# CUSTOMER SAFETY HANDBOOK

JANUARY 2025

# FOREWORD

It is imperative that you and your employees are aware of, and compliant with, the rules outlined in the Customer Safety Handbook.

Non-compliance with safety protocols may result in immediate action including potentially suspension of service until a Safety Corrective Action Plan to correct the issue is agreed to and implemented. If you are aware of any rule or procedure at your facility that is not compliant, you must report it immediately to your CN Customer Service Representative.

Find more details about Safety Corrective Action Plans in the Safety Resources section on page 44.

# LIFE CRITICAL RULES FOR CUSTOMERS

There are nine areas where Life Critical Rules apply to our customers. You can find the groups below and each rule described in more detail within the pages of the Customer Safety Handbook. Each rule has been identified with a Life Critical Rule icon.


Let's continue to work together to ensure that we all go home safely, every single day. The Life Critical Rules are:

1. Leaving Equipment in the Clear
2. Going Between Equipment
3. Protective Measures When Working On or Near Tracks
4. Securing Unattended Equipment
5. Derails Properly Positioned, Locked, and Free of Defect
6. Proper Loading/Unloading Procedures
7. Switches Properly Aligned and Free of Defects and Ice
8. Restricted/Close Clearances
9. Non-Accidental Release of Dangerous Goods / Hazardous Materials

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**CN**

- 935 De La Gauchetière Street West, Montreal, Quebec  H3B 2M9
- Safety Department: CNcustomersafety@cn.ca or visit www.cn.ca/safety
- Shipment Quality: loadplan@cn.ca or www.cn.ca/shipmentquality
- General Information: 1-888-888-5909

# EMERGENCY SITUATIONS – 24-HOUR KEY CONTACTS

**CN 24-HR EMERGENCY LINE**

1-800-661-3963

**CN POLICE**

1-800-465-9239 (option 3)

- Trespassers, vandalism, damage to CN property.
- Railroad crossing concerns, violations, accidents.
- An accident poses an immediate threat to the public.
- Equipment or materials within the CN main track or CN siding (10 m/30 ft from the side gauge of a CN main track or CN siding).
- Equipment, materials or obstructions within the Industrial siding clearance envelope (1.83 m/6 ft from the side gauge of the nearest industry track or spur).
- Damage to any switch, derail, sign, rail, or track structure.
- Any other condition or situation, which might cause injury, damage, or derailment.

**CN CUSTOMER SERVICE**

1-866-926-7245

- Changes to any structures, ramps, loading docks, ground conditions, temporary piles, parked vehicles, etc., within the track clearance envelope:
  - Within 1.83 m/6 ft from the side gauge of the nearest industry track.
  - Equipment, materials, or obstruction within 10 m/30 ft of the nearest CN main track or CN siding except in the presence of a CN representative or unless explicitly permitted by CN.
- Derails left unlocked or in a non-derailing position.
- Railcars that are fit for loading but have incurred damage or damage has been observed.

# EXTERNAL ORGANIZATION REFERENCES AND DEFINITIONS

The following governing bodies and external organizations are referenced throughout this handbook. Here are descriptions/roles:

**Association of American Railroads (AAR):** Leading railroad policy, research and standard setting and technology organization that focuses on the safety and productivity of the U.S. freight rail industry. AAR full members include the six Class I freight railroads in the U.S., Canada and Mexico, as well as Amtrak.

**Canadian General Standards Board (CGSB):** Provides standards development and conformity assessment services, including programs for certification of products and services, registration of quality and environmental management systems, and related services. It's part of the Government of Canada, within the Department of Public Services and Procurement Canada.

**Federal Railroad Administration (FRA):** Enables the safe, reliable, and efficient movement of people and goods for a strong America, now and in the future. FRA is within the U.S. Department of Transportation.

**Occupational Safety and Health Administration (OSHA):** Ensures safe and healthful working conditions for workers in the U.S. by setting and enforcing standards and by providing training, outreach, education and assistance. OSHA is part of the U.S. Department of Labor.

**Railway Association of Canada (RAC):** Represents close to 60 freight and passenger railway companies, and works with governments and communities across Canada to ensure the country's rail sector remains globally competitive, sustainable and, most importantly, safe.

**Transport Canada (TC):** Responsible for developing and overseeing the Government of Canada's transportation policies and programs so that Canadians can have access to a transportation system that is safe and secure; green and innovative; and efficient.

**U.S. Department of Transportation (DOT):** Responsible for planning and coordinating federal transportation projects. It also sets safety regulations for all major modes of transportation.

# OUR SAFETY STRATEGY

**Safety is a core value at CN.** Our ambition is to be the safest railroad in North America with an uncompromising commitment to the health and safety of our employees, the customers we serve and the communities and environment in which we operate, at all times. We are on a journey to zero, striving towards eliminating serious injuries, fatalities, and harm. We all have an important role to play in this aspiration—we need to look out for each other.

At CN, we integrate safety into everything we do. It includes developing a strong safety culture, and having safety goals, performance targets, risk assessments, safety rules and procedures, and evaluation processes.

We promote our culture of safety knowledge and practices with safety summits, peer-to-peer communication, onboarding, and intensive training programs for new and more experienced employees. We have two facilities: in Winnipeg and Homewood, specifically for training our new generation of safety-minded railroaders. Our training doesn't stop there. We have a structured on-the-job training program in which a trainee's progress is captured, ensuring trainers identify employees for special recognition or focused coaching.

Railroading is a demanding job; it requires constant focus and attention to detail. We rely on our railroaders to teach one another to be safety leaders to ensure we all get home safely at the end of each shift. The rules and guidelines in this handbook are only as good as our commitment to following them.

CN is focused on and committed to safe operating practices, as well as a safety culture that drives continuous improvement. All unsafe conditions/practices noted should be reported immediately to CN Customer Service at 1-866-926-7245. If you believe you have observed an unsafe condition or behaviour associated with our service, please note your observations, and report it immediately to our Customer Service team. These incidents will be escalated to our Assistant Vice-President of Safety for investigation and corrective measures.

Non-compliance with safety protocols may result in immediate action including potentially suspension of service until a safety action plan to correct the issue is agreed to and implemented. It is imperative that you and your employees are aware of, and compliant with, the rules outlined in the Customer Safety Handbook. If you are aware of any rule or procedure at your facility that is not compliant, you must report it immediately to your CN Customer Service Representative.

**We must all be engaged and responsible for practicing safety and protecting one another.**

# WORKING WITH RAIL EQUIPMENT

## MOVING RAILCARS THE RIGHT WAY

### 1. Knowing the Rules Helps Keep Everyone Safe

The Rail Operating Rules and internal CN operating instructions apply to railway operations.

### 2. Make Sure Everyone is Trained and Certified to Move Railcars

You must be qualified in CN Operating Rules to operate on CN tracks. If you move railcars on property owned by CN, you must be trained to do so by CN, or by a third-party trainer who has been certified by CN. If you or your employees have not received proper certification, you are not permitted to move railcars by any means, including winches, front-end loaders, forklifts, track mobiles, locomotives, pry bars, gravity, etc. The movement of railcars by untrained personnel can result in serious injury, derailment, or damage to the railcar, so please seek proper training and stay safe.

### 3. Safe Work Procedures Protect Us All

The movement of railcars by mechanical methods (i.e. loaders, cables, winches, pulleys, etc.) requires the development of safe work procedures specific to each operation. It is important that you document and train your employees in safe car movement.

## IMPORTANT POINTS (*See Appendix B for videos)*

When developing your operating standards, here are some key points that you should integrate into your own procedures:

- No car can be moved while people are working in or around that piece of equipment.
- Continuous awareness and inspection—like walking around the car and being on the lookout for the removal of all dock plates, loading/unloading equipment, connecting hoses or cables or obstructions of any kind.
- Ensure proper body mechanics and look for hazards when entraining and detraining equipment.
- Clearly indicate the method of controlling and signalling that will be used during car movement activities.
- Before coupling to any car, ensure it is properly secured and observe the couplers to ensure they line up and that one knuckle is open.
- Ensure one angle cock is left open after moving cars with coupled air lines. For uncoupled cars, ensure car is not left with both angle cocks closed.
- Do not adjust drawbars, knuckles, hoses or angle cocks when the cars are about to couple.
- Before moving a string of railcars, confirm that they are all coupled together and make sure all hand brakes have been removed.
- Someone must always be in a position to observe the leading end of the movement and relay signals to the equipment operator.
- Railcars must never be moved foul of the CN main track, sidings or other tracks.
- Except when testing the handbrakes for effectiveness, railcars must not be moved at any time with hand brakes applied. Hand brakes are only to be used to hold cars in a stationary position.
- Ensure the brake shoes are tight against the wheels and push or pull to test brakes.
- Hand brakes must not be released until it is clearly identified how the movement will be controlled and stopped.
- Never lift railcars by any means.
- Do not push or pull on the car by the handrail, ladder or any other part of the car not designed for that purpose.
- Notify CN immediately in the event of any derailment or rail accident.
- Always leave unattended railcars with sufficient hand brakes applied.
- Equipment (such as front-end loaders, etc.) must not be operated within 30 feet (10 metres) of the nearest rail of any CN main track or siding, without the presence of a CN flag person.
- Never operate a hand brake while standing on a drawbar head, other coupling mechanisms, or rail.
- Lighting at your facility must be sufficient to allow operating crews riding railcars at night the ability to see without relying on flashlights.

**THINK SAFETY EVERY TIME**

More detailed information regarding the safety of your operations can be obtained from Transport Canada, the Federal Railroad Administration, or the regulatory body that governs your industry.

