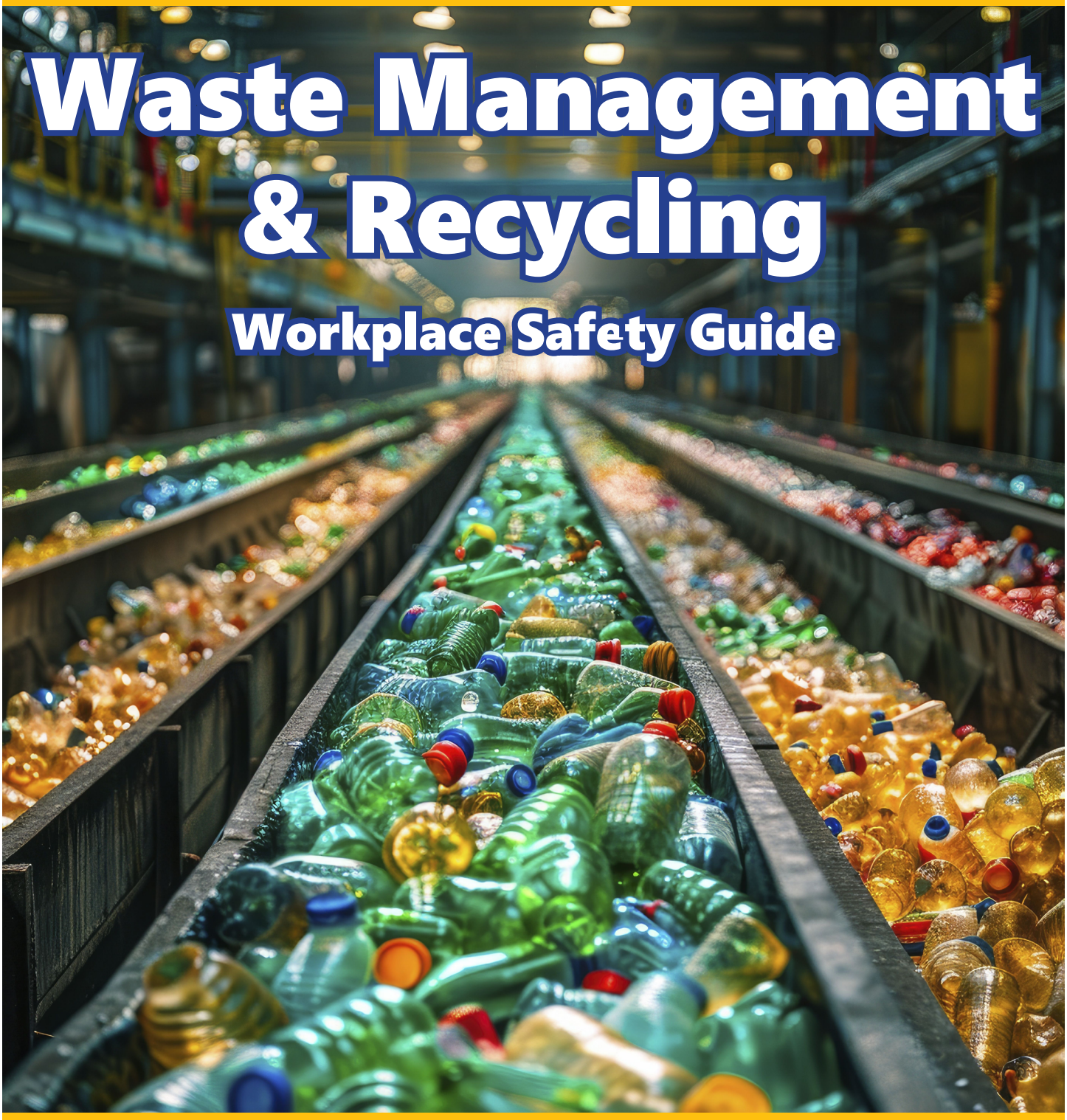
TDI | Safety @ Work
Division of Workers' Compensation

