedure.

Waste Management experienced its own bale-related fatality at a Philadelphia MRF in March 2016, with the additional and common factor of vehicle involvement. According to a Philadelphia Inquirer report, one worker was inspecting his forklift when another forklift operator hit nearby bales of cardboard that fell in a “cascade effect” and crushed the man.

According to Waste Management’s Vice President of Recycling Brent Bell, this incident was part of a poor safety trend that prompted multiple operational changes throughout the company and resonated deeply with leadership.

“You go home at night and you think ‘I will never let this happen again in my career,’ and it’s impacted the family for the rest of

their lives, obviously, as well,” he told Waste Dive. “We often talk about metrics and where we can find end markets and the typical recycling stuff that running that business is comprised of, but the emotional aspect of the safety of the employees (is important).”

These recent stories are just some of the dozens of MRF worker fatalities that occurred this decade — chronicled by the National COSH report, local media and others — at facilities around the U.S.

Fire hazards

Local news reports from 2019 are rife with stories of MRF fires, ranging from merely disruptive to highly destructive, and operators are increasingly concerned.

According to Fire Rover, which tracks detailed data on U.S. waste and recycling facility fires, there have been an estimated 1,800 industry fires within the past year. MRFs are a sizable part of that, given the frequency with which they’re seeing lithium-ion batteries, propane tanks and other hazardous items. For Ryan Fogelman, Fire Rover’s vice president of strategic partnerships, this emphasizes the importance of having detection and prevention equipment.

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Long-term challenges of temporary labor

Given all of these safety risks, along with the labor shortage in many regions, MRF operators of varying sizes have long reported challenges filling positions. For many, this means utilizing staffing

agencies. Yet many of those workers show little interest in working for what are often entry-level wages given the demands involved.

Waste Management's own experience puts that in stark relief, with sorters comprising about three-quarters of all company temporary staffing activity. To fill an estimated 2,500-3,000 sorter positions at MRFs across the country, the company typically sees 14,000-15,000 people come through staffing agencies each year.

"Unfortunately, a lot of our sorters go home after lunch on day one," said Bell, describing MRFs as a potentially "overwhelming and confusing" place for new workers.



Credit: Republic Services

Waste Management's senior leadership, including CEO Jim Fish, has been increasingly public about the safety challenges connected to temporary labor in recent years. According to Bell, this is part of an overall shift in MRF safety practices that came out of a companywide meeting for recycling directors in 2017 following the Philadelphia fatality and other incidents.

One policy that resulted was the decision to phase out temporary workers from any non-sorter positions — mechanics, baler operators, forklift drivers and others — and reduce the amount of sorters as well. The company now uses temporary workers for about 50% of its sorting jobs, varying by location, and is reportedly working to lower that number by pushing full-time hire conversions after 90 days on the job.

"That's really helped out the safety culture," said Bell. "You have people that show up to work that know the safety procedures and so it's just part of that culture now, where a few years ago it wasn't quite as strong because of the magnitude of temporary workers we had."

This concept of limiting the usage of temporary workers, or viewing the practice as a short-term recruitment method, is one that has already paid off for smaller operators. Eureka Recycling, a nonprofit service provider in Minnesota, now has an average retention rate of six years after making a conscious choice to raise wages.

"Our managers and supervisors, a lot of them started as sorters. So they understand the work," said Co-president Kate Davenport. "When you invest in people they tend to invest back in you. And

when you have people that are well-trained and know what they're doing you have less safety incidents.”

Outside of conscious efforts by employers to invest in higher wages and upward mobility for workers, the other source of momentum in this area traditionally comes from unions. And while unionized employees are common in multiple parts of the industry, MRFs are seen as much harder to organize.

“It can be a very respectful job if workers have a right to collectively bargain,” said Victor Mineros, a business agent with Teamsters Local 396 in California, who said immigrants and people with criminal records are common parts of the workforce. “The turnover is so high in these MRFs. It’s just temp labor, so it’s kind of hard to collectively bargain for workers that are here today and gone tomorrow.”

Outside of California, where the Teamsters, International Longshore and Warehouse Union and others have been active for years, it’s less common to see recent organizing attention focused on MRFs. The Sims Municipal Recycling MRF in New York, also now with the Teamsters, became a notable exception in 2017.

Mineros reported some advancements for workers under area Teamsters contracts — such as hydration stations, extended breaks in extreme heat and more clear rules around situations workers are asked to put themselves in — but said it remains a challenging industry because of the shifting workforce.

The true proportion of temporary workers in MRFs across the U.S. is unknown, in part because the turnover is so high, and this is another factor that makes BLS data less precise due to the

potential for different categorization. MRF operators at multiple companies still reported frequent usage of staffing agencies, and industry associations recognize it as a widespread factor.

“I think that in the current economic environment, with unemployment being at a really low rate, many companies will continue to use staffing agencies to fill those slots,” said SWANA’s Biderman. “Making sure that those staffing agencies are providing adequate safety training should be a top priority.”

