BNSF Railway Safety Vision

We believe every accident or injury is preventable. Our vision is that BNSF Railway will operate free of accidents and injuries. BNSF Railway will achieve this vision through:

A culture that makes safety our highest priority and provides continuous self-examination as to the effectiveness of our safety process and performance...

A work environment, including the resources and tools, that is safe and accident-free where all known hazards will be eliminated or safe-guarded...

Work practices and training for all employees that make safety essential to the tasks we perform...

An empowered work force, including all employees, that takes responsibility for personal safety, the safety of fellow employees, and the communities in which we serve.

BNSF RAILWAY SM

Maintenance of Way Safety Rules

In Effect at 0001
Central, Mountain and Pacific
Continental Time

January 1, 2015

Table of Contents

S-1.0 Core Safety Rules 7
S-1.1 Job Safety Briefing 7
S-1.2 Rights and Responsibilities 8
S-1.2.1 Sufficient Time 8
S-1.2.2 Authorized and Trained 8
S-1.2.3 Alert and Attentive 8
S-1.2.4 Co-Workers Warned 8
S-1.2.5 Safety Rules, Mandates, Instructions, Training Practices and Policies 8
S-1.2.6 Warning Signs 8
S-1.2.7 Two or More People 9
S-1.2.8 Reporting 9
S-1.2.9 Horseplay 9
S-1.2.10 "Bill of Rights" Relative to Employees Riding in Transport Vehicles 9
S-1.2.11 Medical Conditions 10
S-1.2.12 Medical Examinations 11
S-1.4 Tools and Equipment 11
S-1.4.1 Inspection 11
S-1.4.2 Use as Intended 11
S-1.4.3 Manufacturer Specifications 11
S-1.4.4 Manufacturer Approval 11
S-1.4.6 Three-Point Contact 11
S-1.5 Work Environment 11
S-1.5.1 Housekeeping 11
S-1.5.2 Inspection 12
S-1.5.3 Footing 12
S-1.5.4 Confined Spaces 12
S-1.5.5 Hazardous Materials 12
S-1.5.6 Smoking 12
S-1.5.7 Sexual Harassment 12
S-1.5.8 Retaliation 13
S-1.6 Working On or About Tracks 13
S-1.6.1 Movement of Equipment 13
S-1.6.2 Employees Fouling the Track 13

S-2.0 Chemical Safety 15
S-2.1 Environmental Safety 15
S-2.2 Chemical Spills and Chemical Releases to Air 15
S-2.3 Labeling Chemical Containers 15
S-2.4 Ventilation for Maintaining Safe Atmospheres 15
S-2.5 Skin Cleaning 15
S-2.6 Containment and Spill Prevention 16
S-2.7 Protection from Lead Exposure 16
S-2.8 Protection from Asbestos Exposure 16
S-2.8.1 Repair and Maintenance 16
S-2.8.2 Training 16
S-2.9 Protection from Manganese During Frog Repair 16
S-2.10 Protection from Silica-Containing Dust 16
S-2.11 Chemical Approval 16
S-2.12 Biohazard Safety 17

S-3.0 Electrical Safety 19
S-3.1 Requirements 19
S-3.1.1 General 19
S-3.1.2 Authorized Employees 19
S-3.1.3 Warning Signs 19
S-3.1.4 Flashlights 19
S-3.1.5 Contacts 19
S-3.1.6 Lockout/Tagout 19
S-3.1.7 Signal Power Lines of Fewer than 600 Volts 19
S-3.2 Pole Line and Electrical Equipment 20
S-3.2.1 Authorized Employees 20
S-3.2.2 Voltage Rated Protective Gloves 20
S-3.2.3 Pole Safe for Climbing 20
S-3.2.4 Free of Obstructions for Climbing 20
S-3.2.5 Climber Straps and Belts 20
S-3.2.6 Hand Line 20
S-3.2.7 Fall Line 20
S-3.2.8 Precautions for Workers Below 20
S-3.2.9 Stacking Material 21
S-3.3 Charging and Jumping Batteries 21
S-3.3.1 Precautions for Servicing Batteries 21
S-3.3.2 Battery Flushing 21
S-3.3.4 Metallic Objects 21
S-3.3.5 Jumping Batteries 21

S-5.0 Fire Prevention, Response, and Hazards 23
S-5.1 General Requirements 23
S-5.2 Emergency Procedures 23
S-5.2.1 Locomotive Fires 23
S-5.2.2 Right of Way Fires 23
S-5.3 Fire Extinguishers and Protection Devices 23
S-5.3.1 Defective Fire Extinguishers 23
S-5.3.2 Access to Fire Extinguishers and Protection Devices 23
S-5.3.3 Use of Gasoline/Oil-Burning Devices 23
S-5.3.4 Open Flames 23
S-5.4 Starting Fires 23
S-5.5 Fueling Vehicles, Machinery and Equipment 24
S-5.6 Electrical Circuits 24
S-5.7 Hazardous Material Storage and Dispensing 24
S-5.7.1 Storing Chemicals 24
S-5.7.2 Grounding 24
S-5.8 Use and Handling of Liquefied Petroleum Gas (LPG) 24
S-5.8.1 Testing 24
S-5.8.2 Avoiding Extreme Heat 24
S-5.8.3 Handling Leaks 24
S-5.8.4 Refueling LPG Tanks 25

S-5.8.5 Closing Valves ... 25
S-5.9 Refrigeration Systems ... 25
S-5.9.1 Qualified Employees ... 25

S-6.0 Gas Welding, Cutting, Heating, and Arc Welding ... 27
S-6.1 Area Protection ... 27
S-6.1.1 Protecting Wooden Structures ... 27
S-6.1.2 Protecting Concrete ... 27
S-6.2 Electrical Welding ... 27
S-6.2.1 General Requirements ... 27
S-6.2.2 Welding Machines ... 27
S-6.2.3 Welding Ground Connections ... 27
S-6.2.4 Welding Cables ... 28
S-6.2.5 Electrode Holders ... 28
S-6.2.6 Electrodes ... 28
S-6.3 Fire Fighting Equipment ... 28
S-6.4 Welding or Cutting in Confined Space ... 28
S-6.5 Restrictions for Making Welding Equipment Repairs ... 28
S-6.5.1 Torches, Regulators, or Other Welding Apparatus ... 28
S-6.5.2 Hooks and Chains ... 29
S-6.5.3 Flammable Containers ... 29
S-6.5.4 Protection from Chlorinated Solvents ... 29
S-6.6 Oxygen and Fuel Gas ... 29
S-6.6.1 General Requirements ... 29
S-6.7 Welding Hose and Fittings ... 29
S-6.7.1 General Information ... 29
S-6.7.2 Welding Hoses ... 30
S-6.7.3 Welding Hose Fittings ... 30
S-6.7.4 Welding Hose Fires ... 30
S-6.8 Installing Reverse Flow Check Valves and Flashback Arrestors ... 30
S-6.8.1 Portable Systems ... 30
S-6.8.2 Bulk Fuel or Manifold Fuel Gas Systems ... 31
S-6.9 Oxy/Acetylene Torch ... 31

S-7.0 Hand Tools ... 33
S-7.1 Hand Tool Inspection ... 33
S-7.2 Redressing of Striking or Struck Hand Tools ... 33
S-7.3 Precautions During Use ... 33
S-7.3.1 Swinging Tools ... 33
S-7.3.2 Jacks ... 33
S-7.3.3 Tools With Sharp Edges/Blades ... 34
S-7.4 Pry/Lining Bars ... 34
S-7.6 File Cleaning and Use ... 34
S-7.7 Correct Tool Use ... 34
S-7.8 Track Tools ... 34
S-7.8.1 Spike Maul ... 34
S-7.8.2 Claw Bar ... 34
S-7.8.3 Sledge Hammer (Mundy) ... 35
S-7.8.4 Track Jack ... 35
S-7.8.5 Lining Bar ... 36
S-7.8.6 Wrench ... 36
S-7.8.7 One-Man Tie Tongs ... 36
S-7.8.8 Hand Adze ... 37
S-7.8.9 Track Chisel ... 37
S-7.8.10 Rail Expander (Ratchet Type) ... 37
S-7.8.11 Rail Expander (Hydraulic) ... 38
S-7.8.12 Rail Fork or Rail Turner ... 39
S-7.8.13 Anchor Wrench ... 39
S-7.8.14 Drift Pin ... 39
S-7.8.15 Pandpuller Tool ... 39
S-7.8.16 Spike Lifter ... 40

S-8.0 Intermodal/Automotive Facility Safety ... 41
S-8.1 Core Intermodal/Automotive Facility Safety Rules ... 41
S-8.2 Blue Signal Protection of Intermodal and Automotive Workmen ... 41
S-8.2.13 Track Protection—Intermodal and Automotive ... 41
S-8.3 Vehicles within Intermodal Facility ... 42
S-8.3.1 Vehicle Requirements ... 42
S-8.3.2 Vehicle Operations ... 42
S-8.4 Manned Check Point Ingate/Outgate Procedures ... 43
S-8.4.1 Intermodal—Manned Checkpoint Ingate/Outgate Procedures ... 43
S-8.4.2 Intermodal—Temporary Manned Checkpoint Ingate/Outgate Procedures for Automated Gate Systems ... 44

S-9.0 Ladders, Platforms, Scaffolds, and Aerial Baskets ... 45
S-9.1 Inspection ... 45
S-9.2 Storage ... 45
S-9.3 Stage Boards ... 45
S-9.4 Safety Feet ... 45
S-9.5 Ladder and Scaffold Placement ... 45
S-9.6 Ladders for Electrical Work ... 45
S-9.7 Instructions for Climbing ... 46
S-9.7.1 Climbing with Tools or Materials ... 46
S-9.8 Performing Work ... 46
S-9.9 Extension Ladders ... 46
S-9.10 Step Ladders ... 46
S-9.11 Construction Scaffolding ... 46
S-9.11.1 Sectional Metal Scaffolds ... 46
S-9.12 Non-Powered Mobile Scaffolding ... 47
S-9.13 Aerial Work Platforms ... 47
S-9.13.1 Scissor Lifts ... 47
S-9.13.2 Boom-Mounted Baskets or Buckets ... 47

S-11.0 Material Handling ... 49

S-11.1 Material Storage 49
S-11.1.1 Stacking Material 49
S-11.1.2 Overhead Clearance 49
S-11.1.3 Storing Combustibles 49
S-11.1.4 Storage Racks 49
S-11.2 Hand Trucks 49
S-11.3 Pallet Use and Stacking 49
S-11.4 Loading and Unloading Cars, Trucks, and Trailers 49
S-11.5 Sharp Edges 50
S-11.5.1 Banding Material 50
S-11.5.2 Sharp Edges/Slivers—Metal 50
S-11.5.3 Sharp Edges/Nails—Wood 50
S-11.7 Hazardous Material Handling 50
S-11.7.1 Complying with Regulations 50
S-11.7.2 Loading or Unloading Tank Cars 50
S-11.7.3 Handling Fluorescent/Neon Tubes 51
S-11.7.4 Disposing of Spray Containers 51
S-11.8 Forklifts 51
S-11.8.1 Parking Requirements 51
S-11.8.2 Dismounting Forklift—Attended and Unattended Forklifts 51
S-11.8.3 Passengers 51
S-11.8.4 Tool Storage 51
S-11.8.5 Seat Belts 51
S-11.9 Forklift Operation 52
S-11.9.1 Speed and Movement Restrictions 52
S-11.9.2 Getting On or Off 52
S-11.9.3 Operation on Ramps 52
S-11.9.4 Gates/Doors 52
S-11.9.5 Load Limits 52
S-11.9.6 Unloaded Fork Position 52
S-11.9.7 Personnel Baskets 52
S-11.9.8 Inspections 52
S-11.9.9 Fueling a Forklift 53

S-12.0 Motor Vehicles and Trailers 55
S-12.1 Operation of Motor Vehicles 55
S-12.1.1 General Requirements 55
S-12.1.2 Crossing Tracks 55
S-12.2 All Terrain Vehicles (ATVs) 56
S-12.3 Motorcycle Use 56
S-12.4 Utility Vehicles 56
S-12.5 Seat Belts 56
S-12.6 Passengers 56
S-12.7 Maintenance/Inspections 56
S-12.8 Backing 57
12.8.1 Vehicles 57
12.8.2 Off-Track Mobile Construction Equipment 57
S-12.9 Parking 57
S-12.9.1 Fouling Tracks or Roadways 57
S-12.10 Work Under Vehicles or Trailers 57
S-12.11 Transporting Tools and Material 58
S-12.12 Special Equipment Mounted on Vehicles or Trailers 58
S-12.13 Trailers 58
S-12.13.1 Required Equipment 58
S-12.13.2 Inspection 58
S-12.14 Commercial Motor Vehicles 58
S-12.14.1 Commercial Motor Vehicle Driver Fitness 59
S-12.14.2 Commercial Motor Vehicles Transporting Hazardous Materials 59
S-12.14.3 Commercial Motor Vehicle and Trailer Maintenance and Inspection 59
S-12.14.4 Commercial Motor Vehicle Cargo Securement 59
S-12.14.5 Commercial Motor Vehicle Hours of Service 59
S-12.14.6 Commercial Motor Vehicle Safe Operation 60
S-12.14.7 Commercial Motor Vehicle (CMV) Restrictions 60

S-13.0 On or Near Tracks, Locomotives and Rail Cars 61
S-13.1 General Requirements 61
S-13.1.2 Signals 61
S-13.1.3 Tracks 62
S-13.1.4 Sitting or Standing 62
S-13.1.5 Riding In or On Moving Equipment 63
S-13.1.6 Opening and Closing Doors 65
S-13.1.8 Poling Cars 65
S-13.1.9 Chocking Cars 65
S-13.1.10 Unexpected Movement 66
S-13.2 Coupling/Uncoupling Rail Equipment 66
S-13.2.1 Standing Clear 66
S-13.2.2 Operating Uncoupling Lever 66
S-13.2.4 Adjusting Mismatched Couplers 66
S-13.2.5 Replacing Knuckles 69
S-13.2.6 Opening Knuckles 70
S-13.3 Air Hoses and Angle Cocks 70
S-13.3.1 Connecting Air Hoses 70
S-13.3.2 Operating Angle Cocks 70
S-13.3.3 Parting Hoses 70
S-13.3.4 Controlling Movement 70
S-13.4 Crossing Over Rail Equipment 70
S-13.4.1 Crossing Through a Standing Train or Cut of Cars 70
S-13.4.2 Climbing Through Standing Coupled Cars 71
S-13.4.3 Crossing Underneath Couplers or Standing Cars 71
S-13.4.4 Climbing Over Couplers or Under Moving Cars 71
S-13.5 Getting On or Off Equipment 71
S-13.5.1 Getting On Equipment 71

S-13.5.2 Getting Off Equipment 71
S-13.5.3 Getting On and Off Full Car Body Locomotives 72
S-13.5.4 Using Ladders 72
S-13.5.5 Loading and Unloading Luggage 72
S-13.5.6 Carrying Lanterns 72
S-13.6 Operating Hand Brakes 73
S-13.6.1 Hand Brake Categories 73
S-13.6.2 Hand Brakes on Moving Cars 73
S-13.6.3 Position to Operate 73
S-13.6.4 Use of Feet 74
S-13.6.5 Movement from Side to End Ladder 74
S-13.6.6 Vertical Wheel 74
S-13.6.7 Lever or Ratchet Brake 74
S-13.6.8 Horizontal Wheel or Staff Brake 75
S-13.7 Operating Switches and Derails 75
S-13.7.1 Checking for Damage and Obstructions 75
S-13.7.2 Operating Ground Throw or "Flop Over" Switch 76
S-13.7.3 Operating High Stand/Low Stand Switch 77
S-13.7.4 Operating Switch Point Locks 78
S-13.7.5 Switch Heaters 78
S-13.7.6 Switches Equipped with Locks, Hooks or Latches 78
S-13.8 Fusees 78
S-13.8.1 Storing Fusees 78
S-13.8.2 Disposing of Damaged Fusees 78
S-13.8.4 Lighting and Handling a Burning Fusee 79
S-13-8.5 Placing Fusees 79
S-13.8.6 Giving Signals with Fusees 79
S-13.8.7 Extinguishing Fusees 79

S-14.0 On-Track Machines and Vehicles 81
S-14.1 Riding On Machines 81
S-14.1.1 Warning Devices 81
S-14.1.2 Seat Belts 81
S-14.2 Working On or About Equipment and Machines 81
S-14.3 Moving Cars at Shops or Repair Tracks 82
S-14.5 Hearing Protection 82
S-14.7 Push Cars 82
S-14.8 Operating Track Equipment Indoors 82

S-15.0 Oxygen and Fuel Gas 83
S-15.1 Storing Gas Cylinders 83
S-15.2 Testing for and Handling Leaks 83
S-15.2.1 Testing for Leaks 83
S-15.2.2 Handling Leaks 83
S-15.3 Mixing Gases 83
S-15.4 Handling and Transporting Gas Cylinders 84
S-15.5 Changing Gas Cylinders 84

S-16.0 Power Tools and Machinery 85
S-16.1 Authorized Employees 85
S-16.2 Inspection and Use 85
S-16.3 Insulation/Grounding 85
S-16.4 Power Source 85
S-16.5 Storage/Handling of Abrasive Disks and Wheels 85
S-16.6 Floor Area/Aisles 85
S-16.7 Safety Guards 85
S-16.9 Pneumatic Tool Use 85
S-16.9.1 Air Valve 85
S-16.9.2 Hose Connections 85
S-16.9.3 Spindle Speed 86
S-16.10 Set Screws 86
S-16.11 Laying Tools Down 86
S-16.12 Surfaces 86
S-16.13 Falling Tools 86
S-16.14 Powder-Actuated Tools 86
S-16.15 Abrasive Rail Saw Use 86
S-16.16 Chain Saw Use 86
S-16.17 Lockout/Tagout of Machinery 87
S-16.18 Grinding Machine Use 87
S-16.18.1 Inspecting Grinding Wheels 87
S-16.18.2 Mounting Grinding Wheels 87
S-16.18.3 Operating Grinding Wheels 88
S-16.18.4 Operating Portable Grinders 88
S-16.19 Wire Brush Wheels 88
S-16.20 Band Saws 88
S-16.21 Other Metal or Woodworking Machines 88
S-16.22 Clean Up 89
S-16.22.1 Removing Chips 89
S-16.22.2 Use of Compressed Air/Gas 89
S-16.23 On/Off Switch 89
S-16.24 Fouling Machinery 89
S-16.25 Hydraulic Tools 89

S-17.0 Rigging, Cranes, and Hoists 91
S-17.1 Rigging 91
S-17.1.1 Inspection Requirements 91
S-17.1.2 Identification Tags 91
S-17.1.3 Rigging a Load 91
S-17.1.4 Chain Slings 91
S-17.1.5 Below-the-Hook Lifting Devices 92
S-17.2 Cranes and Hoists 92
S-17.2.1 Requirements 92
S-17.2.2 Lifting 92
S-17.2.3 Outriggers 92
S-17.2.4 Fouling Track 93
S-17.2.5 Power Line Clearance 93
S-17.2.6 Load Clear of Persons 93
S-17.3 Passengers 93
S-17.4 Electric Cranes 94

S-17.5 Restrictions Near Hoisting Equipment 94
S-17.5.1 Working Near Equipment 94
S-17.5.2 Guiding the Load 94
S-17.5.3 Rail Handling 94
S-17.6 Crane and Hoisting Signals 94
S-17.7 Standard Crane Hand Signals 95
S-17.8 Whistle Signals 97
S-17.8.1 Moving in Either Direction 97
S-17.8.2 Approaching Work Areas, Crossings, and Intersections 97
S-17.9 Personnel Hoisting 97

S-19.0 Welding 99
S-19.1 Thermite Welding 99

S-20.0 Work Environment 101
S-20.1 Protection for Openings 101
S-20.2 Clearances and Obstructions 101
S-20.2.1 Overhead and Side Obstructions 101
S-20.2.2 Communication/Signal Wires 101
S-20.3 Confined Space 101
S-20.4 Machine Operation 101
S-20.4.1 Protecting Hoses/Cables 101
S-20.4.2 Working Surfaces 101
S-20.5 Office Environment 101
S-20.5.1 Office Equipment Arrangement 101
S-20.5.2 Filing Cabinets and Desks 101
S-20.5.3 Chairs 101
S-20.5.4 Cords 102
S-20.5.5 Paper Cutters 102
S-20.5.6 Reaching Overhead 102
S-20.5.7 Folding and Four-Point Office Chairs 102
S-20.6 Trenching and Shoring 102
S-20.7 Tower Inspection Procedure 102
S-20.8 Removing Hardware from or Adding Hardware to a Tower 102
S-20.9 Removing Material from a Tower 102
S-20.10 Inspecting Fall Protection Equipment and Systems 103
S-20.11 Cleaning and Storing Fall Protection Equipment 103
S-20.12 Towers—Tools and Equipment 103
S-20.13 Knots 103
S-20.14 Tag Lines 103
S-20.15 Outfit Cars 103
S-20.15.1 Outfit Car Steps 103
S-20.15.2 Access 104
S-20.16 Precaution with Roll-Up Doors 104

S-21.0 Personal Protective Equipment (PPE) 105
S-21.1 Personal Protective Equipment 105
S-21.2 Safety Eyewear 108
S-21.3 Hard Hat 111
S-21.4 Hand Protection 112
S-21.5 Enhanced Visibility Work Wear 115
S-21.6 Hearing Protection 116
S-21.7 Safety Footwear 116
S-21.8 Respirator Selection and Use 117

S-25.0 Job Tools 119
S-25.2 Physical Exertion 119
S-25.2.1 Stretches 119

Glossary 121

At BNSF Railway, our vision is that we will operate free of accidents and injuries. We work in a safe but unforgiving environment with real risk for incidents with serious consequences. Life/safety critical rules were put in place to prevent serious injuries and fatalities.

Rules and procedures:

- Outline expected practices, set standards and provide a basis for safety training.
- Help us identify and control or minimize risk.

Written rules and procedures cannot protect us; they are merely words. To protect ourselves, we must individually commit to and comply with them. Understanding and appropriately applying rules and procedures are part of BNSF Railway's proactive safety efforts. Our goal is that we all go home safely at the end of the shift.

S-1.0 Core Safety Rules

S-1.1 Job Safety Briefing

Employees will participate in a job safety briefing at the beginning of the shift, before changing jobs and as conditions change. This briefing must include a discussion of the tasks to be performed, present exposures and the associated risks, along with methods to control or minimize any such risks. Employees will identify opportunities throughout the duration of each task to pause the work and re-brief, such as when conditions surrounding the task change. To help in preparing an effective job safety briefing, the following should be considered:

Who
All individuals involved in the tasks, or who are in the work area, must be included in the job safety briefing; including, but not limited to, immediate crew members, supporting or adjacent crew members, supervisors, outside parties or contractors, and other work groups.