# KEEPING EQUIPMENT CLEAR OF OTHER TRACKS *(See Appendix B for videos)*

Whenever moving railcars, please ensure they are not left "foul" of another track where they will be a hazard to other movements on adjacent tracks. "Fouling" is leaving equipment on a track too close to a switch, or within the turnout, such that a movement on an adjacent track does not have sufficient clearance to pass safely, including any personnel riding the side ladder of a car.

## 1. Clearance point

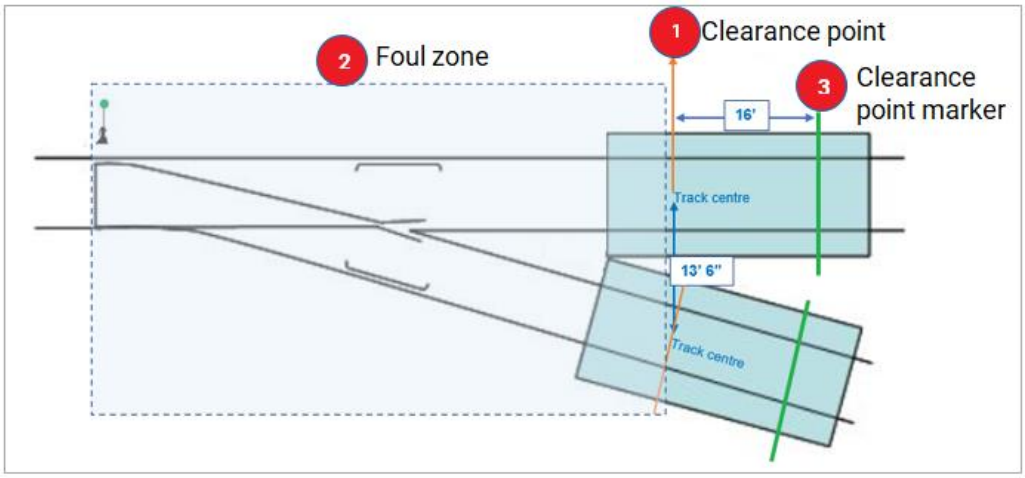
- The point at a railroad switch or turnout beyond which equipment must be placed to prevent a collision with railcars or equipment on an adjacent track from which the switch diverges.
- The clearance point is located where the adjacent track centres are a minimum of 13 feet 6 inches apart (for curved tracks add 2 inches per degree of curve) or where the tracks become parallel.

## 2. Foul zone

- A segment of track between the switch points and the clearance point of a switch. Equipment must never be left in the foul zone.

## 3. Clearance point marker

- A visual cue that clearly identifies how far back equipment needs to be placed on the track, to avoid "fouling" equipment on an adjacent track.
- CN recommends painting a bright green line across the entire rail tie, 16 feet after, or as far back as reasonably possible, from the fouling point.
    - Do not use water-based paint, this will wash off with rain and snow, and will require more frequent marking.
    - Create a plan to remove snow and debris that may cover up this marking.

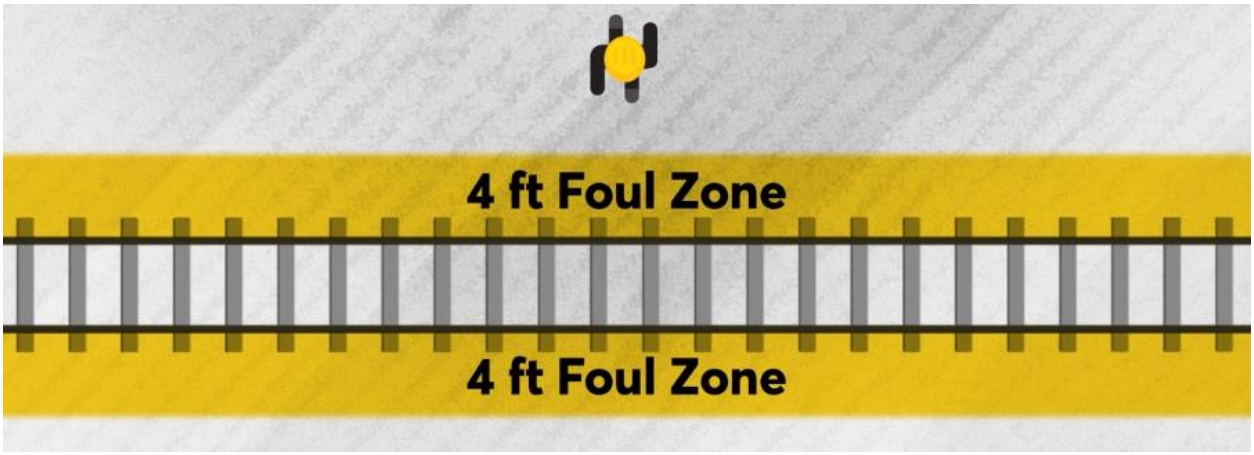


# KEEPING PEOPLE AND OFF-TRACK MACHINERY CLEAR OF THE TRACK

When walking around industry tracks or working with off-track machinery, never foul the track unless proper track protection procedures are in place to protect you from moving locomotives or equipment. People and off-track equipment that are fouling the track without proper protection may be struck by a moving locomotive or equipment.

## 1. Fouling the track

When a person or off-track machinery enters an area within 4 feet from the field (or outer) side of the track.




## 2. Potential to foul the track

When a person or off-track machinery is working outside the 4-foot distance to the field side of the track, but their activities or surroundings could cause a movement into the space that would be occupied by a locomotive or equipment.

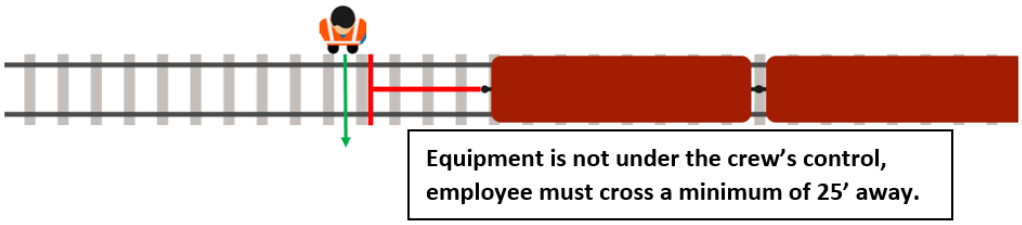

### 1. Leaving Equipment in the Clear

"In the clear" means that equipment cannot make contact with equipment on an adjacent track. When equipment is left in a turnout, another railcar can collide with it or it could cause serious injury or a fatality for a crew member riding equipment. CN strongly recommends identifying the clearance point, that is, the point beyond which cars must not be placed, with bright green paint.

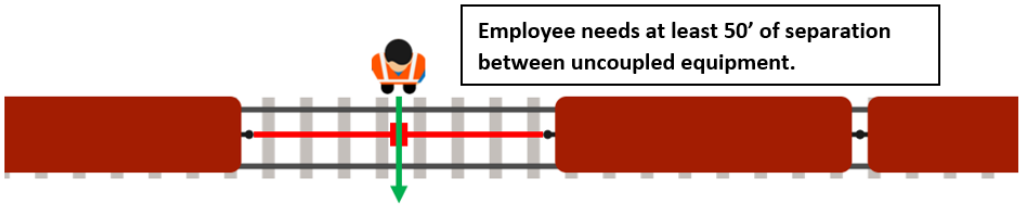
# GOING BETWEEN EQUIPMENT

When walking between equipment, a high degree of caution is necessary.

- Do not walk within 25 feet of equipment unless it is coupled to a locomotive or track mobile that you or crew is in control of.
- Never walk between two pieces of uncoupled equipment or a piece of equipment and stationary object (i.e., bumping post) in the same track, unless separated by a minimum of 50 feet.




**Crossing Between Uncoupled Equipment (not under control)**





## 2. Going Between Equipment

When going in between railcars there should be a minimum 50-foot clearance and when going in front of railcars there should be at least a 25-foot clearance.

# OPENING AND CLOSING RAILCAR DOORS

The doors of railcars may not always be the most straightforward to operate. That's why it's important to be aware of the key safety issues related to railcar doors:

- Gear mechanism on plug doors can cause the handle to spin, resulting in employee injury.
- Plug doors must be securely closed prior to the car being moved.
- A shifted load against a door may cause the door to jump outward when released.
- Lading may fall out when opening any doors.
- Check that door hinges are secured in track, top and bottom, before opening.

As safe practice, all doors must be closed and secured before railcars are moved, including bottom doors and top hatch covers. Cars that have open plug doors or open swinging doors will not be moved by train crews. Also be aware of OSHA 29 CFR 1910.178, which states:

*A safe distance should be maintained from the edge of ramps or platforms while on any elevated dock, platform or freight car. Powered industrial trucks equipped with a specific device to open and close railroad freight car doors can be used.*

# PROTECTIVE MEASURES

To ensure everyone's safety, railcar loading and unloading operations require that specific protective measures be put in place so equipment is not moved while employees are working on or near that equipment.

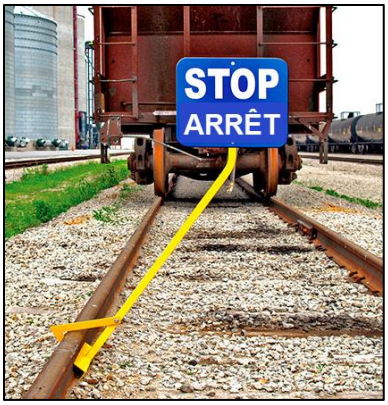
Any time people are working on or around railcars on CN property, they require "positive" protection from CN yard or train movements. This can be done by various means such as securing a non-main track switch with a private lock to prevent equipment from gaining access to that track or by installing a private lock on a derail set in the derailing position. The exact method for each location will be determined after a consultation with your local CN Transportation Supervisor.