Waste Management & Recycling

Workplace Safety Guide



Texas Department of Insurance, Division of Workers' Compensation
www.txsafetyatwork.com
HS26-003A (02-26)

About this guide

This publication provides a general overview of occupational safety and health considerations in waste management and recycling operations. It does not replace or alter employer compliance responsibilities under the Occupational Safety and Health Act of 1970, OSHA standards, or other applicable federal, state, or local laws. In Texas, environmental aspects of solid and hazardous waste management are regulated by the U.S. Environmental Protection Agency (EPA) and the Texas Commission on Environmental Quality (TCEQ). Employers must comply with these environmental requirements, as well as applicable OSHA standards that address worker safety and health. While environmental protections and worker health are closely connected, this publication focuses specifically on occupational safety and health practices during waste handling and related operations. Employers and employees should review all applicable requirements and tailor their waste management and recycling programs to the specific conditions, operations, and hazards in their workplaces.

Because interpretations, guidance, and enforcement policies may change over time, the information in this publication is considered accurate as of the date of publication but may not reflect the most current requirements. Unless otherwise noted, this document was produced by the Texas Department of Insurance, Division of Workers' Compensation (DWC) – Workplace Safety using information from staff subject matter specialists, government entities, and other authoritative sources. For the most current compliance information, visit www.osha.gov. For additional free DWC publications on this and other safety topics, as well as free occupational safety and health streaming videos, visit www.txsafetyatwork.com, call 800-252-7031, or email resourcecenter@tdi.texas.gov.

INTRODUCTION

How to use this guide

This guide explains the main jobs, hazards, and safety practices in the waste management and recycling industry. Use it to understand the risks in your operation and to choose controls and training topics that fit your workplace.

Supervisors can use sections on employer responsibilities as a roadmap when building or updating safety programs and procedures. Workers can use the "hazards" and "practical steps" sections to recognize dangers on the job and learn what actions they can take every day to stay safe.

TABLE OF CONTENTS

Waste Management and Recycling Workplace Safety Guide

The industry and where work happens

Waste management and recycling includes collecting trash and recyclables, sorting and processing materials, baling cardboard and plastics, and handling scrap metal and other special wastes. Work takes place on city streets, in alleys and parking lots, at transfer stations and material recovery facilities, and in scrap yards and manufacturing plants where metal and other recyclables are stored and moved.

Common jobs include:

Collection truck drivers and helpers

Sorters on conveyor lines

Equipment operators who run balers, compactors, forklifts, and front-end loaders

Maintenance staff who repair machines and vehicles

Many workers spend long hours outdoors in traffic and weather, while others work near fast-moving machinery, heavy loads, sharp scrap, and mixed waste that may hide hazardous items.

Major hazards in waste and recycling

Waste and recycling workers often face several hazards at once — moving vehicles, powerful equipment, sharp objects, and harmful substances that share the same space. Recognizing these hazards is the first step to preventing injuries, illnesses, and fatalities.

Vehicle and traffic hazards.
Collection trucks, roll-off trucks, and other vehicles create serious risks of workers being struck, run over, or pinned, especially during backing and when workers walk or ride on the outside of vehicles. Work along roadways exposes crews to passing traffic, blind corners, and slippery or uneven surfaces around parked vehicles and containers.

(continued)

Machinery and energy hazards.
Balers, compactors, conveyors, crushers, sorting equipment, and powered industrial trucks can pull workers into moving parts, crush body parts, or strike workers with moving or ejected materials. If machines are not properly locked out, workers who clear jams or perform maintenance can get caught in sudden movement, resulting in amputations, crushing, or fatal injuries.

Manual handling and ergonomic hazards.
Workers frequently lift heavy bags, carts, containers, and scrap pieces, push and pull loaded bins, and make repetitive reaching and twisting motions on sorting lines. These tasks increase the risk of back injuries, sprains, strains, and other musculoskeletal disorders, especially when combined with long shifts, awkward postures, and tight production schedules.