What
An engaging, two-way dialogue to ensure that all individuals involved understand the tasks to be performed. This includes a discussion of the tasks, identifying present exposures and the associated risks that are or will be present in the tasks, and reviewing ways to control or minimize such risks. If you see a better way to perform a task, or are not confident in your understanding, talk about it.

Why
To ensure that tasks are done safely and efficiently, without injury or incident, meeting or exceeding BNSF standards.

When
At the beginning of the shift, before changing jobs and as conditions change.

Where
At the work site, in the depot, break room, or locker room, or wherever all individuals involved can gather.

How
The following elements are essential to any job safety briefing:

- Review of the tasks.
- Identification of exposures and the associated risks.
- Assignment of duties and responsibilities.
- Required tools, equipment, materials, processes, and procedures.
- Methods for controlling or minimizing risk.
- Opportunities to pause the work and re-brief.
- Debriefing at the end of the tasks.

At the conclusion of your job safety briefing, all individuals involved must be able to answer the following questions:

- What tasks will we be performing? What will we be doing?
- What are the processes we must follow to complete the tasks?
- What exposures are present in the tasks, and what are the associated risks?
- What can we do to control or minimize the risks?
- What should we do if conditions surrounding the tasks change?
- When should we pause the work and re-brief?

S-1.2 Rights and Responsibilities

We have the right and responsibility to perform our work safely. Our training, skills, work experience, and personal judgment provide the foundation for making safe decisions about work practices.

S-1.2.1 Sufficient Time

Take sufficient time to perform job tasks safely.

S-1.2.2 Authorized and Trained

Perform job tasks only when authorized and trained to perform them.

S-1.2.3 Alert and Attentive

Assure that you are alert and attentive when performing duties.

S-1.2.4 Co-Workers Warned

Warn co-workers of all unsafe practices and/or conditions.

S-1.2.5 Safety Rules, Mandates, Instructions, Training Practices and Policies

Comply with all applicable safety rules, mandates, instructions, training practices, and policies.

- BNSF Policies can be found on the BNSF Intranet.
- Employees without Intranet access may request a copy of any applicable policy from a supervisor.

S-1.2.6 Warning Signs

Comply with verbal warnings, warning signs, posted instructions, and placards identifying restricted areas, safety and health precautions, or potential hazards.

Apply an orange Out of Service tag (form #488159042) to equipment that is not to be operated/used until repaired. The employee applying the tag is required to complete the documentation portion of the tag and affix the tag to the affected equipment in a conspicuous location. The employee initiating this action is also responsible for notifying the appropriate supervisor as indicated on the tag.

Following risk assessment and implementation of identified precautionary measures, personnel tasked with conducting service or repairs may operate equipment tagged as out-of-service in order to identify or troubleshoot problems. After the employee completes the service or repair, the employee is required to complete the documentation portion of the tag, sign and forward the tag to the supervisor originally contacted by the employee who applied the tag.

The yellow Roadway Maintenance Machine (RMM) Safety tag (Form 14300133) is used in accordance with the requirements of FRA 49CFR, Part 214, Subpart D, Roadway Maintenance Machine Safety. This tag is to be affixed to the vehicle/equipment in a conspicuous location and is used solely to identify a non-complying condition on on-track work equipment or on a hy-rail vehicle. The Machine Operator's Daily Log Book provides complete details, including allowable time frames for the completion of identified problems. The employee initiating this action is responsible for notifying their supervisor, the local roadway equipment mechanic or the local roadway equipment supervisor.

- After the completion of corrective actions, the mechanic tasked with making repairs is required to complete documentation in the Machine Operator's Daily Log. The RMM Safety tag may then be removed and discarded.
- Place an orange Out of Service tag onto on-track work equipment or hy-rail vehicles to supplement the RMM Safety tag when:
  - Identified repairs are not completed within the time frame specified in FRA 49CFR, Part 214, Subpart D.
  - The responding mechanic identifies a condition, not initially identified, that is serious enough to warrant immediate removal from service.

S-1.2.7 Two or More People

Do not perform a task alone that can only safely be performed by two or more people.

S-1.2.8 Reporting

Make reports of incidents immediately to the proper manager.

The conduct of any employee leading to conviction of any felony is prohibited. Any employee convicted of a felony must notify the proper authority of that fact within 48 hours after the employee receives notice of the conviction.

S-1.2.9 Horseplay

Conduct yourself in a way that supports a safe work environment—free of horseplay, practical jokes, and harassment.

S-1.2.10 "Bill of Rights" Relative to Employees Riding in Transport Vehicles

A large percentage of our employees are transported to and from various locations. To ensure safety issues are addressed while transporting in vehicles, all employees are empowered to take the necessary steps to ensure a safe workplace for ourselves and our co-workers. Exercise the following rights with regard to riding in transport vehicles.

Right 1
Expect transport vehicles to be properly serviced, maintained, and in good working order. In addition, contract vans must be clean with all seat belts and all safety appliances working.

Right 2
Expect a job safety briefing regarding movements to be made, route to be taken, location of safety appliances, i.e. fire extinguisher, first aid kit, emergency response plan in the event of a medical emergency, etc.

Right 3
Expect the vehicle to be parked in the most accessible, safest location closest to the passenger pick up/drop off location. Consider the surrounding area and vehicle clearances when positioning the vehicle. When practical, stop the vehicle off any public roadways.

Right 4
Expect the vehicle to be secured against movement after it has stopped for loading or unloading passengers and baggage, by placing the vehicle in Park, securing the parking brake and shutting off the engine.

Right 5
Expect the vehicle to be positioned, when possible, to avoid backup movement. When necessary to back a vehicle with BNSF employees as passengers, expect the driver to request assistance by positioning a crew member or other employee outside the vehicle, near the back of the vehicle to guide the movement. Before backing a vehicle, the driver and all passengers will conduct a job safety briefing to ensure that employees remain clear of the expected movement.

Right 6
During hazardous weather conditions, expect the driver to not use cruise control, and have the necessary traction devices, studs or chains, when weather requires and allowable by law. If weather reports or actual conditions indicate it is not safe to do so, travel may be canceled or delayed. Immediately notify the dispatcher and your supervisor if the trip is canceled or delayed.

Right 7
Expect that the driver will not be distracted from driving by such things as eating, drinking or operating electronic devices.

Right 8
Expect every van used to transport employees between stations to have a functional two-way radio, which could be a crew member's pack-set, tuned to the appropriate railroad frequency.

Right 9
Expect that the driver will require all employees to have seat belts on before the vehicle is moved, and will stop the vehicle when the driver is aware that seat belts are removed by any occupant. We cannot safely rely on the driver assuring that all employees remain buckled up after the vehicle is in motion. As co-workers, we are obligated to constantly remind each other to wear seat belts where required and to follow all rules that pertain to our work place.

Right 10
Expect that all doors are securely closed before departure.

Right 11
Expect to be reminded of the BNSF No Smoking Policy, as necessary.

Right 12
Our employees are empowered with the right to refuse to be transported in an unsafe vehicle or be driven by a driver who does not meet the aforementioned criteria. The sole responsibility of our safety cannot rest on just the driver.

S-1.2.11 Medical Conditions

All employees are responsible to ensure their personal medical condition does not interfere with their ability to safely perform their duties.

Employees with medical conditions (such as uncontrolled diabetes, high blood pressure, sleep disorders including apnea, visual impairment, hearing impairment, etc.) that may adversely affect their ability to work safely must inform their medical practitioner of their job duties.

The medical provider must determine that any prescribed treatment including medication will not impair the employee from safely performing their job duties. The employee must notify their physician/medical provider if prescribed treatment and/or medication is affecting their ability to safely perform their job duties.

S-1.2.12 Medical Examinations

The Medical Department will determine when medical examinations are necessary, the content of such examinations, and requirements for participation as the needs arise. Employees subject to these examinations must follow any and all requirements as issued.

S-1.2.13 Conflict of Interest

Officers and employees of the company must not have personal interests which might conflict or appear to conflict with the interests of the company or its affiliates or which might influence or appear to influence their judgment in performing their duties. The outside activities and affairs of all officers and employees should be conducted so as to avoid loss or embarrassment to the company and its affiliates.

Employees must not engage in another business or occupation that would create a conflict of interest with their employment on the railroad or would interfere with their availability for service or the proper performance of their duties.

This rule is designed to foster a standard of conduct which reflects credit in the eyes of the public on the company, its officers, and its employees, and which protects the reputation and financial well-being of the company.

In addition, there is no intent to interfere with the personal interests or activities of officers and employees.

S-1.4 Tools and Equipment

S-1.4.1 Inspection

Inspect tools and equipment for defects before and during use. Repair or remove from service those that fail inspection. Promptly tag and report to your supervisor or person in charge any defect(s). If necessary, guard the hazard.

S-1.4.2 Use as Intended

Use tools and equipment for the purposes intended.

S-1.4.3 Manufacturer Specifications

Read and follow the manufacturer’s specifications when using tools and equipment.

S-1.4.4 Manufacturer Approval

Secure manufacturer approval for any changes made in the recommended use or design before using.

S-1.4.6 Three-Point Contact

Maintain at least three-point contact when getting on or off vehicles, equipment, and machinery, and when ascending or descending ladders or platforms. Three-point contact consists of both feet and one hand or both hands and one foot.

S-1.5 Work Environment

S-1.5.1 Housekeeping

Keep work locations, vehicles, and the inside and outside of buildings clean and orderly at all times.

S-1.5.2 Inspection

Inspect your work locations and vehicles for any conditions that might cause injury, property damage, or interference with service. If you find such a condition, take necessary action to protect against the hazard, or discontinue activities in the area or with the vehicle. Promptly tag (where appropriate) and report any defect or hazard to your supervisor or person in charge.

S-1.5.3 Footing

Be alert to all walkway conditions, and adjust your actions to accommodate weather, time of day, and grade. Guard against slipping and stumbling hazards by using handholds and railings when available. Except in emergency, running is not permitted in the performance of duty.

S-1.5.4 Confined Spaces

Consider all confined spaces hazardous unless proven otherwise. Only authorized and trained individuals may enter confined spaces.

S-1.5.5 Hazardous Materials

Handle contaminants and hazardous chemicals according to all applicable government regulations and BNSF policies.

S-1.5.6 Smoking

BNSF prohibits smoking in all enclosed properties by employees, customers, contractors, vendors, and guests. Outdoor smoking should be confined to designated smoking areas where provided and must not interfere with non-smokers' rights to clean air as they enter and leave buildings.

"Smoking" means lighting, burning, inhaling or exhaling any substance, tobacco or vapor product including electronic cigarettes or other devices (pipes, cigars) which emits either vapor or smoke.

"Enclosed properties" means all BNSF-owned or leased office space or buildings, shops, automobiles, rail or work equipment vehicles, locomotives, and all other railroad rolling stock. All other federal, state, and local smoking laws / prohibitions must also be complied with.

S-1.5.7 Sexual Harassment

Employees on duty or on railroad property must not sexually harass others. Sexual harassment includes unwelcome sexual advances, requests for sexual favors, or other verbal or physical sexual conduct given under the following conditions:

- An individual must submit to the conduct as a term or condition of employment.
- If an individual submits to or rejects the conduct, that action is used to influence decisions affecting the individual's employment.
- The conduct interferes with an individual's work performance or creates an intimidating, hostile, or offensive work environment.

Employees who feel they have been sexually harassed must contact their supervisor, department head, HR or the Employee Hotline as the normal order of preference.

S-1.5.8 Retaliation

Retaliation against any employee for exercising the right to make a complaint and/or the right to participate or assist in an investigation of a complaint or discrimination is prohibited.

Any employee who believes he or she has been subject to discrimination or retaliation has a responsibility to report this fact to their supervisor, the appropriate Human Resources Representative, and/or the BNSF Hotline at 1-800-533-BNSF.

S-1.6 Working On or About Tracks

S-1.6.1 Movement of Equipment

Expect the movement of trains, engines, cars, or other equipment at any time, on any track, and in either direction.

- Employees must not stand on the track in front of an approaching engine, car, or other moving equipment, unless required to do so for the work being performed.
- Employees must be aware of location of structures or obstructions where clearances are close.

S-1.6.2 Employees Fouling the Track

Employees must always be alert and expect the movement of trains, engines, cars or other moveable equipment at any time, on any track and in either direction. Before fouling any track, employees have an individual responsibility to determine it is safe to do so. If the track is occupied by rail equipment, employees must ensure appropriate protection has been provided for the task to be performed.

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S-2.0 Chemical Safety

S-2.1 Environmental Safety

In compliance with BNSF's environmental protection policy, take measures to prevent:

- Spills of oil or other material.
- Discharge of contaminants to sewers, waterways, or the ground.
- Smoke and gas emissions when operating combustion equipment.

Treat all unidentified material as hazardous until identified. Do not transport unidentified material.

S-2.2 Chemical Spills and Chemical Releases to Air

In the event of a chemical spill or release of a chemical or unknown material to the air, evacuate the area.

Report oil or hazardous material spills promptly to the dispatcher and your supervisor. Include in your report:

- Spill location.
- Material and amount of spill.
- Distance to the nearest public waters.
- Other important information.

Do not take any further action unless you are specifically trained to do so, using appropriate protective gear and work practices.

Do not re-enter the affected area until given the "All Clear" by incident response personnel.

S-2.3 Labeling Chemical Containers

At the time you place a chemical in a container, affix to that container a label identifying the chemical and appropriate hazard warnings.

S-2.4 Ventilation for Maintaining Safe Atmospheres

Provide mechanical ventilation to enclosed areas when:

- Applying solvents, paints, and other chemicals.
- Welding, torch cutting, or burning.
- Emissions from combustion engines, stoves, or heaters (especially in enclosed areas) may cause concentration of excessive airborne contaminants.
- Recommended in product instructions or MSDS/SDS.

Ventilation systems should be designed and installed in accordance with relevant generally accepted design principles. Systems should be inspected and serviced, as necessary, according to an established schedule.

S-2.5 Skin Cleaning

Use company-supplied hand creams and soaps for cleaning hands, arms, face, and other parts of the body.

- Do not clean any part of your body with gasoline, solvents, or oily rags.
- If the skin has been exposed to corrosive agents (acids or bases) use plain water to flush continuously for at least fifteen minutes.
- Do not apply ointments, soaps, or creams to chemical or thermal burns.

S-2.6 Containment and Spill Prevention

When dispensing petroleum products or other materials such as soaps and solvents from drums or containers:

- Whenever possible, place drums in a vertical position and use an appropriate pump for dispensing the product. Place an absorbent mat or dike on top of the dispensing drum or container.
- If drums must be placed in a horizontal position, use self-closing dispensing valves.
- Place the drum or container in a dike or other containment.
- Place containment devices such as drip pans under drums and valves.
- Properly label the receiving container in accordance with the requirements of the most current version of the BNSF Hazard Communication written program.
- When dispensing flammable liquids, ground and bond all containers.
- Gravity flow valves are not recommended for outdoor usage.
- Properly dispose of contaminated absorbent material and mats.

S-2.7 Protection from Lead Exposure

Conduct all work involving lead coatings in accordance with BNSF's Lead Program.

S-2.8 Protection from Asbestos Exposure

Conduct all work involving asbestos in accordance with BNSF's Asbestos Control Program.

S-2.8.1 Repair and Maintenance

When providing any repair or maintenance where Asbestos Containing Materials (ACM) or Potential Asbestos Containing Materials (PACM) will likely be disturbed, or where ACM or PACM will be removed, implement the applicable requirements of the Asbestos Control program.

S-2.8.2 Training

Before working with ACM or PACM, complete asbestos training. Complete additional asbestos training on an annual basis as long as you continue to work with ACM or PACM.

S-2.9 Protection from Manganese During Frog Repair

Whenever you are air arcing (gouging) on "frogs," you must wear respiratory protection to reduce potential exposure to metal fume, including manganese. Additionally, the Smoke Cannon local exhaust ventilation system must be used.

S-2.10 Protection from Silica-Containing Dust

BNSF approved respiratory protection must be worn during the following operations when visible dust is generated:

- Maintenance of Way activities when visible dust is produced. This includes, but is not limited to, ballast dumping, scarifying, brooming, etc.
- Taconite handling and related maintenance operations when working within Belt Buildings and other locations where visible dust is present.

S-2.11 Chemical Approval

Do not bring a chemical product onto BNSF property until the chemical is approved.

S-2.12 Biohazard Safety

Any minor release of biohazard resulting from a minor injury (first aid level) must be cleaned-up by the injured person using a BNSF-approved Biohazard Spill Clean-up Kit and in accordance with the instructions enclosed with the kit.

All major releases, such as those resulting from grade crossing accidents or serious injury should be immediately reported to the Resource Operations Center for handling.

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S-3.0 Electrical Safety

S-3.1 Requirements

S-3.1.1 General

- Use ground fault circuit interrupters (GFCIs) on electrical circuits when working in damp areas or outdoors.
- Do not use portable metal ladders for electrical work.
- Do not use electrical cords for hoisting or lowering.

S-3.1.2 Authorized Employees

Only authorized and trained employees are permitted to work on electrical apparatus or equipment. Wear a dielectric hard hat when working where you could contact power lines or high-voltage equipment.

S-3.1.3 Warning Signs

Place danger signs near exposed energized circuits.

S-3.1.4 Flashlights

Use only an approved flashlight with a nonmetallic case around electrical equipment.

S-3.1.5 Contacts

Do not use flag sticks or other objects to close or open contacts on engines under electrical load.

S-3.1.6 Lockout/Tagout

Follow approved lockout/tagout procedures:

- Assume all wires, conductors, and other electrical equipment are energized, unless known to be locked out.
- Do not alter safety features of fuses, circuit breakers, or other electrical equipment.
- Do not open secondary circuits of energized current transformers.

S-3.1.7 Signal Power Lines of Fewer than 600 Volts

When work is to be performed on signal power lines of fewer than 600 volts, the following will apply:

- On power lines of 50 volts or more, electrical protective rubber gloves must be used.
- Power lines will be de-energized and circuit breaker or sectionalizing switch secured in the OFF position.
- Lockout/Tagout (LOTO) will be attached to indicate to other employees that power is off due to work being performed on the line.
- Power must not be restored except by the person who de-energized the line.
- Work area must be identified by an authorized person in charge of to determine that all power feeds in the affected area are de-energized.
- If the person in charge is uncertain as to the limits of power feeds, the limits must be determined by referring to the Signal Circuit Plans.
- After the power line is de-energized, it must be tested by a suitable volt meter reading before allowing work to proceed.
- When attaching the meter to the power line, the meter must not be held and connect one lead at a time.
- When performing this test, the employees must avoid contact with the meter and leads.

S-3.2 Pole Line and Electrical Equipment

S-3.2.1 Authorized Employees

Only authorized employees are permitted to climb poles and replace electric fuses on pole lines or transformers.

S-3.2.2 Voltage Rated Protective Gloves

When working on energized circuits of 50 volts (AC or DC) or more, wear voltage rated rubber gloves with leather protector gloves of the appropriate length over the rubber gloves. Rubber gloves shall not be worn without leather protectors. Gloves shall be tested by an accredited facility before first issue, and every 6 months thereafter. If the insulating equipment has been tested and not issued for service, it may not be placed into service unless it has been tested within the previous 12 months. Defective gloves shall be removed from service immediately.

S-3.2.3 Pole Safe for Climbing

Inspect and determine that the pole and crossarms are safe before climbing, standing, or working on them. If a visual inspection suggests that the pole or crossarms may not be safe to climb, take these additional precautions:

1. Conduct a sound test with a hammer by striking the pole near the ground line and up the pole as high as possible.
2. Test the pole with a pike pole or rope at right angles with the ground line, applying pressure as high up the pole as possible.
3. If tests conducted in steps 1 and 2 do not assure the pole is safe to climb, remove 12 or more inches of the dirt around the pole base to check for hidden breaks in the pole.
4. If either of the above tests indicates the pole is unsafe and will not be replaced, reset or stub the pole before climbing it. If you must climb the pole before it can be reset or stubbed, make sure it is adequately guyed with pike poles or ropes or secured with an “A frame” or hydraulic boom.

S-3.2.4 Free of Obstructions for Climbing

Do not attach anything to utility poles that may interfere with climbing. Remove unused equipment from poles.

S-3.2.5 Climber Straps and Belts

When climbing poles, use required climbing and fall protection equipment. Inspect climbing equipment before each use.

Immediately tag defective equipment as “Out of Service” and remove and discard the equipment, or return it to the manufacturer for repair / recertification. Maintain climbing equipment in accordance with manufacturer’s recommendations.

S-3.2.6 Hand Line

Use a hand line to raise and lower tools and equipment from poles.

S-3.2.7 Fall Line

Do not loop the fall line of rope around your body when using block and tackle.

S-3.2.8 Precautions for Workers Below

If you are working on the ground, be alert to avoid being struck by objects that might fall from poles.

S-3.2.9 Stacking Material

Do not stack material within 3 feet of a utility pole.

S-3.3 Charging and Jumping Batteries

S-3.3.1 Precautions for Servicing Batteries

Follow these precautions when servicing batteries:

- Do not smoke in battery-charging areas.
- Do not allow open flames, sparks, or electric arcs in battery-charging areas or around exposed batteries.
- Make sure charging area is adequately ventilated.
- When charging a battery, keep the vent caps in place to avoid electrolyte spray.
- Leave the battery compartment doors open when charging an engine battery from an external source.
- Wear face shield over splash goggles and other protective equipment as required by the job when filling or charging a battery.
- Do not permit battery electrolytes (acid) to contact eyes, skin, or clothing. Wash battery electrolytes from your eyes or skin with cold water immediately.
- Remove any leads from terminal posts when scrapping batteries.

S-3.3.2 Battery Flushing

Use insulated funnels for flushing batteries.

S-3.3.4 Metallic Objects

Keep tools, metal jewelry (including watches), and other metallic objects away from the top of uncovered batteries.

S-3.3.5 Jumping Batteries

Do not use a welding machine to jump-start a battery.

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S-5.0 Fire Prevention, Response, and Hazards

S-5.1 General Requirements

Know and understand area emergency plans and special instructions related to fire protection.

In case of smoke or fire, notify all individuals who may be affected, supervisors, and appropriate emergency responders.

Keep exit aisles, emergency exits, and fire doors clear. Keep areas around buildings, structures, and equipment free of fire hazards.