## DANGEROUS GOODS / HAZARDOUS MATERIALS SHIPPERS

If you handle dangerous goods / hazardous materials, track protection is required while loading and unloading, as per the TDG Act in Canada and the 49 CFR regulation in the U.S. Ensure that loading and unloading tracks are protected by locked switches or locked derails that are controlled by the person conducting the operation.

If you handle dangerous goods / hazardous materials, caution signs must be displayed by loading and unloading tracks, as per the TDG Act in Canada and the 49 CFR regulation in the U.S.

## WORKING WITH BLUE FLAGS / BLUE SIGNALS




CN requires the use of blue flags / blue signals to protect work (such as railcar loading or unloading) being performed on or about the tracks. You must have clear written procedures pertaining to the use of blue flags/blue signals at your facility. To ensure employee safety, CN will not perform work under your blue flag until it is confirmed that proper procedures are in place.

**When using blue flags / blue signals:**

- Flags/signals are to be displayed between the rails and not on the equipment.
    - Flags/signals must be placed between the rails providing a clear view from the switch.
    - Flags/signals must be as close to the switch as possible but not foul of another track.
- Keep flags/signals clean on both sides with the paint in good condition, so they are clearly visible.
- Keep switches lined away from the protected track and locked with a private lock to prevent access.
- Do not display them between adjacent railcars, which can block them from view of employees.
- Develop safety procedures for flag/signal protection and removal.
- High-visibility blue lights should be used along with flags/signals during evenings or in bad weather.
- Blue flags / blue signals can only be removed by the customer who installed them. CN employees cannot remove blue flags / blue signals that protect employees working around equipment.


## 3. Protective Measures When Working On or Near Tracks

Keep your employees and CN's employees safe by following some basic procedures. Without blue flag protection in place, our crews will come into your facility expecting the track to be clear and can collide with equipment or personnel that is not expected to be on the track.


# RAIL SECUREMENTS

## RAILCAR SECUREMENT: ALL ABOUT BRAKES (*See Appendix B for videos*)

**Air brakes** are designed for train control and operate through air pressure when railcars are hooked to the locomotive. They are not intended for long-term railcar securement as air brakes will release over time.

**Hand brakes** secure railcars in place, when not coupled to a train, to avoid unintentional movement.

**How do hand brakes work?** Hand brakes apply force against the wheels by taking up slack on a chain, which is linked by a series of rods, levers, and gears to brake shoes. Once a hand brake is properly applied, it takes considerable force to move that piece of equipment.

**How many brakes are required?** The minimum number of hand brakes required is one, with one additional hand brake for every 10 railcars, to a maximum of five in total. On tracks with a grade greater than 0.4%, please refer to the Appendix A on page 48.

| Number of Railcars | Minimum Number of Hand Brakes Required |
|---|---|
| 1–9 | 1 |
| 10–19 | 2 |
| 20–29 | 3 |
| 30–39 | 4 |
| 40 (or more) | 5 |

In many instances, due to grade and other factors, more brakes may need to be applied. It's exceptionally important to be familiar with these minimum brake requirements. For additional information, please contact your local transportation supervisor.


## 4. Securing Unattended Equipment

Without the proper number of hand brakes applied, railcars can move freely onto another track, a main line, over a crossing, or into facilities. This unexpected railcar movement can cause a railcar to collide with a train, other railcars, or with a person on the track, resulting in serious injury or a fatality.

### HOW DO YOU OPERATE A HAND BRAKE?

**Always use the correct hand position:**

- Use one hand to operate the brake and the other to firmly grip the equipment.
- When applying, maintain a firm grip on the grab iron with the left.
- When releasing wheel-type hand brakes, keep hands and fingers clear of the wheel.

**Always keep the correct body position:**

- Do not apply or release hand brakes located on the end of railcars from a position on the ground.
- Be alert while climbing on a railcar, operating the hand brake, and climbing down the railcar.
- Be aware of other equipment in the area.
- Avoid applying hand brakes on the leading platform of a moving railcar.
- Maintain 3-point contact when applying or releasing a hand brake, except with standing equipment with a low side-mounted brake, which may be operated from the ground.
- Never operate a hand brake while standing on a drawbar head, other coupling mechanism or rail.
- Be on guard against sudden impacts. Anticipate starts and stops.
- Observe lading for tonnage and type of load.
- Be cautious of a surge or shift of load (e.g., tank cars will surge due to lading shifting inside).

### TESTING THE EFFECTIVENESS OF A HAND BRAKE

To test the effectiveness of the hand brake(s) on unattended equipment. After hand brakes have been applied and prior to uncoupling from the equipment used to move the railcars:

- When applicable, release the air on both the railcars and the equipment used to move the railcars allowing sufficient time for the air brakes to release.
- Have someone from the ground visually determine slack has adjusted and hand brakes are sufficient to prevent that equipment from moving.
- If unable or difficult to observe slack movement, or securing less than 10 railcars, slightly move the railcar(s) to ensure sufficient retarding force.
- If the effectiveness test fails, additional hand brakes must be applied and retested.

### WHAT DO YOU NEED TO CONSIDER BEFORE RELEASING A HAND BRAKE?

- Is there anyone working on or around the equipment?
- Is the equipment on a slope? Will it start to roll if the hand brake is removed?

- Are any dock plates, loading chutes, hoses, or other attachments connected to the railcars?
- Are any hoses, cables or extension cords, or any other obstructions lying across the rails?
- Can the railcars be safely moved, stopped, and hand brakes reapplied?
- Are the operators familiar with safe methods of railcar movement?
- Are there derails in the vicinity?

## WHAT HAPPENS IF YOU FORGET TO TAKE OFF A HAND BRAKE?

Moving a railcar while the hand brake is fully applied is very destructive. They apply sufficient force against the railcar's wheels so that they do not turn when the railcar is pushed or pulled, resulting in excessive heating and the wheels skidding along the track. Skidding a wheel as little as 15 cm (6 in) can cause small cracks on the tread of the wheel, which leads to shelling and cracking deep within the wheel. This structural damage can go undetected until the wheel, under the weight and stress of train operations, suddenly breaks apart. Railcars must not be moved with the hand brakes applied, even if they are only partially applied.

# DERAILS: THE DOS AND DON'TS

A derail is designed to force the wheels of a railcar off the track. As damaging as this is to the wheels and track, derails are installed to protect people and operations from unattended railcar movements.

**DO** Rely on railroad personnel for applying and removing CN derails — It is their responsibility.

**DO** Have clearly written procedures to support the possible specific cases where derails are to be operated by non-railroad personnel.

**DO** Be familiar with the location of derails on the tracks you use.

**DO** Keep a minimum distance of 25 feet between equipment and a rail stop block or derail in the derailing position.

**DON'T** Leave unattended derails unlocked and in the non-derailing position, whether there are railcars on the track or not.

**DON'T** Employ private locks on CN derails.


## 5. Derails Properly Positioned, Locked and Free of Defect

Derails are meant to protect against an uncontrolled movement. Without derails positioned to secure the track, equipment can move freely on to another track, the main line, over a crossing, or into facilities. This unexpected railcar movement can cause a railcar to collide with a train, other railcars, or with personnel on the track, resulting in serious injury or a fatality.

# RAILROAD INFRASTRUCTURE AND DESIGN

# SHIPMENT QUALITY TEAM

Whether you ship with boxcars or intermodal containers, our Shipment Quality team can help you prepare for safe, damage-free shipping. Our team is adept in safe loading standards; they will work with you to ensure your freight is loaded in compliance with AAR Loading Guidelines, Transport Canada and Federal Railroad Administration (FRA) regulations. The Shipment Quality team has everyone's safety in mind; they are a part of the AAR's Quality Lead Teams, working collaboratively with members of other Class I railroads to review and finalize the rail rules and regulations used throughout North America.

**Contact our Shipment Quality experts at** loadplan@cn.ca **for assistance with:**

- Load planning and securement
- Teaching safety practices to you and your employees
- Reviewing or creating customer load plans to ensure AAR compliance
- Investigating repetitive damage issues and making recommendations for improvements
- Conducting AAR audits on contractors, customers, and auto compounds
- Closed car and intermodal trailer/container loading.

**For further information, please visit www.cn.ca/shipmentquality.**


## LOADING AND UNLOADING PROCEDURES

Loading and unloading procedures play a critical role in everyone's safety. The way in which a railcar or container is loaded makes all the difference when it comes to railroad safety. Help keep us all safe by ensuring all of the rules and regulations are followed.

Loading Rules and Guidelines are established by the Railway Association of Canada (RAC) and the Association of American Railroads (AAR).

- Specific instructions and requirements for intermodal, closed and open top loading rules are contained in their circulars, figures, commodity pamphlets, best practices, and general information series publications.
- Follow the loading rules for the type of lading and railcars being used. This applies to all types of railcars, and intermodal containers and trailers.
- Mandatory requirements for proper load distribution can be found in, but are not limited to, AAR Circular #42-M, #43-G, Closed Car Loading Guide – CCLG Part 1 and in the General Information Bulletin #5, which can be found on the AAR website free of charge. www.aar.com/standards/damage-publications.php
- The circulars, figures, commodity pamphlets, best practices and general information series publications are reviewed and updated regularly; please ensure you have the most current ones.
- Other information and standards may be found through organizations, such as, but not limited to, the Canadian General Standards Board (CGSB), Transport Canada, and the U.S. Department of Transportation (DOT).