Various MRF operators described themselves as playing a lead role in this process, both by helping ensure agency trainers are familiar with the site and that the training is the same as their own employees would receive.

“OSHA has been very clear that the role between an employer and a temp agency is a joint employer status. And both of those employers have very clear responsibilities to that employee,” said Jerry Peters, OSHA compliance manager for Ohio-based Rumpke Waste & Recycling. “We work a lot of man hours on the temporary training.”

OSHA is indeed quite clear about the shared nature of safety responsibility between employers and staffing agencies, noting that both can be found responsible for violative conditions. The agency releases periodic guidance about temporary worker safety, including for LOTO situations.

While seasoned temporary workers may be used to doing a variety of jobs, it’s often the case that MRFs and other recycling facilities are in a category of their own. This can be an issue both for their

safety, as well as the safety of employees they'll be working alongside.

“When it comes to temps we have to all be on the lookout for that new person in that new environment to be sure they get the best guidance possible,” said Tony Smith, safety outreach director for the Institute of Scrap Recycling Industries (ISRI). “If you worked in a warehouse environment for the last several years and you come to the recycling environment it’s apples and oranges.”

NWRA weighs in

In recognition of the need for better training, the National Waste & Recycling Association (NWRA) recently developed new guidance geared specifically toward temporary workers.

“Earlier this year we were seeing a lot of injuries in MRFs,” said Kirk Sander, NWRA’s vice president of safety and compliance, citing market pressure as one potential factor.

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Best practices

MRFs have had their own American National Standards Institute standards for more than 20 years, and general improvements have been made in terms of ergonomic positioning for sorters and other baseline requirements, but the data makes it clear incidents are still happening.

While MRF operators all agreed on priority areas in their facilities, each brought a slightly different emphasis and perspective.

Vehicle or equipment-related incidents remain some of the most common for MRFs, and operators said they're very strict about limiting pedestrian access to the tipping floor or any outbound areas. Rumpke, for example, chooses not to use any spotters for its inbound tip area.

E.L. Harvey Safety Director Jerry Sjogren said he is especially strict about limiting access. In fact, employees are required to exit the company's Massachusetts MRF and enter a separate door to reach the break room — regardless of the weather — to prevent potential incidents on the floor.

"My opinion is and has always been is that there's no reason for human beings to be walking around or wandering tipping floors," said Sjogren.

While Eppes said it's becoming a best practice for newer MRFs to install separate walkways or access points, now common in about 50% of facilities, that still doesn't fully eliminate the presence of foot traffic on the floor. She also noted it's ideal for floors to have enough run space that equipment can avoid backing up.

In one potential solution to this issue, Casella has installed lights on all MRF equipment that shine a blue tracer dot on the floor forward and backward to show their path. All new equipment must also come with this feature. Hughes said he picked the idea up from visiting a customer's warehouse and seeing the lights in action about a year-and-a-half ago.

This level of caution also applies to outbound areas, including for bale storage and dressing, for companies such as Rumpke.

“(A)n orange cone is placed atop the bale that the employee is currently cleaning,” said Peters, describing how this helps alert forklift operators. “Without that cone, they would never know somebody’s there.”

Waste Management has also begun enforcing a stricter policy on tip floor access and now claims to clean all of its bales behind physical barriers as well, Bell said.



Credit: Rumpke Waste & Recycling

Aside from “struck by” incidents, LOTO situations were among the top focal points for operators because of how easily they can go wrong without proper planning.

“Machinery gets jammed over and over again and we tend to get frustrated. So then we tend to cut corners and try to unjam it because we have pressures from above to keep going. We have numbers to meet. So we may rush and bypass a lockout issue or a

lockout of the machinery, put our body in harm's way or lose a finger, lose a hand, lose an arm on a conveyor system," said ISRI's Smith. "I think we need to slow down and recognize these things and follow procedure."

Smith noted this will be a focus for ISRI heading into 2020 as it develops new training under a \$160,000 OSHA grant.

Bell cited new LOTO procedures as another outcome of Waste Management's 2017 MRF safety reset. Now, employees must do it in groups of two or more and also "demo back" the procedures each time. Before, employees could perform LOTO alone.

"It's something that's unheard of now, but two or three years ago ... I think unfortunately we were probably doing on a regular basis," he said. "If you're going to put people in a situation that could be dangerous — which all lockout/tagout situations are very dangerous — then we should have a supervisor or someone at a high level there witnessing that behavior so that we can make sure that all those folks are doing everything according to plan."

Other operators described variations on a similar requirement, with Casella's Hughes noting how he'd developed a special LOTO permit system for facilities that also goes a step beyond by requiring specific documentation and having someone sign off who isn't part of the specific task at hand.