S-5.2 Emergency Procedures

Fight a fire only if properly equipped and if your personal judgment dictates you can do so safely.

S-5.2.1 Locomotive Fires

If a fire occurs on locomotive, stop the locomotive as soon as possible, evacuate the crew safely and report fire to proper authorities.

S-5.2.2 Right of Way Fires

Employees must report promptly to the train dispatcher any fires seen on or near the right of way or if there is danger of the fire spreading to a bridge or other structure unless the fires are being controlled.

Do not drive through plumes of smoke or chemical vapors unless necessary to escape from a life-threatening situation.

S-5.3 Fire Extinguishers and Protection Devices

S-5.3.1 Defective Fire Extinguishers

Report any out-of-date, discharged, or defective fire extinguishers to proper authority.

S-5.3.2 Access to Fire Extinguishers and Protection Devices

- Maintain clear access to fire extinguishers, alarm boxes, and other fire protection devices.
- Do not park vehicles or place material within 25 feet of fire hydrants.

S-5.3.3 Use of Gasoline/Oil-Burning Devices

Have an approved fire extinguisher readily available where the use of gasoline or an oil-burning device is authorized.

S-5.3.4 Open Flames

Never leave open flames unattended.

S-5.4 Starting Fires

Do not use gasoline, kerosene, or other highly flammable liquids to start or intensify a fire.

S-5.5 Fueling Vehicles, Machinery and Equipment

While fueling vehicles, machinery, power tools, and other equipment:

- Stop engines (diesel locomotives excluded).
- Do not smoke.
- Avoid open flames.
- Do not leave fueling hose unattended when fueling.

Fuel gasoline-powered tools before use. If refueling is necessary during use, be careful to avoid spills and allow the engine to cool before refueling, since hot engine parts may ignite fuel.

While fueling, make sure the fuel container spout or hose nozzle touches the side of the tank opening to prevent static electricity discharge. Use only approved containers to transport fuel.

S-5.6 Electrical Circuits

If you are not experienced in handling energized electrical circuits, do not attempt to extinguish fires on power line poles or directly connected equipment.

Never use water to extinguish fires on energized power line poles or electric equipment.

S-5.7 Hazardous Material Storage and Dispensing

Store chemicals according to group and segregate each group from one another. Groups are defined as flammables and combustibles, oxidizers, caustics (bases), and acids.

S-5.7.1 Storing Chemicals

When it is not possible to segregate groups of chemicals by storing them in appropriate storage cabinets, separate groups by a minimum of 20 feet.

To separate chemicals for safe storage, store up to 25 gallons of flammables (flash point < 73° F) and up to 120 gallons of flammables or combustibles (flash point 73° F - 200° F) at least 20 feet away from other groups, or separated from other groups with a properly rated fire-resistant partition extending 18 inches above and beyond the flammables.

S-5.7.2 Grounding

Use grounding and bonding when dispensing or transferring flammable liquids.

S-5.8 Use and Handling of Liquefied Petroleum Gas (LPG)

S-5.8.1 Testing

Use only LPG tanks that are tested and stenciled as required by DOT regulations.

S-5.8.2 Avoiding Extreme Heat

Keep units powered by LPG away from extreme heat sources, such as ovens or furnaces.

S-5.8.3 Handling Leaks

Test for leaks with soapy water. Do not use an open flame near the leak.

If a tank containing LPG is leaking, notify your supervisor and stay upwind of the tank. LPG is heavier than air and will collect in low areas, sometimes far away from the leak source.

S-5.8.4 Refueling LPG Tanks

Refuel LPG tanks outdoors:

- At least 50 feet from buildings.
- At least 15 feet from storage tanks at the end farthest from the relief valve.

Change portable tanks outdoors, where possible, and at least 50 feet from any open flame except on outfit cars with kitchen facilities. When placing LPG tanks on motor vehicles, first stop the motor.

S-5.8.5 Closing Valves

At the end of the day's operation, close valves on tanks of LPG-powered equipment to prevent leaks and potential explosions.

S-5.9 Refrigeration Systems

S-5.9.1 Qualified Employees

Only qualified employees may work on refrigeration systems.

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S-6.0 Gas Welding, Cutting, Heating, and Arc Welding

S-6.1 Area Protection

Clear all combustible material or rubbish 35 feet away from the area where welding or cutting will be performed. Where relocation is impractical, combustibles shall be protected with flameproof covers or curtains.

S-6.1.1 Protecting Wooden Structures

Use metal or a piece of wet flame-retardant material, or wet down the structure thoroughly when welding or cutting against or near wooden structures.

Use a fireproof covering adequate to protect the floor from sparks or hot metal when welding or cutting in a building with wooden floors.

Do not use wooden horses or boards to support welding or cutting work.

S-6.1.2 Protecting Concrete

Do not lay an object or material to be heated, cut, or welded on concrete.

Use protective material over concrete to prevent slag from falling on concrete when cutting metal with oxy/fuel gas.

S-6.2 Electrical Welding

S-6.2.1 General Requirements

- Do not stand in water or damp places while welding, except when wearing waterproof, insulated footwear.
- Set up a suitable screen marked “Do Not Look at Arc” at welding sites to shield those not engaged in the welding operation.
- Do not look at the arc if you are working near a welding process, but not welding. If your work does not permit proper screening, wear approved welding goggles or glasses.
- Use a wire brush to remove slag from material being welded. Do not use your hand, even if gloved.

S-6.2.2 Welding Machines

For welding machines:

- Ground the frame or case of a welding machine (excluding engine drive machines) under the conditions and according to the methods prescribed in the National Electric Code for fixed or portable equipment.
- Thoroughly dry and test wet machines before using them.
- Do not change the polarity switch setting on a welding machine while the machine is operating under a welding current load.

S-6.2.3 Welding Ground Connections

When welding ground connections:

- Secure the ground clamp as close as possible to the work before starting the electric weld.
- Do not connect the ground cable to any type of piping.
- Do not use chains, wire rope, cranes, hoists, or elevators to carry welding current.
- Do not make a welding ground connection in such a way that welding current will pass through any type of machine bearing.

S-6.2.4 Welding Cables

For welding cables:

- Use insulated locking connections when welding cable extensions are required.
- Repair deep cuts or cracks in welding cable casing promptly.
- Keep welding cables dry and free from grease and oil where practical.
- Uncoil and spread out coiled welding cables before use to avoid overheating and damage to the insulation.
- Do not use welding cables with repair splices within 10 feet of the electrode holder.
- Store electric welding cable in a dry, cool location, away from direct sunlight, when not in use. Clean the cable before storing, and coil it loosely with no sharp kinks or bends.

S-6.2.5 Electrode Holders

For electrode holders:

- Use only an approved electrode holder with insulated jaws.
- Keep electrode holders clean to prevent arcing.
- Do not cool electrode holders in water.

S-6.2.6 Electrodes

For electrodes:

- Remove metal and carbon electrodes from electrode holders when not in use.
- Retract or cut off the wire electrodes in semiautomatic holders, and remove the electrode holder from the power connection lug when not in use.
- Do not tap an electrode or strike an arc against a compressed gas cylinder.
- Dispose of used electrodes properly.

S-6.3 Fire Fighting Equipment

Have a fire extinguisher readily available when welding or cutting inside or immediately adjacent to a building.

Have a fire extinguisher, water, sand, or dirt readily available when welding or cutting on track or along the right of way.

S-6.4 Welding or Cutting in Confined Space

Test all equipment for leaks and adjust regulators before entering a confined space. Purge the accumulated mixture in the hoses by opening the torch valve for about ten seconds.

When performing hot work, comply with the practices and precautions outlined in the BNSF Confined Space Program.

Remove all welding equipment from the confined space if work is interrupted.

S-6.5 Restrictions for Making Welding Equipment Repairs

S-6.5.1 Torches, Regulators, or Other Welding Apparatus

Do not tamper with or attempt to make field repairs to gas cylinders, welding torches, regulators, or other welding apparatus.

Exception: Packing gland nuts on leaking torches may be tightened.

S-6.5.2 Hooks and Chains

Do not weld, cut, or heat:

- Heat-treated hooks.
- Steel alloy chains and associated rings, links and couplings.

S-6.5.3 Flammable Containers

Do not weld, heat, cut or rivet tanks, tank cars, locomotive fuel tanks, barrels, pipes or similar containers that have held gasoline, oil or other flammable or explosive material until the containers have been thoroughly purged.

Exception: When under authorized supervision, repair or modify diesel or lube oil pipelines, storage tanks, dispensing facilities or fuel tanks without purging. Follow prescribed procedures.

S-6.5.4 Protection from Chlorinated Solvents

Do not weld, cut, burn or braze metal cleaned with chlorinated solvents until all surfaces, both inside and out, are clear of the solvent and solvent vapor.

S-6.6 Oxygen and Fuel Gas

S-6.6.1 General Requirements

- Before use, operator must inspect all cylinders, hoses, fittings, regulators and torches.
- Follow proper oxy-fuel gas equipment assembly, leak testing, torch lighting and shutdown procedures as outlined in the Department Safety Processes and/or posted instructions.
- To prevent a possible explosion, do not allow oil or grease to come into contact with oxygen or any equipment through which oxygen passes.
- Do not use oxygen to dust off clothing or work areas.
- Do not allow a jet of oxygen to strike an oily surface or greasy clothes, or to enter a fuel oil or any other storage tank.
- Use a layer of clean sand, a metal plate, or other suitable material to protect oily or greasy floors or the ground from slag.
- Do not allow the operating hose pressure for acetylene to exceed 15 psi.
- Do not pass a lighted torch to another employee.
- Use a wire brush to remove slag from material being welded or cut. Do not use your hand, even if gloved.

S-6.7 Welding Hose and Fittings

S-6.7.1 General Information

- Date-tag new and employee-assembled hoses when placed in service. Place the date tag at the regulator end of the hose.
- A minimum of 6 inches of hose should be removed from the torch end annually, or more frequently whenever damage or wear indicates that replacement is necessary.
- Do not place a welding hose that is in use over any part of your body.
- Do not use a hose with more than one splice per 50-foot section.
- Select fittings with adequate inside diameter to avoid flow restrictions.

S-6.7.2 Welding Hoses

Use only grade "T," 3/8-inch twin hoses for gas welding, cutting, and heating operations.

Roadway Equipment mechanics may use 1/4-inch oxygen/acetylene hoses.

S-6.7.3 Welding Hose Fittings

For welding hose fittings:

- Use a crimped clamp to permanently attach hose fittings to welding hose. Do not use bolted hose clamps.
- Use only fittings furnished by a qualified supplier in compliance with OSHA regulations.
- Do not use dropped or damaged fittings.
- Each time a fitting is installed, an approved leak detection liquid must be used to test for leaks at fittings.

The following requirements must be met when quick disconnects are used in oxygen/fuel gas processes:

- Purchase only approved, UL-listed quick disconnects.
- Employees must receive training on quick disconnects before their use and demonstrate safe use of the equipment.
- Quick disconnect flow rating must meet or exceed the SCFH requirements for the attached equipment.
- Do not install quick disconnect fittings in systems where splices, couplers or additional fittings are used to lengthen or repair damaged hose assemblies.
- Do not use quick disconnects with check valves when a check valve is an integral part of the flash back arrestor (additional check valve will reduce flow rates).
- Flash back arrestor must still be used. Quick disconnects do not replace the need for a flash back arrestor. Do not install the quick disconnect directly to the flash back arrestor.
- Before initial use, and before attaching the torch to the assembly (fittings), use a direct reading instrument to verify that an adequate flow rate will be reaching the torch.

  Exception**:** Quick disconnects shall not be used in System Engineering welding applications.

S-6.7.4 Welding Hose Fires

If a fire develops in a hose, remove the torch, regulator, and hose from service.

S-6.8 Installing Reverse Flow Check Valves and Flashback Arrestors

S-6.8.1 Portable Systems

On portable systems, install combination reverse flow check valves/flashback arrestors at the torch on both the fuel gas and oxygen lines.

S-6.8.2 Bulk Fuel or Manifold Fuel Gas Systems

On bulk fuel or manifold fuel gas systems, install pipeline protective device(s) on the fuel gas line that performs the following three functions:

1. Prevents backflow of oxygen into the fuel gas supply.
2. Prevents flashback into the fuel gas supply.
3. Provides pressure relief through the use of a pressure relief valve, rupture disk, or similar device.

Install a pressure relief device on the supply line from the oxygen source. All these devices must precede the service outlets.

Install reverse flow check valves at each station outlet on the fuel gas and oxygen lines. Install combination reverse flow check valves/flashback arrestors at the torch on both the fuel gas and oxygen lines.

By placing unnecessary check valves in the systems, the safety of the employee may be adversely affected due to the restriction in flow rates to the torch. A direct reading in-line instrument should be used to ensure that adequate flow rate is reaching the torch.

S-6.9 Oxy/Acetylene Torch

For oxy/acetylene torches:

- Use only approved flint strikers to light a welding torch.
- Do not lay a lighted torch down, pass it from one person to another, or hold it when climbing.
- Do not leave a cutting or welding torch in a tank, tank car, fuel compartment, or other similar work location when not in use.
- Do not test the flow of the oxygen or fuel gas by placing the torch tip against your face or body, or by smelling it.

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S-7.0 Hand Tools

S-7.1 Hand Tool Inspection

Inspect tools for defects before use. Do not use tools with:

- Cracks.
- Mushroomed striking surfaces.
- Burrs.
- Slivers.
- Loose/missing wedges.
- Worn ratchets/teeth.
- Loose/cracked handles.
- Other defects.

S-7.2 Redressing of Striking or Struck Hand Tools

Before redressing, visually inspect the tool for the following:

- A manufacturer's brand.
- A letter "B" to identify grade B steel.

If either brand or letter is not found, discard the tool. Also discard the tool if it is mushroomed, spalled or chipped.

Redressing of grade B tools is allowed. Redressing is allowed on non-grade B steel hand punches and chisels manufactured by Snap On, Proto, S & K, Ajax, Mayhew and Williams only.

Redress tools frequently to reduce the amount of flow on the struck end of the tool.

Redress tool with a hand file only, unless you are qualified to redress tools with a properly equipped bench grinder. "Qualified" means approved by a certified instructor upon completion of BNSF "Redressing of Hand Tools" course.

S-7.3 Precautions During Use

When using tools such as knives, chisels, and screwdrivers, direct sharp edges away from your body or hands.

S-7.3.1 Swinging Tools

- Warn others to keep clear when using swinging tools (such as a spike maul, sledge, hook-a-roon, ax, pick, brush hook, hand adze, etc.). Stand so that the point is away from your body if the tool unexpectedly flies to the side.
- Before using swinging tools, remove oil, grease and dirt from hands and handles.

S-7.3.2 Jacks

Use cushioning material of appropriate construction and thickness between jack and equipment to prevent slippage. Do not allow metal-to-metal contact.

Exceptions: Track jacks and roadway equipment jack stands.

S-7.3.3 Tools With Sharp Edges/Blades

- Pocket knives are not to be used to perform work tasks.
- When using hand tools that have sharp edges/blades, direct cutting edges away from the body, including the hands.
- When using hand tools that have sharp edges/blades, wear cut-resistant gloves.
- Where utility knives are determined as the tool of choice for a task, use utility knives that have self-retracting blades.

S-7.4 Pry/Lining Bars

Never straddle, sit, or stand on a claw bar, lining bar, anchor wrench, or similar tool.

S-7.6 File Cleaning and Use

Use files with handles. Clean the file with a brush.

S-7.7 Correct Tool Use

Use tools only for what they are designed to do. If unsure about a tool's correct use, ask your supervisor.

S-7.8 Track Tools

S-7.8.1 Spike Maul

Do not use a spike maul to remove or replace anchors or drive wedges, or for other purposes.

When using a spike maul:

1. Inspect the plate area and brush away any loose material that might fly on impact.
2. Set the spike, holding it between the thumb and forefinger, palm up.
3. Firmly grip the spike maul and establish footing. Keep eyes on the spike head and spike as follows:
   - Swing the maul in a smooth arc at an even rhythm.
   - Strike with light blows until the spike is firmly set.

S-7.8.2 Claw Bar

When using a claw bar:

1. Place the claw securely under the spike head.
2. Use a spike lifter if you cannot get the claw under the spike head. A claw bar is not a struck tool.
3. Stand beside the claw bar and position your hands to keep them from striking the opposite rail or another object if the spike head breaks or releases suddenly; use firm footing.
4. Work the spike up with short, firm thrusts and watch for throat-cut or loose spikes.
5. Use a piece of wood, spike, or other suitable object under the claw bar heel for additional leverage.
6. Be sure the end of the claw bar is well underneath to prevent slipping when using it to nip ties, tie plates, or rail.

S-7.8.3 Sledge Hammer (Mundy)

When using a sledge hammer (Mundy):

1. To strike a chisel or other approved “hammer struck” tool, make sure the sledge’s swing arc is at a right angle to the person holding the “struck” tool.
2. To remove rail anchors with a sledge, place your foot on the opposite side of the anchor being struck to prevent it from flying out.
3. Do not walk in front of a person applying or removing rail anchors.

When using a sledgehammer (Mundy) to install Pandrol clips:

1. Tighten the tie plate against the base of the rail using a nipping fork. Do not attempt to nip a tie by driving on a Pandrol clip.
2. Stand facing the rail and insert the Pandrol clip into the right-hand side of the plate shoulder (wood ties) or right-handed side of a cast shoulder (steel or concrete ties).
3. Gently tap the clip into position with the sledgehammer so that the clip is firmly set. Pandrol clips do not require excessive force to install, and no attempt should be made to force the clip.
4. If the clip is hard to set or wants to bounce out of the hole, wet the end of the clip with water, stick it into the dirt, and then reinstall it in the hole. The dirt or grit provides extra grip to more easily set the clip.
5. Tap the clip a few times with the sledgehammer to firmly set it. Do not drive the clip tight against the plate or shoulder. The clip is fully installed when the clip toe (flat end of the clip) is positioned opposite the right-hand side of the plate/shoulder when the person installing the clip is looking down.

When using a sledgehammer (Mundy) to remove Pandrol clips:

WARNING: The Pandrol clip is under pressure and when knocked off, will fly if not restrained.

- Stand facing the rail and restrain the clip with your foot while at the same time lightly hitting the clip with a sledgehammer.
- Do not walk in front of a person installing or removing Pandrol clips.

S-7.8.4 Track Jack

When using track jacks:

1. Set track jacks outside the rail, if possible.
2. Place the jack base on an even and firm surface so the jack will not overturn under the load.
3. Place the lifting toe fully under the load.
4. Do not strike the track jack with tools to force it under the load. Instead, dig the jack seat deep and wide enough for easy insertion.
5. Use only a lining bar or approved jack handle to operate the track jack as follows:
   - Stand beside the bar and pump it in an even rhythm, making sure the ratchet is fully engaged.
   - Never straddle, sit, or stand on the bar.
   - Keep clear of pinch points.

6. Remove the bar when not operating the track jack.
7. Make sure that all employees, tools, and materials are in the clear before tripping or lowering a track jack supporting a load.
8. Do not set track jacks for tripping until you are ready to release the load.
9. Use track jacks with metal and heated material as follows:
   - When using a track jack against metal, insert cushioning material (wood or rubber) between the jack head and the load. The material must be at least 1/2 inch thick, but no more than 1 inch thick. However, use special rubber pads with stationary jacks.
   - When placing a track jack directly on a heated area, secure the jack with a chain or other means if you cannot place flameproof material between the ram and the work.
10. Where possible, place track jacks and extensions perpendicular to the material being straightened. Secure jacks where possible to prevent slippage, and stand clear of jacking areas.

    Exception: Track jacks used under the rail base are exempt from step 10.

S-7.8.5 Lining Bar

When using a lining bar:

1. To nip ties or line track, place the bar securely in the ballast to prevent the bar from slipping out when force is applied.
2. Apply force smoothly and stand firmly to maintain balance if the bar slips.
3. Use a tie plate or piece of wood as a fulcrum to multiply your force on the tie.
4. Do not carry the lining bar on your shoulder.

S-7.8.6 Wrench

When using a wrench:

1. Select the proper size wrench for the job.
2. Pull on the wrench whenever possible. If necessary to push, do so with an open palm.
3. In close spaces, follow these precautions:
   - Position hands to avoid injury if the wrench slips.
   - Limit your stroke to about a 45-degree angle on either side of your body when tightening or loosening a track bolt.
   - Brace yourself to avoid falling if the wrench slips or the bolt breaks.
   - Do not straddle the rail.

S-7.8.7 One-Man Tie Tongs

One-man tie tongs are to be used for the spacing, alignment, sliding or positioning of track ties, which are not fastened to or bound by rail or other material.

Exception: Two personnel, each equipped with a set of one-man tie tongs, may use one-man tie tongs for the spacing, alignment, sliding or positioning of switch ties. This would only be done, however, when mechanical lifting means are not available, or when regarding a specific job, it is determined through risk assessment that the use of one-man tie tongs is the preferred method for the spacing, alignment, sliding or positioning of switch ties.

When inspecting one-man tie tongs:

- Verify that points are sharp, and arms are tight.
- Inspect tongs for flaws or cracks in the arms and handles, and for bent or deformed arms, that would allow handles to close and pinch fingers.

When using one-man tie tongs:

1. Never use one-man tie tongs to lift any length of tie completely off the ground.
2. Set tongs firmly, assuring that the tie tong points are embedded securely in the tie.
3. Stagger your footing with one foot behind you for balance while pulling a tie, in order to avoid slipping should the tongs slip.
4. Apply force in a steady manner, without jerking.
5. When maneuvering a tie with an employee at each end, move in a controlled manner, with one person giving commands.

S-7.8.8 Hand Adze

When using a hand adze:

1. Keep the cutting edge sharp.
2. Remove nails, dirt, stones, and other debris from the item to be adzed.
3. Straddle the item, when possible, then work the adz between your legs, maintaining good control to prevent glancing blows.
4. Cut with the grain. Notch and chip out pieces if removing a large amount.
5. Keep the adz free of chips. Be especially careful of knots and other faults in the wood and when cutting cross-grained lumber.
6. Avoid striking nails, spikes, or other metal objects.

S-7.8.9 Track Chisel

When using a track chisel:

1. Surround the track chisel striking surface with a collar made of rubber hose to decrease flying metal fragments.
2. Use a sledge hammer to strike the chisel.