## 6. Proper Loading/Unloading Procedures

Proper loading and unloading procedures will ensure that your cargo, and the trains that carry that cargo, are safe for the entire journey.

Improperly loaded railcars can cause in-train forces to push a railcar off the rails, which can cause a derailment. Serious physical injuries have resulted from trains moving with unsecured cables, as well as when unloading railcars where the product was not properly secured.

### CARLOAD SERVICE

**Before loading**, please check that the railcar is in good mechanical condition:

- Weathertight/leakproof.
- Interior floors and walls in good condition (no holes).
- Doors and locking mechanisms in good condition, closed properly and sealed.
- Safety appliances such as ladders, steps, railings are not broken.
- No signs of any other conditions that do not appear normal.

**Load balance and securement** affects the railcar's performance in train service. An even balance of weight is a key factor in preventing train derailments. Ensure that loads are evenly distributed throughout the railcar, regardless of the product being loaded. Securing your load is equally important as it can shift and put the railcar off balance during transport if done incorrectly.

**Closed railcar loading** must be in conformance with Published AAR Closed Car Regulations. If they do not appear to apply, please contact the CN Shipment Quality team to assist you in developing applicable Safe Loading Standards for your shipment.

**NEVER** use a forklift, or similar machine to apply direct pressure to open or close a boxcar door. This force damages the door and its tracks and can result in the door falling out of its tracks.

**Open top loading** must be in conformance with the published AAR Figure or RAC circulars. Railcars moving in the United States and interchanged from a Canadian railroad must be loaded to an AAR Figure. If they do not appear to apply, our Open Top Specialist can assist you with the development of applicable Safe Loading Standards for your shipment.

**Prior to releasing a railcar**, it's important to ensure that the load is properly blocked and secured for all types of lading and railcars being used. All loose materials should be removed, and any banding, chains or cables are removed or secured.

**Unsecured or loose cables on centerbeam flat cars** are a significant safety issue in the railroad industry, and can cause equipment damage, derailments and employee injury. Loaders and unloaders can easily avoid these problems by following required procedures and making sure their employees are aware of and trained in proper cable securement methods and take adequate time to carry out securement functions. We encourage you to watch CN's Securing Cables video using the link below: www.cn.ca/en/customer-centre/safety-guidelines-and-regulations/

## INTERMODAL SERVICE

**Before loading**, verify that the container is in good condition and in compliance with the most current AAR Mechanical Division specifications (AAR-600, M930, and M931). CN has set additional rules and regulations to complement the AAR guidelines, they can be found in tariff CN 6800. Be sure to consult Ministry of Transportation (MOT) / Department of Transportation (DOT) road and highway regulations for the trucking portions of your shipments.

**Load balance and securement** is important to railway safety, as an even balance of weight is a key factor in preventing train derailments. Securing your load is equally important as it can shift and put the container off balance during transport if done incorrectly.

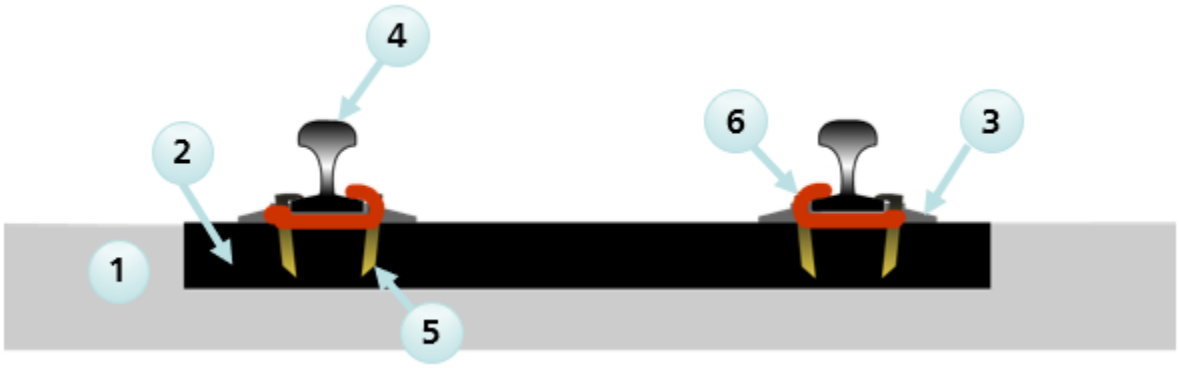
**Prior to releasing a loaded container**, it's important to ensure that the contents have been loaded in compliance with CN's tariff CN 6800 and the AAR Intermodal Loading Guide issued in 2016, and revisions thereto. If specific loading requirements appear not to be covered in the AAR Intermodal Loading Guide, CN's Shipment Quality Department is available to provide acceptable loading and securement procedures.

For more details on loading rules, as well as links to the AAR guidelines, consult our website at:
www.cn.ca/en/customer-centre/safety-guidelines-and-regulations/loading-rules-instructions/

# TRACK STRUCTURE AND SUPPORTING ROADBEDS

Track structure and supporting roadbeds must be maintained correctly by qualified people to keep our employees, you, and your shipments safe and to prevent derailments. The roadbed is designed to support the weight of the railcar while keeping the tracks evenly spaced. The track structure is carefully engineered around curves to "bank" the outside rail and counter lateral forces, which maintains an even weight distribution on both rails. **Track centres measuring less than 13 feet (4 metres) in any location must immediately be reported to your CN Customer Service Representative.**

As reference, track is a relatively simple structure built from six basic components. Each component has a very specific role to play in the integrity of the track.




1. Ballast – consists of crushed rock to distribute loads uniformly to the subgrade, restrain the track laterally, longitudinally, and vertically from the moving equipment, and provides adequate drainage for proper roadbed conditions. Industrial ballast specifications are as follows:
    - Ballast should be 9 inches deep under the tie.
    - There should be a 6-inch to 12-inch ballast shoulder on the outside the edge of the ties.
    - Ballast must have 70% fractured surface.
    - Ballast must have 1.75-inch gradation

2. Ties – transfer the vertical and longitudinal loads to the ballast, provide a uniform bearing surface for the tie plate, and helps maintain gauge, alignment and surface.

3. Tie Plates – provide a smooth surface between the rail and the tie, prevent the rail from cutting into the tie by distributing loads from the rail, and help maintain gauge.

4. Rails – identified in terms of weight based on how much it weighs per yard, transfers the weight of the train to the ties, provides a smooth running surface, and guides the wheel flanges of the car to "steer" the train.

5. Fasteners – hold the rail to the tie and the tie plate to the tie and help maintain gauge.

6. Anchors – keep the rail from "running" or "creeping" due to temperature change of the rail as it expands and contracts, grades, traffic patterns, and braking action of trains.

## INSPECT REGULARLY

It's important to inspect your track and rail infrastructure regularly for signs of defects and notify CN of any issues that would prevent the safe delivery or pickup of railcars. In Canada, most customer tracks are provincially regulated, and provinces typically require non-main track to be inspected, at minimum, on a monthly basis by a qualified track inspector. Records of inspections, defects found, and repairs made should be maintained and accessible to CN if required.

For bridges on your property, over which CN operates to provide service to your facility, you are responsible for the safety management and inspection of the bridge and culverts. Bridges and culverts must be inspected annually at an interval not exceeding 540 days.

At a minimum, the industry shall provide confirmation from a professional engineer of the bridge safe loading capacity and that it has been inspected at least annually at intervals not exceeding 540 days. Inspection reports and assessments for bridges can be sent to: bridge_docs@cn.ca.

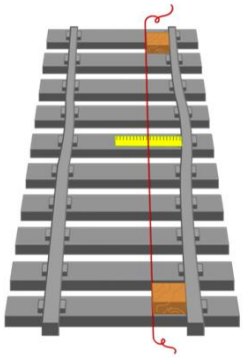
## TRACK GAUGE

The standard track gauge is 56 1/2 inches. This is measured 5/8 of an inch under the top ball of the rail. The gauge cannot be any tighter than 56 inches. If you find your gauge approaching the 57.5-inch mark you must notify CN Operations immediately before the next railcar or engine goes over it.

(Source: CN Industry Inspection Guide)

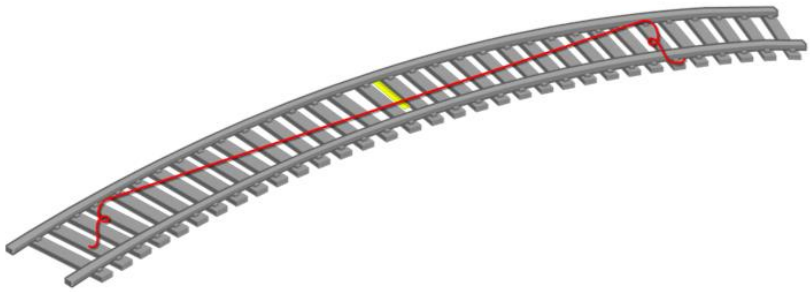
## ALIGNMENT – TANGENT

Alignment describes track that has moved from its original uniform position. It is measured by stretching a chord out 62 feet (18.9 m) along the rail at the gauge point and measuring the deviation at the middle. Repairs are needed if deviation of the mid-offset from a 62-foot chord is greater than 3.75 inches. The track must be closed if greater than 5 inches.



## ALIGNMENT – CURVE

Subtract the design offset from the measured offset to determine the out-of-line measurement.  Note: the design offset is one inch for every degree of curvature, measured at the mid-offset of a 62-foot chord. Repairs are needed if deviation of the mid-offset from a 62-foot chord from the design offset is greater than 3.75 inches. The track must be closed if greater than 5 inches.