In addition to these best practices, an element getting more attention when it comes to equipment maintenance is access. Eppes and others noted the manufacturers are increasingly aware of ways to ensure better safety during these regular procedures, be it with wider entry points or special walkways or platforms to

avoid hanging from high heights. In MRFs that don't yet have this built in, the situation provides another example of how LOTO can potentially go wrong.

"We rarely have issues with our techs or mechanics in lockout/tagout, but if there is an issue that's where it's more significant," said Republic's Olson. "Not to downplay a needle stick, but a needlestick is probably better than falling 30 feet because I didn't secure myself from a fall."

In addition to many other priority actions for MRF safety, multiple operators raised the idea that safety tips shouldn't be proprietary and encouraged more discussion.

"We can compete for business on the street with Waste Management, Republic, Waste Connections, but we should never be competing with safety," said Rumpke's Peters.

For MRFs of any size that still haven't made safety an investment priority, one other factor may compel them to act: rising insurance premiums. MRF policies are already increasingly expensive — given the rash of fires and other factors — according to Nathan Brainard, vice president of Insurance Office of America's (IOA) environmental division. Facilities with high modifier rates for worker's compensation claims may face even more difficulty, in the form of premiums that can end up costing more than upfront safety investments.

"Investing in safety is a critical item and unfortunately a lot of folks don't do that until they find religion so to speak," he said.

OSHA

MRFs have a complicated relationship with the U.S. Occupational Safety and Health Administration, which some operators described as unique within the industry. While the facilities are a more controlled environment than collection routes — where inspectors have limited jurisdiction — they're often more complex than transfer stations or other sites. This prompted some to describe OSHA violation rates as an imprecise metric. At the very least they show room for improvement.

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The future: More visibility, fewer workers

Despite increasing talk from industry companies about ensuring MRFs are safe, upwardly mobile environments, it's still more common to hear stories about turnover than retention. And even when best practices are in place, operators recognize the fluid nature of their facilities creates a challenging safety environment.

Amid the broader public discussion about the future of recycling, prompted by recent market changes, it remains unclear where workers will come out in the equation. On the one hand, a wave of local stories and state campaigns (i.e. Massachusetts and Vermont) connecting contamination to potential worker injury is a notable change in visibility.

Kate O'Neill, a professor at UC Berkeley and author of the new book "Waste," described awareness as a key issue for MRF workers. Having studied the role of labor in the global resource economy, including many informal sectors, she said that U.S. recycling workers seem particularly hidden from the public.

“One of the things that I think is a problem for MRF workers is they’re not visible,” she said, going on to cast some doubt on whether major operators’ safety investments will be overshadowed by new equipment that could potentially replace their jobs.

“Because of this fact that MRFs have been invisible, the more light that you can shine on these the better it will be. But I don’t necessarily see it going in that direction. I think the investment is going to go toward mechanization,” said O’Neill.



Credit: BHS

MRFs have seen increased investment in advanced equipment in recent years, particularly to meet more demanding quality standards in the shifting market, and the expectation is that trend will only ramp up further.

In the near-term, though, certain reports indicate that hasn’t become widespread enough to affect labor demand. Leadpoint, for example, reports that in facilities with new optical sorters it may just end up being asked to move workers to different parts of the

operation, like quality control or housekeeping, versus the sort line.

“Obviously, the operators are always cognizant of their costs and labor’s one of the highest costs in those facilities. As they were not seeing the revenue from the sale of material they really start looking at the P&L and digging deep,” said COO Len Christopher, “But it really hasn’t affected much to be quite honest with you. We didn’t see any reduction in workforce for the robotics piece of it or the optics piece of it.”

According to multiple MRF operators and equipment manufacturers, new technology may still not be suited for areas such as pre-sort but can already do plenty of jobs on the line. While the facilities that tend to contract with Leadpoint are often larger, meaning they’ll still have more need for labor even if they can afford to make the upgrades, others view this as just the beginning of a change ahead.

“The benefits of the robots are going to be they don’t get tired and they don’t get hurt,” said IOA’s Brainard, describing MRFs as perhaps the most likely candidate for automation in the waste and recycling industry. “My guess is that as the cost of the technology starts to come down we will start seeing a whole lot more of that.”

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Robots move in

By Katie Pyzyk • Dec. 11, 2019

More MRFs are turning to automation to fill gaps and boost efficiencies, especially in light of market changes,

but a full replacement of human labor isn't here yet. [Read more →](#)

While this shift could alleviate some risk for sorters, others also recognize it raises the need for additional focus on maintenance teams servicing this new equipment in LOTO situations.

Republic's Olson is particularly cognizant of this point, given the potential for severe injury if LOTO goes wrong, but noted that it can be a net positive with the proper systems in place.

“Lockout/tagout activity is much more planned and it's a much more prescribed routine, as opposed to something like pre-sort where you have no idea what's coming across the line that you're grabbing and moving,” he said. “There's less control we have over that situation. So the more we can remove people from exposure to situations we have less control over, and have them in positions where we can have more control, that I see as a positive.”