DENVER ROCK ISLAND RAILROAD
CUSTOMER SAFETY HANDBOOK

Table of Contents

1 Introduction

1.1 Purpose of this Handbook

The purpose of this handbook is to relay vital safety information to you. The information that Denver Rock Island requires you to follow applies to customer trackage, when the consequences of unsafe acts and conditions can affect both your employees and DRIR employees. This includes important safety requirements for customers operating on or near DRIR railway property. Please ensure that all of your employees understand and follow the safety principles in this handbook.

Although most of this handbook covers required practices, recommended best practices for specific railway operations are also included. These can help you improve safety on your property. Recommended procedures and practices are noted as recommendations or requests.

If at any time you have a safety concern with a DRIR operating practice or DRIR equipment, please do not hesitate to contact us at 303-295-0661 Opt 6.

1.2 How to Use this Handbook

This handbook can help you inform your employees about the hazards of rail operations. It is written in a concise, instructional format to give you the most important information without any excess material. The handbook can be used to look up specific safety requirements and protocols.

DRIR is available to assist customers with basic rail safety including procedure reviews and developmental education. Contact the DRIR Operations office for more information.

1.3 For Your Information: DRIR Policies

1.3.1 Safety Policy

DRIR is committed to the health and safety of our employees and the public where they are impacted by our operations.

To fulfill this commitment, all of us must make health and safety an integral part of our lives. We must take personal responsibility for our actions and adhere to the safety policies, rules and regulations at all times.

DRIR is committed to provide the leadership, organization, training and resources needed to maintain a healthy and safe working environment. All employees must make a personal commitment to safety and perform their work in a manner that will prevent accidents to themselves, their fellow workers and the public.

No job on our Railway will ever be so important that we can't take the time to do it safely.

1.3.2 Environmental Protection Policy

DRIR is committed to conducting its operations and activities in a manner that:

- protects the environmental health and welfare of its employees and other persons who may be affected by its operations and activities;
- protects the natural environment to meet the needs of today without hindering the ability of society to meet future needs;
- meets or exceeds environmental requirements of government applicable to its operations and activities.

2 Overview of Customer Safety Requirements in this Handbook

2.1 Safety through Teamwork

DRIR places a strong emphasis on workplace safety. We strive to arrive at customer sidings on time and without damage to the product, while always protecting the safety of our employees and our operation.
Rail safety is everyone's business and there are five key areas outlined below where we need your help. We believe that partnering with you on this action plan will continue to ensure our safety success. Thank you in advance for your commitment to safety through teamwork.

2.1.1 Track Maintenance

The risk of derailments increases if mud, snow, ice and debris collect on and around tracks, especially within flange ways at crossings. Installation of rubber seals (available from railway equipment suppliers) between the rail and crossing materials will minimize the amount of debris accumulating within these flange ways. In general, the customer is responsible for snow removal up to the main track switch. The following Winter Plan has a housekeeping focus on removing debris and tripping hazards before snow arrives:

Winter Plan
Below is an overview of important items for keeping your track and walking areas safe during winter months, and especially before snow arrives:

1. Arrange resources in advance, such as snow removal and availability of sand.
2. Conduct a fall "housekeeping" inspection of your rail operation prior to the first snowfall to ensure walking areas are free of debris and tripping hazards.
3. Keep flangeways of tracks that run through private or public roads clear of snow, ice and debris at all times.
4. Clear snow buildup caused by vehicles crossing over the tracks, and snow which has slipped from adjacent roof tops onto siding tracks. Ensure to keep any snow buildup well clear of your tracks to avoid causing a restricted or close clearances.
5. Inspect the siding before service by train crews.
6. Ensure all signage used to indicate restricted/close clearances and/or track protection are displayed as required, unobstructed, and markings clearly visible (i.e. clean sign paint is fresh, etc). If using heavy machinery to clear snow build-up and drifts around your track, take special care not to run over or bury restricted clearance or derail signs.
7. Keep all walking areas and switches in the plant free of snow, ice and debris (this includes switch points and the area(s) in which employees stand to operate switches) and ensure that they are draining properly. This includes sanding or cleaning away ice caused by freezing rain to ensure the area is safe ahead of DRIR crews.
8. To ensure rail service during severe winter conditions, it is the customer's responsibility to ensure their facility is kept clear of snow and ice with specific attention to flange ways on crossings. If your facility is not cleared in time for your next scheduled service, you must contact your local DRIR Operations office ***with as much advance notice as possible***. You must also advise DRIR of the Estimated Date/Time when your facility will be cleared so that DRIR can restart your service on your next available scheduled service day. Failure to comply could result in service being suspended temporarily.

Spring Plan
The following Spring Plan will help reduce the potential for derailments and injuries, and help ensure our timely service:

1. Arrange resources in advance, such as grass cutting.
2. Clear away grass, weeds and debris from right-of-ways.
3. Have a track maintenance contractor inspect your trackage and facility.
4. Schedule routine repairs and maintenance.
5. Identify the need for any long term capital-type work.
6. Schedule a DRIR customer safety audit.

In cases of flooding, high water or poor drainage that may impact servicing your facility safely, you must contact your local DRIR Operations office ***with as much advance warning as possible.***

2.1.2 Movement and Securement of Equipment

Moving and securing rail equipment is one of the most important aspects of railway safety. Equipment that is not properly secured can significantly impact the safety of railway operations. The safety information in *Section 3, Railcars: Hand Brakes, Doors, Wheel Sets* and *Section 4, Railcar Handling: Loading, Lifting, Moving* is useful for any employees who are responsible for movement and securement of railway equipment.

2.1.3 Walking Hazards

The number one cause of personal injuries to DRIR employees on customer tracks is slips, trips and falls. It is crucial that your trackage and facility be free of walking hazards including debris, spillage, uneven surfaces, snow and ice. Please see *Section 7, Working on or Near Tracks* for more information on walking hazards and how they are regulated.

2.1.4 Restricted Clearance Hazards

Very serious injuries to railway employees can occur at customer sidings because of restricted clearances. It is crucial that your facility is free of side and overhead clearance restrictions as much as practicable. Where there are restrictions, DRIR must be notified and the restrictions must be protected by designated warning signs.

Before making any changes to your facility that may create rail clearance restrictions, please contact the DRIR for approval. For more details refer to *Section 8, Railway Clearances*.

2.1.5 Spillage/Wheel Contamination

Wheel contamination from consumer products like flour, canola oil and cornstarch can reduce braking capacity and cause other problems with rail equipment. Please ensure that your facility is free from spillage and wheel contamination. Refer to *Section 3.3, Spillage and Wheel Contamination* for more information.

3 Railcars: Hand Brakes, Doors, Wheel Sets

3.1 Hand Brakes

Railcars have two braking systems:

- **Air brakes** use air pressure when cars are connected to a locomotive. They are used for train control and are not intended to secure standing cars.
- **Hand brakes** are used to secure standing railcars when they are not coupled to a locomotive. They prevent unintentional movement. Hand brakes take up slack on a chain which is linked by a series of rods, levers and gears to brake shoes. The brake shoes apply force against the wheels.

3.1.1 Minimum Number of Hand Brakes

The table below lists the minimum number of hand brakes required to secure a car or block of cars. **It is highly recommended that cars are always secured with at least the minimum number of hand brakes applied to each block.** In some cases (e.g. when loading heavy material or securing cars on a slope) extra hand brakes may be required. Increase these numbers if you are having difficulty controlling movement, experience unintended movement or are unable to test effectiveness. If you require assistance or would like a DRIR representative to review your use of handbrakes please call the DRIR.

Note: In cold weather, braking effectiveness is decreased.

Number of Hand Brakes to Apply	
Number of cars coupled together	**MINIMUM number of hand brakes**
1	1
2	2
6-10	3
11-15	4
16-20	5
21-25	6
26-30	7
31-35	8
36-40	9
41-45	10
46-50	11
51-55	12
56-60	13
61-65	14

When securing cars on a slope:

- Apply **more than the minimum** number of hand brakes.
- Apply hand brakes to the cars at the lower end of the downward sloping track.

If a railcar has a defective hand brake:

1. Report it to the DRIR.
2. Couple the car to another car with an effective hand brake.

3.1.2 Safe Operation of a Hand Brake

There are many different types of hand brakes, with different methods of operation. The following safe practices are recommended for ***all*** hand brakes.

Ensure the equipment is in good working order:

- Observe the condition of ladders, steps, grab irons and brake steps before climbing onto a car.
- Before operating any hand brake, observe its type and the condition of all parts, including the hand wheel or lever and chain. Ensure the chain is not caught on the platform.
- Do not attempt to use a hand brake or other equipment that is difficult to operate, defective or damaged.
  - Report the defective hand brake or equipment to the DRIR so that it can be repaired or replaced. The life of the next person on this car may depend on that hand brake.