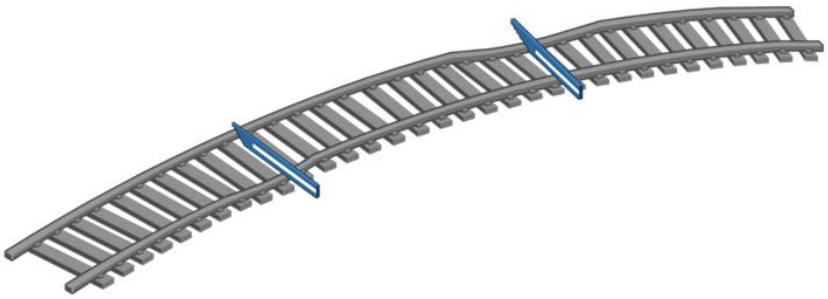
## CROSS LEVEL FROM DESIGN

Cross level is the difference in design elevation between low (grade) and high rails on curves. On almost all industrial tracks, we want the tracks level if the track is straight, and to have a half inch of elevation if the track is curved. The high rail should be the outside of the curve. Repairs are needed if the deviation from zero cross level at any point on a tangent or from half-inch elevation on the outside rail of curves is greater than 1 inch. The track must be closed if greater than 3 inches.

## WARP

Warp is a condition where one end of the car is going down in a low spot on one side and the other end of the car is going down on the opposite side. We measure for warp by checking the cross level on one side and adding that measurement to another low measurement on the other side (see drawing below). These two measurements have to be within 62 feet of one another. The limit for warp is 3 inches. So, if one side is down 2 inches and the opposite side is down 1.5 inches, this would be a violation.

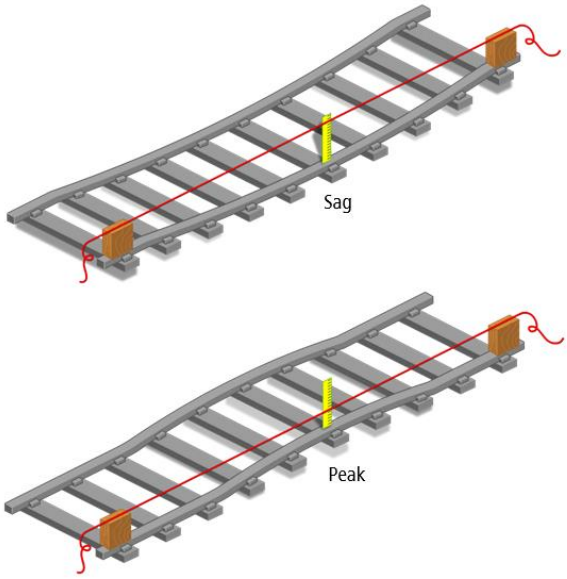
Repairs are needed when the difference in cross level between any two points less than 62 feet apart is greater than 2.25 inches. The track must be closed if greater than 3 inches.



## PROFILE

Another track surface defect we are looking for is called profile. In this case, there is not any excessive cross level because both rails are going down a uniform amount. This condition might happen where a small pipe has collapsed or the track is especially muddy right under an unloading spout.

To measure this condition we need the 62-foot chord we used in alignment. Instead of stretching it along the side of the rail, we place it on top and measure in the center of the worst spot. Repairs are needed the maximum mid-ordinate of a 62-foot chord measured along the top surface of the rail is greater than 2 inches. Close the track when greater than 3 inches.



### BE ON THE LOOKOUT

A key safety concern is the accumulation of snow, ice, vegetation, or debris at customer sites. It is critical for the safety of shipping and railroad personnel that your tracks be maintained and always in a safe condition, free of walking and operating obstructions that may cause a tripping hazard or railcar derailment. **It is especially important that flangeways at road crossings be clean and clear.** Seasonal changes and periods of severe weather such as spring thaw and heavy rain can negatively impact track conditions. Standing and flowing water are the greatest hazards to track stability. Drainage systems are designed to channel water away from the track structure. It is important to continuously monitor and maintain the track structure. Blocked culverts, water undercutting the track, or standing pools of water adjacent to any track must be reported immediately to **CN's 24-hour emergency line at 1-800-661-3963**.

### WORK WITH US

The safest and most efficient way to operate is to perform regular inspections to identify potential risks and address them, before they cause damage, a derailment, or serious injury. When performing regular maintenance or repairs to your tracks or switches, you must advise CN Customer Service of the date, time, duration, and nature of the repairs. These tracks are your responsibility, but we are your partner. We will be happy to work with you and advise you on any safety concerns or potential issues.

**To find more information on maintaining your tracks during seasonal changes, please visit:**
**www.cn.ca/seasonalsafety**

## SWITCHES (*See Appendix B for videos)*

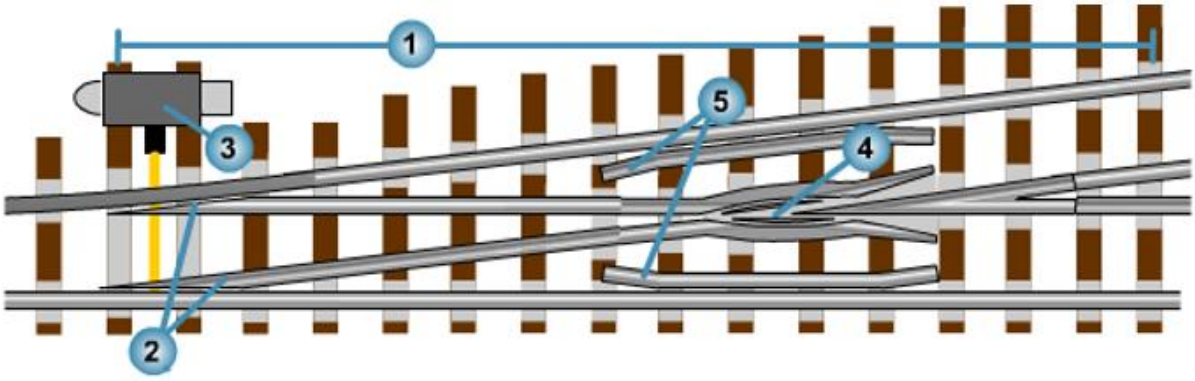
Switches must be properly maintained, well lubricated, and easily thrown in either direction, without too much exertion that could lead to injury. All debris, snow, ice must be removed underneath and around the switch handle, as well as between the open switch point and the rail.

- NEVER use your hands or feet to remove debris from between switch points. The preferred tool to clean a switch is a switch broom.
- When lining switches and crossover switches ensure proper procedures and body mechanics are followed. Always ensure that crossover switches are lined in correspondence, meaning they are either both lined in a normal position, or both lined in a reverse position.
- Once the switch is lined, the switch point MUST be tight against the rail.
- Don't leave an open switch point unattended.

CN strongly recommends the use of a switch direction indicator, that is, a mounting platform that clearly displays, with arrows and colours (e.g., green, red, yellow), how the switch is lined.

### TURNOUTS

Related to switches, turnouts are a system of track structure used to move rail equipment from one track to another. It is the alignment of the switch points that will determine the direction the train will follow. The train follows the track depending on the position of the switch points. For your reference, five primary components and/or areas make up a turnout.




1. Switch Ties – longer ties that increase up to 16 feet in length to carry the track structure of both legs of the turnout.
2. Switch Points and Stock Rails – Switch Points are the movable rails which guide the wheels towards either the straight or the diverging track. They are tapered on most switches. Stock Rails are not tapered, and one is straight and the other is bent. The straight stock rail carries traffic on the straight route. The bent stock rail carries traffic on the diverging route.
3. Switch Stand – Switch rails can be thrown (moved) from one orientation to another by either a hand-operated (manual) switch stand or a mechanically or electro-mechanically (power-operated) switch machine. In both cases, the operating devices are positioned at the beginning of the turnout opposite the switch-connecting rods near the point of the switch rails.
4. Frog – A frog is a component placed where one rail crosses another. It refers to the crossing point of two rails.
5. Guard Rails – There should be a guardrail on both sides of a turnout. These keep the wheel of a car from going down the wrong side of a frog. Note that some frogs are self-guarded.


## 7. Switches Properly Aligned and Free of Defects and Ice

Keep switches lined away from protected tracks and locked with a private lock to prevent access. Without switches being properly aligned, equipment can unexpectedly move on to the wrong track causing a railcar to collide with other railcars or with a person on the track, resulting in serious injury or a fatality.

## RAILCAR DESIGN SAFETY ISSUES

Railcar design safety issues are a concern for everyone. The frame or body of a railcar sits on two centreplates, which allow the truck to rotate beneath the body and permits rail equipment to turn without excessive force on the gauge between the rails. Neither the railcar body nor the wheels are fastened to the trucks. Each component sits in place, primarily by weight. When a car is lifted, CN personnel must be called to inspect and ensure it is correctly positioned on the centreplate and bearings.

## OVERLOADS

Overloads must be avoided in two ways:

- Observe the load limit stenciled on the side of the railcar.
- Ensure that the gross weight of the railcar and lading does not exceed the maximum weight capacity for the route to be travelled.

## WHEELS AND BEARINGS

Wheels and bearings need to be inspected by CN Mechanical personnel any time a railcar is derailed.

Reporting all occasions when a railcar has derailed ensures that a proper inspection is arranged. Failing to report a derailed railcar and subsequently moving it without inspection could lead to injuries and even a train derailment. Please don't compromise safety.

# SAFETY AROUND TRACKS

## MAINTAINING THE SAFETY ENVELOPE AROUND TRACKS

A safe clearance envelope protects the safety of people and equipment when serving customer facilities.