Slips, trips, and falls.
Uneven ground, curbs, loose materials, hoses, cords, and wet or oily floors create slipping and tripping hazards in yards, loading areas, and sorting floors. Workers also climb on and off trucks, trailers, platforms, and equipment, increasing the risk of falls to the same level or from height.

Sharp objects, flying objects, and struck-by hazards.
Scrap metal, broken glass, nails, wire, and other sharp items can cut or puncture the skin and eyes. Loads can shift, fall, or swing during lifting, moving, and dumping, which can strike workers or trap them between containers, vehicles, and other structures.

Chemical and biological exposure.
Mixed waste streams can expose workers to serious chemical and biological hazards during handling and processing. These wastes may contain batteries, solvents, pesticides, and other substances that release harmful fumes, dusts, and vapors when crushed or disturbed. Rotting organic waste, animal remains, and contaminated materials may expose workers to bacteria, molds, bio-aerosols, and bloodborne pathogens, especially when needles or other sharps are hidden in bags and containers. Waste streams may also include electronic and universal waste that are not classified as hazardous under federal rules, but these materials can still contain metals and chemicals that can harm workers through contact or inhalation if managed as ordinary solid waste.

Fire and explosion hazards.
Flammable liquids, gases, batteries, and reactive wastes can ignite or explode when compacted or mixed with other materials on trucks, in transfer stations, or at landfills, so facilities need clear policies to prevent, detect, and respond safely to fires.

Heat, cold, and weather.
Outdoor collection crews and workers in hot plants or transfer stations may experience heat stress, dehydration, and heat exhaustion. Cold, rain, ice, and wind create additional stress on the body and can worsen slip, trip, and vehicle hazards.

(continued)

Inexperience.
Young or new workers may be less familiar with equipment hazards, traffic risks, and safe lifting techniques, and may be more likely to take unsafe shortcuts. Federal child labor rules restrict workers under age 18 from operating or assisting with certain balers and compactors, and employers must ensure these limits are followed.

Employer responsibilities and prevention methods

Employers play a critical role in preventing injuries, illnesses, and deaths through a strong safety and health program, proper training, and effective controls. OSHA requires employers to identify and control hazards, provide safe equipment, and ensure workers have the training and protective equipment they need for the job.

- **Plan and evaluate work with safety in mind.**
  Employers should conduct job hazard analyses for collection routes, sorting tasks, baling operations, scrap handling, and maintenance work, then use those findings to select controls and procedures. A written safety and health program that involves workers, tracks incidents and near misses, and reviews operations after changes or incidents helps keep safety practices up to date.

- **Control vehicle and traffic risks.**
  Safe routing and scheduling can reduce backing, blind spots, and exposure to heavy traffic. Employers should provide and enforce procedures for backing (such as using spotters, cameras, and alarms), safe riding positions, and safe stopping locations, and should mark and separate traffic and pedestrian paths in yards.

- **Guard machinery and control hazardous energy.**
  Balers, compactors, conveyors, crushers, and other machinery should have proper guards, emergency stops, and interlocks to keep workers away from moving parts and to stop equipment quickly in an emergency. Employers must establish and enforce lockout/tagout procedures so that machines are shut down, isolated from energy sources, and secured before workers clear jams, perform maintenance, or reach into danger zones.

- **Improve ergonomics and material handling.**
  Providing carts, dollies, lift-assisted equipment, and mechanical dumpers reduces manual lifting and carrying of heavy loads. Employers should set reasonable load limits for bags and containers, adjust sorting line heights where possible, rotate tasks, and train workers on safe lifting and body mechanics to limit strain.

- **Maintain good housekeeping and walking-working surfaces.**
  Regular cleaning schedules and clear expectations help keep floors, walkways, and work areas free of loose materials, spills, cords, and debris. Employers should repair uneven surfaces, improve lighting, and provide non-slip surfaces where possible, especially in areas that get wet or oily.

