

Worker Safety in Solid Waste Collection

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Solid waste collection workers are potentially exposed to health, environmental, and safety risks due to the weight of the waste to be collected and various chemical and biological materials sometimes present in the waste stream. Typical rear-loader operations require manually lifting materials into the collection vehicles. Statistics from such programs suggest that collection crews lift on average, over six tons (13,000 lbs.) per worker per day. In general, this heavy, repetitive, manual lifting combined with an aging workforce tends to



Manual collection increases the risk of a variety of safety incidents.



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generate an increasing number of injured staff. Exposure to certain chemicals and biological materials can result in musculoskeletal, dermal, respiratory, and gastrointestinal problems. In addition, solid waste collection workers are exposed to safety risks associated with vehicular traffic, containers/dumpster, and being struck or run over by their own truck.

A fully automated collection program enhances worker safety and comfort, minimizes manual lifting and exposure to possible hazards in the waste such as sharp objects. Fully automated collection eliminates heavy lifting, walking between setouts and frequent steps on and off the truck. The mechanical arms on modern, fully automated trucks are typically operated by the driver using a joystick control. Rather than slogging through rain and high temperature environments, operators of automated refuse collection systems spend their shifts in climate controlled comfort. The reduced physical requirement increases the diversity and longevity of the workforce that is able to collect waste. Automated collection has proven to significantly reduce collection worker injuries resulting in

reduced workers compensation costs, decreasing disability claims, decreasing the number and cost of light duty assignments, and reducing salary fringe benefit costs in the future.

For the estimated 130,000 men and



Ferdinand Rivera, City of West Palm Beach, Florida

Many communities, like the City of West Palm Beach, Florida, switched to residential automated collection service as a means to improve levels of service, while at the same time reducing worker injuries.

women involved in the U.S. solid waste collection industry, refuse collection is a sometimes thankless job that affords outdoor work, physical activity, a certain measure of independence, and satisfaction of knowing that it is something that is important. It is also a job that has hazards literally around almost every corner.

Solid waste collection is often viewed as one of the more dangerous jobs due to the number of fatal and non-fatal occupational accidents (Exhibit 1). For 2013, the U.S. Bureau of Labor Statistics (BLS) reported that “refuse and recyclable material collectors” in the United States experienced 33.0 fatalities per 100,000 workers, and that these employees work in the occupation with the fifth highest fatality rate in the United States. This is more than a twenty percent increase in the collection fatality rate experienced by the industry in 2012, and statistically, is 10 times higher than the overall national average for all U.S. workers and four times higher than construction-related fatalities.

Exhibit 1. America's Most Dangerous Professions, 2014

Ranking	Profession	Deaths Per 100,000 Workers
1	Loggers	109.5
2	Fisherman	80.8
3	Aircraft Pilots	63.2
4	Roofers	46.2
5	Solid Waste Collectors	35.8
6	Farmers, Ranchers	26.0
7	Steel Workers	25.2
8	Truckers	23.4
9	Powerline Installers	19.2
10	Construction Laborers	17.9

Source: U.S. Bureau of Labor Statistics, National Census of Fatal Occupational Injuries (CFOI) Report, 2014

According to the National Institute for Occupational Safety and Health (NIOSH), workers in solid waste collection were also in the top three job classifications to have the highest number of nonfatal injuries and illnesses, most caused by overexertion, being struck, striking against, or being compressed in equipment. The majority of worker's compensation claims nationally are typically attributed to repetitive stress injuries associated with lifting refuse containers or getting in/out of the collection vehicle. Also problematic are the contents of refuse: broken glass, chemical waste, pool chemicals, and needles and other medical wastes, which results in cuts, lacerations, punctures, bruises, illnesses and contusions. Vehicular traffic and repeated lifting while on the run produces thousands of injuries each year. Some injuries stem from constantly repeating awkward movements, such as jumping in and out of the back of collection vehicles, and lifting heavy or oversized containers.