Always use the correct hand position:

- Never reach through the spokes of a brake wheel, because the wheel may spin.
- Use one hand to operate the hand brake and the other hand to firmly grip the equipment.
- When applying a hand brake, always grip the wheel with the thumb on the outside. Grasp the rim of the wheel for maximum leverage.
- When releasing wheel-type hand brakes, keep hands and fingers clear of the wheel.

Always keep the correct body position:

- Be alert while climbing on a car, while operating the hand brake and while climbing down from the car.
- Be aware of other equipment in the area.
- Avoid applying hand brakes on the leading platform of a moving car.
- Maintain 3-point contact (as shown in the photo below) when applying or releasing a hand brake. This reduces your risk of falling if cars unexpectedly move or a hand brake malfunctions.
  - Exception: Standing equipment with a low mounted handbrake on the side of the railcar (not on the end of the railcar) may be operated from the ground.
- Never operate a hand brake while standing on a draw bar head, other coupling mechanism or rail.
- Be on guard against sudden car 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 car will have a surging effect due to lading moving back and forth inside).

Photo: Rick Robinson

3-point Contact for applying a vertical handbrake

To apply a hand brake:

1. Reach behind the brake wheel with your right hand and place the release lever or pawl (if so equipped) in the "ON" position. Keep hands, fingers and loose clothing away from the wheel spokes.
2. Grip the brake wheel rim with your right hand keeping your thumb on the outside. Turn the brake wheel clockwise to take up the slack in the brake chain.
3. After slack is taken up, place your right hand at the seven o'clock position on the rim of the wheel. Keeping your back straight, push hard downward with your right leg as you lift upward in short pulls on the brake wheel with your right hand. Minimize twisting by keeping hips and shoulders facing in the same direction.
4. Visually observe that the brake shoes are tight against the wheels. Keep in mind that some hand brake riggings are connected to brake shoes on both ends of the car while others are only connected at one end. You may need to check both ends of the car.

Releasing a Hand Brake

Before releasing a hand brake, consider the following:

- 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 released?
- Are there dock plates, loading chutes, hoses or other attachments connected to any of the cars?
- Are there any hoses, cables, extension cords or other obstructions lying across the rails?
- Can the cars be safely moved, stopped and hand brakes re-applied?
- Are the operators familiar with safe practices for car movement?
- Are there any derails in the vicinity?

To release a hand brake:

1. Assume the same three point stance as when applying a hand brake. Again, keep hands, fingers and loose clothing clear of the wheel. (Some types of wheels spin when the release lever or pawl is tripped in the "OFF" position).
2. Reach behind the brake wheel with your right hand and place the release lever or pawl (if so equipped) in the "OFF" position. Never reach through the wheel spokes.
3. If the hand brake is not equipped with a release lever or pawl, grasp the wheel at the one o'clock position and turn the wheel counterclockwise until the brake is completely released.
4. Ensure the hand brake is fully released. Observe that the:
   - Brake chain is loose,
   - Pawl is kicked out (if so equipped), and
   - Bell crank is in down position (if so equipped).
5. After the hand brake is fully released, return the release lever to the "ON" position.

Photo: Tyler Kerr

Bell crank in released position

After Moving Rail Equipment

1. Assume the same stance as for applying the hand brake.
2. Apply the required number of hand brakes and test effectiveness if possible.
3. Visually observe that the brake shoes are tight against the wheels. Remember that some hand brake riggings are connected on both ends of the car while others are connected at one end. You may need to check both ends of the car.
4. Push or pull the car(s) slightly to ensure brakes are providing a sufficient retarding force.
5. Observe the cars to ensure they are completely at rest.

3.1.3 Caution: Partially and Fully Applied Hand Brakes

NEVER move railcars while hand brakes are applied.

A hand brake can apply enough force on the wheels of a railcar to prevent the wheels from turning when the car moves. This causes the wheel to skid along the rail. Skidding a wheel for as little as one second can cause small cracks on the tread. These small cracks lead to spalling (where little pieces of the tread fall out) and to deeper cracks in the structure of the wheel. Structural damage can go undetected until the wheel suddenly breaks apart.

It is very dangerous to leave hand brakes partially applied. If the user is trained, hand brakes may be used for control while moving cars, however they must always ensure that the wheels don't skid. **Always fully release hand brakes before shipping.**

Partially applied hand brakes cause excessive heating that can damage the wheel. Please develop procedures to ensure hand brakes are fully released before shipping railcars. The video *"Please Release Me…Let Me Roll"* explains the effects of moving railcars with the hand brake applied in more detail. To see this video, visit: www.aar.com/wdprc.

3.2 Doors: Operation and Spill Prevention

3.2.1 General Procedures

The Association of American Railroads (AAR) publishes circulars and best practices for the safe opening and use of all railcar doors. Contact the DRIR if you operate rail car doors to obtain this information.

Opening Doors

- Use caution when opening doors of any type. Lading can shift during transport and may fall out or push the door out of its tracks.
- Before opening, visually inspect the door and supporting hardware for damage.
- Always use the proper tools to open doors. Improper tools can damage railcars.

Closing Doors

Close and secure all doors before releasing cars. This includes bottom gates and top hatch covers. Leaving railcar doors open or unsecured:

- Impacts railway safety,
- Allows trespassers to climb into cars,
- Allows loss of commodity, and
- Decreases locomotive fuel efficiency.

Please take the necessary time and precautions to ensure railcar doors are closed before transport. Do not load cars with defective doors or gates.

3.2.2 Plug Doors

All plug doors must be securely closed according to regulatory requirements before DRIR moves the car.

Please keep in mind the following when operating plug doors:

- Inspect plug doors before attempting to open them.
  - Ensure door hinges are secure in the track, top and bottom, before opening. Ensure nothing is bent, damaged or broken.
- Observe that the operating handle is loose in its keeper before removing the keeper from the handle.
  - If the handle is not loose, this may indicate that the lading is applying pressure against the door.
- Use caution when opening plug doors. Loads that have shifted against the door can cause the handle to spin
  unexpectedly, and the door to jump outwards when released. This can result in employee injury.
- Never use lift equipment to open a railcar door. If the door is difficult to open, use a cable or chain winch for assistance.

The training video, "Use and Protection of Boxcar Doors," demonstrating inspection and safe operation of plug doors is available from

https://www.aarpublications.com/Publications/Damage%20Prevention%20and%20Loading%20Services/General%20Damage%20Prevention/Use%20and%20Protection%20of%20Boxcar%20Doors.aspx

3.2.3 Bottom Gates and Hatch Covers – Closed Covered Hopper Cars

Before opening the bottom gates on closed covered hopper cars:

- Be sure to use the correct gate opening device or tool.
- Release all gate locks (including those with self-locking locks). This prevents bending and damage to the gate
  shaft and opening mechanisms.
- Ensure the gate opening device is well into the capstan. This prevents damage to the capstan such as rounding of the square drive socket.
- Do not over-torque the capstan.

Photo: Mike Merrick

Damaged capstan (rounded square drive socket)

Note: Damaged gates may not operate properly and the work to repair them could lead to possible DRIR employee injury.

When loading covered hoppers:

- Be gentle with hatch covers.
- Inspect all gates to ensure they are properly closed and secured to prevent any spillage.
- Ensure hatch covers are closed prior to shipping.
- We recommend that you use a fall protection system.

For any questions, contact the DRIR

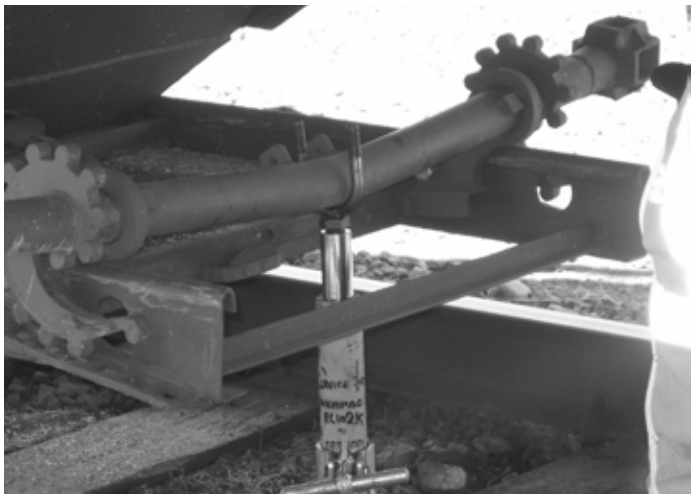


Photo: Mike Merrick

Bent hopper gate being repaired

3.3 Spillage and Wheel Contamination

Report all leaks and spills to the DRIR if they occur on DRIR property (see *Section 14, EmergencyTelephone Numbers* for contact information). If on customer property, contact your maintenance personnel. If the substance spilled is a dangerous good, please refer to *Section 5.3, Dangerous Goods Emergencies* for more information on reporting and emergency procedures.