S-7.8.10 Rail Expander (Ratchet Type)

When using a rail expander (ratchet type):

1. Secure bolts through the bolt holes by placing the spacer bar on each rail end and tightening the nuts after spacing the jack heads.
2. Insert a lining bar in the handle socket of the ratchet. Work the ratchet one direction to pull the rails together and the other direction to separate them.
3. Using no more than two people, operate the expander by pulling down on the handle to arm's length until the top latch engages. Follow these precautions:
   - Make sure all body parts are clear of the jack handle's swing arc.
   - Maintain a braced position to prevent falling.
   - Make sure no one is standing on the opposite side of the rail expander in case bolts break and fly out.
4. Raise the handle to its uppermost position, making sure that the bottom latch engages.
5. Repeat step 4 as needed.

S-7.8.11 Rail Expander (Hydraulic)

When using a hydraulic rail expander:

1. Make sure no one is near the stress rods when the hydraulic rail puller-expander is in use.
2. Do not place the puller-expander on the rail until the rail is fully protected.
3. Handle puller-expander components by lifting and walking carefully, using sure footing.
4. Clean wedge teeth before using the puller-expander.
5. Clean rail surfaces in wedge areas. Do not place wedges on a raised rail brand; relocate the casting.
6. Use your hands to turn knurled collars up to the shoulder to assemble hose coupling ends. Do not use a wrench.
7. To assemble the device on the rail:
   a. Pull the castings or tighten the nuts on the puller rods until snug.
   b. Place the wedges in the casting slots with the teeth against the rail.
   c. Make sure the casting is level.
   d. Tap each wedge equally until each begins to “bite.”
   e. Using one or more blows, drive each wedge into the casting equally.
   f. Strike wedges that do not grip until the loading starts as shown by the gauge (or the hose motion if the gauge is not working).
   g. Use shims on top of a small rail to lift and level the casting.
8. After the pressure begins to build:
   - Do not strike the equipment.
   - Release pressure and reset the device if a wedge fails to grip.
   - Have the pump operator clear the area of everyone along the rail in line with the device and within 2 feet of the device.
9. After the required pressure is reached, close all valves and continue working in and around the device, except:
   - Keep all body parts away from between the rails the device is holding apart.
   - Make sure the area in line with and beyond the ends of the device is clear for at least 20 feet in both directions.
10. Release pressure slowly, keeping everyone clear of the device until the release is complete.
11. When the pressure is off, disengage the casting from the wedges by striking the castings in the opposite direction they were pulled or pushed. Make sure everyone is clear of the strike.

S-7.8.12 Rail Fork or Rail Turner

When using a rail fork or rail turner:

1. Make sure the rail is free to move and is not secured, wedged in, or covered with dirt or ballast before turning it.
2. Take position at the end of the rail to be rolled and warn personnel that rail will be rolled by announcing “Rolling Rail.”
3. If equipment, men, tools and material are clear of the rail, then brace yourself, firmly hold onto the end of the tool, tilt the rail, and hold it in position. Apply force steadily and keep clear of the rail in case the tool slips. Do not jerk the rail.
4. A second person pushes the rail off the plates by sliding a lining bar under the rail and lifting. Do not place a tool or bar in the bolt hole to turn the rail. Do not use a track wrench on the web to turn the rail.

S-7.8.13 Anchor Wrench

When using an anchor wrench:

1. Place the wrench on the anchor and snap the anchor in place with a firm downward thrust. Spread feet for good balance.
2. Position hands so they will not strike the opposite rail or another object if the wrench slips off the anchor.

S-7.8.14 Drift Pin

When using a drift pin:

1. Use a sledge hammer to strike the pin.
2. Surround the striking surface with a protective collar or coating.
3. Hit the pin lightly until it is securely in the hole.
4. Before driving a drift pin, make sure no one is in line with the pin in case it flies out.

S-7.8.15 Pandpuller Tool

When using a pandpuller tool to install Pandrol clips:

1. Tighten the tie plate against the base of the rail using a nipping fork. Do not attempt to nip a tie by driving on a Pandrol clip.
2. Stand parallel with the rail, with both hands on the puller handle and with feet apart and braced to prevent a fall should the tool slip.
3. Insert a Pandrol clip into the right-hand side of the plate/ shoulder and with the puller hook hooked through the clip loop, position the heel end of the puller against the left-hand side of the plate/shoulder. Then pull on the clip with short, firm pulls on the tool.
4. Do not attempt to force the clip; excessive force is not required for installation. When the person installing the clip is looking down at the rail, the clip is fully installed when the clip toe (flat end of the clip) is positioned opposite the right-hand side of the plate/ shoulder.
5. The pandpuller is an installation tool only. Do not try to use it to remove Pandrol clips. A sledgehammer (Mundy) is used to remove Pandrol clips.
6. Do not walk in front of someone applying Pandrol clips.

S-7.8.16 Spike Lifter

Spike lifters must be equipped with:

- A deflector plate at the point-of-operation.
- A rubber chip guard or Rhino liner coating around the striking face.

S-8.0 Intermodal/Automotive Facility Safety

Contractor employers are also responsible for ensuring that their employees comply with applicable rules and regulations. If in doubt as to the meaning or application of any rule or instruction, individuals should request an explanation from their supervisor or manager.

Regional Directors, Hub Managers, Office Personnel, Intermodal Gate Personnel, Intermodal Coordinators, BNSF Intermodal Equipment Operators, Intermodal Ground Personnel, Intermodal Crane Operators, Intermodal Hostler drivers, Intermodal Repair personnel and Yard Checkers are governed by the Employee Safety Rules.

S-8.1 Core Intermodal/Automotive Facility Safety Rules

- Establish proper track protection before performing work.
- Vehicles must not STOP on, PARK on, or FOUL tracks without proper protection.
- Do not drive or park on lift equipment lanes, under lift equipment, or impede lift equipment movement.
- Obey all posted safety signs, signals, and painted markings.
- All vehicles must turn on headlights and use turn signals.
- Never place any part of your body in a pinch point position (for example, when removing an IBC with the container suspended, standing between containers, trailers, chassis, or the area where the hitch will collapse), or walk under equipment being lifted.
- Maintain at least three-point contact when getting on and off equipment.
- Do not walk, stand, or work under a suspended load. When possible, avoid walking, standing, or working under crane booms.
- Do not stand or walk into the path of moving equipment.
- Position yourself in clear view of the operator of equipment when possible.

S-8.2 Blue Signal Protection of Intermodal and Automotive Workmen

S-8.2.13 Track Protection—Intermodal and Automotive

Blue signal protection procedures also apply to BNSF intermodal and automotive employees and contractors performing functions on or in the vicinity of intermodal or automotive track(s) as defined in the Track Protect Section of the intermodal and automotive hub operations manuals. Only a designated intermodal or automotive worker may apply/remove blue signal protection for this purpose.

BNSF intermodal and automotive employees and contractors must not perform functions on or in the vicinity of an intermodal or automotive track(s), regardless of whether the track(s) is occupied by rail car(s) or engine(s), unless the designated intermodal/automotive worker responsible for applying/removing blue signal protection confirms blue signal protection is established on that track(s).

The designated worker may remove blue signal protection from a track(s) only after confirming:

- Rail car or engine movement is necessary on the track(s),
- All affected intermodal/automotive workers understand blue signal protection will be removed from which track(s) and those workers and their equipment are clear of that track(s),

  and

- No intermodal/automotive workers are performing functions on or in the vicinity of the affected track(s).

S-8.3 Vehicles within Intermodal Facility

S-8.3.1 Vehicle Requirements

Required safety equipment on yard vehicles must be functioning and used when the vehicle is operated on the facility. This includes strobes or oscillating lights, headlights, tail lights, and brake lights, turn indicators, and windshield wipers. All personnel operating within an intermodal facility must comply with the following chassis deflector policy.

- Employees must not use private vehicles in place of yard vehicles.
- All pick-up trucks, vans, step vans, and other specialized vehicles permanently assigned, or who work on the facility daily (for example, trailer repair, tire repair, lift equipment repair, crew haulers, facility maintenance, etc.) must be equipped with chassis deflectors.
- Other vehicles will not be allowed on the intermodal property at any time unless the driver of the vehicle is issued a “Facility Authorization Pass” that identifies the authorized vehicle. The Facility Authorization Pass must be visible through the front windshield of the vehicle whenever the vehicle is on the facility property. BNSF Hub Management must use careful consideration before issuing an authorization pass and must require all drivers to review the “Intermodal Yard Rules.” (Do not issue this pass until the proper liability forms have been completed.)
- Vehicles can be limited to specific routes within the hub, particularly when workers must drive a private vehicle to their workplace within the hub property. Authorized vehicles, which are limited to a specific route within the hub, cannot be used to drive to any other location within the facility.
- All equipped vehicles will have headlights/running lights on dim. Service partners vehicles assigned to the ramp, including ramp tractors and lift equipment, must also display illuminated amber strobe lights.

S-8.3.2 Vehicle Operations

Vehicle operators must:

- Stop for flares and flashing lights at crossings.
- Yield to trains, yard equipment and pedestrians.
- Cross only at designated crossings.
- Operate the vehicle in a careful manner and observe traffic directions and signs.
- When leaving the vehicle unattended, the vehicle operator must place standard transmission in low gear or automatic transmission in Park and shut off the engine.
- If the vehicle is left running for any operational reason, wheel chocks must be applied on the front and back of the driver-side front wheel and any available brakes set (air or park brake).

S-8.4 Manned Check Point Ingate/Outgate Procedures

All BNSF non-automated checkpoints that have inspectors working on the ground in lanes where drivers receive inspections will be designed as outlined below and driver and inspector must comply with the following procedures:

- Establish an area 35 feet from the inspection lane and declare this area the Safe Clearance Zone between trucks and the inspection lane. An area 3 feet wide will be painted red across each lane.

  Exceptions:
  - South Seattle, Billings, Dilworth – no safe zone required; not manned.
  - St. Paul, Spokane, Portland – 15 feet from the inspection lane.
  - St Paul – yellow stop bar instead of red.
  - Fresno – 25 feet from inspection lane.
  - Los Angeles main yard, Lot 8, Lot 9, Lot 11, Bell Lot, and Commerce Lot – 30 feet from inspection lane.
- Stop signs will be posted at this area in each check lane and the ground stenciled with the word STOP (painted in white) across the lane. Drivers will be required to turn truck engines off while stopped at the inspection stop signs or painted stop bars on the pavement in the checkpoint lanes. Each facility should add “Turn Engine Off” signs to the current stop bars or stop signs, effective immediately.
- Mounted on the pole below the stop sign will be a white sign with black lettering that states: “WAIT FOR SIGNAL TO MOVE FORWARD.”
- Cones with a height of 48 inches will be placed in the middle of each check lane and removed only by the inspector that signals a vehicle to pull forward. When the vehicle is stopped, the inspector will replace the cone back into the middle of the check lane. This procedure is repeated each time an inspection is to be performed.
- Inspectors will not enter the inspection lane until the truck engine is turned off for the unit to be inspected, and the truck engine is turned off for the truck at the stop sign or stop bar in the first queuing position behind the inspection lane. The inspector will instruct drivers when they can re-start their tractors and proceed. The cone shall remain in the lane until the inspector removes it.

S-8.4.1 Intermodal—Manned Checkpoint Ingate/Outgate Procedures

Checkpoint Equipment Inspectors must be familiar with the following:

- Be aware of any potential slip, trip, or fall hazards. Keep your work area clear of all such obstacles. Know where curbs, poles, and other fixed objects are located. Checkpoint booth must be clean and orderly.
- Never begin the inspection of the equipment until the vehicle is completely stopped and the driver acknowledges your presence.
- Standing, walking or running in front of any moving equipment is dangerous and is prohibited; never run in the checkpoint area, and always look both directions before crossing lanes.
- Never take risks by opening doors on loaded units without securing locking bars with restraint straps.
- Never crawl, walk or position yourself under a trailer, tractor, container or chassis.
- Never walk between the trailer, containers, or chassis until both drivers acknowledge that they see you.
- Be aware of the risks associated with hazardous material, and never assume it is safe to touch materials or breathe vapors.
- Inspectors must observe the weather and be aware of the additional safety hazards associated with periods of undesirable weather conditions. Use extreme caution during adverse weather conditions.

S-8.4.2 Intermodal—Temporary Manned Checkpoint Ingate/Outgate Procedures for Automated Gate Systems

All BNSF automated checkpoints that have contingency plans with inspectors working on the ground in lanes where drivers receive inspections will include procedures as close as possible to manned gate operations for the safety of personnel on the ground. The operation must meet the following standards:

1. Establish an area in the inspection lane and declare this area the safe clearance zone between trucks and inspection lane.
2. Cones with a height of 48 inches will be placed in the middle of each check lane and will be removed only by the inspector who signals a vehicle to pull forward. When the vehicle is stopped, the inspector will replace the cone back into the middle of the check lane. This procedure is repeated each time an inspection is to be performed.
3. Inspectors will not enter the inspection lane until all the truck engines are turned off so that the unit can be inspected. Also, the truck engine must be turned off for the truck at the stop sign or stop bar in the first queuing position behind the inspection lane. The inspector will instruct drivers when they can re-start their tractors and proceed. The cone must remain in the lane until the inspector removes it.

S-9.0 Ladders, Platforms, Scaffolds, and Aerial Baskets

S-9.1 Inspection

Before using a ladder, scaffold, platform, or elevated board, inspect it to make sure it is securely placed and capable of supporting a load. Do not use cross-grained or knotty lumber in any part of the device.

Before using ladders, inspect them for:

- Broken, cracked, or missing steps, rungs, or cleats.
- Broken side rails.
- Other defects.

Never use a defective ladder. Tag and mark it for repair or replacement. Do not paint wooden ladders or splice side rails.

S-9.2 Storage

Store ladders (except vehicle-carried ladders) where they will not be exposed to the weather.

S-9.3 Stage Boards

When using stage boards not securely fastened to the supports, do not let them extend more than 6 inches beyond the last support. Use stage boards equipped with end stops or drop pins to keep them in place on the supports.

S-9.4 Safety Feet

Use only portable straight ladders equipped with grippers, cleats, or nonslip safety feet suitable to the surface on which the ladder is placed.

S-9.5 Ladder and Scaffold Placement

Place a straight ladder so that the distance from the base of the ladder to the vertical plane of the support is approximately 1/4 the ladder length between the supports and ladder base.

When setting ladders or portable scaffolds:

- Extend the ladder side rails at least 3 feet above the surface you will be stepping onto.
- Place the legs on firm footing and secure them against movement.
- Do not lean legs against an unstable object.
- Do not place legs on boxes, barrels, or blocks for additional height.
- Secure the ladder or scaffold in position if it could move.
- Do not use ladders in a horizontal position as runways or scaffolds.
- Secure ladders used near a door, aisle, pathway, or roadway, or have a co-worker guard the ladder base. When using a ladder within the swing of a door, secure the door or have employee guard the ladder base.

S-9.6 Ladders for Electrical Work

Do not use metal ladders or scaffolds while working on energized electrical circuits. Use approved fiberglass or other type of approved nonconductive ladders.

S-9.7 Instructions for Climbing

When climbing:

- Always face ladders or scaffolding.
- Do not stand higher than the manufacturer's specifications dictate.
- Have only one person on a ladder at a time.
- Do not jump or slide from a ladder, scaffold, platform, or other elevated position.
- Do not move laterally from one ladder to another.
- Never overreach or attempt to "walk" a ladder.
- Keep the center of your body within the outside rails of the ladder.

S-9.7.1 Climbing with Tools or Materials

Do not climb ladders with tools or materials in your hands; use a hand line.

Position tools or materials on a scaffold or platform where they will not fall or be knocked off.

S-9.8 Performing Work

Do not work under a ladder.

S-9.9 Extension Ladders

Use only approved extension ladders, and use them as follows:

- Carefully raise them so that the top of the ladder safely overlaps the support by 3 feet minimum.
- Make sure guides and hooks are properly engaged.
- Do not splice short ladders together to make a longer one.

S-9.10 Step Ladders

Follow these instructions when using step ladders:

- Use only a fully open step ladder with spreaders properly set.
- Do not use step ladders taller than 10 feet unless another employee holds and steadies the ladder.

S-9.11 Construction Scaffolding

Use only scaffolds and suspended platforms constructed and maintained according to departmental instructions.

Do not stand on the handrails of any scaffold or platform to gain additional height.

S-9.11.1 Sectional Metal Scaffolds

Erect sectional metal scaffolding according to the manufacturer's instructions and adequately brace. Maintain outriggers in good working condition and protect from damage.

S-9.12 Non-Powered Mobile Scaffolding

When using non-powered mobile scaffolding:

- Do not ride rolling scaffolds.
- Secure or remove all material and equipment from the platform before moving the scaffold.
- Apply caster or wheel brakes at all times when a scaffold is stationary.
- Do not try to move the scaffold without help.
- Watch out for holes in the floor and for overhead obstructions when moving the scaffold.
- Follow the manufacturer's guidelines for adjusting screws.

S-9.13 Aerial Work Platforms

When working from aerial platforms, including scissor lifts and boom-mounted baskets or buckets:

- Check pathway and overhead for obstructions before moving the platform.
- Always stand firmly on the floor and do not sit or climb on the edge of the platform or use planks, ladders or other objects to increase reach.
- Do not exceed the manufacturer's rated safe load.
- Maintain a safe distance from high-voltage power sources.
- Do not modify the equipment without prior written approval from the manufacturer.

S-9.13.1 Scissor Lifts

When working from a scissor lift:

- Platform must be equipped with a guardrail and toeboards. Guardrails must be completely installed, in good condition and with gates fastened.
- Never climb or stand on toeboards or guardrails. Never hang outside the guardrails.
- Personnel using fall protection or restraint equipment must attend appropriate training.

When working from elevated platforms or scissor lifts, use only elevated platforms or scissor lifts equipped with a guardrail and toeboards.

S-9.13.2 Boom-Mounted Baskets or Buckets

When working from a boom-mounted basket or bucket:

- A harness equipped with a lanyard that restrains personnel within the platform must be worn to prevent personnel from being ejected out of the platform.
- The lanyard must be secured to an anchor point designed and designated by the manufacturer for this use.
- Do not attach the lanyard to a pole, piece of equipment, or any other structure.
- Do not allow the platform to rest on or against any structure or equipment while working from the platform, unless this practice is permitted based on the manufacturer's operating manual for the unit.
- Do not climb in or out of an elevated basket or bucket, unless it is equipped with a door or a gate and the lift is positioned to provide safe access.
- On equipment designed primarily as personnel carriers, use only equipment with upper and lower platform controls where the lower controls can override the upper controls.
- Personnel using fall arrest or restraint equipment must attend appropriate training.

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S-11.0 Material Handling

S-11.1 Material Storage

S-11.1.1 Stacking Material

Store material neatly, interlocking it where possible to prevent shifting or falling. Do not store heavy materials on top of fragile or crushable materials. Material should be stored only on shelving or racks with sufficient rated capacity.

S-11.1.2 Overhead Clearance

Maintain a minimum of 18 inches of clearance below sprinkler heads so they can operate effectively in the event of a fire.

S-11.1.3 Storing Combustibles

Keep combustible materials away from a source of ignition.

S-11.1.4 Storage Racks

Secure material storage racks to the floor or a wall where there is a height-to-depth ratio greater than 3-to-1. If racks can be fastened together to achieve a 3-to-1 ratio, no securement is required. Inspect pallet racks and shelving on a regular basis.

S-11.2 Hand Trucks

When possible, push a hand truck rather than pulling it. However, if assisting someone, push the hand truck from the rear, not from the side, and stand where you can see ahead clearly.

When pulling a hand truck, do not jerk it to get over an obstruction; pull with a steady force. Do not walk backward while pushing or pulling a hand truck or wagon. Do not ride on hand trucks or wagons.

S-11.3 Pallet Use and Stacking

When stacking loaded pallets:

- Determine how much the material and packaging can support.
- Stack pallets only as high as the material on the bottom of the stack can support.
- Inspect pallets for damage and stability.

The forklift operator must warn others working near the stacking operations.

S-11.4 Loading and Unloading Cars, Trucks, and Trailers

When loading and unloading cars, trucks, and trailers:

- Chock wheels of cars, trucks, and trailers spotted at doors and platforms before loading or unloading.
- Use truck jacks at the front of trailers, in addition to chocking, where trailers are not attached to tractors.
- Make sure all transfer equipment (gangplanks, transfer plates, etc.) is properly secured before using it.
- Do not place gangplanks, transfer plates, or skids in doorways of cars coupled to a locomotive unless there is protection against movement.
- Do not load and unload trailer truck while tractor is being coupled or uncoupled.
- Trucks and trailers secured by an automatic locking bar hooked to the ICC Bar do not require chocks.

S-11.5 Sharp Edges

Eliminate sharp or ragged edges and nails on drums, cans, and kegs when using them as shipping containers.

S-11.5.1 Banding Material

Carefully handle banding material and tools as follows:

- Wear cut-resistant or leather gloves to protect your hands from sharp edges of banding.
- Use only band cutters to cut steel bands.
- Place scrap banding in suitable containers for disposal, or move it to a designated area.

S-11.5.2 Sharp Edges/Slivers—Metal

As a part of risk assessment activities, identify and address any potential contact with sharp metal edges or burrs when working with metal.

- Do not handle sharp metal pieces or slivers with a bare or gloved hand. Use an appropriate tool; e.g., pliers, vice grips.
- Do not slide a bare or gloved hand along rail or metal components during inspection activities.
- After removing slivers from rail, or when handling other metal scraps, be sure to appropriately dispose of the material. Do not leave such materials on the track structure, in right of way areas, or in shop areas, where others may be exposed to injury.

S-11.5.3 Sharp Edges/Nails—Wood

As a part of risk assessment activities, identify and address any potential contact with splinters, rough edges, or nails when working with wood products.

- Do not slide a bare or gloved hand along wood edges during inspection activities.
- Verify that nails are removed or safely bent over on scrap lumber temporarily maintained at job-sites.

S-11.7 Hazardous Material Handling

S-11.7.1 Complying with Regulations

Handle all hazardous materials, wastes, and substances, as defined by the DOT and EPA, according to federal, state, and local regulations and company policy. An authorized employee must supervise the task.

S-11.7.2 Loading or Unloading Tank Cars

When loading or unloading tank cars:

- Make sure cars are protected against movement when loading or unloading material.
- Set hand brake and chock wheels before loading or unloading.
- All tank cars must have a railing around the platforms where workers stand.
- Make sure the outlet valve is shut off.
- If material is flammable, use non-sparking wrenches. Do not smoke or generate sparks or open flames.
- Properly ground tank cars containing gasoline or other flammables.

S-11.7.3 Handling Fluorescent/Neon Tubes

Handle fluorescent or neon tubes carefully. If they break, do not inhale the dust and vapor. Dispose of in accordance with BNSF procedure.