Although workplace safety in the solid waste collection industry improved substantially between 2001 and 2010, more recent data suggests the industry's progress in reducing fatalities, workplace injuries and accidents over the past few years has slowed, and by some measures, is being reversed. In 2001, BLS calculated solid waste collectors had a fatality rate of 55.4. By 2007, the BLS fatality rate for this category had declined to 22.8. The number of waste collection employees killed declined from 73 in 2003 to 39 in 2007. A similar decline occurred in employee injuries and illnesses, with waste collectors experiencing a decline in their injury rate from 8.0 per 100 full time employees in 2006 to 5.4 in 2010. As noted above, however, those improvements have not continued into the current decade, as the fatality rate has increased to 33 (in 2013) and the injury and illness rate for waste collection workers in 2013 was 6.3 per 100 employees, compared to 5.4 in 2010.

The last few months of 2014 and first half of 2015 have seen a steady barrage of tragic accidents in which waste collection and other industry workers have been killed. For example, in November

2014, a driver was killed in New York City when the container he was unloading fell on him. In April 2015, a driver was killed when the rear boom on his truck struck and overpass, causing the truck to overturn. June 2015, a driver in the Florida Keys was killed while emptying a dumpster. All three of these recent examples involve workers at small hauling companies, which typically have higher fatality and injury rates than larger companies or sanitation departments.

Some industry safety advocates suggest the steady and substantial decrease in the previous decade was likely due to a number of critical factors. First, an increasing number of both private companies and public agencies are replacing manual rear-loader waste collection vehicles with automation utilizing rolling cart systems, which almost

completely eliminates the need for solid waste collection workers to lift containers, and the consequential risk of exposure to unsafe trash and distracted drivers. Second, the renewed emphasis on safety by the industry's leading trade associations, its largest companies, and senior management, safety managers, and others in the solid waste profession played an important role in these gains, in an effort to decrease the high costs of workers compensation claims, third party personal injury claims, and property damage claims, and litigation. It is important to note that in addition to worker fatalities, the waste industry averages nearly two third-party fatalities each week, and has thousands of accidents annually, and according to the Federal Motor Carrier Safety Administration's 2013 Large Truck and Bus Crash Facts report, nearly 1,900 accidents each year in which a vehicle needs to be towed away.

SAFETY PROGRAMS

Current OSHA regulations do not specifically address solid waste collection vehicles or employees, although OSHA will inspect solid waste employers in response to a fatality, worker complaint, or if the establishment is in its site-specific targeting program. The American National Standards Institute (ANSI) has published Safety Standards for Mobile Refuse Collection and Compaction Equipment, which address safe operation and construction of the equipment and includes recommendations for riders and pedestrian safety (ANSI 2014). These standards, which are updated frequently, include the following important recommendations:

- Ride only in the vehicle cab or on steps specifically designed for riding.
- Remain inside the vehicle cab until the vehicle is completely stopped.
- Ensure that riders are NOT using the riding steps when the vehicle is backing, exceeding 10 miles per hour, or traveling more than 0.2 miles.
- Ensure that no one rides on the loading sills or in hoppers.

The National Waste and Recycling Association (NWRA)¹ has developed comprehensive national safety practices for workers engaged in solid waste collection. NWRA's Manual of Recommended Safety Practices, contains detailed procedures for backing safety, acting as a spotter during vehicle backing, and working around vehicles. These procedures include the following standard procedures:

- Maintaining visual contact between the driver and workers on foot when working close to the vehicle and when backing.
- Checking both side mirrors when backing.
- Using a reliable spotter to see both the driver and any blind spots behind the driver and any blind spots behind the vehicle when backing.
- Using standard hand signals when backing.
- Stopping the truck if the spotter must change positions.
- Immediately stopping the maneuver if visual contact with the spotter is lost.
- Remaining clear of the rear of the vehicle when the backup lights are on or the alarm is sounding.

Organizations have determined that by focusing efforts on eliminating unsafe behavior, worker injuries and accidents can be reduced. In recent years, both private and public solid waste operations have elevated the importance of safe work behavior by creating safety committees, adopting new work rules and employee policies, and implementing training regimens to effect a change in employee behavior. The City of Mesa, AZ regularly updates their Solid Waste Division Work Rules, Procedures, and Safety Guidelines, which begins appropriately with "No short cuts or alibis in Safety," highlighting the importance of safe work behavior.