(continued)

- **Control chemical and biological hazards.**
  Employers need procedures for identifying and handling incoming hazardous materials, such as containers with chemicals, batteries, medical waste, and unknown drums. Where exposures to dusts, fumes, metals, or bio-aerosols can occur, employers should provide ventilation, local exhaust, enclosed processes where feasible, proper hygiene facilities, and medical surveillance or exposure monitoring when required.

- **Provide and enforce appropriate personal protective equipment (PPE).**
  Employers must select PPE based on the hazards present and train workers on its proper use, limitations, and care. In waste and recycling work, this often includes high-visibility clothing, cut-resistant gloves, safety glasses or goggles, hard hats, safety footwear with slip-resistant soles and toe protection, hearing protection in noisy areas, and respiratory protection where required by a respiratory protection program.

- **Train and supervise workers.**
  Training should cover hazard recognition, equipment operation, lockout/tagout, safe lifting, PPE use, traffic safety, and the safe handling of sharps and hazardous materials. Supervisors must reinforce safe work practices, correct unsafe behaviors, and enforce policies for young workers and equipment restrictions.. Operations that handle hazardous waste or respond to releases may also be subject to OSHA's HAZWOPER standard and require additional training and procedures. The goal is to prevent injuries and harmful exposures during routine work and emergency situations.

Practical steps workers can take

Workers can greatly reduce their risk by following safe work practices every day, using the protections provided, and speaking up about hazards.

- **Wear and maintain PPE.**
  Use the high-visibility garments, gloves, eye and face protection, hard hats, and safety footwear provided for your job, and replace damaged PPE promptly.

- **Lift and move materials safely.**
  Ask for help or use carts, dollies, and mechanical lifts for heavy or awkward loads. Avoid twisting while lifting and keep loads close to your body.

(continued)

- **Stay clear of moving parts and loads.** Never reach into balers, compactors, or conveyors unless they are fully locked and tagged out. Keep out from under suspended loads and away from swing zones.

- **Watch for sharp objects and unexpected hazards.** Open bags carefully and use tools instead of hands when possible. Report needles, medical waste, leaking containers, and unknown chemicals so they can be handled safely.

- **Keep walkways and work areas tidy.** Pick up loose materials, clean up minor spills if you are trained and it is safe to do so, and keep pathways, steps, and vehicle steps clear to reduce slips and trips.

- **Manage heat, cold, and fatigue.** Drink water regularly in hot environments, take scheduled breaks in shade or cool areas, layer clothing in cold weather, and report signs of heat illness, cold stress, or extreme fatigue.

- **Report hazards and near misses.** Inform supervisors about unsafe conditions, defective equipment, and near-miss incidents so problems can be corrected before someone is hurt.

When incidents and exposures occur

Even with strong prevention, incidents can still happen, so workers and employers must know what to do when something goes wrong.

Cuts, punctures, and lacerations from scrap, glass, and sharps need prompt first aid and medical attention. When severe or potential exposures to bloodborne pathogens (such as needlesticks) occur, immediately report the incident and follow-up under the employer's **exposure control procedures**. Chemical splashes in the eyes or on the skin call for immediate flushing at **eyewash stations or safety showers** where available, removal of contaminated clothing, and medical evaluation when appropriate.

Spills of hazardous materials require management according to the site's spill response plan. Response actions may include isolating the area, using absorbent and appropriate PPE, and notifying emergency responders for large or unknown releases. Fires, explosions, or major equipment failures require immediate evacuation along marked routes, accounting for all workers, and contacting emergency services. Conduct regular emergency drills with local responders so workers understand their roles and communication during an incident.

Workers should always report injuries, near misses, and suspected exposures right away so they can receive care and so the employer can investigate and improve safeguards. Early reporting helps identify trends and prevent similar incidents from harming co-workers in the future.

Steps for employers to get started

To turn this guide into action, employers can follow a few focused steps:

- **Identify your operations and main hazards.**
  List the types of work you do (collection, materials recovery operations, scrap handling, baling, maintenance) and match them to the hazard sections in this guide, adding any unique risks at your site.