S-11.7.4 Disposing of Spray Containers

Carefully store and dispose of pressure spray containers. Do not expose them to excessive heat. Dispose of them per state law.

S-11.8 Forklifts

S-11.8.1 Parking Requirements

Do not park a forklift on a ramp or incline. When parking a forklift:

1. Park the forklift clear of obstructions.
2. Set the hand brake.
3. Lower the forks.

S-11.8.2 Dismounting Forklift—Attended and Unattended Forklifts

When dismounting forklift and still in attendance of the equipment (within 25 feet and forklift in sight):

1. Bring the forklift to a complete stop.
2. Place directional controls in Neutral.
3. Apply the parking brake, and if equipped with automatic brake, place in Park.
4. Lower forks to the ground. (Exception: when task requires elevated load.)
5. Use at least three-point contact when climbing from forklift.

When leaving a forklift unattended:

1. Lower forks to the ground.
2. Shut off the engine.
3. Remove the key (where security is a problem).
4. Do not allow the forklift to foul tracks.
5. Apply the parking brake, and if equipped with automatic brake, place in Park.

Do not allow yourself or others to be directly in front of or behind forklift, unless engine is shut off.

S-11.8.3 Passengers

Passengers are not allowed on forklifts unless the truck is equipped with a passenger seat and seat belt.

S-11.8.4 Tool Storage

Do not place tools, material, or other objects onto a forklift that may interfere with its operation.

S-11.8.5 Seat Belts

Use seat belts where provided.

S-11.9 Forklift Operation

S-11.9.1 Speed and Movement Restrictions

When operating a forklift:

- Reduce speed and sound the horn when rounding corners or passing by or through doorways or congested areas.
- Watch for and avoid contact with overhead and side obstructions and overhead wires.
- Make sure the way is clear before moving in any direction.
- Bring a forklift to a complete stop before reversing direction.
- Look in both directions before crossing tracks. Where possible, cross diagonally.
- Operate the forklift backwards if the load obstructs your view.

S-11.9.2 Getting On or Off

Do not get on or off a moving forklift. Maintain at least three point contact when getting on and off forklifts.

S-11.9.3 Operation on Ramps

Back a loaded forklift slowly down ramps or inclines.

S-11.9.4 Gates/Doors

Do not use a forklift to open or close doors or gates on buildings.

S-11.9.5 Load Limits

Do not pick up loads that exceed the forklift's marked load capacity. Do not move the machine until the load is secured.

S-11.9.6 Unloaded Fork Position

When moving an unloaded forklift, keep the forks 18 inches or less from the floor or ground to avoid obstructions.

S-11.9.7 Personnel Baskets

When using personnel baskets:

- Use a forklift only as an elevator for employees (for example, to service light fixtures) when it is equipped with an approved work platform that meets OSHA standards.
- Always secure the approved basket to the mast guard when using forklift to lift personnel.
- Ensure that passengers stand only on the floor of the basket.
- Fork lift operator must stay at controls while basket is occupied.

S-11.9.8 Inspections

- Always do a safety inspection of a forklift before operating it the first time.
- Complete safety inspection records as required.
- Promptly report all defects for needed repairs to the proper authority.
- When defects are found, which affect the safe operation of a forklift, the forklift is to be red tagged, the key is to be removed and the defect immediately reported to the proper authority.

S-11.9.9 Fueling a Forklift

- Turn off the engine.
- See Rule S-5.8 for requirements regarding LPG tanks.

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S-12.0 Motor Vehicles and Trailers

S-12.1 Operation of Motor Vehicles

S-12.1.1 General Requirements

Every company vehicle driver must:

- Know and obey local, state, and federal laws and regulations for operating vehicles, both on and off company property.
- Comply with all rules and procedures listed in the BNSF Company Vehicle Policy and Procedure Manual for operating company or temporary replacement vehicles.
- Possess and carry a valid current driver's license.
- Complete a vehicle log and inspection form, if applicable.
- Ensure that necessary emergency equipment, tools, and a fire extinguisher are in the vehicle and in good condition.
- Use headlights any time the vehicle is moving.
- Not exceed the manufacturer's specifications for speed.
- Operate the motor vehicle in a careful and safe manner.
- Immediately stop operating company vehicles if their license or permit is suspended, revoked, or under any court-required restriction (including, but not limited to restrictions to operate any vehicle with monitoring or a governing device). Any such limits will bar operation of BNSF vehicles even if the suspension, revocation, or restriction applies only to the employee's personal vehicles.
- Promptly report traffic incidents, accidents, and vehicle damage, no matter how minor, to the proper manager.

S-12.1.2 Crossing Tracks

When crossing tracks with a motor vehicle or off-track equipment at non-public crossing locations:

1. Approach as close to a right angle to the track as practical to allow for optimal viewing of potential approaching movements.
2. Stop before crossing the track(s), unless the vehicle or off-track equipment is foul of a previously crossed track.
3. Look for trains, engines, rail cars and on-track equipment movements approaching from either direction.
4. Yield to trains, engines, rail cars and on-track equipment before proceeding across the track(s).

Exceptions:

- Stop is not required within mechanical servicing or repair buildings protected by Blue Signals when precautions have been taken to prevent on-track equipment movement in the building.
- Stop is not required within intermodal facilities unless designated by traffic signs (e.g., stop signs, roadway stop bars, track lights, track gates).

S-12.2 All Terrain Vehicles (ATVs)

The operation of ATVs by BNSF personnel requires the following:

- ATVs must be modified to limit maximum speed to 15 MPH or less.
- Operators must have completed an ATV Safety Training Course (including check ride), before operating an ATV.
- Employees must wear helmets that meet the DOT Standard 218 “Motorcycle Helmet” or BNSF approved bicycle helmet when operating ATVs. These DOT helmets and bicycle helmets are not to be worn as head protection in overhead hazard areas such as under craneways or when people are working above others. In these areas, hard hats are required.

  ATV operators may wear DOT helmets or approved bicycle helmets in lieu of hard hats while coupling air hoses, changing brake shoes or coupling cars. Hard hats shall be worn for all other duties such as welding and when climbing under cars.

S-12.3 Motorcycle Use

Do not use motorcycles to perform duties or to deadhead.

S-12.4 Utility Vehicles

Complete a Utility Vehicle Safety Training Course before operating a utility vehicle.

When operating a utility vehicle:

- Wear seat belts where provided.
- Ensure that the utility vehicle is modified to limit maximum speed to 15 MPH or less.

S-12.5 Seat Belts

Wear seat belts while operating or riding in equipment or vehicles that are equipped with them.

Seat belts must be worn according to the manufacturer’s guidelines posted in the vehicle or equipment. Lying down while wearing seat belts is prohibited.

Exception: Seat belts are not required when employees are operating vehicles while performing train inspections or coupling air hoses. When operating the vehicle in travel to and from such work activities, seat belts must be worn.

S-12.6 Passengers

Transport passengers in vehicles equipped to transport passengers.

- Do not transport unauthorized persons in a company vehicle except in an emergency.
- Notify the driver before boarding any vehicle. Never get on or off of a moving vehicle except in an emergency.

S-12.7 Maintenance/Inspections

Drivers assigned to vehicles and trailers, and their managers or foremen, are equally responsible for maintenance, cleanliness, and inspections to ensure that the equipment operates properly and safely and complies with federal motor carrier safety regulations.

Any defects found during inspections that might prevent the vehicle from operating safely must be corrected by a trained person before the vehicle is used. All other defects must be repaired as soon as possible.

S-12.8 Backing

12.8.1 Vehicles

Position the vehicle, when possible, to avoid backup movement.

Before backing, inspect areas to the rear to verify that no persons or obstructions are in the path of movement.

When backing vehicles, including vans, but other than automobiles and pickup trucks:

- Position someone near the back of the vehicle to guide movement, when available.
- Sound the horn three short blasts in vehicles not equipped with backup alarms.
- Stop if the person guiding the movement disappears from view.

12.8.2 Off-Track Mobile Construction Equipment

Establish a “circle of safety” around off-track equipment operations. The dimensions of this safety zone are communicated during the job safety briefing. Personnel are not to enter the “circle of safety” without first communicating with the equipment operator.

A co-worker is to be designated in job safety briefings to guide backing movements where risk assessment has identified potential overhead or underground hazards.

S-12.9 Parking

When parking vehicles:

- Place standard transmission in low gear with engine shut off.
- Place automatic transmission in Park.
- If parking on a grade, set the emergency brake and take other precautions to prevent the vehicle from rolling unexpectedly.
- Remove the ignition key, close the windows, and lock the doors if leaving the parked vehicle unattended.

  Exception: You may leave the engine of an unattended vehicle running, in cold weather, if you have a second set of keys.

S-12.9.1 Fouling Tracks or Roadways

Except when necessary to perform duties, do not park vehicles or trailers where they foul tracks or roadways. If they do foul tracks or roadways, never leave them unattended without the proper protection.

S-12.10 Work Under Vehicles or Trailers

Do not sit or lie underneath vehicles or trailers, except when inspecting or repairing them, and then make sure the:

- Brakes are set.
- Wheels are blocked.
- Engine is stopped.
- Proper support stands are in place.

Do not sit or lie under a raised vehicle or trailer supported only by a jack.

S-12.11 Transporting Tools and Material

Properly secure tools, equipment, material, and freight. Do not transport hazardous materials, such as gasoline and solvents, in passenger compartments. Transport gasoline or other flammable material in a DOT-approved container. When transporting hazardous materials, follow federal and state placarding and shipping document regulations.

S-12.12 Special Equipment Mounted on Vehicles or Trailers

Only qualified personnel may operate special equipment, such as winches, cranes, and hoists, mounted on vehicles or trailers.

When operating vehicles with special equipment:

- Inspect the equipment frequently.
- Do not exceed load limits.
- Make sure outriggers are in place.
- Secure the equipment in the proper position before moving the vehicle.
- Comply with the manufacturer's instructions.

S-12.13 Trailers

S-12.13.1 Required Equipment

Trailers must be equipped with:

- Safety chains (except fifth-wheel or gooseneck trailers).
- Required stop, tail, directional, and clearance lights.
- Electrical connectors that are compatible in size and design with those on the designated towing vehicle.

S-12.13.2 Inspection

Before towing trailers, inspect equipment and material loaded on the trailer, and inspect the following to make sure they are operable:

- Tires.
- Brakes (if equipped).
- Hitches and locking devices.
- Safety chains (if equipped).
- Electrical connections and lights.

If the vehicle and trailer hitch are not compatible in size and design, or if locking devices are defective, do not tow the trailer.

S-12.14 Commercial Motor Vehicles

BNSF Railway has adopted the safety regulations from the Department of Transportation (DOT) and the Federal Motor Carrier Safety Administration (FMCSA). These regulations apply to the operation of all commercial motor vehicles (CMVs).

A CMV is defined (CFR 49 Part 390.5) as any self-propelled or towed vehicle used on public highways in interstate commerce to transport passengers or property when:

- The vehicle has a gross vehicle weight (GVW) rating or gross combination weight rating of 10,001 or more pounds,
- The vehicle is designed to transport more than 15 passengers, including the vehicle operator, or
- The vehicle is used in the transportation of hazardous materials in a quantity requiring placarding under regulations issued by the Secretary under the Hazardous Materials Transportation Act.

S-12.14.1 Commercial Motor Vehicle Driver Fitness

CMV drivers must possess and carry a valid driver's license for the class of vehicle they are operating and a valid medical card.

S-12.14.2 Commercial Motor Vehicles Transporting Hazardous Materials

When transporting hazardous materials, drivers must follow federal and state placarding regulations, properly complete a Form 44 Standard and have the Emergency Response Guide (ERG) ready and available in the vehicle.

S-12.14.3 Commercial Motor Vehicle and Trailer Maintenance and Inspection

Drivers are required to review the last vehicle inspection report required to be left in the vehicle by the previous driver and conduct a pre-trip inspection before driving the vehicle. This includes but is not limited to an inspection of:

- Lights and reflective devices.
- Tires.
- Brakes.
- Windshield and windshield wiper condition.
- Frame and suspension.
- Presence of any leaking fluids.

If a defect is found which would affect the safe operation of the vehicle, drivers must not drive the vehicle and arrange for repair of the defect as soon as possible.

At the completion of each day, drivers are required to conduct a post-trip inspection of the vehicle and document this inspection in writing on the Driver's Vehicle Inspection Report (DVIR) found on the driver's logbook. Drivers must note any defects found, sign the report and leave a copy on the front seat of the vehicle so that the next driver is aware of any defects found. A mechanic's sign-off is required on the DVIR when any defects are repaired.

S-12.14.4 Commercial Motor Vehicle Cargo Securement

Drivers must secure cargo both inside and outside the vehicle. When an article of cargo is not blocked or positioned to prevent shifting, and the item is longer than 10 feet in length, then it must be secured by two tie downs for the first 10 feet of length, and one additional tie down for every 10 feet of length, or fraction beyond the first 10 feet.

When transporting cargo, drivers must stop and inspect the securement of the cargo within the first 50 miles of a trip and every 150 miles or every three hours (whichever comes first) after. If cargo has shifted or is blowing, spilling or leaking at any time during a trip, the driver must stop and adjust the cargo until it is once again secure.

S-12.14.5 Commercial Motor Vehicle Hours of Service

Commercial motor vehicle drivers must not drive:

- More than 11 hours following 10 consecutive hours off duty.
- Beyond the 14th consecutive hour after coming on duty, following 10 consecutive hours off duty.
- After being on duty more than 70 hours in any 8 consecutive days.
- Until completing a 34 hour consecutive rest period that includes two periods from 1:00 a.m. – 5:00 a.m. after being on-duty a maximum of 70 hours.

All commercial motor vehicle drivers must properly complete an hours of service logbook and have it ready and available in the vehicle.

S-12.14.6 Commercial Motor Vehicle Safe Operation

Drivers must obey all local, state and federal laws when driving. This includes, but is not limited to obeying and complying with all speed limits/restrictions, traffic signs and traffic signals.

S-12.14.7 Commercial Motor Vehicle (CMV) Restrictions

While driving, the operator of a CMV must not:

- Use a hand-held mobile telephone for voice communication.
- Dial or answer a mobile telephone by pressing more than a single button.
- Manually enter or read text from an electronic device (e.g. emailing, instant messaging, accessing a Web page or perform any electronic text retrieval or entry).

S-13.0 On or Near Tracks, Locomotives and Rail Cars

S-13.1 General Requirements

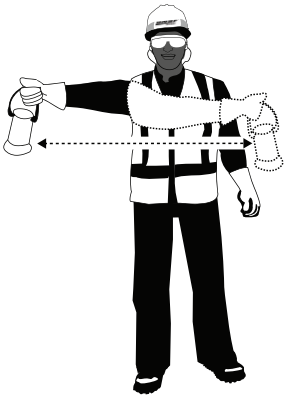
S-13.1.2 Signals

Do not give the signal to move locomotives, cars, or other equipment until persons and equipment are clear of the movement.

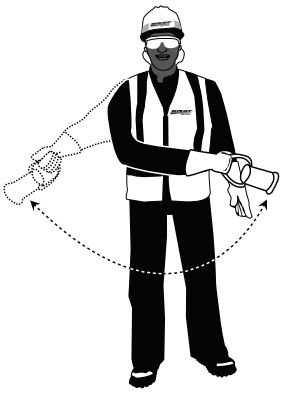
- Keep signaling devices in working order and ready for use.
- Position yourself so that your signal can be clearly seen.
- Stop all movement if you lose visual contact with the person giving the signal, unless radio communication is being used instead of hand signals.
- Regard any break in radio communication as a stop signal.
- Use the appropriate signal for what you are communicating and signal clearly.
- Make sure everyone understands other signals you may use.

Hand, Flag and Lantern Signals

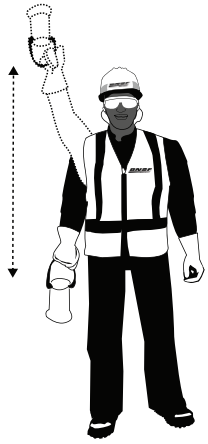
The same signals apply for signals given by hand or flag.



SET AIR BRAKES:
Moved slowly with arm extended horizontally.

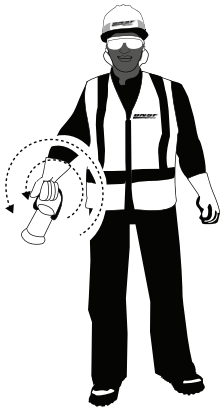


STOP:
Swung horizontally at right angle to the track.



PROCEED:
Raised and lowered vertically.

RELEASE AIR BRAKES:
Held at arm's length above the head.



BACK:
Swung in a circle at right angle to the track.

S-13.1.3 Tracks

A. Crossing Tracks

When crossing tracks:

- Do not cross within 25 feet of the end of standing equipment.
- Do not cross in front of approaching equipment, unless you are sufficiently ahead of the equipment to cross safely.

While within the limits of a designated mechanical facility, when crossing between standing equipment that is not under blue flag protection:

Employee may cross within 25 feet of standing equipment provided all of the following requirements are met:

- Speed limits for all equipment on the track is 5 MPH or less.
- Check for movement is made before crossing track.
- Distance is sufficient to allow safe passage should there be unexpected movement.
- Designated walkways are used, when available.

B. Stepping On Rails

Step over, not on:

- Rails.
- Frogs.
- Switches.
- Interlocking apparatus.
- Connections.

Watch for conditions that could interfere with footing.

C. Fouling Track

Do not walk between rails or foul the track except when duties require and safeguards are utilized. Use extra precaution during bad weather and when visibility is limited or impaired.

S-13.1.4 Sitting or Standing

Comply with these restrictions for sitting or standing on equipment or structures:

- Do not sit on rails or track structures unless duties require.
- Do not stand, sit, or walk on top of or on the sides of any open top car such as gondola, hopper, ballast, or air dump cars.
- Do not sit on the steps of moving engines or cabooses.
- Do not sit or lie underneath or lean against standing equipment unless duties require, and only when proper safeguards are provided, such as blue signal protection.
- Do not stand or sit on engine or caboose handrails.

S-13.1.5 Riding In or On Moving Equipment

Ride cars or equipment only if necessary and if you have determined that you can do so safely.

A. Determining Whether to Ride

When determining whether cars or equipment should be ridden, consider:

- Alternatives such as repositioning locomotive to pull instead of shove freight cars, vehicle transportation, repositioning of crew members or utilizing other employees to complete the task without having to ride moving equipment.
- Designs and configurations of freight cars and equipment that may make them unsuitable to ride.
- Selecting or repositioning other freight cars to ride.
- Your physical capabilities and limitations.
- The amount of slack in the train or switch cut.
- Applicable operating and safety rules.

When equipment will be ridden:

- Notify the engineer.
- Proceed only after the engineer has acknowledged that you are going to ride.
- Complete any couplings from the ground after the movement is stopped.

If track condition cannot clearly be observed because of debris (e.g. snow, ice, water, grain, mud, etc.) do not ride or knowingly allow others to ride on either side of equipment or engine exterior.

When snow and ice are observed building up on portion of tracks to be used, particularly at road crossings, locomotive(s) must precede movement on that portion of track before cars can be ridden into those tracks.

Close/No Clearance and Close Track Center Restrictions

Employees must not ride or knowingly allow others to ride the close/no clearance side of equipment at the location where close/no clearance exists, under any of the following conditions:

- Between a structure and a moving car or engine.
- Through gates or doorways. (Gates or doors must be secured in the open position).
- Into, out-of or within enclosed buildings. (Employees must precede the movement, if safe to do so, before entering enclosed buildings. Movements must only be made on that employee's signal within a building).
- When it cannot be visually determined that equipment on an adjacent track is in the clear or behind the clearance point.
- On industry tracks at locations where signs may be placed, advising of close/no clearance.
- At locations that have been identified by timetable or special instructions as having a close/no clearance condition.
- At locations that have been identified by timetable or special instructions as having close track centers unless that portion of adjacent track is known to be clear.

B. Riding In or On Any Cars

Comply with these requirements and restrictions for riding in or on moving equipment:

- Do not ride or knowingly allow others to ride on the end platform of other than tank cars as specified in this rule or end ladder of any freight car except to release or apply a hand brake during a gravity switch move. When determining if riding brake platform is necessary due to a gravity switch move, consider alternatives such as using another track with switches at each end to reposition locomotive or separating the locomotives when there are two or more in the locomotive consist. When you determine an alternative will not be used, the best practice is to ride on the brake platform of the last car if it is on the trailing end in the direction of movement.
- Ride only if hand holds and stirrup configuration allow for a firm grip and erect and normal body position.
- When riding equipment, maintain at least a three-point contact with the equipment at all times.
- Do not ride on or knowingly allow others to ride any part of the coupler apparatus, center sill, side sill, end sill, or framework.
- Do not ride inside or knowingly allow others to ride inside a car loaded with lumber, pipe, or other materials susceptible to shifting upon slight impact. When a flat car load of this is involved, do not ride between the end of the adjacent car and the load.
- Protect against slack action. When duties require you to stand or move about, brace yourself and hold on firmly.

When moving from one freight car to another, after stopping, get down and walk to next car and then get on.

C. Riding In or On Flat Cars

When any type of flat car is involved:

- Ride the side of the flat car only if the car is equipped with a hand hold extending at least 18 inches above the deck of the car.
- Ride on the deck of an empty flat car, or on a TOFC/COFC flat car with an empty stanchion or table, only if you can:
  - Mount the car safely and kneel or sit as near as possible to the center of the car or the empty space.
  - Face the direction of movement.
  - Maintain a kneeling or sitting position before the equipment moves and until the equipment stops and the slack has adjusted.
- Do not walk or ride between trailers or containers loaded on flat cars.
- Do not place your hands or other parts of your body where trailers or bridge plates could move and cause injury when riding loaded TOFC/COFC flat cars.

D. Riding On Drop-End Gondolas

On a gondola equipped with drop ends, do not hold on to the end post, or sit or stand near the end door.

E. Riding Tank Cars

When riding any type of tank car:

- Do not ride on any part of the coupler apparatus, center sill, side sill, end sill, or framework.
- Do not ride with both feet on the horizontal grab iron.
- Do not ride the middle ladder intended for man way access.

For trailing moves:

- Ride with both feet in the stirrup; or
- Ride with one foot in the stirrup and one foot on the horizontal grab iron; or
- Ride with one foot in the stirrup and one foot on the end platform.

  If car to be ridden is the last car of the trailing move and is a tank car, you may ride the trailing end with both feet on the end platform positioned between outer edge of car and the car's wheel, facing direction of movement.