Recognizing that the cost of risk, in both dollars and human lives, was having an impact on their business, Waste Management, Inc. (WM), the nation's largest solid waste company, began a comprehensive safety initiative to change the way the company conducted its business. In 2001 a "Mission to Zero" (M2Z) tolerance was begun, vowing that if a work practice was deemed unsafe in any way, that it would not be attempted until the unsafe condition was eliminated, even if that meant losing a customer to protect the safety of WM employees or the public. As the industry leader, WM has more than 42,000 employees and operates over 32,000 trucks each day. M2Z impacts every employee:

- Initial multi-day training of the WM Operations and Safety Rules Book
 - The Rule Book is a comprehensive, leather bound manual of safe work practices for every collection job function.
 - Every employee is required to have the Rule Book with them at all times.
 - The Rule Book should be used to assist employees in identifying potential risks and providing the correct work procedure.
- Regularly conducted safety meetings

- Safety metrics are reviewed (OSHA injury rates, and accident frequency rates).
- Injuries and accidents are reviewed, root cause investigated, and preventability discussed.
- Daily Safety Briefings
- Supervisor Safe Driver/Helper Observations
- Repeat Offender Program (ROPE)
 - WM identified that a small percentage of employees were involved in the majority of accidents or injuries.
 - Employees allowed no more than three preventable accidents or injuries in a 12-month period.
 - Employees must complete retraining after preventable incidents and are subject to progressive discipline.
 - WM determined that by correcting repeat offender behavior, safety metrics improved.
- As a result of these M2Z efforts, WM has reduced their OSHA recordable injury rate by 70 percent, and the number of vehicle accidents by 35 percent in a four year period.

Both Republic Services, Inc., the second largest waste company in the United States, and Waste Connections, Inc., have focused on common root causes of accidents and injuries, such as backing and rear end collisions.

In 2003, The Environmental Research and Education Foundation (EREF) obtained a grant from the Department of Labor to develop safety training tools for the solid waste collection industry. This effort resulted in the development of four "Be Safe, Be Proud" videos that show real life solid waste workers and equipment, highlighting specific safety issues involving waste collection. In addition, EREF and the National Solid Wastes Management Association (NSWMA) promoted the "Slow Down to Get Around" program, an educational program aimed at motorists to try and get them to drive slower and more carefully around garbage trucks. This effort expanded upon a similar program initiated by Rumpke Consolidated Companies, Inc., in 2003, one of the nation's largest privately-owned waste hauling firms. Since 2003, more than 1,200 videos have been issued, many to public solid waste collection agencies. As part of this effort, NSWMA also developed radio and television ads with support from OSHA.

A variety of local governments have also developed different types of safety incentive programs for their employees. Typical is a safety program developed by the City of Clovis, CA for their solid waste collection staff. Under its program, the City pays a safety bonus to those employees who have not a job related injury, lost time from work from a job-related injury, or an at-fault accident within the last two years. The program is pursuant to an agreement with the City union.²

IMPACT OF AUTOMATION ON WORKER SAFETY

In the late 1990s, the City of Dunedin, Florida (pop. 37,000, Pinellas County) transitioned operations from traditional rear load

collection to one-man, manual side load collection. The City made this change in an effort to control escalating costs and forego rate increases to City residents. As a result, staffing levels were drastically reduced and the City recognized savings in both labor and workers compensation claims. However, the reduction in claims were a direct result of the reduction in staffing, and not the conversion to manual side load collection.

Although production levels increased because of the new manual side load application, worker injuries continued to occur, forcing the City investigate other methods to increase worker safety.

In 2001, the City piloted and subsequently introduced a citywide containerized automated collection program, replacing the manual side load collection program. The City immediately recognized a reduction in worker injuries and a subsequent savings in worker compensation claims. Since implementing their automated collection program, the City of Dunedin has recognized a 77 percent reduction in residential workers compensation costs, and a 52 percent reduction in workers compensation costs for the entire solid waste division. Exhibit 2 illustrates this reduction in worker compensation claims.

SWANA'S WORKER SAFETY PROGRAM

Over the past few months, SWANA has expanded the quality and the quantity of safety resources it is making available to its members and others in the waste and recycling industry. This expansion is likely to continue into 2016, as safety is one of the top priorities in SWANA's Strategic Plan.

SWANA has added a new "Safety Matters" section to its monthly newsletter that it distributes to its more than 8300 members. This section highlights recent accidents in the industry and upcoming SWANA safety programming. SWANA has also started to communicate directly to its chapters regarding safety.