3.3.1 Wheel Contamination

Wheel contamination from consumer products like flour, canola oil and cornstarch can cause problems with rail equipment. These and other similar substances can affect braking and lead to serious incidents at our rail yard hump operations.

To avoid wheel contamination:

- **Ensure your facility is free of product contamination and spillage.**
- Clean up all spills immediately.
- Report any leaks to the DRIR.

To prevent serious incidents and equipment damage:

- If railway equipment is rolled through a contaminated area, it is mandatory to pressure-clean the wheels with air or water.
- After cleaning, inspect the wheels to ensure no potential lubrication still exists.

3.4 Wheel Sets

3.4.1 General Information

Railcar wheel sets are comprised of two wheels, two bearings and one connecting axle. The condition of the wheel sets is extremely important to safe railway operations. When a freight car is set off for a customer, it often must be moved for loading. When moving and spotting cars, there is a risk of contacting the freight car wheels, journal bearings or axles with equipment such as forklifts, other large machinery or equipment indexers. This can cause serious damage.

3.4.2 Wheel Set Damage

Under the weight of a railcar and at increasing speed, any damage to the wheel or bearing can progress to the point of catastrophic failure, and can result in train derailment. If a car derails, note the speed and distance traveled as this will govern whether the wheel set will be inspected or replaced. In addition, if a bearing is ever submerged in water it must be replaced.

Contact the DRIR office immediately if:

- A car derails,
- There is any potential damage to bearings (i.e. bearings submerged in water),
- There is any contact to a freight car wheel or bearing by a forklift or any other machine or device.

4 Railcar Handling: Loading, Lifting, Moving

4.1 Loading

4.1.1 Regulations and Requirements

The Association of American Railroads (AAR) establish General Rules governing loading requirements for railcars. Failure to load in accordance with these rules is a defect. Specific instructions and requirements are contained in AAR Circulars, Best Practices and General Information Series.

Follow the loading rules for the type of lading and railcar being used. This applies to all railcars including boxcars and covered hoppers.

Before loading, ensure that the railcar is in good mechanical condition and that it fits the following:

- Weather tight/leak proof,
- Interior floor in good condition (no holes),
- Interior walls in good condition,
- 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.

If there are signs of any other conditions that do not appear normal, contact the DRIR for advice.

4.1.2 Balance and Securement

The wheels of a railcar are flanged to guide the railcar through curves and to prevent it from sliding off of the rail. An improperly balanced load causes the wheel on the lighter side to climb the rail, particularly during curving.

It is vital that all loads are properly balanced and secured. Before releasing a car after loading or unloading:

1. Ensure the load is properly blocked and secured. Add more blocking and bracing as required.
    - For closed car loading, including intermodal containers/trailers and box cars, use blocking and bracing to prevent movement of the load in transit.
    - **Do not use end doors for blocking and bracing as train forces are too strong.**
2. Check that all doors, hatches, and outlet gates are fully closed.
3. Remove all loose material from any open car deck.
    - Particularly ensure that double stack well cars have no inter box connectors (IBCs) lying on the deck.
4. Remove or secure any banding, chains, or cables.

4.1.3 Dimensional Loads/Overloads

A dimensional load is a shipment that is greater than the maximum standard for size, weight, and/or height of center of gravity. The track structure is carefully designed to handle the standard forces of railcar weight and movement. Dimensional loads place excessive stress on the equipment and track and can cause damage and derailment. To prevent damage:

- Observe the load limit stenciled on the car or identified in the Universal Machine Language Equipment Register (UMLER).
- Ensure that your load is within the maximum standard for weight and height of center of gravity.

4.1.4 Damage Prevention

Safe stowage and cargo securement is mandatory by railway regulation. Shippers are responsible to adequately load and secure a shipment for safe rail transportation, in accordance with DRIR and AAR standards.

4.2 Lifting

The frame or body of a standard railcar sits on two center plates, each on top of a truck assembly. The lubricated surface of the center plates allows the truck to rotate beneath the body and allows rail equipment to turn without causing excessive force on the gauge between the rails. Neither the car body nor the wheels are fastened to the truck assemblies. The components sit in place primarily by weight.

Never lift railcars. If an emergency condition requires the railcar to be lifted, contact the DRIR office immediately to have the car inspected and ensure it is sitting correctly on the center plate and bearings.

4.3 Moving

4.3.1 Procedures

The movement of railcars by mechanical methods (i.e. loaders, cables, winches, pulleys) requires the development of safe work procedures specific to each operation. We encourage customers to develop, document and train their employees in safe car movement. Here are a few key requirements to keep in mind when developing procedures for railcar movement. Procedures must:

- Clearly outline the method of controlling and signaling that will be used during car movement activities. This includes keeping someone in a position to observe the leading end of the movement and relay signals to the equipment operator.
- Ensure that no car can be moved while people are working in or around that equipment.
- Include the requirement to walk around and inspect for the removal of all dock plates, loading/unloading equipment, connecting hoses or cables and loose debris of any kind.
- Ensure established methods of communication are followed.

4.3.2 Hand Operated Car Mover and Rail Car Mover (Trackmobile)

The following steps are recommended when moving freight cars with hand operated car movers and trackmobiles.

Hand Operated Car Mover
Hand operated car movers should not be used to move cars on an incline. The following steps are recommended when using a hand operated car mover:

1. Be aware and fully understand how it operates.
2. Ensure the track is clear of obstructions for the entire distance the car will be moved.
3. Advise everyone in the area of the intended move and ensure they understand.
4. Discuss the intended move with all personnel involved.
5. Fully release the car's hand brake, unless required to control movement. In this case, ensure the wheels do not skid.
6. Keep someone at the hand brake to apply it when required.
7. After the car is moved, fully apply the handbrake and if possible, test its effectiveness.

Rail Car Mover (Trackmobile)
A rail car mover should only be operated by qualified individuals. The following steps are recommended when operating a rail car mover:

1. Ensure the track is clear of obstructions for the entire distance the car will be moved.
2. Advise everyone in the area of the intended move and ensure they understand.
3. Discuss the intended move with all personnel involved.
4. Ensure the rail car mover is set for track operations.
    - Ensure the rail wheels are correctly aligned with the track.
    - Retract the road wheels completely using the Road Wheel hydraulic control.
5. Ensure the rail car mover brakes work as intended.
6. Couple or connect the rail car mover to the car to be moved.
    - When raising the coupling device, be sure not to lift the rail car off of its truck assembly.
7. Fully release the hand brake.
8. Keep someone at the hand brake to apply it when required.
9. After the car is moved, fully apply the hand brake and if possible, test its effectiveness.

If you require assistance or would like a DRIR representative to review your procedures used to move railcars, please call the DRIR.

4.3.3 Coupling Cars

When coupling cars:

- Ensure that the car being coupled to is properly secured before coupling so that if the coupling does not make, the car will not roll away.
- Ensure all couplers are aligned and that at least one knuckle is open before coupling to any car.
- Do not adjust drawbars or knuckles, hoses or angle cocks when cars are about to couple.
- Confirm that any string of cars is fully coupled together before moving or leaving, if possible. A slight push or pull should be sufficient.
- Ensure one angle cock is left open after moving cars with coupled air lines.

4.3.4 Leaving Cars

When leaving cars:

- Do not move or leave railcars foul of any DRIR tracks as trains and track units may hit foul equipment or personnel.
    - Foul of track means being within four feet of the nearest rail. This is close enough for the individual or equipment to be struck by a moving train or track unit.

Within your facility on your industry tracks if you must leave railcars foul of an adjacent track you must leave the cars on the switch points and the switch must be lined towards those cars to make it obvious to others that the railcars are in fact foul.

- If unable to determine whether the cars are clear of the adjacent track; determine the clearance point by standing outside the rail of adjacent track and extend arm towards the equipment. When unable to touch the equipment leave equipment at least an additional 50 feet into the track to ensure the equipment is beyond the clearance point.

Leave parked railcars within 100 feet but no closer than 5 feet of a derail locked in the derailing position. Apply the required number of handbrakes and test effectiveness if possible (refer to Section 3).

4.3.5 Key Safety Reminders

Follow these important rules when moving cars:

- Do not lift railcars in any way.
- Do not push or pull on the car by the handrail, ladder or any other part of the car not designed for that purpose.

Always use hand brakes correctly:

- Do not move railcars with the brakes applied, unless required to control movement. If so, ensure the wheels do not skid.
- Do not release hand brakes until it is clearly identified how the movement will be controlled and stopped.
- Always leave cars standing with sufficient hand brakes applied.

For more information refer to *Section 3.1, Hand Brakes.*

5 Transportation of Dangerous Goods

5.1 Regulations and Resources

When handling cars containing dangerous commodities or hazardous materials, comply with all applicable regulatory requirements. For additional information, please refer to:

- United States: The Hazardous Materials Regulations of the Department of Transportation (49 CFR)
  - http://phmsa.dot.gov/regulations

The 2012 Emergency Response Guidebook is a joint publication by the US Department of Transportation, Transport Canada and the Secretariat of Communications and Transportation of Mexico (SCT). It is designed as guide for first responders (such as firefighters, police and other emergency services personnel) for transportation incidents involving hazardous materials. For a copy of this guide, please see: http://www.phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/Hazmat/ERG2012.pdf .