### SAFE CLEARANCE ENVELOPE FOR SPURS AND INDUSTRIAL TRACKS

In general, all equipment, materials, or obstructions of any kind, including temporary piles of stock, refuse containers, parked vehicles or other equipment, and buildings, must be kept a minimum of 1.83 metres (6 feet) from the gauge side of the nearest rail or 2.62 metres (8 feet 6 inches) from the centreline of the track. There must be a vertical clearance of 7 metres (23 feet) from the top of the rail to the nearest obstruction above, or 8.23 metres (27 feet) vertical clearance from the top of the rail to overhead wire lines. **Government regulations may require more stringent requirements be met in addition to CN's requirements. You are responsible for determining what additional requirements must be met.**

### PERMANENT RESTRICTED/CLOSE CLEARANCE

Personnel are restricted from riding equipment in locations where infrastructure (for instance, a permanent structure, platform, or light standard) is within CN's safe clearance envelope. Such locations must be identified with "restricted" (close) clearance signage. Customers are also required to account for this clearance envelope when making physical changes to their site, and immediately report to CN any that would then infringe on this envelope.

### RESTRICTIONS FOR MAIN TRACK AND SIDINGS

Machinery and equipment cannot be operated 10 metres (30 feet) from the side gauge of a CN main track or CN siding without CN authority and protection. This applies to all types of equipment, including snow clearing machinery.


### 8. Restricted/Close Clearances

Without proper distance between the track and any obstruction, either overhead or beside the track, CN crew members cannot safely serve your facility as riding equipment and/or walking beside the track could result in injury or a fatality. This includes maintaining a walkway clear of obstruction.

**Notify CN Customer Service of the following cases:**

- Any emergency situation causing an obstruction within the 1.83-metre (6-foot) clearance envelope.
- Any alterations to track-side loading platforms or change of location to loading ramps, unloading augers and other equipment.
- Holes, trenches and other ground obstructions.
- When protection arrangement is required.

Clear sight lines at railroad crossings are a necessary part of railroad and community safety. Obstructions such as snow piles, materials or equipment may affect the visibility of approaching train traffic at public or private railroad crossings.

## CUSTOMER GATE SAFETY

For various security reasons, customers have gates limiting access to their property and this includes where the rail enters the property.

Customers are reminded that it is their responsibility to ensure that gates are maintained and in good working order to protect our crews from potential injuries. Gate configurations must not create tripping hazards for crews required to manually open and close gates.

Customers are also reminded that it is their responsibility to ensure that there is a post with chain and/or hook or door pins with clearly marked holes that serve as a means to securing a gate or gates in the open position. Different conditions such as grade or wind can cause gates to close as railcars and engines pass by. This puts our crews at risk and could result in damage to your gates. Customers will be wholly responsible for damages incurred due to inadequately secured gates.


## TRANSPORTATION OF DANGEROUS GOODS AND HAZARDOUS MATERIALS

If you ship dangerous goods / hazardous materials, complying with applicable regulations is a must as it reduces the potential of exposure to people, communities, and the environment.

**When shipping security-sensitive materials:**

- Review storage locations and procedures to ensure appropriate security for various threat or alert levels.
- Notify your CN Customer Service Representative and arrange to expedite the acceptance and delivery of the shipment.

Security-sensitive materials are those that pose a significant risk to national security when being transported as defined by all applicable Canadian and U.S. federal rules and regulations. Current U.S. definitions include Class 1.1, 1.2 or 1.3 explosives; Class 7 (radioactive) material; and poisonous inhalation hazard (PIH) or toxic inhalation hazard (TIH) commodities.

TIH/PIH materials are gases or liquids that are known or presumed to be toxic to humans (such as chlorine, anhydrous ammonia and sulfur dioxide).


### 9. Non-Accidental Release of Dangerous Goods / Hazardous Materials

All cargo must be secured, especially dangerous goods and hazardous materials. Leaking dangerous goods / hazardous materials can result in serious health and often deadly consequences for our customers, our crews, and the communities we operate in.

# KEY DANGEROUS GOODS AND HAZARDOUS MATERIALS SAFETY INITIATIVES

### CN's Safe Handling Awards Program

Launched in 1992, exclusive awards are presented to customers that load railcars with dangerous goods and meet strict standards for the safe handling and shipment of regulated products.

### North American Non-Accident Release (NAR) Task Force

With the goal of reducing NARs (an industry term to describe a tank car that has been found leaking, but has not been involved in an accident) on railroads; shippers, industry associations and railroads represent the task force.

### CN 911 Training Tank Car

CN 911 training tank car and training trailers are valuable tools used to assist with training first responders in railway emergency preparedness and planning, and to increase understanding of the precautions taken to safely transport dangerous goods.

### TransCAER (Transportation Community Awareness and Emergency Response)

A training program for communities situated near rail lines where dangerous goods are transported. CN and partner chemical companies conduct information sessions for community leaders and first responders.

### CN First Responder Training

CN has leveraged its world class employee training facilities in Homewood, IL and Winnipeg, MB, to bolster it's robust first responder training and outreach program with the addition of mock derailment sites. These sites will enhance first responder training already conducted with the CN911 training tank car and the fleet of training trailers providing more opportunities for hands-on training.

# BEST PRACTICES: DANGEROUS GOODS / HAZARDOUS MATERIALS

## 1. Develop and implement a policy for loading securement

- Resources such as the Bureau of Explosives (BOE) Pamphlet 34, Recommended Methods for the Safe Loading and Unloading of Non-Pressure and Pressure Tank Cars, provides general guidelines for the securement of tank cars and recommended procedures.

## 2. Properly prepare closures and fittings on railcars for transportation

- Inspect valves and manways for proper securement (a leading cause of leaks in rail transportation incidents).
- After loading, conduct a pressure test consistent with industry standards.
- All valves, packing gland nuts, closures and flanges should be checked with a leak detection solution or appropriate metering equipment.
- After completing the leak test, pressure should be released.

- If a pressure test is impractical or unsafe, the railcar should be held and re-inspected after 24 hours, and valves and fittings retightened as needed to ensure proper securement.

## 3. Ensure data is complete on shipping papers

- Bill of Lading and Shipping Instructions are required for your loaded railcar before movement (see CN Shipping Regulations and Optional Services Tariff (Carload) CN 9000).
- You can submit this information electronically to CN. Contact CN's eBusiness Support Team at 1-800-361-0198 with any questions regarding CN's online tools or EDI.

## 4. Have proper placarding, markings, stenciling (when required), in place for all dangerous goods / hazardous materials shipments

## 5. Ensure that the Emergency Response Plan is correct and updated for plant sites and transportation-related releases

- Have an Emergency Response drill annually.
- Show a proper Emergency Response Assistance Plan (ERAP) number and associated phone numbers on dangerous goods documentation subject to ERAP requirements of Transport Canada (not applicable in the U.S.).
- Ensure that emergency contacts and phone numbers for the railroad and plant site are correct and updated regularly.

## 6. Follow key training activities

- All railroad personnel who enter your plant site must be properly trained and/or receive orientation (especially for emergency actions).
- Implement a tank car securement training program with reporting procedures for poor securement and hard-to-operate valves.
- Establish preventive maintenance practices for tank cars and educate staff on those practices.

## 7. Verify that rail crossings within the plant site are properly marked with warning signs

## 8. All rail lines are clear, switches are aligned properly, and railcar brakes are always released before moving railcars

## 9. Have plant personnel closely observe rail crews when they are operating to ensure plant and rail safety are being maintained

## 10. Implement a documented process for providing feedback to the rail carrier

## 11. Ensure consignees / end users handle your products in a manner that is consistent with Responsible Care®

**Please see the Appendix A on page 48 for information regarding the application of hand brakes for railcars containing dangerous goods.**


## WINTER CONDITIONS

Winter can be a very challenging time for a railroad, which is why we have undertaken many initiatives to minimize its impact on operations. But we need your help to ensure that the service we provide you can remain safe and seamless. Many service disruptions are due to the accumulation of snow and ice. On the track, snow mostly constitutes a problem in switches, as well as at crossings—so once the snow is cleared, the problem is solved.

Seeing to these issues before our crews arrive to service you will minimize any delays and will also minimize the risk of injuries and derailments. If you have a turnout on your property, please keep the point area clear as snow can hold a point open enough to cause it to gap and cause a derailment, this is a major concern in the flangeway of road crossings as well.

When you are dealing with snow and ice conditions please think of the safety of our crews as they will be dropping off and picking up equipment on your property. Please ensure you remove ice, snow, and debris in the walkways, as well.

**Help ensure our crew remains safe while on your property:**

- Clear snow that has slipped from adjacent roof tops onto the siding track.
- Trackside walkways should be salted or sanded, with snow cleared by 4–5 ft to allow our crews to safely walk by railcars during inspections.
- Inspect the siding before service by train crews.
- Keep all switches and flangeways free of snow, ice, and debris (this includes the switch points and the area in which employees stand to operate switches).
- Flangeways must be cleared to a minimum depth of 1.5 inches to ensure equipment can be carefully operated through the track.

- Maintaining switches prior to and through the winter season will help keep switches less resistant and easier to line up. Attempting to line up a stiff switch can lead to back, leg and arm injuries.
- Remove ice and apply sand or salt to walking areas.
- Derails need space to open so they must be cleared of surrounding snow, ice, and debris. If a derail is not completely flipped open, it can sit high and strike moving equipment, cause damage and even a derailment.