- **Review and update your safety and health program.**
  Check whether your written policies, procedures, and training materials cover the hazards you identified, including vehicles, machinery, manual handling, chemical and biological exposures, and PPE.

- **Prioritize high-risk tasks for improvement.**
  Start with tasks that pose the greatest risk of serious injury or death, such as vehicle backing, working near traffic, clearing jams in equipment, and handling heavy or sharp materials. Strengthen controls, training, and supervision for those activities. As you implement improvements, coordinate with local emergency responders and conduct joint drills for spills, fires, and other waste-related incidents to clarify roles and strengthen communication.

- **Engage workers in solutions.**
  Ask workers about the hazards they see, near misses they have experienced, and ideas for safer tools, layouts, and procedures. Involve them in testing and refining improvements.

- **Use OSHA and other trusted resources.**
  Consult **OSHA's Green Jobs: Recycling webpage** and related topic pages on lockout/tagout, machine guarding, powered industrial trucks, PPE, hazard communication, and bloodborne pathogens to align your program with current requirements and good practices. For additional resources, **see Appendix A**.

For free, confidential onsite assistance to help your organization comply with OSHA regulations, contact DWC's Occupational Safety and Health Consultation (OSHCON) Program at **OSHCON@tdi.texas.gov** or **800-252-7031**.

For OSHA-authorized training for your employees, contact **safetytraining@tdi.texas.gov** or **512-804-4665**. For more information, visit **www.txsafetyatwork.com**.

APPENDIX A:
Waste management and recycling safety resources

OSHA standards that may apply

The following OSHA standards may apply to waste management, recycling, and related operations, depending on the specific tasks, equipment, and exposures at your workplace.

- **29 CFR 1910.5** – Applicability of standards.
- **29 CFR 1910.22** – Walking-working surfaces.
- **29 CFR 1910.23** – Ladders.
- **29 CFR 1910.95** – Occupational noise exposure.
- **29 CFR 1910.120*** – Hazardous waste operations and emergency response (HAZWOPER).
- **29 CFR 1910.132** – General requirements, personal protective equipment.
- **29 CFR 1910.133** – Eye and face protection.
- **29 CFR 1910.134** – Respiratory protection.
- **29 CFR 1910.135** – Head protection.
- **29 CFR 1910.136** – Foot protection.
- **29 CFR 1910.138** – Hand protection.
- **29 CFR 1910.141** – Sanitation.
- **29 CFR 1910.147** – The control of hazardous energy (lockout/tagout).
- **29 CFR 1910.151** – Medical services and first aid.
- **29 CFR 1910.176** – Handling materials – general.
- **29 CFR 1910.178** – Powered industrial trucks.
- **29 CFR 1910.212** – General requirements for all machines (machine guarding).
- **29 CFR 1910.261 or 1910.265** (as applicable) – Specialized operations that may overlap with certain recycling activities.
- **29 CFR 1910.1000** – Air contaminants – Substance-specific standards as applicable, for example:
  - **29 CFR 1910.1025** – Lead
  - **29 CFR 1910.1028** – Benzene.
  - **29 CFR 1910.1048** – Formaldehyde.
- **29 CFR 1910.1200**** – Hazard Communication (HAZCOM).

***HAZWOPER (29 CFR 1910.120)** may apply to landfill or waste operations that involve hazardous waste or emergency response activities. Key sections include:

- **(p)** – Waste treatment, storage, and disposal facilities regulated under EPA's Resource Conservation and Recovery Act (RCRA).
- **(q)** – Emergency response to hazardous substance releases, except for small incidental spills that employees can safely manage in the immediate release area.

Employers should evaluate whether these provisions apply and ensure affected employees receive the required training and follow appropriate plans and procedures.

****Hazard Communication (29 CFR 1910.1200)** applies to hazardous chemicals present in the workplace. Employers must train employees on labels, Safety Data Sheets, and protective measures in accordance with 29 CFR 1910.1200(h).