For copies of these documents and help understanding and implementing them, contact:

- United States: AAR Bureau of Explosives (BOE)

5.1.1 RAC Transportation of Dangerous Goods (TDG) Specialists

TDG specialists promote the safe transportation of dangerous goods and ensure that the regulations are applied consistently. Some of the services they provide are:

- Emergency response advice and expertise,
- Confidential inspections and audits to improve safety and compliance, and to eliminate non-accidental releases,
- Information sessions,
- Customized training that meets regulatory requirements in topics such as:
  - Loading rack protection,
  - Inspection and securement,
  - Safe loading and unloading of railway cars, trucks and other containers,
  - Proper preparation of shipping papers,
  - Safety marks,
  - Loader/unloader safety, and
  - In-plant switching.

Access TDG Specialists through the RAC (See *Section 13, Railway Safety Resources and Materials*).

5.1.2 Bureau of Explosives (BOE) Inspectors

The BOE has inspectors throughout the US and Mexico to serve as a self-policing agency to:

- Hazmat shippers and carriers, and
- Container manufacture, repair, and reconditioning companies.

BOE inspector services include:

- Training that exceeds regulatory requirements for hazmat general awareness and familiarization, function specific hazmat training and recurrent training,
- Advanced hands-on emergency response training (Pueblo, CO),
- Certification and re-certification inspections of tank car repair facilities to ensure compliance with the AAR Manual of Standards and Recommended Practices, M-1002,

- Confidential inspections to evaluate compliance with Hazmat Regulations,
- An annual seminar dedicated to hazmat transportation issues, and
- Quality Assurance Audits.

(See *Section 13, Railway Safety Resources and Materials.*)

5.2 Loading and Unloading Procedures/Regulations

The following apply to all workers involved in loading and unloading tank cars carrying dangerous goods. They must:

- Be trained under the appropriate regulations:
  - United States: Hazardous Materials Regulations (49 CFR).
- Be experienced in and know the safety requirements for the specific loading and/or unloading operation being performed.
- Know about the tank cars being used and their fittings, the type of product being loaded or unloaded, and marking, labeling and/or placarding requirements.
- Comply with all applicable regulations including:
  - United States: The Hazardous Materials Regulations of the Department of Transportation (49 CFR).
- Be knowledgeable with information contained within Pamphlet 34: "Recommended Methods for the Safe Loading and Unloading of Non-Pressure (General Service) and Pressure Tank Cars." Pamphlet 34 can be obtained through the following link: http://boe.aar.com/CPC-1245%20Pamphlet%2034.pdf

Note: Accidental releases can affect the safety of employees and surrounding communities.

5.2.1 Offering Dangerous Goods for Transportation by DRIR

Our train crews must go through a basic checklist before lifting a regulated substance. Before transporting your goods on our railway, please be sure that:

- The railcar is properly placarded.
- There are no signs of railcar damage.
- There are no signs that the railcar is leaking.
- All dangerous goods documentation is provided.
- The overall condition of the railcar is acceptable for transportation.

Failure to comply with these will result in refusal to move the car.

5.2.2 Documentation

All consignors, consignees or their representatives must provide the correct documentation for loaded, partially loaded or residue cars to DRIR

5.3 Dangerous Goods Emergencies

Report any incident, accident or leak involving dangerous goods immediately to:

- The appropriate chemical transport emergency center:
  - United States: call CHEMTREC, 1 (800) 424-9300
- The DRIR emergency contact 303-295-0661 option 2

6 Trackside Protection and Signage

Protect your track using properly lined and locked switches and derails before operating any rail equipment. This ensures that the movement does not enter DRIR track. Personnel operating any type of railway equipment must comply with all applicable federal rules and regulations. This includes the US General Code of Operating Rules (GCOR).

6.1 Derails

6.1.1 Function

Although extremely damaging to the wheels and track, derails protect people and operations from free rolling and uncontrolled railcars and equipment. They do this by guiding the flange of the wheel over the rail, so that the wheels drop onto the ties and ballast.

Derail signage indicates the location of a derail. Be familiar with these locations on the tracks you use. A derail sign with a number attached to it indicates other derail(s) on adjacent track(s) where signs cannot be installed because of clearance restrictions.

Hinged derail

6.1.2 Use on DRIR Tracks

Applying and removing DRIR derails is the responsibility of DRIR personnel. Only in specific cases and when documented clearly with written procedures can a non DRIR person operate a derail, If you notice a derail in the unlocked or non-derailing position contact the DRIR immediately.

6.1.3 Use on Customer Tracks

Keep all equipment within 100 feet but no closer than 5 feet from a derail locked in the derailing position. We recommend locking unattended derails in the derailing position, whether there are cars on the track or not. On a facing point move, avoid riding a car over a derail left in the non-derailing position.

Like switches, customers and their employees must know the location of derails on their property and assist in their upkeep. This includes the following:

- Keep the ground surface level and clear of snow and debris around the derail.
- Make sure there is no ice buildup or rust present.
- Ensure the derail is secured to the track.
- Ensure derails remain locked in the derailing position when being used for protection.
- Ensure the derail is properly lubricated and moves freely when open or closed.
- Keep derail signs clean and visible.

6.2 Switches

6.2.1 Use on DRIR Tracks

DRIR switches are the responsibility of DRIR personnel. Like derails, only in specific cases can non-DRIR personnel operate DRIR switches.

Stay away from track switches.

6.2.2 Use on Customer Tracks

Customers and their employees must know the location of switches on their property and assist in their upkeep. This includes the following:

- Keep the ground surface level around the switch to avoid walking hazards.
- Clear the area from snow, debris and anything else that may disturb movement.
- Make sure there is no ice buildup or rust on the block.
  - This may require sanding.
- Make sure switches are adjusted and lubricated.
- Ensure the bolts are secured to the base.
- Ensure switches remain locked or the keeper inserted when not in use.
- Keep switches clean and painted, and the targets clear and visible.

6.3 Flagging and Signage

Photo: Kirsten Smyth

Blue flag in use

6.3.1 Use on DRIR Tracks

Do not obstruct, remove, relocate or alter any signs, signals or flags necessary for the safe operation of the railway without proper authorization.

Railcar loading and unloading operations require protection to ensure that equipment is not moved while employees are working on or near it. There are various ways in which this can be achieved such as the use of derails, locked switches and blue flags. Blue flags are used by railcar maintenance personnel to indicate that they are working on, under or near rail equipment. At the same time, the track is locked at both ends to prevent equipment from gaining access to that track. Red flags, or red lights by night, are used when employees are working on the track and moving equipment is prohibited from passing over that track. Never block red flags.

6.3.2 Use on Customer Tracks

DRIR wants to prevent inconsistencies that may develop in blue flag use, which would jeopardize the positive nature of this protection. If you chose to use blue flag protection on your property, the following is requested:

- Keep blue flags clean on both sides, free of dirt, oil and grease, etc. which would otherwise make it difficult for others to clearly see the flag.
- Keep the paint on both sides of the flag in good condition so that it can be clearly seen and is not weathered or obstructed by rust.
- Secure and lock the blue flag using mechanical means such that it will not fall down due to wind, or be inadvertently removed.
- Do not display blue flags between adjacent railcars. This can block the blue flags from view by our employees.
- Display blue flags at one or both ends of all equipment on the same track, depending on the layout and access to the tracks.
- Develop safety procedures to ensure flag protection and its removal, are understood and complied with by all employees.

Blue lights are used for work done during the evenings and bad weather conditions to ensure the signal is visible. If using blue lights, we request that you follow the same procedures as given for blue flags.

Note: If a blue flag is left up or a blue light left on, DRIR will not perform switching operations at that location or track.

7 Working on or Near Tracks

There are several important safety concerns that you should be aware of prior to working on or near rail equipment and track. DRIR believes in sharing best safety practices. The practices outlined below are required at all times by all personnel on DRIR property. We recommend that you follow them on your trackage as well.

7.1 Working Around Tracks

Be alert:

- Watch for the possible movement of trains, engines, cars and other on-track equipment. They can move at any time, on any track, and in either direction.
- Be especially careful in yards and terminal areas. Cars are pushed and moved, and can change tracks often. Cars that appear to be stationary or in storage can begin to move.
- Look before you step. Trains can approach with little or no warning. You may not be able to hear them due to atmospheric conditions, terrain, noisy work equipment, or passing trains on other tracks.
- Be aware of the location of structures or obstructions where clearances are close.
- Never rely on others to protect you from train or car movement. Watch for yourself!

Watch for tripping and slipping hazards:

- Be aware that rails and ties can be slippery and railway ballast can shift while walking on top of it.