For shoving moves:

- Ride with both feet in the stirrup; or
- Ride with one foot in the stirrup and one foot on the horizontal grab iron; or
- Ride with one foot in the stirrup and one foot on the end platform.

F. Riding Engines

When necessary to ride engine exterior:

- On platforms or walkways, do not extend any part of the body beyond the exterior edge on either side of the engine (for example, do not lean out to obtain fuel reading, inspect engine, etc.).
- Movement must not exceed 20 MPH.

S-13.1.6 Opening and Closing Doors

Keep the front door of locomotives closed when speeds are greater than 15 MPH, except during switching operations. If the door is open, secure it to prevent unexpected closure.

Open and close doors on engines, cabooses, and other equipment by using the appropriate handle. Do not grab the edge of the door.

S-13.1.8 Poling Cars

Do not use poles, ties, stakes, or other material to shove cars.

S-13.1.9 Chocking Cars

When chocking cars:

- Wait until movement stops and the slack adjusts before placing the chock.
- Place the chock while standing to the side of the equipment.
- Keep fingers and hands clear of the wheel tread, top of the rail, and other pinch points.
- Use only a sound wooden chock, metal chock or chock made from plastic or composite material designed for chocking cars. Do not use a track spike.

Do not chock moving rail equipment, except in an emergency, or when the equipment is in a repair facility.

S-13.1.10 Unexpected Movement

To prevent unexpected movement while working inside a Maintenance of Way tool, storage, or equipment car:

1. Set the hand brakes.
2. Chock wheels or secure them.
3. Protect against train or engine movements that may enter the track as required by GCOR Rule 5.4.7.
4. Spike the switch or secure it with an effective locking device.

S-13.2 Coupling/Uncoupling Rail Equipment

S-13.2.1 Standing Clear

Stand clear during a coupling movement.

S-13.2.2 Operating Uncoupling Lever

When operating the uncoupling lever on a rail car:

- Face the direction of the movement.
- Use your hand nearest the equipment to operate the lever.
- Watch for pinch points.
- Place your hand on the portion of the uncoupling lever designed as the handle.
- Use constant, steady pressure when operating the uncoupling lever.
- Do not run while operating the uncoupling lever.
- Do not use your feet to operate the uncoupling lever.

When operating the uncoupling lever on a locomotive:

- Do not operate the uncoupling lever of a moving locomotive from the ground.
- From the ground, use the lower uncoupling lever.
- From the locomotive step, use the upper uncoupling lever.
- Place your hand on the portion of the uncoupling lever designed as the handle.
- Watch for pinch points.
- Use constant, steady pressure when operating the uncoupling lever.
- Do not use your feet to operate the uncoupling lever.

S-13.2.4 Adjusting Mismatched Couplers

Do not adjust the coupler or knuckle of an approaching engine or car.

Do not attempt manual adjustment of couplers unless they move when you apply limited effort. If drawbar does not move with this limited effort, use an approved alignment device.

A. Adjusting Mismatched Couplers Without Using a Device

To adjust a mismatched coupler without using a device, follow this procedure:

1. Stop the movement.
2. Allow at least 50 feet of working room between the equipment and obtain positive confirmation of protection from train movement in all directions.
3. Wait for the movement to stop completely and for the slack to adjust and settle. (Be alert for unexpected movements from liquids sloshing in tank cars.)
4. Check for other equipment movements on the same track.

5. Adjust the coupler as follows:
   - Establish good footing and hand holds to avoid stumbling, and keep fingers and hands clear of pinch points.

     Listen to what is going on around you. If you hear any equipment move, step clear immediately.

   - Make sure the knuckle is secured. (Keep your feet clear of the area beneath the knuckle unless the knuckle is secured.)
   - Stand to the side of the knuckle and lean against it. Do not lift.
   - Do not adjust the coupler by kicking it with your foot.
6. Step clear of the equipment (without fouling the adjacent track), then signal the employee controlling the engine to proceed with the coupling.

B. Using a Lining Bar, Car Mover Pole, or Pinch Bar

When using other devices, such as a lining bar, car mover pole, or pinch bar to adjust a mismatched coupler, follow this procedure:

1. Allow at least 50 feet of working room between the equipment and obtain positive confirmation of protection from train movement in all directions.
2. Wait for the movement to stop completely and for the slack to adjust and settle. (Do not overlook unexpected movements from liquids sloshing in tank cars.)
3. Check for other equipment movements on the same track.
4. Establish good footing to prevent stumbling.
5. Make sure the knuckle is secured.
6. When the couplers are properly aligned, open at least one knuckle, stand clear of the equipment, and proceed with the coupling.
7. Return the device to its assigned location.

C. Using a Coupler Alignment Strap

When using a coupler alignment strap to adjust a mismatched coupler, follow this procedure:

1. If necessary, apply enough hand brakes to secure the standing cars.
2. Separate the mismatched couplers by at least 50 feet, and obtain positive confirmation of protection from train movement in all directions. Then close both knuckles.
3. Keeping one foot outside the rail, use the alignment strap as follows:
   a. Inspect the strap for defects or excessive wear.
   b. Place one end of the strap around the knuckle of the standing car.
   c. Place the other end of the strap on top of that same coupler.
   d. Stand clear of the equipment.
4. Move the engine (or cars) toward the standing car, then stop the movement within 3 feet of the standing car.
5. After the movement stops, keep one foot outside the rail, place the other end of the strap around the second knuckle, and stand clear of the equipment.
6. Slowly separate the equipment to remove slack from the strap, then align the couplers. Stop the movement immediately when the alignment is complete to avoid breaking the strap.

7. Stop and get help if you have difficulty attaching or using the alignment strap. Do not attempt manual alignment, even with more than one person. If the drawbar will not move using normal procedures, bad-order the car and notify mechanical personnel.
8. Move the equipment close enough to provide slack in the strap, then stop the movement.
9. Keeping one foot outside the rail, remove the strap as follows:
    a. Remove the strap from the knuckle.
    b. Separate the equipment at least 50 feet apart.
    c. Remove the strap from the other knuckle and open at least one knuckle.
    d. Stand clear of the equipment and continue coupling.
10. After aligning the drawbar, return the alignment strap to its assigned location and resume normal train movements.

D. Using a Knuckle-Mate

When using a Knuckle-Mate to adjust a mismatched coupler, follow this procedure:

1. Separate the mismatched couplers by at least 50 feet, and obtain positive confirmation of protection from train movement in all directions. Then close the knuckle of the coupler or couplers that need adjustment.
2. Place the Knuckle-Mate over the top of the knuckle, with the pin securely in the hole at the top of the knuckle. (Adjust the pin by loosening the top levered nut.)
3. Place both hands on the handle.
4. Pull the handle steadily, avoiding unexpected movements of the coupler that could cause you to be overbalanced and fall.
5. When the couplers are properly aligned:
    a. Remove the Knuckle-Mate.
    b. Open at least one knuckle.
    c. Stand clear of the equipment and continue coupling.
6. Return the Knuckle-Mate to its assigned location.

E. Using a Come-Along

1. Separate rolling equipment to at least 50 feet and obtain positive confirmation of protection from train movement in all directions.
2. Close the knuckle on the misaligned drawbar, and check for adequate lubrication by leaning on the coupler. If the coupler does not readily move, proceed with mechanically-assisted alignment.
3. Obtain come-along from storage location and visually inspect the chain and hook for excessive wear or damage. If wear or damage is determined as a result of this inspection, then contact the office responsible for come-alongs in that area for repair or replacement. Release the direction selector to the NEUTRAL position, and pull out enough chain to reach between attach points.
4. Inspect the alignment pin for defects such as worn spots, bent areas, or cracks. Do not use hardened steel pins or eye to reduce potential for injury when a hardened pin fails under load. Use a pin made of non-hardened steel so that it will bend rather than suddenly break if it fails under load. If no defects are found, insert the pin in the knuckle flag hole, and attach the come-along hook as described in the operating instructions provided with the come-along.

5. Secure a load-certified nylon choke to a rigid point of attachment near the corner of the car that is in the direction the drawbar is to be moved. Select this attachment point to provide the best angular advantage for using the come-along. The best attachment point location is at or slightly above the level of the first attachment point. Attach the second come-along hook to the nylon choke.
6. Pull any excess chain through the come-along, and turn the direction selector knob to the desired position for tightening the chain. Using smooth motions, tighten the come-along until the drawbar moves to centerline. Stop if any difficulty is encountered in moving the drawbar with the come-along, or if the alignment pin or attachment point begins to bend. At this point, bad-order the car and notify mechanical personnel to address the problem. Do not attempt manual alignment. Do not extend the come-along handle in any way.
7. Reverse the come-along mechanism to loosen and remove hooks, pins, and nylon choke. Replace these items in the come-along storage and carrying bag, and return the bag to its storage area.
8. Make sure the knuckles remain locked closed when the aligned coupler is joined to the train. Resume normal switching movements.

F. Carry-Lite Drawbar Strap

When available, use the Carry-Lite drawbar strap to:

- Remove broken assemblies from between the rails.
- Align drawbars so a coupling can be made.
- Replace the “bull chain” as a means of allowing rail cars with broken coupler assemblies to be moved to locations where repairs can be made.

S-13.2.5 Replacing Knuckles

When replacing a coupler knuckle, unless other safeguards are provided, such as blue signal protection, follow this procedure:

1. Separate the equipment by at least 50 feet.
2. Make sure the equipment is stopped and secured.
3. Communicate with the engineer and other crew members to understand the work.
4. Make sure the knuckle pin is in place and open the knuckle while keeping feet clear of the area under the coupler.
5. Remove the pin and set it within easy reach.
6. Remove the knuckle from the coupler.
7. Dispose of the knuckle, holding it as close to the body as possible, where it will not become a tripping hazard.
8. Holding the uncoupling lever up, move the knuckle thrower back into the coupler recess as far as it will go.
9. Obtain the correct knuckle type.
10. Lift the knuckle carefully and place it into the coupler pocket.
11. Insert the knuckle pin into the pin hole, close the knuckle, and make sure it locks properly.

S-13.2.6 Opening Knuckles

When opening knuckles:

- Do not place your leg or foot where the knuckle might fall on it.
- Do not stand in front of the cushioned drawbar to adjust or open the knuckle.
- Check for broken or missing knuckle pins to prevent the knuckle from falling to the ground when it is opened.

If you remove the knuckle pin, replace it or provide a safeguard to prevent injury to others.

S-13.3 Air Hoses and Angle Cocks

Treat all angle cocks and air hoses as if they are under pressure.

S-13.3.1 Connecting Air Hoses

When connecting air hoses, keep one foot outside the rail whenever possible.

S-13.3.2 Operating Angle Cocks

When operating an angle cock:

1. Open the angle cock slowly, keeping legs and feet clear of the air hose coupling.
2. Listen for escaping air, which indicates a faulty coupling that could fly apart.
3. If you hear an air leak, close both angle cocks and make sure there is no pressure in the hoses before adjusting or repairing the leak.
4. Never kick, strike, or jostle pressurized hose couplings.
5. Before opening the angle cock to an uncoupled air hose:
    a. Grasp the hose at the glad hand clear of the vent port.
    b. Brace the glad hand firmly against your thigh just above the knee.
    c. Turn your face away from the glad hand before opening the angle cock.

S-13.3.3 Parting Hoses

To part air brake train line hose connections or locomotive control connections by hand, close the angle or cutout cocks and grasp the hoses firmly, turning your face away from the coupling.

S-13.3.4 Controlling Movement

Do not open the angle cock on the leading end of a moving car or engine to control or stop movement.

S-13.4 Crossing Over Rail Equipment

S-13.4.1 Crossing Through a Standing Train or Cut of Cars

- When crossing through a standing train or cut of cars, cross only through cars equipped with crossover platforms and hand holds.
- Be prepared for sudden movement and maintain a firm grip.
- When no car is within sight distance with a continuous hand hold for crossing, you may cross over the ends of intermodal cars with empty stanchions or loaded intermodal cars when no trailer or container extends onto or over the crossover platform. Before crossing over, obtain positive confirmation that the car will not be moved and that the platform is sufficiently wide to allow walking across it in a safe manner.

S-13.4.2 Climbing Through Standing Coupled Cars

When climbing through standing coupled cars:

- Do not step on the coupler or uncoupling lever.
- Do not place hands, feet, or other parts of the body on the sliding sill or between the coupler horn and end sill of the car.

S-13.4.3 Crossing Underneath Couplers or Standing Cars

Cross under couplers or underneath standing cars or trains only if you are making repairs and when proper safeguards, such as blue signal protection, are provided.

S-13.4.4 Climbing Over Couplers or Under Moving Cars

Do not climb over couplers of moving cars or underneath moving cars. When you must cross over moving equipment, use locomotive or caboose steps.

S-13.5 Getting On or Off Equipment

(Includes Maintenance of Way equipment with steps, hand holds, or ladders.)

S-13.5.1 Getting On Equipment

1. Standing Equipment:
    a. Face the equipment.
    b. Visually inspect the handholds and ladder rungs before climbing on equipment and check for any defects, icy/slick and unusual conditions that may prevent ascending equipment safely.
    c. Always mount equipment from the side, using the sill step and side ladder (where equipped).
    d. Use a minimum of three-point contact.
    e. Do not use the uncoupling lever as a step.
2. Moving Equipment (when it is authorized to get on moving equipment):
    a. Face the equipment as it approaches and make sure:
        - The speed will allow you to get on the equipment safely.
        - Stirrups, hand holds, or handrails are not bent, loose, or missing.
        - Switch stands, close clearances, signals, and other items do not prevent you from getting on safely.
    b. Firmly grasp the handrail or ladder rung.
    c. Place your trailing foot on the trailing side of the step or stirrup.
    d. Let the movement lift you off the ground, and then place your leading foot on the step or stirrup.
3. Do not get on a moving tank car, conventional flat car or a TOFC/COFC car.
4. To get on moving coupled equipment, board the leading or approaching end of the car or locomotive if possible. Get on a moving caboose at the rear steps.

S-13.5.2 Getting Off Equipment

1. Standing Equipment:
    a. Face the equipment.
    b. Before getting off, determine that no obstructions or debris are where your feet will land. Be alert for switch stands, close clearances, uneven footing, signals, and other items that could prevent you from getting off safely.

c. When getting off a caboose, walk down the steps, turn at the bottom step and face the car, then get off.

d. Except in an emergency, do not jump to the ground from rail car and engine ladders, step platforms, or decks.

2. Moving Equipment:

In an emergency, or when it is authorized to get off moving equipment:

a. Face the direction the equipment is moving.

b. Get off with the trailing foot first to direct you away from the equipment.

c . Avoid jumping to the ground from a rail car or an engine ladder, step platform, or deck.

d. When getting off a caboose, walk down the rear steps, turn at the bottom step and face the car, then get off.

S-13.5.3 Getting On and Off Full Car Body Locomotives

On locomotives that have a vertical side ladder access to the cab and are equipped with cab doors located on the sides of the cab, use the corner step well cab access to enter and exit the locomotive cab and car body areas in all cases except:

- Emergency exit from the locomotive.
- Entrance and exit from the locomotive while it is located at a service facility that has a raised ramp surface so that no more than one ladder tread must be used when entering or exiting the car or car body of the locomotive.
- Units that are accessible only by ladder.

Where other units are available, do not use a full car body locomotive as the lead locomotive.

S-13.5.4 Using Ladders

When using a ladder to get on and off equipment:

- Use the side ladder, not the end ladder.
- Climb up and down the ladder by turning your feet at an angle and placing the ball of your foot on the ladder rung.

S-13.5.5 Loading and Unloading Luggage

Do not throw or “swing” luggage onto a locomotive from the ground.

Load or unload luggage, grips without straps, ice chests, and other objects onto locomotives and cabooses before you get on or off. In doing so:

- Wait for a co-worker to safely board and get securely positioned on the deck or platform.
- Secure the item to be loaded against shifting or separating.
- Get a firm footing and use proper body mechanics/lifting techniques to pass the item to your co-worker.

Board or detrain carrying grips with shoulder straps by resting the strap on your shoulder and maintaining at least three-point contact and your balance.

S-13.5.6 Carrying Lanterns

When practical or when there is a risk that the lantern could catch on objects, hold the lantern handle between the base of your thumb and index finger.

S-13.6 Operating Hand Brakes

S-13.6.1 Hand Brake Categories

The three categories of hand brakes include:

- Vertical wheel (high- and low-mounted).
- Lever (ratchet).
- Horizontal wheel (staff).

When operating hand brakes, determine:

- Brake location (end- or side-mounted).
- Brake position (high or low, right side or left).
- Method of operation.

S-13.6.2 Hand Brakes on Moving Cars

Except in an emergency, do not operate hand brakes on moving cars.

Except in an emergency or if making gravity switch moves where authorized, do not operate hand brakes on moving cars.

S-13.6.3 Position to Operate

A. End-Mounted with Brake Steps or Crossover Platform

If the car has end-mounted brakes and a brake step or crossover platform:

1. Stand on the brake step or crossover platform to operate hand brakes.
2. Apply hand brakes by standing on the left side of the brake with your left foot on the ladder rung and your right foot on the brake platform.
3. Grasp the ladder rung or top handhold with your left hand and operate the brake with your right hand.

B. Side-Mounted

Operate side-mounted hand brakes from the ground if the brake mechanism is within easy reach and you can safely operate it without straining too much and risking injury.

C. End-Mounted Without Brake Steps or Crossover Platform

If the car has end-mounted hand brakes without brake steps or crossover platforms:

- Do not operate the hand brakes from the ground unless proper safeguards are provided, such as blue signal protection.
- To operate the hand brakes, stand on the car or on the ground at the side of the car.

D. Horizontal Wheel or End-Mounted, Inward Facing

Stand on the car to operate horizontal wheel (staff) hand brakes and end-mounted, inward facing hand brakes.

E. Vertical wheel hand brakes may be operated without getting on the railcar if:

- The car remains stationary.
- Both feet remain flat on the ground and outside the rail.
- Elbows are slightly bent during operation.
- One hand can hold onto the grab iron while the other hand is used to operate the brake wheel.

S-13.6.4 Use of Feet

When operating hand brakes:

- Do not use your feet to operate the hand brake, except to manipulate the pawl on horizontal wheel (staff) brakes.
- Do not place your feet on any movable part of the car, such as the uncoupling lever or sliding sill.

S-13.6.5 Movement from Side to End Ladder

When necessary to move from the side ladder to the end ladder to operate the hand brake, maintain at least three-point contact and hold on to the ladder firmly.

S-13.6.6 Vertical Wheel

To apply a vertical wheel brake:

1. Place the release lever or pawl (if so equipped) in the ON position by reaching behind the brake wheel, not through the wheel spokes.
2. Turn the brake wheel clockwise to take up slack in the brake chain.
3. Watch for the brake chain to bunch or slip unexpectedly.
4. After the chain slack has been taken up, apply pressure to the brake wheel by turning it clockwise, using short, steady pulls without jerking.
5. To release hand brakes equipped with a release lever, rotate the lever clockwise to the OFF position, pushing firmly until the brake releases. If the quick release lever does not release the brake, operate the wheel with steady pressure. If the wheel does not easily release the brake, apply air to the car or get help. If the brakes still do not operate, bad-order the car.

With some older hand brakes, the brake wheel will spin when the brake releases. Keep fingers and hands clear.

6. To release hand brakes not equipped with a release lever (gradual release type), grip the wheel rim and turn the wheel counterclockwise until the brake releases.

S-13.6.7 Lever or Ratchet Brake

To operate a lever or ratchet brake:

1. Apply the brake by placing the release lever or pawl in the ON position and pumping the brake lever. (On some styles, the release lever is automatically placed in the ON position when you pump the brake lever.)
2. After the chain slack has been taken up, apply steady pressure on the lever as necessary, but do not jerk it.
3. Operate low-mount lever brakes on standing cars with your left side nearest to the car, where possible. (These brakes are mounted to the frame of the car at or below the deck level.)
4. Before releasing lever brakes, inspect the lever stop on the housing. Do not operate the brake if:

   - The stop is excessively worn or missing, or
   - The mechanism allows the lever to bypass its normal stop position.

   If operated under these circumstances, the brake lever could fly around forcefully when the brake is released.
5. Release the hand brake by rotating the release lever clockwise, pushing firmly until the brake releases.

S-13.6.8 Horizontal Wheel or Staff Brake

To operate the horizontal wheel or staff brake:

1. Make sure the brake wheel and shaft are fully raised and locked. (Some brakes have a drop-shaft movement, allowing the brake wheel to lower to the car floor.)
2. If the wheel and staff are in the lowered position, use both hands and lift the brake wheel until the shaft support moves into place under the end of the shaft and locks the wheel shaft in the raised position.
3. Apply the brake as follows:
   a. If the hand brake has a pawl, engage the pawl in the ratchet with your foot.
   b. Grasp the brake wheel rim with both hands, keeping your thumbs on the outside of the wheel.
   c. Turn the wheel clockwise until enough force is applied. Do not jerk the brake wheel, but apply steady pressure, keeping alert in case the chain bunches or slips.
4. Release the brake as follows:
   a. If the brake staff has a pawl:
      - Using both hands, turn the brake wheel clockwise enough to release the pawl with your foot.
      - Release your grip on the wheel.
      - As the brake wheel spins counterclockwise, keep your hands, body, and clothing clear.
   b. If the brake staff does not have a pawl, turn the wheel counterclockwise until the brake releases.
5. If necessary, lower the hand brake wheel shaft as follows:
   a. Make sure the car will not be moved, and step (on the ground) around the end of the car.
   b. Lift the hand brake shaft with one hand, enough to take the weight of the shaft off the shaft support.
   c. While holding the brake wheel shaft in the above position with one hand, use the other hand to move the shaft support from under the end of the shaft.
   d. Using both hands, slowly lower the brake wheel, being careful to avoid pinch points.

S-13.7 Operating Switches and Derails

Only authorized and trained individuals may operate switches or derails.

S-13.7.1 Checking for Damage and Obstructions

A. General Requirements

Switches have different operating characteristics that could change because of weather, temperature, and maintenance. Before attempting to operate a switch:

1. Stop the car, locomotive, or other on-track equipment at least 50 feet from the switch stand to be lined, when possible.
2. Look in both directions and watch for moving equipment on adjacent tracks.
3. Visually inspect the switch to make sure it is not damaged, locked, or spiked.

4. Verify that switch points are not fouled by ballast, ice, snow, or other material.
5. Remove foreign material from between the switch point and stock rail using a broom, stick, or similar object. Do not use your hand or foot.

When handling a switch or derail, keep hands and feet clear to avoid being struck or caught by the switch lever handle. Do not strain your body and risk physical injury.