OSHA webpages and publications for guidance

These OSHA webpages and publications address hazards common in waste collection, solid waste handling, and recycling facilities.

- **Hazardous Waste Operations and Emergency Response (HAZWOPER)**
  http://www.osha.gov/emergency-preparedness/hazardous-waste-operations.

- **Hazardous Waste-Overview**
  http://www.osha.gov/hazardous-waste.

- **Recycling: Waste Management and Recycling**
  https://www.osha.gov/green-jobs/recycling/waste-management.

- **Hazardous Waste – Standards and guidance**
  https://www.osha.gov/hazardous-waste/standards.

- **Guidance for the Identification and Control of Safety and Health Hazards in Metal Scrap Recycling**
  https://www.osha.gov/sites/default/files/publications/OSHA3348-metal-scrap-recycling.pdf.

- **Regional Emphasis Program for Scrap and Recycling**
  https://www.osha.gov/sites/default/files/enforcement/directives/CPL_23-02.pdf.

- **Safety and Health Information Bulletin: Crushing Hazards Associated with Dumpsters and Rear-Loading Trash Trucks**
  https://www.osha.gov/green-jobs/recycling/waste-management.

DWC workplace safety publications and resources

The Texas Department of Insurance, Division of Workers' Compensation (DWC) offers free workplace safety publications, videos, and other resources that can support waste management and recycling programs. Employers should select the publications and videos that best match their equipment, processes, and hazards.

- **Free streaming safety and health videos**
  DWC videos webpage.

- **Free downloadable publications** on topics such as hazard communication, personal protective equipment, lockout/tagout, machine guarding, powered industrial trucks, fall prevention, and ergonomics, which are all relevant to waste and recycling operations.
  https://www.tdi.texas.gov/wc/safety/videoresources/index.html.

NIOSH and CDC resources

The National Institutes of Occupational Safety and Health (NIOSH), part of the Centers for Disease Control and Prevention (CDC), publishes research-based guidance and alerts on hazards frequently encountered in waste management and recycling, including machinery, hazardous energy, and chemical exposures.

- **Hazardous Wastes Worker Health and Safety Guidelines**
  https://stacks.cdc.gov/view/cdc/242111.

- **Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities**
  https://stacks.cdc.gov/view/cdc/5827.

- **Regulated Medical Waste-Infection Control**
  https://www.cdc.gov/infection-control/hcp/environmental-control/regulated-medical-waste.html.

- **Preventing Worker Deaths from Uncontrolled Release of Electrical, Mechanical, and Other Types of Hazardous Energy**
  https://www.cdc.gov/niosh/az/index.html.

Additional government and education resources

These additional governmental and academic resources can support development or improvement of waste management and recycling safety programs.

- **Industrial and Hazardous Waste**
  Texas Commission on Environmental Quality – (industrial and hazardous waste compliance resources, permits, and guidance for generators and facilities in Texas).
  https://www.tceq.texas.gov/permitting/waste_permits/ihw_permits.

- **Worker Safety in Recycling Facilities**
  Labor Occupational Health Program, University of California, Berkeley – (educational booklet on recycling hazards, controls, and worker protections).
  https://lohp.berkeley.edu/wp-content/uploads/2013/12/english_recycling.pdf.

- **Solid Waste and Emergency Response**
  Environmental Protection Agency (EPA) – (information on solid waste systems, recycling programs, and collection efficiency that can affect safety practices).
  https://www.epa.gov (search "solid waste collection efficiency EPA530-R-99-038").

Scan to subscribe to Safety@Work—your source for workplace safety & health news, OSHA updates, and training alerts.

Want to learn more about workplace safety?

Visit www.txsafetyatwork.com or email us at safetytraining@tdi.texas.gov to connect with one of DWC's OSHA-authorized safety experts.

The Texas Department of Insurance,
Division of Workers' Compensation (DWC)-Workplace Safety
P.O. Box 12050
Austin, TX 78701-2050
800-252-7031