Stay clear of tracks whenever possible:

- Never stand, walk or sit on railway tracks, between the rails or on the ends of ties unless absolutely necessary.
- Never stand or sit on rails.
- Do not occupy the area between adjacent tracks in multiple track territory when a train is passing.
- Never stand on or foul of the track when there is an approaching engine, car or other moving equipment.
- Stand 20 feet away from the tracks if possible, when rail equipment is passing through.

Stay away from trackside devices:

- Stay away from track switches. Remotely operated switch points can move unexpectedly with enough force to crush ballast rock.
- Stay away from any other railway devices you are unsure of.

In the United States, On Track Safety rules developed by the Federal Railroad Administration (FRA) apply. The FRA requires specific training and obedience of these rules at all times when working on or near railroad property. Large regulatory fines can result from any violations.

7.2 Crossing Over Tracks

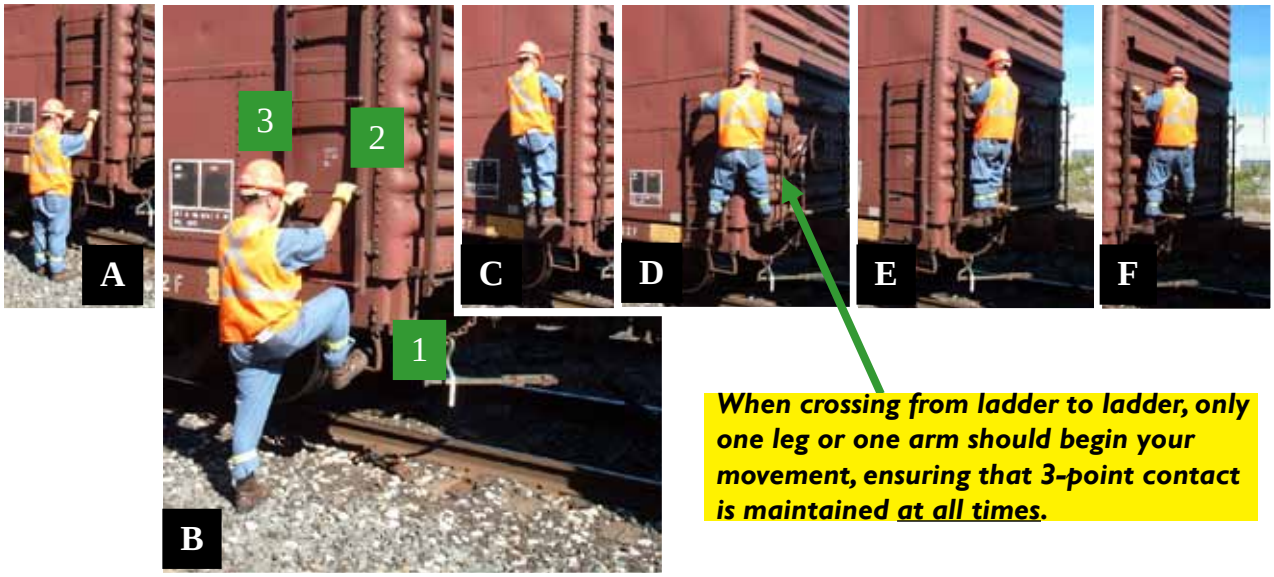
When crossing railway tracks:

- Watch for movement in both directions before crossing.
- Watch for pinch points at switch locations.
- If the tracks are clear, walk single file at a right angle to the rails.
    - Never step on the rail.
    - Never walk between the rails of any track.
- Keep at least 15 feet away from the end of a car or locomotive to protect yourself from sudden movement.
- If crossing between two railcars, ensure there is at least 50 feet between them.
- Never move equipment across the tracks unless at an established road crossing or under the supervision of a DRIR Flag Person as otherwise it can damage the track.

7.3 Crossing Over Equipment

In some cases, you may have to cross over rail equipment. Always try to walk around, following the safety guidance given previously in section 7.2. However, if you must cross over a car to apply or release a hand brake, be extremely careful, and abide by the following:

- Never cross under equipment.
- Never try to cross over moving equipment.
- Always use safety devices such as ladders, handholds and crossover platforms.
- Never put your feet on moveable machinery such as couplers, sliding sills or uncoupling levers.
- Never step onto any part of the coupler or assembly, angle cock, air hose, wheel or truck assembly, train line or operating (uncoupling) lever.
- Always keep "3-point contact" (e.g. two feet and one hand) with equipment and safety devices.
- Do not stand, sit or walk on any part of open top rail cars (i.e. gondolas, hoppers, ballast cars, or air dump cars).



When crossing from ladder to ladder, only one leg or one arm should begin your movement, ensuring that 3-point contact is maintained at all times.

For your safety, maintain 3-point contact at all times.

Crossing over equipment

For your safety, maintain 3-point contact at all times.

7.4 Preventing Hazards

7.4.1 Tripping and Slipping

Obstructions can cause tripping hazards and car derailments:

- Keep tracks free of the accumulation of snow, ice, vegetation and debris. It is especially important to keep flangeways at road crossings free of ice and debris.
- Remove any discarded banding used to support shipped products and other debris from the tracks.
- Deliver maintenance materials to the work site as close to the actual work being done as possible to reduce the risk of materials becoming track obstructions.

When unloading pits are used, both rail and customer employees can fall in and seriously injure themselves.

- Ensure all unloading pits are covered.
- Ensure that the location of pits or other in ground hazards are properly marked.

7.4.2 Water

Standing and flowing water are serious hazards to track stability. Water can also freeze causing a potential slipping hazard. Drainage systems direct water away from the track. If on DRIR tracks, report the following to the DRIR immediately:

- Blocked culverts,
- Water undercutting the track,
- Standing pools of water adjacent to any track.

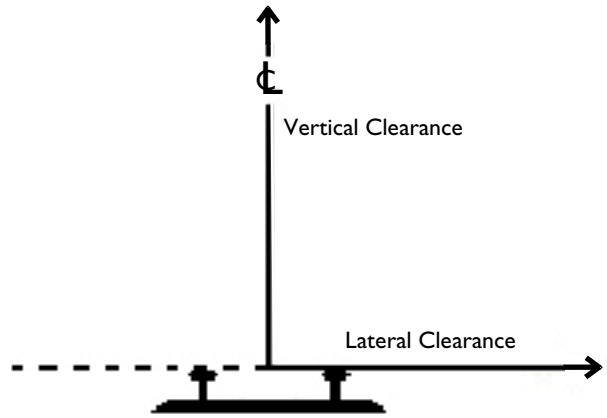
If these occur on your trackage, please contact your maintenance personnel immediately.
303-296-0900 Option 7

8 Railway Clearances

8.1 Clearance Definitions

Clearance requirements protect the safety of people and equipment from moving railcars. Clearances are the vertical and horizontal distances from the track to the nearest obstruction:

- **Vertical clearances** are measured up from the top of the rail.
- **Lateral clearances** are measured from the middle of the track outwards.
- **Restricted clearances** are distances less than the given limits.



Vertical and Lateral Clearances

8.2 Customer Spurs and Industrial Track

To reduce the risk of serious injuries or fatalities while switching, ensure there are no obstructions within the **8-foot lateral clearance** and the **22-foot vertical clearance** (i.e. no restricted clearances). If there is an unavoidable obstruction:

1. **Notify the DRIR immediately of the resulting restricted clearance,** and
2. Display restricted clearance signs at the site.

Possible obstructions include:

- Temporary piles of stock, dirt, snow/ice, etc.,
- Refuse containers,
- Holes, trenches or other ground obstructions,
- Parked vehicles,
- Equipment or parts of equipment,
- Fencing,
- Buildings.

Ensure any gates leading into your property can be opened and properly secured in all weather conditions. This will prevent unsecured gates from swinging closed during switching operations, and contacting DRIR employees. Keep in mind that gate posts designed to be pushed into the ground do not work as well when the ground is frozen.