SWANA held a webinar in June 2015 on how to reduce accidents and injuries. The webinar attracted more than 140 registrants, and focused primarily on collection-related issues. Also in June, SWANA applied to the Department of Labor for a Susan Harwood grant to provide safety education and resources, starting in 2016. If approved, SWANA will provide classroom training for managers and supervisors at several locations around the United States, including at SWANA conferences. The grant application also includes an internet-based component for personnel unable to attend classroom training.

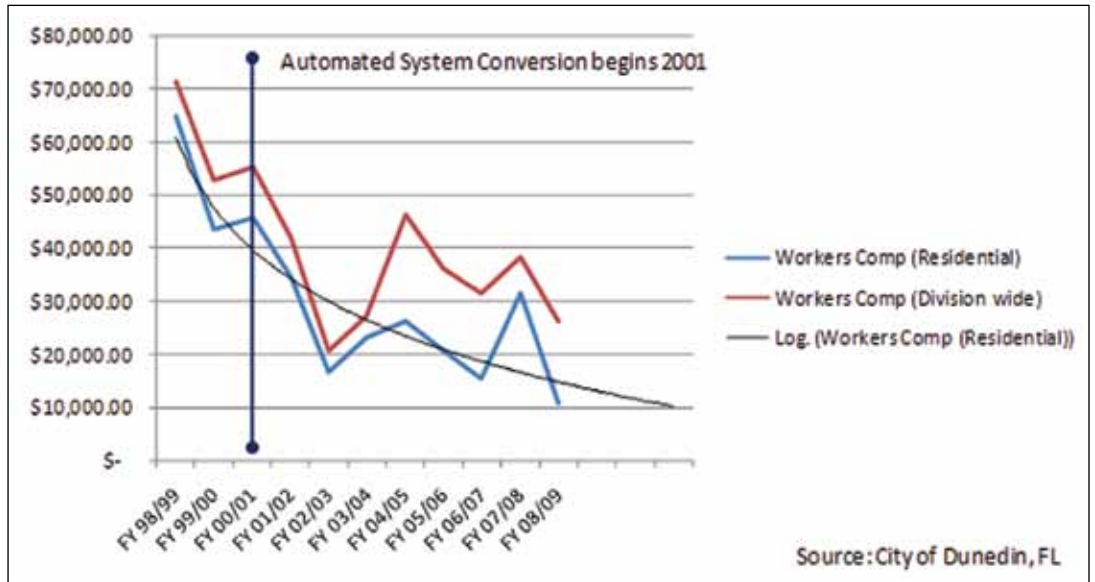


Exhibit 2. Reduction in workers compensation costs after conversion from manual to automated collection

Although SWANA has held a Safety Summit at WASTECON[®] for several years, the 2015 Safety Summit in Orlando was expanded to include five separate sessions over three days, plus a truck inspection on the show floor. The topics covered at the Safety Summit, which includes well known safety experts from both the public and private sectors, included: (1) Can We Improve Safety by Looking at Other Industries; (2) Safety Improvements at the City of Clearwater, Florida; (3) Fires: A Burning Issue in Trucks, at Landfills and at Other Facilities; (4) OSHA and DOT Compliance Issues; and (5) Safety Issues for Municipal Solid Waste Workers.

SWANA also is exploring holding additional safety webinars and classroom safety sessions in late 2015 and 2016, and has met with representatives from the Occupational Safety and Health Administration (OSHA) concerning temporary workers, who have an elevated fatality and injury rate. There are thousands of temporary workers who work in the waste and recycling industry on a daily basis.

CONCLUSIONS

Solid waste collection is currently the fifth most dangerous job in the United States due to the number of fatal accidents involving employees. In addition, solid waste workers suffer thousands of reported injuries and illnesses annually, and waste collection vehicles are involved in thousands of accidents each year. As a result, the solid waste industry has developed safety education programs for workers and also for the general public. These have been generally well received. In recent months, SWANA has expanded the quality and quantity of these programs to its members and the industry. These programs will improve the variety of safety training available.

¹ National Waste and Recycling Association website, <https://wasterecycling.org/blog/2014/09/02/nwra-and-ansi-standards-helping-equipment-manufacturers-be-more-effective>, American National Standards Institute, <http://www.ansi.org>.

² Personal communication with Mr. Luke Serpa, Utilities Director, City of Clovis, CA, April 8, 2014.