**Crossings, Switches, Derails and Flangeways* - "Snow No Go":**

Especially in winter, there are situations where we have to make decisions on whether it is safe to perform a task or not. We have to contend with snow, ice, water and other debris-filled switches/derails and packed flangeways and crossings that have been filled with miscellaneous debris, making it unsafe to utilize these tracks. Consider these "snow no go" situations:

**Crossings**

We **do not** flange crossings with locomotives. If it is not safe to go over the crossing with an empty car, then it is not safe to go over it with a locomotive.


**Switches**

All switches, whether they are CN or customer responsibility, are to be clear of snow and ice.


**Derails**

If required to operate over the location of a hand-operated derail, all snow and ice must be cleared off both sides of the derail, as well as the surrounding area, to allow for safe footing during operation.

## Flangeways

Flangeways made impassable by ice, snow, or other materials must immediately be reported.


# SAFETY RESOURCES

# MONTHLY CUSTOMER FACILITY SAFETY CHECKLIST

For CN to provide service to your facility we require monthly safety inspections. We all have an important role to play in safety, as railroading requires constant focus and attention to detail. Non-compliance with safety protocols may result in immediate suspension of your service until a safety action plan to correct the issue is agreed to and implemented. The safest and most efficient way to operate is to perform regular inspections to identify potential risks and address them before they cause damage, a derailment, or serious injury.

These are the items you should be reviewing on a monthly basis to ensure you maintain a safe working environment.

| | |
|---|---|
| **Track Safety** | |
| ☐ | Track has been in inspected in the last 30 days. Inspection records will be retained for 24 months, and available to CN upon request. |
| ☐ | Tracks are free of defect. |
| ☐ | Switches are well lubricated and can be thrown easily in either direction without too much exertion that could lead to injury.<br>*Note: CN strongly recommends the use of a switch cube direction indicator, to clearly display how the switch is aligned.* |
| ☐ | Derail is painted bright yellow, derail sign is clearly visible, has a functional handle, and is locked in the derailing position. |
| ☐ | Flangeways are clear of vegetation, snow, ice, and other material. All flangeways are clear to a minimum of 1.5 inches depth and 3 inches width from the rail. |
| ☐ | Fouling points are identified with bright green paint to clearly identify the point beyond which cars must not be placed. |
| **Car Spotting/Placement/Securement** | |
| ☐ | Railcars have proper number of handbrakes applied (see CN Customer Safety Handbook for more details). |
| ☐ | No cars are left foul, that is, too close to a switch or within the turnout such that a movement on an adjacent track does not have sufficient clearance to pass safely, including personnel riding the side ladder of a car. |
| ☐ | No cars are placed within the last 25 feet of the end of track, derail, or rail stop block. |
| **Facility Safety** | |
| ☐ | All equipment, materials or obstructions of any kind are kept a minimum of 1.83 metres (6 feet) from the gauge side of the nearest rail. There are no side or overhead restrictions. All restricted clearance hazards have proper signage. |
| ☐ | Walkways, particularly trackside, are free of debris, material, and tripping hazards. |

| | |
|---|---|
| ☐ | Adequate lighting is provided for train crews working at night. Work areas near switches, gates, and buildings are illuminated to prevent walking and tripping hazards. Lighting levels are sufficient to allow operating crews riding rail cars the ability to see without relying on use of a flashlight. |
| ☐ | Gates into customer property can be mechanically secured in the closed and open position to ensure the gates cannot move unintentionally.<br>*Note: The gate should also be equipped with a shared lock to ensure access is available to CN upon arrival.* |
| ☐ | Rail crossings within the plant site are properly marked with warning signs. |
| ☐ | Protection procedures are in place to alert CN not to enter the facility or a portion of the track if there is ANY work being done on, around, or between tracks.<br>*Note: Blue flags / blue signals along with high visibility blue lights, during evenings or in bad weather, are the best form of protection* |

## CORRECTIVE ACTION PLAN

In the event of non-compliance with the safety guidelines outlined in this Customer Safety Handbook, CN may suspend rail service to your facility. Service will be restored when a Safety Corrective Action Plan, agreed to with CN, has been implemented and confirmation of the implementation (i.e. photographs) has been provided.

**SAFETY CORRECTIVE ACTION PLAN**

An effective Safety Corrective Action Plan provides details on the 5 W's listed below and photographs confirming its completion:

1. What is the non-compliance?
2. What are the specific actions to correct the issue (including training)?
3. Where will the corrective action take place (location or tracks)?
4. What is the timeline for each action, including the completion date?
5. Who is responsible to ensure the corrective action plan is completed?

## Hard hats

Required on CN property (except when in a vehicle or building).

## Reflective apparel (vests, clothing)

Required on CN property (except when in a vehicle or building).

## Safety belts

Required in all equipped vehicles.

## Working at heights

When working at heights (e.g. top of railcars), proper training and equipment is required. Customers should check local regulations for requirements when working at heights.

## Special circumstances

Such as in confined spaces or overly noisy workplaces, additional protection (e.g. earplugs, respirators, etc.) may be needed. Winter conditions may require further measures such as anti-slip footwear.

## Safety glasses

With permanent side shields are required in all areas (except for buildings).

## Safety boots

Required on CN property (excluding offices). Protective footwear shall meet or exceed the standards set out in Canadian Standard Association – CSA Z195 and/ or American Society for Testing and Material – ASTM F 2413. Protective footwear must support and cover the ankle, have a defined heel, have toe and compression protection, puncture resistance protection, and must have the appropriate standard markings on the footwear.

Details on our safety rules are available from your Customer Service Representative or CN's Safety Department. In addition to being compliant with the requirements of CN's Customer Safety Handbook, customers and their contract personnel working on CN property must receive qualification under CN's Contractor Orientation course, at www.contractororientation.com

# IN THE EVENT OF AN EMERGENCY

If an incident occurs on your property:

## 1. If a railcar is foul of the CN line:

- Immediately advise CN Police at **1-800-465-9239, Option 3**, **AND** Advise CN Customer Service at **1-866-926-7245**

## 2. If there is an immediate danger to the public

- Immediately advise CN Police **at 1-800-465-9239, Option 3,** **AND** Advise CN Customer Service at **1-866-926-7245**

## 3. If there is no immediate danger to the public

- Advise CN Customer Service at **1-866-926-7245**

**Railway Association of Canada (RAC)**

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Phone: 613-567-8591

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Phone: 202-639-2100

www.aar.org

### Responsible Care®

CN is a partner, both in Canada and the United States, in Responsible Care®, an ongoing performance improvement initiative established by the Chemistry Industry Association of Canada (CIAC), and the American Chemistry Council (ACC). Transportation partners commit themselves to continuous improvement in the areas of employee and public health and safety, and to environmental quality. The principles of Responsible Care® recognize the importance of minimizing risks, meeting or exceeding regulations and standards, and communicating openly with employees and communities. The principles are applied to all of CN's activities while protecting the environment for the communities we serve.

### Responsible Care® Model for Transportation Partners

The Responsible Care® Transportation Partnership initiative is designed to support customers in improving the performance of chemical transportation. Partner companies commit to the same general guiding principles as other members from the CIAC and the ACC. The Partnership initiative is tailored to focus on four major themes directly relevant to the nature of partner company operations: Health and Safety, Environment, Security and TransCAER.

## HOW MANY BRAKES ARE REQUIRED?

The minimum number of hand brakes required is one, with one additional hand brake for every 10 railcars, to a maximum of five in total.

- 1 railcar = 1 hand brake
- 2 railcars = 1 hand brake
- 10 railcars = 2 hand brakes

When the grade is greater than 0.4% apply a minimum number of hand brakes as indicated in the table below.

| Total Trailing Tons: | Average Grade is Equal to or Less Than | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.2% | 0.4% | 0.6% | 0.8% | 1.0% | 1.2% | 1.4% | 1.6% | 1.8% | 2.0% | 2.2% | 2.4% | >2.4% |
| 0 – 2000 | 2 | 2 | 2 | 4 | 6 | 6 | 8 | 10 | 10 | 12 | 12 | 14 | |
| 2001 – 4000 | 2 | 2 | 4 | 6 | 8 | 12 | 14 | 16 | 18 | 20 | 22 | 26 | |
| 4001 – 6000 | 2 | 6 | 6 | 10 | 14 | 16 | 20 | 24 | 28 | 30 | 34 | 38 | |
| 6001 – 8000 | 4 | 6 | 8 | 12 | 18 | 22 | 26 | 32 | 36 | 42 | 46 | 52 | |
| 8001 – 10000 | 4 | 6 | 10 | 16 | 22 | 28 | 34 | 40 | 46 | 52 | 58 | 66 | |
| 10001 – 12000 | 4 | 8 | 12 | 20 | 26 | 34 | 40 | 48 | 56 | 64 | 72 | 80 | |
| 12001 – 14000 | 6 | 8 | 14 | 22 | 30 | 40 | 48 | 58 | 66 | 76 | 84 | 96 | |
| 14001 – 16000 | 6 | 10 | 16 | 26 | 36 | 46 | 56 | 66 | 76 | 88 | 98 | 110 | |
| 16001 – 18000 | 6 | 10 | 18 | 28 | 40 | 50 | 62 | 74 | 86 | 100 | 112 | 126 | |
| 18001 – 20000 | 8 | 12 | 20 | 32 | 44 | 58 | 70 | 84 | 98 | 112 | 128 | 146 | |
| 20001 – 22000 | 8 | 12 | 22 | 36 | 50 | 64 | 78 | 94 | 110 | | | | |
| 22001 – 24000 | 8 | 12 | 24 | 38 | 54 | 70 | 86 | 104 | 122 | | | | |
| 24001 – 26000 | 10 | 14 | 26 | 42 | 58 | 76 | 94 | 112 | 134 | | | | |
| 26001 – 28000 | 10 | 14 | 28 | 46 | 64 | 82 | 104 | 124 | 148 | | | | |
| 28001 – 30000 | 12 | 16 | 30 | 50 | 68 | 90 | 110 | 136 | 162 | 100 % Hand Brakes | | | |
| 30001 – 32000 | 12 | 16 | 34 | 52 | 74 | 96 | 120 | 148 | 172 | | | | |
| 32001 – 34000 | 14 | 16 | 36 | 56 | 80 | 104 | 128 | 156 | 188 | | | | |
| 34001 – 36000 | 14 | 18 | 38 | 60 | 84 | 110 | 138 | 170 | | | | | |
| 36001 – 38000 | 16 | 18 | 40 | 64 | 90 | 118 | 148 | 182 | | | | | |

## RAILCARS PLACED FOR LOADING OR UNLOADING OF DANGEROUS GOODS (IN CANADA)

This instruction is also applicable on tracks where the use of hand brakes is not required. Unless further restricted by special instructions, hand brakes must be applied on railcars spotted for loading/unloading of dangerous goods.