B. Defective Switches

Remove from service immediately any switch that is defective, hard to throw, or in need of maintenance, until it can be inspected and repaired.

Label the defective switch as follows:

- Identify the switch's exact location and problem and report them to the dispatcher or proper authority.
- Attach an out-of-service tag to the switch.
- Do not use the switch until it has been inspected, repaired, and the out-of-service tag removed.

S-13.7.2 Operating Ground Throw or "Flop Over" Switch

1. Check for conditions that may cause loss of footing as the handle is moved.
2. Be prepared for the lever to suddenly operate easily or stiffly.
3. If equipped, release the foot latch.
4. Be alert for a switch under compression that could fly up when released from the latch or keeper. Keep your body clear of the switch handle's path of movement.
5. Keep your back in proper alignment when operating a switch.
6. Operate switch using either the One-Handed or Two-Handed methods to operate the switch. If the switch handle becomes difficult to operate at any time, follow procedures for taking the switch out of service.

One-Handed Method

a. Place one hand on the handle and the other on your thigh for support.

b. Slowly pull the handle up using your legs as much as possible. Keep handle between your shoulders and parallel to the switch handle's path of travel or facing the directions of travel.

c. Continue to use one hand to move the handle over the top of the switch. If resistance is sensed at any time, use two hands to complete the switch movement.

Two-Handed Method

a. Place two hands at the end of the switch handle.

b. Slowly pull the handle up using your legs as much as possible. Keep handle between your shoulders and parallel to the switch handle's path of travel or facing the directions of travel.

c. As the switch handle is moved, reposition your feet as needed to avoid a twisted or awkward body position.

7. Shift your position so that your body is over the lever on its downward movement.
8. Push the lever handle to the latched position as follows:
    a. Use slow, even pressure.
    b. Do not jerk or use unnecessary force.
    c. Keep hands and legs firmly braced and clear of the operating lever.
    d. One foot may be used to finish the last few inches of handle movement on pavement (submarine) switches and ground throw switches. One foot must remain on the ground for balance when using this method. Avoid using your feet to push the lever arm down during wet, ice, or snow conditions, or if oil, grease, or other such contaminants are present.
9. Make sure the switch lever handle is latched.

S-13.7.3 Operating High Stand/Low Stand Switch

1 Establish a firm stance and check for conditions that could interfere with footing.
2. Stay clear of the path of travel of the switch handle, it may be under compression and may swing around when released from the keeper slot.
3. Use two-hands to lift the lever handle out of the keeper slot.
4. Be alert for a switch under compression that could fly up when released from the latch or keeper. Keep your body clear of the switch handle's path of movement.
5. Be prepared for the switch to suddenly operate easily or stiffly.
6. Operate Switch using Two-Hand Method or Mast Support Method.

    Two-Hand Method

    a. Stand with your shoulders parallel to the switch handle and place both hands near the end of the handle.
    b. Lift up the switch handle, keeping your back in proper alignment and your legs slightly bent.
    c. Slowly pull the handle through the line of travel.
    d. Fully seat the handle in the keeper slot when the switch is in the desired position.
    e. The use of your feet in the operation of this type of switch is not allowed.

    Mast-Support Method

    a. Place one hand on the mast and the other hand on the end of the handle.
    b. Stand parallel to the handle and slowly pull the handle through the line of travel.
7. As the switch handle is moved, reposition your feet as needed to avoid a twisted or awkward body position. Focus on using leg muscles, not back muscles.
8. Do not jerk the handle or use unnecessary force.
9. Fully seat the handle in the keeper slot when the switch is in the desired position.
10. The use of your feet in the operation of this type of switch is not allowed.

S-13.7.4 Operating Switch Point Locks

When working with switches equipped with switch point locks (so designated by yellow handles):

1. Know the difference between the two basic types of switch point locks.
2. Remove the padlock from the switch point lock.
3. Use your foot only to depress the pedal, which places both types of lock under spring tension.
4. Snap the switch point lock into locking position by returning the switch to the normal position. Inspect to assure the locking position before putting your hands near the switch point lock to replace the padlock. If the switch point lock fails to snap into locking position, reopen the switch and repeat the process.
5. Do not attempt to pull up the pedal by hand or other means. Contact the train dispatcher and report the switch point lock defective. Tag out the switch.

Repair or correct defective switch point locks only if you are a qualified Maintenance of Way employee.

S-13.7.5 Switch Heaters

When working around burning switch heaters avoid contact with heaters or switch rails.

S-13.7.6 Switches Equipped with Locks, Hooks or Latches

When not in use, switches must be locked, hooked or latched if so equipped. Before making movements in either direction over these switches, make sure the switch is latched and/or secured by placing the switch lock or hook in the hasp. (Note: Craft specific locks used as effective locking devices for blue signal protection are not considered switch locks in the application of this rule.)

S-13.8 Fusees

S-13.8.1 Storing Fusees

Store fusees as follows:

- Store them in approved metal containers in motor vehicles and other designated equipment.
- Store them in flagging kits or racks in engines and cabooses.
- Do not leave them on floors, seats, or walkways.
- Keep them away from high temperatures, open flames, combustibles, and locations where they may become wet.
- Store them, when possible, in a locked compartment not intended for passenger occupancy where unauthorized persons cannot obtain them.
- At fixed facilities, keep fusees in original shipping containers, and store in a flammable storage cabinet meeting NFPA standards. Do not store other flammable or nonflammable material in the same cabinet. Store the minimum amount needed, but no more than a 60-day supply.

S-13.8.2 Disposing of Damaged Fusees

Do not use fusees that have been soaked in water, oil, or otherwise damaged. Dispose of them appropriately.

S-13.8.4 Lighting and Handling a Burning Fusee

To light and handle a burning fusee:

1. Grasp the fusee near its base.
2. Remove the plastic top or pull the tape over the top to expose the scratch surface on the end of the cap.
3. Twist the cap off the fusee head.

> When igniting a fusee, turn your face away and expect hot sparks to spray in all directions.

4. Hold the fusee in one hand and the cap with the exposed scratch surface in the other.
5. Strike the igniter button on the fusee against the scratch surface of the cap, while holding the cap still. Strike away from the body.
6. If you will drop the fusee from a moving train:
   - After the fusee ignites, continue to hold it at arm's length with the burning end away from your body for at least 5 seconds, but no more than 10 seconds.
   - Be careful to prevent the hot, melting slag from falling on you if you hold the fusee for longer than 5 seconds.
   - Do not drop the fusee too soon, or the igniter may go out and the fusee will not remain lighted.

S-13-8.5 Placing Fusees

Do not place a fusee where the fire may spread to:

- Platforms.
- Bridges.
- Buildings.
- Combustible surfaces of road crossings.

Be careful when placing a fusee near trees, brush, or grass along the right of way.

S-13.8.6 Giving Signals with Fusees

When giving hand signals with the fusee:

- Point the burning end down and away from yourself and others.
- Never hold the fusee near the flame.
- Avoid breathing the vapors and gases produced by the burning fusee.
- Do not look directly at the flame.

S-13.8.7 Extinguishing Fusees

To extinguish the fusee before it burns out, use one of the following methods:

- Gently strike the burning end over the edge of a rail or over a heavy metal object; strike three or four times to separate the burning compound from the rest of the fusee.
- Bury the burning end in sand or dirt.

Do not touch the burning melting material on the fusee.

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S-14.0 On-Track Machines and Vehicles

(Includes motor cars, push cars, and hy-rail vehicles.)

S-14.1 Riding On Machines

Ride on machines only if you are the machine operator or are authorized by the manager in charge.

When riding on an on-track machine:

- Notify the machine operator before boarding.
- Sit where operator indicates, or, if directed to stand, hold on firmly at all times and maintain three points of contact.
- Watch for obstructions, approaching trains, and vehicle traffic at road crossings giving the right of way to all vehicle traffic. Inform the operator of hazards.
- Do not operate on-track equipment when a train is passing on an adjacent track, if the equipment will foul the adjacent track.
- Do not work between the adjacent tracks while a train is passing.

Do not ride on a flat car loaded with machines while the car is being moved in the train. Operators may ride in a crane cab when duties require.

S-14.1.1 Warning Devices

When operating on-track machines:

- Sound whistles, horns, or other warning devices to alert others of approaching trains.
- Do not rely on others to warn you of moving equipment, except where designated lookouts are provided.

S-14.1.2 Seat Belts

Wear seat belts while operating or riding in equipment or vehicles that are equipped with them.

Seat belts may be removed when:

- The field of view is obstructed and it is necessary to stand to obtain a clear view of the surroundings, or
- Employees are operating cranes that require being seated in the upper rotating structure, (e.g. Locomotive Cranes, Truck Cranes, Rail Bound Track Cranes, etc.).

S-14.2 Working On or About Equipment and Machines

Operate equipment only if you are authorized and trained. Operators are responsible for machine safety and machine maintenance.

When working on or about equipment and machines:

- Read and understand the machine’s operating manual before using the equipment.
- Use lockout/tagout procedures.
- Lower all suspended loads and attachments before leaving the machine.
- Do not sit or lie underneath a machine, except when inspecting or repairing it.
- Do not overload equipment.
- Be aware of power lines overhead and underground.
- Secure unattended equipment from movement and theft.

Never place yourself under a raised machine supported only by a jack.

S-14.3 Moving Cars at Shops or Repair Tracks

- Visually inspect the equipment to make sure it is safe to move.
- When operating equipment used to move cars, turn on lights and activate warning devices, if so equipped.
- Make sure all personnel are clear of movement.
- Activate movement warning device(s) in the area if available.
- Make sure that the path of travel is clear. Personnel must protect the point of movement.
- When moving equipment, whether coupled or uncoupled, you must maintain control of the equipment throughout the entire movement.
- Do not exceed 5 MPH during move.

S-14.5 Hearing Protection

Wear approved hearing protection when operating or working within 20 feet of machines with hearing protection warning labels or decals, and other machines covered in special instructions.

S-14.7 Push Cars

When working with push cars, buggies, trailers, carts, or other equipment towed by a track machine, ensure that they:

- Have reliable couplers when attached to a track machine.
- Are in a trailing position when traveling, if possible.

When possible, a push car loaded with tools or materials must be placed behind track cars transporting employees.

S-14.8 Operating Track Equipment Indoors

Do not operate track equipment indoors unless exhaust is directly discharged outdoors via ducting.

S-15.0 Oxygen and Fuel Gas

S-15.1 Storing Gas Cylinders

Follow these requirements for storing gas cylinders:

- Store oxygen, acetylene, and fuel gas cylinders with the valve end up.
- When oxygen, acetylene, and fuel gas cylinders are not in use or when they are empty, close their valves tightly and put the protective cap in place.
- Secure gas cylinders to protect them from damage. No more than three cylinders may be chained together.
- Store gas cylinders in a well-ventilated area away from elevators, stairs, and gangways.
- Separate oxygen cylinders from acetylene and other fuel gas cylinders as follows:
  - Separate them by at least 20 feet, or
  - Separate them with a noncombustible barrier at least 5 feet high with a fire resistance rating of at least a 1/2 hour.

    Exception: This does not apply to cylinders in use or ready for immediate use. Secure these cylinders in suitable racks or cabinets on trucks or in fixed locations.
- Store oxygen cylinders at least 20 feet away from flammable material, especially oil, grease, paint, or any substance that could cause or intensify a fire. Do not store, use in, or convey oxygen through a paint shop or any paint storehouse.
- Do not store gas cylinders near heat sources such as furnaces or boilers. In locations with extreme temperatures, screen gas cylinders stored outdoors from the sun.
- Store empty and full gas cylinders separately. Mark empty cylinders as EMPTY or MT.

S-15.2 Testing for and Handling Leaks

S-15.2.1 Testing for Leaks

When testing for leaks, use soapy water with a nonfat base. Do not use an open flame.

S-15.2.2 Handling Leaks

If a welding gas cylinder is leaking:

1. Remove the cylinder to an open area away from possible ignition sources.
2. Allow the cylinder to drain completely.
3. Close the valve.
4. Tag the cylinder indicating the defect.
5. Return the cylinder to the supplier.

S-15.3 Mixing Gases

Do not mix gases in a cylinder or refill a cylinder.

S-15.4 Handling and Transporting Gas Cylinders

When handling or transporting gas cylinders:

- Do not handle oxygen cylinders with oily or greasy hands or gloves.
- Securely chain or clamp gas cylinders with valve ends up.
- Valve protection caps, where cylinder is designed to accept a cap, shall always be in place, hand-tight, except when cylinders are in use or connected for use.
- Do not remove or change numbers or marks stamped on gas cylinders.
- Gas cylinders may be difficult to carry by hand because of their shape, smooth surface, and weight. Gas cylinders may be rolled on their bottom edge but never dragged.
- Follow these lifting restrictions:
  - Do not lift a compressed gas cylinder with an electromagnet.
  - Do not lift a gas cylinder by its valve cap.
  - When using a crane or derrick to lift a gas cylinder, secure it to the crane hook with a cradle, suitable platform or basket/tote.
- Contact the gas supplier when you are unsure of how to properly handle a compressed gas cylinder or its contents.

When transporting compressed gas cylinders in a company vehicle on other than BNSF property:

- Secure cylinders tightly with a chain, strap or equivalent device, and close cylinder valve.
- Always secure cylinders in a closed compartment when available. Cylinders must not be placed or transported in a passenger-carrying compartment.

S-15.5 Changing Gas Cylinders

Before changing or disconnecting a gas cylinder, close the cylinder valve and individually drain hoses to remove any gas mixture. Do not open a cylinder valve unless the cylinder is secured.

S-16.0 Power Tools and Machinery

S-16.1 Authorized Employees

Operate power tools and machinery only if you are authorized to do so.

S-16.2 Inspection and Use

Inspect tools and equipment for defects before and during use, repairing or removing from service those that fail inspection. Promptly tag and report to your supervisor or person in charge any defect. If necessary, guard the hazard.

S-16.3 Insulation/Grounding

Frequently inspect the power cord insulation and connections on electric power tools, and maintain them to prevent shorts and faults. Unless the power tool is double-insulated, make sure it has three conductor cords, one of which grounds the tool frame when connected to an adequate ground. Do not remove the grounding prong from the plug.

S-16.4 Power Source

Disconnect the power source before cleaning, repairing, adjusting, or replacing accessories on electric and pneumatic power tools. Where required, follow lockout/tagout procedures.

Exception: Spring-loaded quick-disconnect sockets are exempt.

S-16.5 Storage/Handling of Abrasive Disks and Wheels

Store abrasive disks and wheels in a dry area protected from extreme temperature changes, especially in below-freezing temperatures.

Handle abrasive stones carefully to prevent dropping or bumping them. Always inspect disks before use.

S-16.6 Floor Area/Aisles

Keep the floor area around shop machinery free from holes and irregularities. Designate aisles with railings, safety chains, paint, or other markings.

S-16.7 Safety Guards

Do not operate power tools, machinery, or appliances without required safety guards on belts, shafts, gears, and other moving parts.

S-16.9 Pneumatic Tool Use

S-16.9.1 Air Valve

Close the air valve at the supply source and relieve the line pressure on pneumatic tools that will not be used for a long time.

S-16.9.2 Hose Connections

Make sure air hose connections are secure. Unless the connections are equipped with quick disconnects, do the following before uncoupling them:

- Close the air valve.
- Relieve the line pressure.
- Use whip stops.

Do not use wire in air or hydraulic couplings in place of clip pins. Do not use hoses on hydraulic or pneumatic tools for hoisting or lowering.

S-16.9.3 Spindle Speed

Regularly check pneumatic grinding tools for proper spindle speed, especially if the tools have been dropped.

S-16.10 Set Screws

Use safety set screws in all revolving spindles or shafts unless a collar protects them.

Make sure all set screws or keys are flush or countersunk. Do not use nails or wire to hold the sockets in place.

S-16.11 Laying Tools Down

Stop the motor before laying down pneumatic, electric, or other power tools. Place the tool so it will not start accidentally.

S-16.12 Surfaces

Do not place electric power tools on wet surfaces or in loose dirt.

S-16.13 Falling Tools

If a tool or other object falls to the bed of a machine, stop the machine before removing the tool.

S-16.14 Powder-Actuated Tools

Operate powder-operated tools only if you are authorized and trained.

When using powder-actuated tools:

- Handle powder-actuated tools as you would a firearm.
- Do not leave a loaded tool unattended.

S-16.15 Abrasive Rail Saw Use

When operating an abrasive rail saw:

- Inspect the blade for cracks, chips, or wetness.
- Use the correct blade size with mounting blotters between the flanges and the wheel.
- Keep the blade true and do not force the saw.
- Keep the blade dry and free from grease, oil, fuel, and solvents.
- Have a fire extinguisher immediately available.

S-16.16 Chain Saw Use

Operate a chain saw only if you are authorized to do so.

Inspect the saw before using it to ensure:

- The handles and guards are in place and tight.
- The controls function properly.
- The muffler is operating properly.
- The cutting chain is properly adjusted.
- The bar is not worn or burnt, especially at the tip.

Before starting the saw:

- Alert others of flying debris.
- Inspect for conditions that could interfere with your footing and safe operation.
- Clear away brush.

When using the saw:

- Do not use the saw to cut directly overhead or far enough away that you cannot safely grip the saw.
- Avoid contact between the saw tip and objects that could cause the saw to kick upward.

S-16.17 Lockout/Tagout of Machinery

When machinery is being repaired, cleaned, or adjusted, ensure that the control switch or power source is locked in the OFF position and tagged. The employee working with the machine must keep the key.

S-16.18 Grinding Machine Use

Use the grinder only for tasks for which it was designed.

S-16.18.1 Inspecting Grinding Wheels

Inspect grinding wheels as follows:

- Inspect each wheel immediately after unpacking it from the shipping container and again just before mounting it on the grinder.
- Ring-test each wheel and inspect it for surface cracks, chips, or other defects, before mounting grinding wheels.
- Make sure protective guards are in place, secured, and properly aligned. Make sure the tool rest and tongue guard adjustment is not more than 1/8 inch from the wheel.
- Make sure the frame is securely mounted with no vibrations, and the wheel face is well-lighted and dressed evenly. The grinder RPM must be plainly labeled and not exceed the RPM rating of the wheel.
- Make sure a competent employee dresses and trues the wheels.

S-16.18.2 Mounting Grinding Wheels

When mounting grinding wheels, make sure:

- The wheel is the appropriate type and size for the machine on which it will be used.
- The wheel fits freely on the spindle and remains free under all grinding conditions.
- The contact surfaces of wheels, blotters, and flanges are flat and free of foreign matter.
- The blotters or flange facings of compressible material cover the entire contact area of the wheel flanges.
- The spindle and nut are tightened enough to drive the wheel and prevent slipping.
- The flanges are equal in size and are the correct diameter for at least 1/3 of the wheel diameter. For cut-off wheels, flanges will be at least 1/4 of the wheel diameter.

S-16.18.3 Operating Grinding Wheels

When operating grinding wheels:

- Run new wheels at full operating speed for at least 1 minute before applying work. (Most defective wheels break when first started.) During this time, do not stand in the direct line of the rotating wheel.
- Operate wheels at the manufacturer's recommended speed.
- Do not drop, bump, roll, or handle grinding wheels carelessly.
- Protect grinding wheels from oil, grease, water, or other liquids, and from freezing temperatures or conditions that cause surface condensation.
- Do not perform grinding operations on the sides of wheels, except on wheels designed for side-face grinding.
- Do not grind nonferrous materials on wheels not specified for that purpose.
- When the wheel is cold, apply grinding force gradually and evenly to prevent thermal shock, which could break the wheel. Avoid forcing it and causing glazing or breakage.

S-16.18.4 Operating Portable Grinders

When operating a portable grinder:

- Be careful to avoid damaging the abrasive wheel.
- Do not leave or lay the portable grinder down while it is running.
- Use a protective shield or screen to protect others from sparks and flying debris.

S-16.19 Wire Brush Wheels

When using wire brush wheels:

- Follow the manufacturer's recommended wheel speed.
- Make sure the hood is adjustable and encloses the wheel as completely as the work allows. The hood should cover the exposed arbor ends. If not, install a smooth-headed nut.
- Do not use wire brush wheels to remove ACM from surfaces, such as gaskets.

S-16.20 Band Saws

When using a band saw:

- Make sure the length of blade exposed is no longer than the thickness of the stock being cut plus 3/8 inch.
- Feed the stock gradually and steadily.
- Make sure the blade is not twisted or crowded.

S-16.21 Other Metal or Woodworking Machines

When using other metal or woodworking machines:

- When installing the machine, place its front end slightly higher than its rear to cause the cutting head to return gently to the starting position when the operator releases it.
- Stand to one side and not directly in back of the material being fed for saws where kickback is possible.
- Use a push block to feed narrow material through a circular or band saw.
- Do not reach over a circular saw.
- Do not operate circular rip saws with missing or broken hoods, spreaders, or kickback devices.

- Provide an adjustable stop to prevent the blade from traveling beyond the point necessary to complete the cut in repetitive operations.
- Do not join short pieces of stock. The length of the pieces joined should be at least four times the width of the bed opening.
- Do not adjust either half of the joiner table horizontally to make the clearance between the edge of the table and the revolving knife more than 1/8 inch.
- Do not lower dead plates on planers while material is in the machine and the machine is running.
- Use hold-downs/push blocks whenever joining stock that is narrower than 3 inches.

S-16.22 Clean Up

S-16.22.1 Removing Chips

Do not use your hands to remove chips or shavings from a drill press or other machine. Use a brush, vacuum equipment, or special tools designed for that purpose.

S-16.22.2 Use of Compressed Air/Gas

1. When cleaning equipment, use an air nozzle that meets OSHA requirements—less than 30 psi with effective chip guarding.
2. Do not use compressed air, oxygen or other pressurized gas to:
   - Clean equipment where lead, silica-containing dust or asbestos may have accumulated.
   - Blow dust or dirt from your body or clothing. Do not place the air nozzle against your body or purposely inhale compressed gas.
   - Clean shop areas.

S-16.23 On/Off Switch

Protect on/off switches to prevent the machine or equipment from being unintentionally energized.

S-16.24 Fouling Machinery

Before fouling the potential reach or turning radius of any part of a machine, a job safety briefing must be held with the operator.

S-16.25 Hydraulic Tools

- Inspect, maintain, and use hydraulic tools in accordance with manufacturer recommendations.
- Visually inspect hydraulic tools, hoses and connectors before daily use.
  - Pull back any protective hose sleeves to help ensure a thorough inspection.
  - Defective equipment is to be conspicuously labeled as defective, and immediately removed from service.
- Comply with lockout/tagout procedures during the inspection, service and maintenance of hydraulic tools.
- Do not handle pressurized hoses with a bare or gloved hand. Use an appropriate tool.
- Do not place pressurized hoses against the body.
- Manage hoses during set-up and use, so as to not create a tripping hazard, or allow hose contact with sharp edges or hot surfaces.