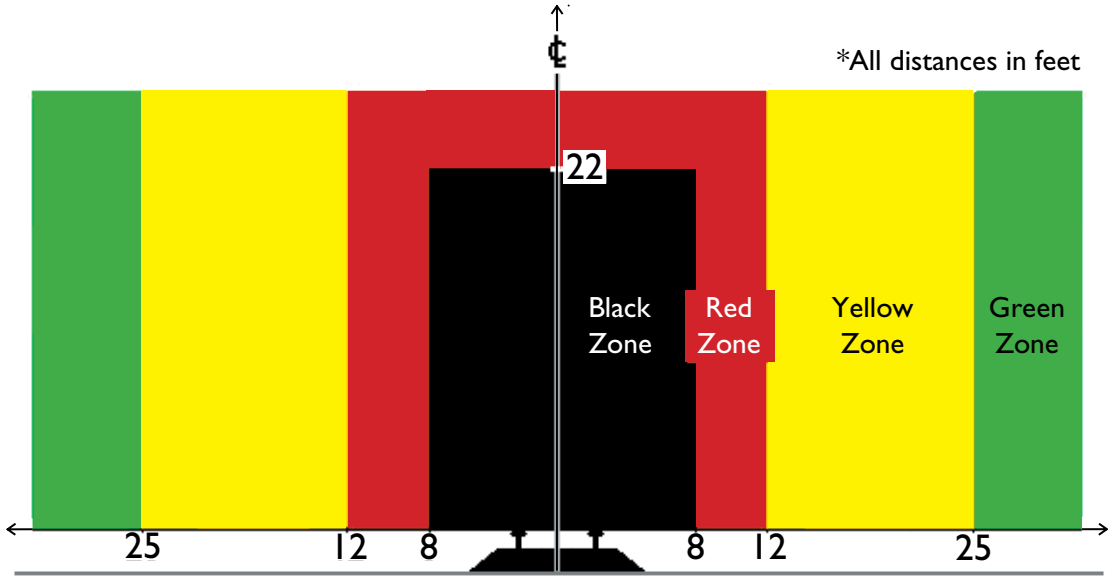
Note: Regulation Resources

- United States: Clearance requirements are defined by state. Refer to the AREMA manual for more information.

Restricted clearance in a customer siding
Inset: Restricted clearance sign

8.3 DRIR Track

As a general rule, 25 feet on either side of the DRIR main track is DRIR property, called the "right-of-way". Avoid this area at all times. DRIR permission is required prior to accessing DRIR property and violators may be charged with trespassing. The diagram and explanations below show the levels of permission required for certain proximities to the track.



Clearance zones for CP track

Black Zone
No machinery, persons, equipment or parts of equipment are permitted within the **8-foot lateral clearance** and the **22-foot vertical clearance** envelope. Any violation creates a restricted clearance that is hazardous to DRIR and customer employees. Notify the DRIR immediately of:

- Any situation that causes an obstruction in this zone,
- Movement or change of track-side loading platforms or ramps, unloading augers and other equipment.

Red Zone
With **written permission and protection** from DRIR, machinery and equipment can be operated between **8 and 12 feet** from the center of the rail, on either side of DRIR track. This zone has **no vertical limit** – any work over the track must be approved. One week advance notice is required. Contact the DRIR office for permission and to arrange protection. (Also see *Section 11.4, Flagging Protection: Working with a Rail Flag Person*.)

Yellow Zone
If need be, temporary structures, materials and equipment can be between **12 and 25 feet** from either side of DRIR track. To be in the "Yellow Zone" requires DRIR **permission** and possibly flagging protection, if deemed necessary. This zone also has **no vertical limit** – any work over the track must be approved. Again, contact the DRIR office one week in advance.

Green Zone
Keep buildings, equipment, machinery and personnel more than **25 feet** away from either rail at all times. This is outside of the right of way, and in the "Green Zone."

8.4 Infrastructure Changes

Before altering infrastructure within any of the clearance zones on DRIR or customer property, make sure to contact your local DRIR Operations office at least one week in advance. You will be referred to a representative to discuss your building plan. If necessary, DRIR will provide flagging protection to ensure the safety of the railway and the customer.

8.5 Voltage Wire Lines

The required clearance limits for power lines are:

United States (lines carrying less than 750 volts):
- 27 feet (8.20 meters) above the top of the rail,
- 28 feet (8.50 meters) during installation for ballast lifts.

Note: Power lines carrying more than 750 volts need more clearance.

9 Track and Structure Maintenance

9.1 Regulation and Inspection

The maintenance of tracks and structures is regulated by the government. Customers must inspect and maintain their tracks in accordance with US federal regulations (or provincial or state equivalents) for "Other than MainTracks & Sidings." If your track is not maintained up to regulatory standards, we will not be able to safely switch on your property, which may result in suspension of service and/or additional tariffs. If you are not currently under contract with the DRIR for track maintenance services, please regularly inspect your trackage as per your local regulations by a qualified track inspector to ensure the overall safety of your facility and timely service.

Key customer requirements are as follows:

- Inspect each track, switch and crossing monthly with at least 20 calendar days between inspections.
  - If the track is used less than once per month, inspect before each use.
- If the inspector finds any deviation from the regulatory requirements, they must take immediate remedial action or take action to remove the track from service.
- Keep a record of all inspections performed including the date, location, nature of any defects found and any remedial action taken.
  - Keep these records for at least two years and make them available on request to DRIR or any regulatory inspector.

Each of your track inspectors must be qualified to inspect railway tracks in accordance with US federal regulations. Inspectors must be in possession of a certificate that indicates they have been trained and are qualified to conduct that work.

Note: If maintenance work is done, the contractor who performed the work may also be qualified to inspect it. If not, ensure a qualified inspector examines the track before allowing train operations.

If DRIR Engineering inspects your tracks and structures, they will alert you of necessary improvements. **Notify the DRIR immediately of any changes, damage or problems that may affect DRIR train or switching movements.**

9.2 Marking Tracks Out of Service

To mark a track out of service, put a lock on your switch and immediately notify the DRIR. The DRIR the Track Manager (TM) or foreman who will remove the track from service by use of a bulletin advising train crews not to use the track. The TM will also tag and lock the switch out of service. After the track is repaired, DRIR Engineering, your inspector or a private contractor must inspect it before removing the lock. Contact DRIR to advise of the inspection so that the bulletin can be canceled.

9.3 Track Scales

If you use track scales for weighing freight cars, inspect and test the scales annually. Include the scale tracks and infrastructure in the inspection. If you use track scales for commercial reasons, test and calibrate them in accordance with the standards set by individual US states.

10 DRIR Customer Inspection/Audit Process

Locally, the DRIR will work with customers to audit compliance to safety standards. This will happen on a set basis as determined by resources and specific needs.

The audits cover five key areas:

- Track conditions,
- Movement and securement of railway equipment,
- Walking hazards,
- Restricted clearance hazards, and
- Spillage/wheel contamination.

Audit results are rated as:

- "Green status" indicating full compliance,
- "Yellow status" indicating partial compliance,
- "Red status" indicating non-compliance.

If the audit results in a "yellow status" or "red status," a meeting will be requested as soon as possible to create an action plan for improvement. "Red status" require the DRIR to take further action. such as holding the track out of service. Failure to correct safety flaws can result in refusal to provide rail service to that customer.

This audit process will provide us together, an opportunity to correct any hazards before they cause harm. If you, the customer, want to initiate the audit process, please contact the DRIR.

Recommended for you to keep a record of these customer inspections.

CUSTOMER SAFETY AUDIT FORM

Date of Current Audit:	
Inspected By:	
Date of Last Audit:	
Location:	
Customer Name	
Customer Contact Name and Phone Number:	

☐ Green Status ☐ Yellow Status ☐ Red Status

Green Status - Indicate all DRIR practices/standards met. No further action required.

Yellow Status - Indicate partial compliance with DRIR practice/standards.
- **Risk Level B or C exist** (see table below).
- The DRIR Manager will be contacting your facility to follow up on required actions

Red Status - Indicates non compliance with DRIR practice/standards.
- **Risk Level A exists**.
- DRIR will be notified and service maybe suspended immediately.
- DRIR will be contacting your general office.
- DRIR Manager will contacting your facility to follow up on required actions.

Item (YY-MM-##)	Brief Description	Risk Level	Who	Action to be Taken / Update	Due Date	Completion Date

Risk Level		
	A	Major: a condition or practice likely to cause permanent disability, loss of life or body part and/or extensive loss of structure, equipment or material.
	B	Serious: a condition or practice likely to cause serious injury or illness resulting in temporary disability or property damage that is disruptive but not extensive.
	C	Minor: a condition or practice likely to cause non-disabling injury or illness or non-disruptive property damage.

CUSTOMER SAFETY AUDIT FORM

Track Conditions

Switches: & Derails
______ Comments ______
______ Comments ______
______ Comments ______
______ Comments ______
______ Comments ______

Walkways: ______ Comments ______
______ Comments ______

Clearance Issues: ______ ☐ Restricted Clearance Signs Visible

Other Conditions: ______ ☐ Derail Signs Visible

Weed Control: ☐ Good ☐ Fair ☐ Poor Comments ______

Spillage on Tracks: ☐ Yes ☐ No Comments ______

Track # ______	Tie Condition: ☐ Good ☐ Fair ☐ Poor Cross Level & Alignment: ☐ Good ☐ Fair ☐ Poor Rail Condition: ☐ Good ☐ Fair ☐ Poor	Track # ______	Tie Condition: ☐ Good ☐ Fair ☐ Poor Cross Level & Alignment: ☐ Good ☐ Fair ☐ Poor Rail Condition: ☐ Good ☐ Fair ☐ Poor
Track # ______	Tie Condition: ☐ Good ☐ Fair ☐ Poor Cross Level & Alignment: ☐ Good ☐ Fair ☐ Poor Rail Condition: ☐ Good ☐ Fair ☐ Poor	Track # ______	Tie Condition: ☐ Good ☐ Fair ☐ Poor Cross Level & Alignment: ☐ Good ☐ Fair ☐ Poor Rail Condition: ☐ Good ☐ Fair ☐ Poor

☐ Customer track inspection completed monthly
☐ Track Protection procedures used appropriately
☐ Blue Flag or equivalent is visible from occupied track
☐ Blue Flag or equivalent is in good condition (i.e. not rusty, muddy, or covered in grease, etc.)