The following are the minimum hand brakes required:

When more than two railcars are spotted, at least one hand brake must be applied on each end of a cut.

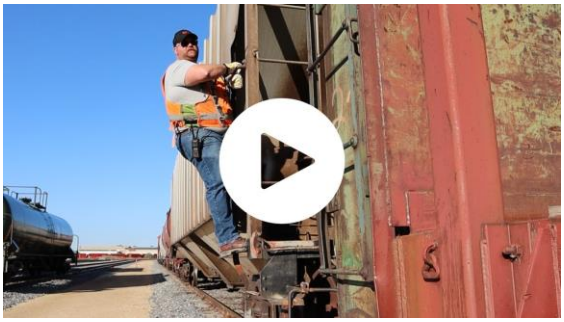
| Number of Railcars | Minimum Number of Hand Brakes Required |
|---|---|
| 1 | 1 |
| 2–9 | 2 |
| 10–19 | 3 |
| 20 or more | 1 additional hand brake for every 10 railcars or part thereof. |

## VIDEO LIBRARY

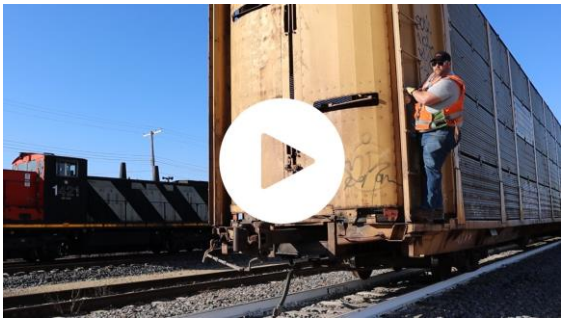
**Disclaimer:** These videos are intended for Job Aid purposes only. And while we monitor these videos frequently for accuracy and to ensure they are up to date, if at any point discrepancies were to be found between the video and the CN/Transport Canada/FRA rules, the rules always govern and take precedence over the video.

PPE requirements vary between departments. These videos demonstrate the task being performed. Be sure to comply with your department's PPE requirements.

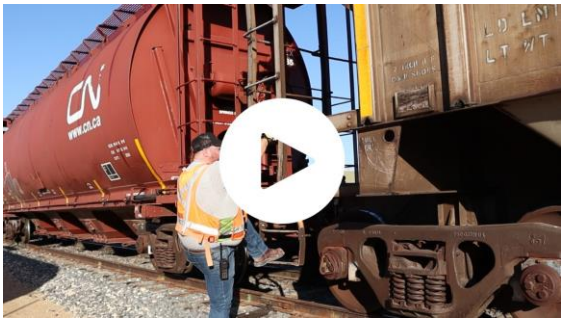
### MOVING RAILCARS THE RIGHT WAY



**Riding Equipment** referenced on page 10



**Shoving Equipment (protecting the point)** referenced on page 10



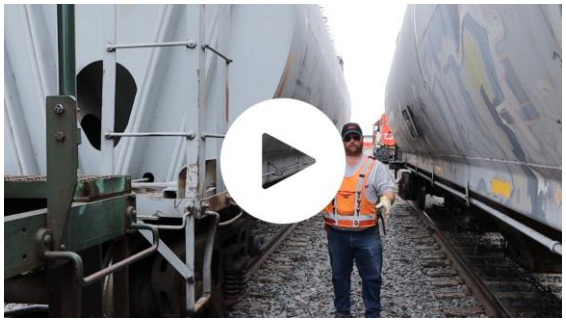
**Entraining and Detraining** referenced on page 10

## KEEPING EQUIPMENT CLEAR OF OTHER TRACKS

**Foul Zones** referenced on page 11

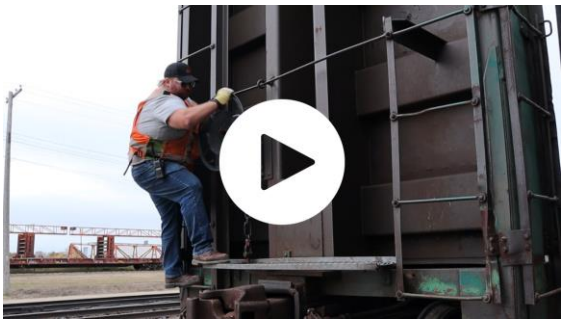
## PROTECTIVE MEASURES

**Blue signal protection (blue flag)** referenced on page 15



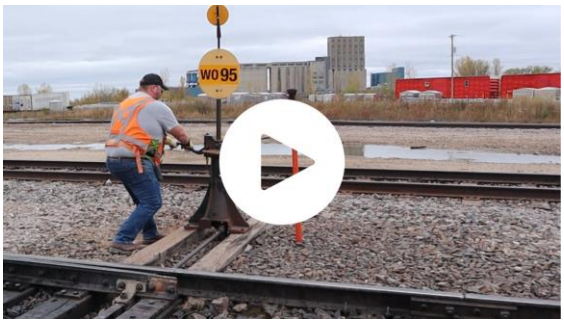
**Working around equipment** referenced on page 16

**RAILCAR SECUREMENT: ALL ABOUT BRAKES**



**Application of Handbrake** referenced on page 18

**SWITCHES**




**Lining a Switch** referenced on page 30

**Crossovers** referenced on page 30

## MAINTAINING THE SAFETY ENVELOPE AROUND TRACKS

**Restricted/Close Clearance** referenced on page 33

## FLANGEWAYS

**Contaminated Flangeways** referenced on page 41

## Summary of changes

| | | |
|---|---|---|
| **January 2025** | | |
| **Page 15** | Protective Measures | Changes to the Working With Blue Flags / Blue Signals paragraph for clarity |
| Page 27 | Taking Care of Your Tracks | Section moved from Safety Around Tracks to Railroad Infrastructure and Design |
| Page 27 | Taking Care of Your Tracks – Inspect Regularly | New paragraph added on bridge inspections. |
| **January 2024** | | |
| Page 2 | Added Foreword | New section added |
| Page 5 | Life Critical Rules for Customers | Affirmed compliance with handbook rules and reporting any non-compliance. |
| Page 9 | External Organization References and Definitions | Added definitions and roles of various external organizations referenced in the handbook. |
| Page 10 | Our Safety Strategy | Added paragraph on non-compliance with safety protocols. |
| Page 14 | Keeping people and off-track machinery clear of the track | New section added |
| Page 16 | Protective Measures | Added definition of Team Track. Added further details on using blue flags. |
| Page 18 | Railcar Securement: All About Brakes | Added how to test the effectiveness of a handbrake. |
| Page 26 | Track Structure and Supporting Roadbeds | Added definitions of track components and related images. |
| Page 27 | Switches | Added preferred tool to clean a switch is a switch broom. Added definitions of switch points related to a turnout and related image. |
| Page 31 | Taking Care of Your Tracks | Included additional types of track defects, how to inspect and related images. |

| | | |
|---|---|---|
| Page 39 | Prepare for Winter | Added images for "Snow No Go" on crossings, switches, derails and flangeways |
| Page 43 | Customer Safety Checklist | Updated checklist |
| Page 44 | Corrective Action Plan | New section added |
| Page 45 | Working at heights | Updated name of section and added information on checking local regulations. |
| Page 49 | Appendix B | New appendix added featuring links for customer safety videos |
| **September 2022** | | |
| Page 9 | Keeping Equipment Clear of Other Tracks | Added definitions for fouling point, foul zone, and clearance marker. |
| Page 19 | Switches | Added an image featuring a switch direction indicator. |
| Page 27 | Monthly Customer Safety Checklist | Updated the track inspection guideline, to state that the track gauge should be between 56 and 57.5 inches. |
| **July 2022** | | |
| Page 9 | Keeping Equipment Clear of Other Tracks | Added CN's recommendation for customers to use bright green paint as a clearance marker for the foul zone. |
| Page 19 | Switches | Added a section on best practices for switches, and CN's recommendation for the use of a switch direction indicator. |
| Page 20 | Safe Clearance Envelope for Spurs and Industrial Tracks | Added definition of vertical clearance specifications as well as the indication that government regulations may require more stringent clearance requirements. It is imperative that our customers are aware of the regulations for their respective areas. |
| Page 24 | Best Practices for Dangerous Goods / Hazardous Materials | Added a resource for general guidelines and procedures for the securement of tank cars. |

| | | |
|---|---|---|
| Page 28 | Monthly Customer Safety Checklist | Added the checklist. |