Equipment Securement

Track ______: # Cars # Car/HB Required # Car/HB
Secured Low End: ☐ Yes ☐ No Properly Coupled: ☐ Yes ☐ No Near Derail: ☐ Yes ☐ No

Track ______: # Cars # Car/HB Required # Car/HB
Secured Low End: ☐ Yes ☐ No Properly Coupled: ☐ Yes ☐ No Near Derail: ☐ Yes ☐ No

Track ______: # Cars # Car/HB Required # Car/HB
Secured Low End: ☐ Yes ☐ No Properly Coupled: ☐ Yes ☐ No Near Derail: ☐ Yes ☐ No

Track ______: # Cars # Car/HB Required # Car/HB
Secured Low End: ☐ Yes ☐ No Properly Coupled: ☐ Yes ☐ No Near Derail: ☐ Yes ☐ No

Approved Equipment Handling Process: ☐ Yes ☐ No Type ______

Comments: ______

Snow & Ice Conditions

Switches	Derails
# ______ Clean & Operable: ☐ Yes ☐ No	# ______ Clean & Operable: ☐ Yes ☐ No
# ______ Clean & Operable: ☐ Yes ☐ No	# ______ Clean & Operable: ☐ Yes ☐ No
# ______ Clean & Operable: ☐ Yes ☐ No	# ______ Clean & Operable: ☐ Yes ☐ No
# ______ Clean & Operable: ☐ Yes ☐ No	# ______ Clean & Operable: ☐ Yes ☐ No
# ______ Clean & Operable: ☐ Yes ☐ No	# ______ Clean & Operable: ☐ Yes ☐ No
# ______ Clean & Operable: ☐ Yes ☐ No	# ______ Clean & Operable: ☐ Yes ☐ No
# ______ Clean & Operable: ☐ Yes ☐ No	# ______ Clean & Operable: ☐ Yes ☐ No
# ______ Clean & Operable: ☐ Yes ☐ No	# ______ Clean & Operable: ☐ Yes ☐ No
# ______ Clean & Operable: ☐ Yes ☐ No	# ______ Clean & Operable: ☐ Yes ☐ No

Walkways/Crossings/Flangeways

______ Cleared of Ice & Snow ☐ Yes ☐ No
Salt/Sand Dispensed ☐ Yes ☐ No

______ Cleared of Ice & Snow ☐ Yes ☐ No
Salt/Sand Dispensed ☐ Yes ☐ No

______ Cleared of Ice & Snow ☐ Yes ☐ No
Salt/Sand Dispensed ☐ Yes ☐ No

______ Cleared of Ice & Snow ☐ Yes ☐ No
Salt/Sand Dispensed ☐ Yes ☐ No

Other: ______

Comments: ______

11 Safety Standards on DRIR Property

Railway facilities and operations can be dangerous. This is a brief summary of some of the DRIR safety standards that **apply to all personnel on DRIR property**. This however, is not a complete list. For more information on these and other DRIR safety standards contact the DRIR office.

11.1 Caution: Before Beginning Work on DRIR Property

Before beginning any work on DRIR property, you must have approval and your employees must take part in a job briefing and safety orientation given by a DRIR employee. Please keep in mind that only qualified DRIR employees can handle main track switches, derails, electric locking mechanisms and other appliances. Personnel operating equipment of any type on DRIR tracks must be authorized and qualified. They must comply with all applicable federal rules and regulations, including the General Code of Operating Rules (GCOR) in the US.

See *Section 8.3, DRIR Track* to find out what permission and protection are required for the distance you will be working from the tracks.

11.1.1 Call Before You Dig

Before doing any underground work:

1. Call the appropriate "Call Before You Dig" number for your province or state to get the proper permission and permits. If required to dig on DRIR property, you must **notify DRIR with 7 days advanced notice** to obtain the required permission and to get cable locates completed.
2. Arrange for a qualified person to mark the location of piping, cables and/or fiber-optics.

Note: Underground cables and fiber-optics shift considerably under the surface with weather and ground geology. Depending on ground structure, cables can lie on either side of the track.

11.2 Required Protection Programs

11.2.1 Fall Protection

A fall protection program must be used when any work is done on DRIR property above the following heights. Your fall protection system must comply with these regulations or the provincial or state equivalents.

Fall Protection Regulation Requirements		
	United States	
Regulation	OSHA	
Height	**6 feet** (1.83 meters)	
	Federal Railroad Administration (FRA)	
	12 feet (3.66 meters) on Railway Bridges	

Note: A fall protection system must be used if your operations require employees to work above these heights. The top of most rail cars are above these heights.

11.2.2 Confined Spaces

Confined spaces are described as:

- Is not intended for human occupancy except for performing work,
- Has a restricted entrance and exit, and
- May become hazardous to a person entering it for reasons including:
  - its design, construction, location or atmosphere,
  - the materials in it, or
  - any other conditions relating to it.

A confined space program and entry procedures are required to enter certain rail cars including covered hoppers and tank cars. Refer to your local regulatory requirements for more details. If conducting such work on DRIR property, you must comply with all applicable federal regulations.

11.3 Personal Protective Equipment

Personal protective equipment (PPE) protects against foreign objects entering the eyes and impacts to the head. It increases visibility of workers and protects against moving equipment. To reduce the risk of injury, all people on DRIR property must comply with the following requirements for PPE. Regular visitors to DRIR property are expected to supply their own.

Personal Protective Equipment Requirements		
Type of Protection	**Where Needed**	**Requirements**
Hard Hats	Required on DRIR property. Not required in an enclosed vehicle or office unless maintenance work is being performed. DRIR **switching crews are not required to wear hard hats.**	Must be in proper condition and free from unnecessary marks. High visibility recommended.
Safety Glasses	Required everywhere except offices.	Permanently attached side shields required.
Safety Boots	Required everywhere except offices.	Keep laced to top and tied securely for ankle support.
High Visibility Apparel	Required on DRIR property. Optional within a vehicle or building.	Needs both fluorescent color and retro-flective properties. Colors are orange or green.
Seat Belts	Required everywhere.	Use required in all equipped vehicles except when performing inspections and traveling under 15 mph (24 km/hr).
Hearing Protection	Required in all designated locations and where the noise level is greater than 84 decibels.	In compliance with applicable regulations for the job task.
Respiratory Protection	All designated areas.	In compliance with applicable regulations for the job task.
Fall Protection	At any height above those set by federal regulations or provincial or state equivalents.	In accordance with these regulations.

Note: All personal protective equipment must meet the requirements of the American National Standards Institute (ANSI), as applicable.

11.4 Flagging Protection: Working with a Rail Flag Person

11.4.1 Arranging for Flagging Protection

When planning to work on or near tracks, notify the DRIR office at least one week in advance so that DRIR management can assess the need for flagging protection. If flagging protection is necessary, DRIR will provide a qualified Flag Person. There is a cost associated with this.

11.4.2 Working under Flagging Protection

Good communication between customers and DRIR's Flag Person is imperative. The DRIR Flag Person is responsible for clearing any movement of workers and equipment near the tracks, no matter how minor.

Customers must:

- Include the DRIR Flag Person in the job briefing prior to starting work.
- Never assume a move is cleared unless you receive direct instructions from the DRIR Flag Person.
- Never interfere with a DRIR Flag Person who is communicating by radio. Wait until they are finished and able to give you their full attention.
- Not assume a move is cleared by something overheard on the radio.

12 Security on the Railway

12.1 Security Concerns, Incidents and Emergencies

DRIR is committed to providing a safe and secure workplace and to protecting its employees, its assets, the public, and the environment in compliance with applicable legislation and government regulations. Please do not put yourself in danger, if you have **any** concern related to security on DRIR property, report it to DRIR Special Agent immediately.

DRIR Special Agent 24 hour emergency: 303-295-0661 Opt. 1

The following table lists security-related events with descriptions, examples and who to contact when faced with such threats on DRIR property.

Security Events and Actions		
Event	**Examples**	**Who to Contact**
Security Concern Any matter that could impact DRIR security involving employees, DRIR assets or customer goods in transit. Any happenings or persons out of the ordinary.	• Trespassers • Abandoned or suspicious vehicles • Any suspicious objects • Vandalism attempts • Stolen tools and equipment • Unusual situations	Call: DRIR Special Agent 303-295-0661 Opt. 2 (24 hour emergency line)
A deliberate act, accidental event or perceived threat that may lead to personal injury, property damage or loss of property against DRIR assets, both human and material.	• Theft • Vandalism • Bribery • Stalking • Assault	
Emergency An immediate or perceived danger to life, health or personal security of any individual and/or a grave threat to property or business operations.	• Train accidents • Natural disasters • Acts of terrorism	Call: • 911 (if available), OR • Local police, fire or emergency department Also call: DRIR Special Agent: 303-295-0661 Opt. 2 (24 hour emergency line)

12.1.1 In Case of Emergency

- Remain calm.
- Move to safety.
- Do not try to be a hero.

12.1.2 Information to Gather

When possible and safe to do so, gather as much information as possible including:

- Number of suspects and their descriptions,
- Vehicle make, model, color and license plate number if available,
- Direction of travel if the suspects left the scene,
- Description of suspicious objects:
  - Size
  - Any unusual noise
  - Odor or vapor coming from the object,
- Any victims present; names, number of victims, injuries or symptoms,
- Safest place for police or emergency responders to meet you.

12.2 Security Recommendations

12.2.1 Be Aware

Watch for and report suspicious activity such as:

- Trespassers,
- Abandoned vehicles,
- Suspicious objects,
- Vandalism attempts, and
- Unusual situations.

12.2.2 Lock and Secure

- Lock switches and derails when unattended.
- Lock or secure doors and gates to restricted areas.
- Secure all work materials and tools that can be used to interfere with safe railway operations.
- Verify all vehicles and movable equipment are secured and locked down.

12.2.3 Prevent Trespassing

In the past there have been problems with trespassers on both DRIR and customer properties. To help protect non-railway persons we recommend that customers:

- Post "No Trespassing" signs and other warning signs at any rail access points, in accordance with local regulations.
- Fence off unsafe areas (where practicable).
- Maintain the state of any current fences.

These actions will also help to prevent vandalism on DRIR and customer properties.

12.3 Shipment Security

Customers can help improve transportation and supply chain security by monitoring the loading and contents of their shipments. This includes being vigilant in guarding against stowaways and the smuggling of implements of terrorism and contraband.

12.3.1 Shipping "Security Sensitive" Materials

When shipping high value security-sensitive materials:

- Review storage locations and procedures to ensure appropriate security for various threat or alert levels.
- Notify your Customer Service Representative and arrange to expedite the acceptance and delivery of the shipment.
    - This reduces potential exposure to surrounding people, property and the environment.

Security sensitive materials are the materials or classes of materials that pose a significant risk to national security while being transported in commerce as defined by all applicable United States federal rules and regulations. Current US definitions include:

- Class 1.1, 1.2 or 1.3 explosives,
- Class 7 (radioactive) Material,
- Poisonous inhalation hazard (PIH) or toxic inhalation hazard (TIH) commodities.

Note: PIH materials are gases or liquids that are known, or presumed on the basis of tests, to be toxic to humans. They can pose a health hazard in the event of a release during transportation. The terms PIH materials and TIH materials are synonymous. Examples include Chlorine, Anhydrous Ammonia and Sulfur Dioxide.

13 Railway Safety Resources and Materials

Safety Information	Contacts
DRIR Office • As referenced in this handbook	DRIR Safety Coordinator Tel.: 303-295-0661 Opt 6
Association of American Railroads (AAR) • Research into rail efficiency and safety • Access to Railinc, leading provider of rail information technology to North American railroads • Link to congress for rail-related matters	Association of American Railroads 50 F Street NW Washington, DC, 20001-1564 Tel.: 1 (202) 639-2100 www.aar.org
Association of American Railroads (AAR) **Bureau of Explosives (BOE)** • Emergency response and hazmat awareness training • Hazmat regulation inspections • Certification and re-certification inspections of tank car repair facilities • Hazmat transportation information • Quality Assurance Audits	AAR Bureau of Explosives Transportation Technology Center Inc. 55500 Dot Road Pueblo, CO, 81001 Tel.: 1 (719) 584-0749 Cell: 1 (719) 250-8768 Fax: 1 (719) 585-1895 Email: BOE@aar.com
Federal Railroad Administration (FRA) • Rail safety regulations • Railroad assistance programs • Research into railroad safety	Federal Railroad Administration 1200 New Jersey Avenue SE Washington, DC, 20590 www.fra.dot.gov
Occupational Health and Safety Administration (OSHA) • US labor information and programs • Confined spaces and other regulations	U.S. Department of Labor Occupational Safety and Health Administration 200 Constitution Avenue NW Washington, DC, 20210 www.osha.gov

14 Important Telephone Numbers

Emergencies are critical situations that may affect personnel, public safety or the environment. If you encounter any of these situations contact the numbers listed below and DRIR immediately.

Critical Safety Information	Contacts
CHEMTREC® **(Chemical Transportation Emergency Center)** • Chemical Transport Emergencies (United States only)	**Emergency:** 1 (800) 424-9300 Information: 1 (800) 262-8200 www.chemtrec.com/Chemtrec

15 EMERGENCY TELEPHONE NUMBERS

DRIR Special Agents • All security and safety issues • Suspicious activity on railway property - Trespassers - Abandoned vehicles - Suspicious objects, persons, and/or situations - Vandalism attempts - Stolen tools and equipment	**(24/7) Emergency:** 303-295-0661 Opt 2
DRIR Customer Service • Derailment of any railcar • Leak or suspected leak of any tank car or other dangerous commodity on DRIR property • Any release of a material from a rail car (i.e. non-dangerous goods) on DRIR property • Equipment or materials within the Main Track or Siding clearance limits: - 8 feet from nearest rail laterally - 22 feet from top of rail vertically • Damage to any switch, derail, sign, rail or track structure • Any other condition or situation which may cause injury, damage or derailment	**(24/7) Emergency** 303-295-0661 Opt 2

Emergencies are critical situations that may affect personnel, public safety or the environment. If you encounter any of these situations contact the numbers listed above immediately.

DRIR Main **Office**
3400 East 56th Ave
Commerce City, CO 80022
Tel.: 303-295-0661 Opt 3
Fax: 303-295-0886
www.denverrockisland.com

16 Job Briefings: An Important Note

DRIR believes it is important to perform job briefings before starting any activity and as the job or conditions change. Job briefings identify safety hazards and emergency procedures related to the work being done, whether it is in the yard or the office. Following, is a sample job briefing card. We hope you will consider including the following topics in your job briefings.

Sample Job Briefing Card

1.1 General Information

Hold a job briefing before performing any job involving two or more employees, fouling tracks or wearing personal protective equipment. This is to ensure that all employees understand:

- The task being performed,
- The hazards and related control measures for that task,
- The protection required to carry out the work, and
- Each employee's individual responsibility.

Hold additional job briefings as the work progresses or the situation changes.

1.2 Planning the Job Briefing

Safe and productive work results from a well constructed and communicated job plan. To develop a job plan:

- Review the work or tasks to be done.
- Determine the steps to be taken.
- Plan the action for each step.
- Consider how the work will be assigned.
- Determine the tools, equipment and materials required.
    - Determine if any forms, permits and/or protection are required.
- Check the job location and work area.

Consider the existing and potential hazards that may be involved as a result of:

- The type of work being done,
- The time of day the work will be done,
- The job location,
- The safety or personal protective equipment required,
- The tools, equipment and materials being used,
- Any buried/overhead power cables along the right of way, and
- Independent conditions (i.e. traffic, weather).

Photo: Mike Pielak

Job briefing

1.3 Conducting the Job Briefing

When conducting the job briefing:

- Explain the work or tasks to all employees:
    - What will be done?
    - How will it be done?
    - When will it be done?
    - Where will it be done?
    - Who will do it?
    - Why will it be done?
- Explain the safety precautions and track protections necessary.
- Explain existing and potential hazards, and their corresponding controls.
- Explain what coordination with others is needed (i.e. authorities, utilities and other work crews).
- Ask for clarification to make sure employees understand their work assignments.
- Ensure employees know how to use any special tools, material, equipment or procedures, safely.

1.3.1 Before Starting Work

Before beginning the job:

- Identify underground cables/fiber/piping and make proper notification before digging.
- Verify all safety systems on tools and work equipment are working correctly.
- Check to make sure any potential hazards have been identified and action has been taken to correct them.
- Lead employees through a warm up to stretch their muscles and prepare for injury-free work.

1.3.2 Follow Up

Check regularly to ensure that employees are:

- Following all plans and using correct work procedures,
- Carrying out their assigned tasks.

1.3.3 Individual Responsibility

All employees are responsible for:

- Ensuring that they fully understand the work to be done,
- Ensuring tools and equipment are inspected and determined safe before the job starts,
- Using safe practices during their shift and contributing to the safety of their co-workers,
- Carrying out the work according to the job briefing or modifying it appropriately if conditions change, and
- Stopping to clarify procedures when met with a safety issue related to their work.