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S-17.0 Rigging, Cranes, and Hoists

Observe the manufacturer's instructions for operation and maintenance of cranes. Be familiar with safe hoisting capacities and do not exceed the load chart ratings.

S-17.1 Rigging

When rigging for an overhead lift, make sure that all slings, wire ropes, and other hardware are approved by the manufacturer for overhead lifting. If you are the rigger, you must verify that the Working Load Limit (WLL) of each component involved in a lift is equal to or greater than the stress it will be subjected to during the lift. When determining sling capacity, consider that the stress on a sling varies with the angle of its legs.

Store slings in a clean, dry place. Store synthetic slings away from direct sunlight.

Cable clamps are not recommended for overhead lifting. When such use is necessary, use only new clamps applied and torqued to the proper specifications. Check the cable clamp torque regularly to ensure that vibration does not loosen the clamps.

S-17.1.1 Inspection Requirements

Inspect all new or repaired ropes, slings, and other rigging hardware upon initial receipt, daily before use, and whenever you suspect damage.

S-17.1.2 Identification Tags

Slings must have a durable identification tag that states the following:

- All slings - Manufacturer's name and Working Load Limit (WLL).
- Cable and chain slings - Size.
- Chain slings - Serial number, Grade and Reach.

S-17.1.3 Rigging a Load

When securing a load:

- Do not wrap the hoist cable around the load.
- Never attach a hoisting equipment hook directly to an object being lifted unless the object has a permanent lifting eye or similar attachment device designed for overhead lifting; use a sling or other certified overhead lifting device.
- Protect the sling or lifting device from chafing or cutting.
- Make sure the load is securely hooked and well-balanced.
- Make sure the load is always properly set in the bowl of the hook. Loading on or toward the point (except in the case of grab hooks or other hooks designed for such loading) overloads the hook and causes the hook to spread and possibly fail.
- When freeing a sling, make sure the load has settled before unhooking the sling. Stand clear to avoid being struck by the sling or load.

S-17.1.4 Chain Slings

- Chain slings used for overhead lifting must be constructed of Grade 8 or greater alloy steel.
- Never splice or shorten a chain by inserting a bolt between links.
- Never load a kinked chain. When applying a load, take up slack slowly and see that every link in the chain seats properly.
- Use chain attachments (rings, shackles, couplings, and end links) designed for the chain to which they are fastened.

S-17.1.5 Below-the-Hook Lifting Devices

Use only below-the-hook lifting devices that are certified by a qualified individual or manufacturer. Certified below-the-hook lifting devices will have a permanent nameplate or marking stating the following information:

- Manufacturer's name.
- Serial number.
- Lifter weight (if over 100 lb).
- Rated load (capacity).

Modify or re-rate below-the-hook lifting devices only with written permission from the manufacturer. Repair below-the-hook lifting devices only if you are qualified or are under the direction of a qualified person.

S-17.2 Cranes and Hoists

S-17.2.1 Requirements

If you are the operator and you are leaving the crane, ensure that the:

- Master clutch is off.
- Machine brakes are set.
- Load is lowered to the ground.

If crane is rail-mounted, set the hand brake and ensure that at least one wheel is chocked or "skated."

Complete the "Work Equipment Crane Operation" class before operating a movable counterweight crane.

Operators must document monthly inspection of cranes, repairing or removing from service those that fail inspection.

A log book, operator's manual, and service manual must be readily accessible in the cab of cranes at all times.

S-17.2.2 Lifting

When lifting:

- Ensure that a designated employee will direct movement and give signals. This employee must determine that all personnel are in safe positions before hoisting begins.
- The operator must stay at the controls when a load is suspended.
- Return cranes and hoists to Neutral and secure positions when not in use.
- When lifting heavy loads, test the brakes when the load is suspended a few inches above the floor or ground.

S-17.2.3 Outriggers

Comply with manufacturer's requirements for deployment of crane outriggers unless a written exception has been issued by the manufacturer to BNSF. Manufacturer's requirements can be found in the operator's manual and/or on the load chart(s) that are required to be on the crane at all times.

S-17.2.4 Fouling Track

Provide adequate protection for a machine, boom, or load before allowing it to foul a track.

S-17.2.5 Power Line Clearance

Maintain mandatory minimum clearances, as shown in the chart, between electrical power lines and any part of a hoisting device or load. If the power line voltage cannot be determined, maintain a minimum of 45 feet clearance.

Power Line	Distance from Power Line
50 KV or below	10 feet
50 KV - 200 KV	15 feet
200 KV - 350 KV	20 feet
350 KV - 500 KV	25 feet
500 KV - 750 KV	35 feet
750 KV - 1000 KV	45 feet

If power line voltage clearance requirements cannot be met, then ensure that a power company official de-energizes and grounds the power lines before any part of the crane or load enters the clear zone, or takes equivalent actions that comply with applicable regulatory requirements.

Clearances for Cranes or Other Equipment in Transit Near Power Lines

Power Line	Distance from Power Line
0.75 KV or below	4 feet
0.75 KV - 50 KV	6 feet
50 KV - 345 KV	10 feet
345 KV - 750 KV	16 feet
750 KV - 1000 KV	20 feet

Whenever possible, perform your work moving away from the power line, not towards it.

Whenever working a crane within one boom length of the mandatory minimum clearance from a power line in any direction—front, back, side, or overhead—position a lookout on the ground to warn you of the approach to the limits. The lookout cannot be the same person (groundman) who is giving signals for the move.

S-17.2.6 Load Clear of Persons

Do not move a load until all persons are clear.

Never move a load over people or occupied equipment. Use a warning device to warn persons in the path of the approaching load.

S-17.3 Passengers

Board a crane only if authorized by the operator. If you are a passenger, ride only in safe areas designated by the operator.

S-17.4 Electric Cranes

When operating an electric crane, do not leave the crane cab or allow anyone on top of the cab without opening the main switch.

S-17.5 Restrictions Near Hoisting Equipment

S-17.5.1 Working Near Equipment

Do not walk, stand, or work under a suspended load. When possible, avoid walking, standing, or working under crane booms, or in close proximity to pile driver leads.

When working with or near lifting operations, keep clear of the swinging boom, counterweight, or cab.

S-17.5.2 Guiding the Load

Use only tag lines, poles or load hooks to guide a load. Use guides or fixtures, where available, for precision placement.

Exceptions:

- When necessary for precision placement and following risk assessment, gloved hand or hands may be used to guide a load into final position provided that no part of the body is placed between the load and any obstruction that would create a pinch point.
- Risk assessment may determine that it is preferable from a safety standpoint to have the crane/equipment operator control the load without the use of ground personnel manning taglines or the equivalent. All personnel and equipment would remain in the clear until precision placement.

S-17.5.3 Rail Handling

Before rail is being loaded or unloaded, verify rails on racks are individually tied down. Only the rail being handled should be unsecured.

On boom trucks, verify during risk assessment that hydraulic cylinders or other components of the crane will not strike racks or material on racks during loading or unloading operations.

S-17.6 Crane and Hoisting Signals

Only a designated employee (groundman) will give signals to the hoisting machine operator. Before work begins, the groundman must communicate with the operator to develop an understanding of all signals.

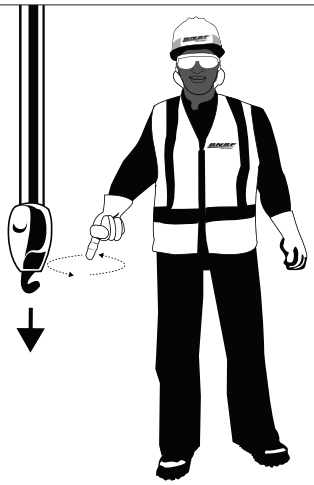
The crane operator must stop the move if a signal is not understood or if visual contact is lost with the groundman. The groundman must continue to give signals until the move is complete.

When two or more hoisting machines are lifting the same load, only one designated employee will direct the movements.

Accept signals for operating hoisting equipment only from the designated groundman, except in an emergency. An emergency stop signal must be accepted from anyone.

S-17.7 Standard Crane Hand Signals

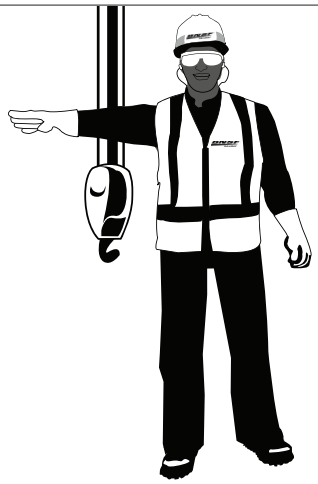
HOIST:
With forearm vertical, forefinger pointing up, move hand in small horizontal circle.



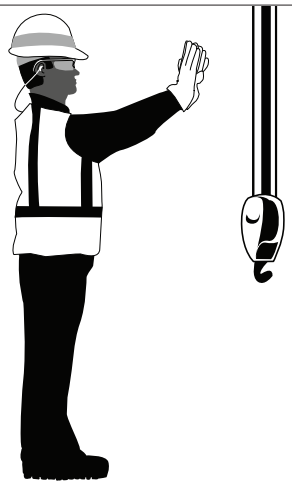
LOWER:
With arm extended downward, forefinger pointing down, move hand in small horizontal circle.

STOP:
Arm extended, palm down, move arm back and forth horizontally.

EMERGENCY STOP:
Both arms extended, palms down, move arms back and forth horizontally.

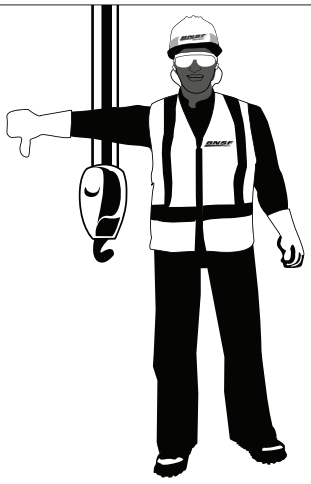


SWING:
Arm extended, point with finger in direction of swing of boom.

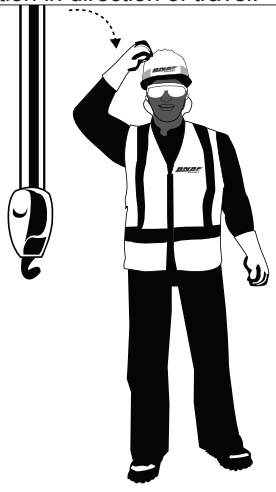


TRAVEL:
Arm extended forward, hand open and slightly raised, make pushing motion in direction of travel.

RAISE BOOM:
Arm extended, fingers closed, thumb pointing upward.

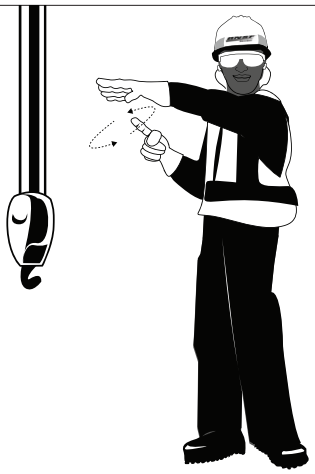


LOWER BOOM:
Arm extended, fingers closed, thumb pointing downward.

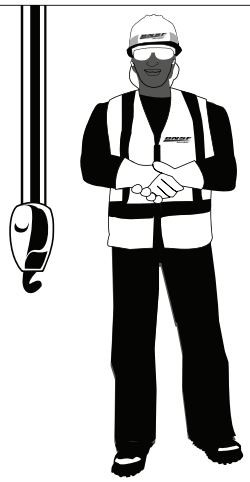


USE MAIN HOIST:
Tap fist on head, then use regular signals.

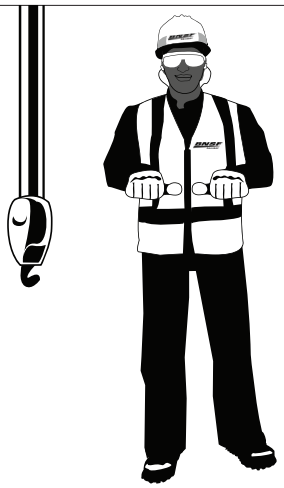
USE WHIPLINE (Auxiliary Hoist):
Tap elbow with one hand; then use regular signals.



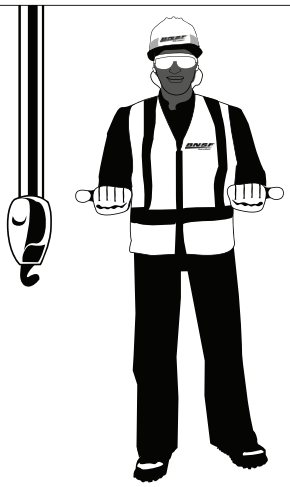
MOVE SLOWLY: Use one hand to give any motion signal and place other hand motionless in front of hand giving the motion signal.



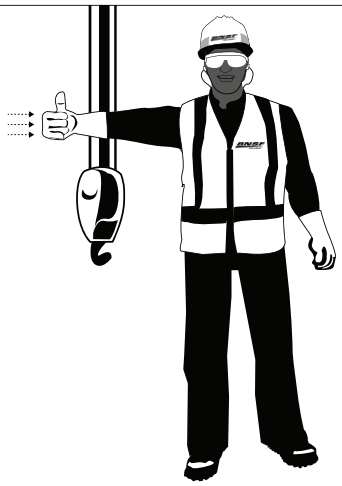
DOG EVERYTHING:
Clasp hands in front of body.



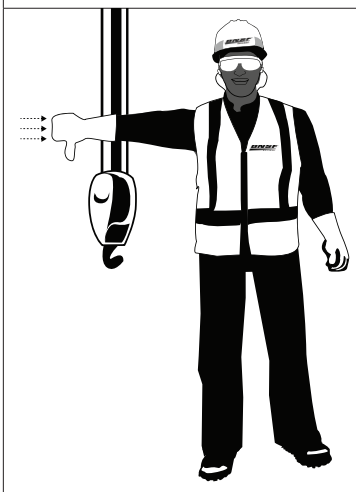
RETRACT BOOM (Telescoping Booms):
Both fists in front of body with thumbs pointing toward each other.



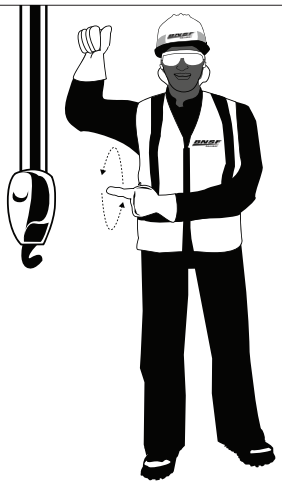
EXTEND BOOM (Telescoping Booms):
Both fists in front of body with thumbs pointing outward.



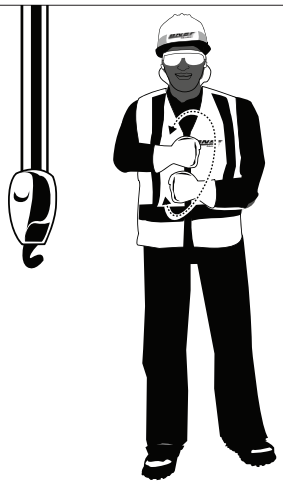
RAISE BOOM, LOWER LOAD:
With arm extended, thumb pointing up, flex fingers in and out as long as load movement is desired.



LOWER BOOM, RAISE LOAD:
With arm extended, thumb pointing down, flex fingers in and out as long as load movement is desired.



TRAVEL (One Track): Lock the track on side indicated by raised fist; travel opposite track in direction indicated by circular motion of other fist, rotated vertically in front of body. (For land cranes only.)



TRAVEL (Both Tracks):
Use fists in front of body, making a circular motion about each other, indicating direction of travel, forward or backward. (For land cranes only.)

S-17.8 Whistle Signals

S-17.8.1 Moving in Either Direction

If you are the operator of a locomotive crane, pile driver, or another crane operated on the rail, give the following whistle or horn signals before moving ahead or back:

- Two long blasts when moving ahead.
- Three short blasts when moving back.

Exception: Operators of small Maintenance of Way cranes performing repetitive work do not need to give signals, but the operator must be certain the way is clear for safe movement.

S-17.8.2 Approaching Work Areas, Crossings, and Intersections

If you are the operator of a crane that is approaching a work area, crossing, or intersection, be prepared to stop. When the way is clear, sound a warning signal and proceed. When one or more cars are being handled ahead of the crane, station a helper on the leading car to protect the movement unless this creates a safety hazard.

S-17.9 Personnel Hoisting

Material handling cranes must not hoist personnel, except with the authority of the supervisor and only in compliance with the requirements stated in ANSI standard B30-5-1994 “Mobile and Locomotive Cranes.”

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S-19.0 Welding

S-19.1 Thermite Welding

For thermite welding:

- Do not assist in the thermite welding process unless you are qualified or under the direct supervision of a qualified thermite welder.
- Stay 8 to 10 feet away from the thermite welding crucible from the time the welding portion in the crucible is ignited until the molten metal has been poured into the sand molds that surround the rails.

  Exception: The thermite welder may move within the 8 to 10 feet clear zone to the crucible for the pour after the ignition.
- Watch the pouring of molten metal from the crucible into the sand molds only if you are wearing welding glasses or goggles with filter lenses of minimum shade #3 through #5.
- Do not dump the hot slag from the slag pans on wet soil, in water, or on snow.

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S-20.0 Work Environment

S-20.1 Protection for Openings

Keep covers on drop pits, manholes, or similar openings. When necessary to remove the covers, use the proper barricades or guard rails to protect the opening.

Do not step or jump across pits, manholes, or similar openings.

S-20.2 Clearances and Obstructions

S-20.2.1 Overhead and Side Obstructions

Do not contact overhead or side obstructions on or near the right of way.

S-20.2.2 Communication/Signal Wires

Do not touch broken or sagging communication and signal wires, power lines, and guy wires. Repair wires and power lines only if you are qualified to do so. Do not use metal or metal-reinforced tape near wires.

S-20.3 Confined Space

Consider all confined spaces hazardous unless proven otherwise. All employees and contractors must have a permit before entering a permit-required confined space.

S-20.4 Machine Operation

Unauthorized persons must not be on hoists, machines, shop machinery, or distract employees operating such equipment.

S-20.4.1 Protecting Hoses/Cables

Operate mobile equipment over hoses or electrical cables only if they are properly bridged.

S-20.4.2 Working Surfaces

Keep working surfaces free of coolants, lubricants, petroleum products, or other slippery material when these surfaces are on or around vehicles, machines, or equipment that employees are operating.

S-20.5 Office Environment

S-20.5.1 Office Equipment Arrangement

Arrange office equipment to keep aisles and emergency exits clear.

S-20.5.2 Filing Cabinets and Desks

- Arrange contents of filing cabinets to balance the cabinet.
- Distribute contents throughout the cabinet rather than in the top drawer; place the heavier materials in the bottom drawer.
- Arrange the material neatly and keep the cabinet and desk drawers closed while unattended.
- Do not use the top of cabinets for storage.

S-20.5.3 Chairs

Do not scoot across floors or stand on chairs with casters. Keep all chair legs on the floor.

S-20.5.4 Cords

In walking areas, encase the telephone or electrical cords in cord protectors, or properly secure them.

S-20.5.5 Paper Cutters

Use paper cutters and other office equipment carefully, keeping body parts clear. Close and secure the paper cutter blade after use.

S-20.5.6 Reaching Overhead

Use a ladder or step stool to reach overhead objects.

S-20.5.7 Folding and Four-Point Office Chairs

Remove all four-point, pedestal type chairs with casters from service and replace with five-point base chairs. Restrict folding chairs to office/lunch room environments, and inspect regularly.

S-20.6 Trenching and Shoring

Any employee working in an excavation must do so under the direct supervision of a competent person. A competent person has successfully completed BNSF-approved training on the technical and regulatory requirements of a competent person.

S-20.7 Tower Inspection Procedure

Before employees work on a tower, the employee in charge must ensure that a visual inspection has been completed.

The employee in charge will send crew members to each of the anchor points. Crew members will then make a visual inspection of the anchor points.

Crew members must check the following items:

- The anchor shaft.
- Turnbuckles.
- Guy wires.
- Gripping devices.

In addition, crew members must hand-check guy wires for the proper amount of sag at each guy level. Crew members will then report all findings to the employee in charge.

The employee in charge will then advise all crew members of and correct any unsafe conditions.

Field work must not begin until all unsafe conditions are corrected.

S-20.8 Removing Hardware from or Adding Hardware to a Tower

When employees are removing hardware from or adding hardware to a radio or microwave tower, an employee in direct contact with the employees working on the tower must be assigned to control access to the area. The employee assigned must ensure that other employees enter the area only when it is safe to do so.

S-20.9 Removing Material from a Tower

Employees must use hand or winch lines to lower material from a tower. Before lowering material, employees should place it in pouches, if possible.

Employees must not drop or throw material from a tower.

S-20.10 Inspecting Fall Protection Equipment and Systems

- Inspect fall protection equipment and systems according to the manufacturers' instructions provided with the equipment, and as reviewed in BNSF training sessions.
- Inspect fall protection equipment and systems before each use. Document the inspections.

S-20.11 Cleaning and Storing Fall Protection Equipment

- Clean fall protection equipment components according to the manufacturers' instructions provided with the equipment, and as reviewed in BNSF training sessions.
- Store fall protection equipment components where they cannot be accessed by unauthorized personnel. Protect them from adverse weather conditions, chemical exposure, and open flames and sparks.

S-20.12 Towers—Tools and Equipment

When working on towers, observe the following tool and equipment guidelines:

- Ensure that winches, winch lines, and other rigging equipment (i.e., hooks, chokers, shackles, come-alongs, etc.) are of an adequate size to lift and handle the loads required.
- Ensure that all extension cords and metal-cased electric power tools have a three-conductor, grounded plug.
- Do not hoist a "live" electrical extension cord; give a signal to energize the line only after the cord has been secured to the tower.
- Secure power tools on the tower with a lanyard or rope, and do not plug them in until they are secure.

  Never use a tool's power cord to secure a tool to a tower.

- Keep extra tools and other materials secured in pouches.
  - Large items should have at least 60 percent of their bulk inside a pouch.
  - When an item is heavier on one side than the other, place it in the pouch with the heavy end down.
- Do not place unsecured items on a tower member.
- Carry tools on a safety belt only if they are necessary to do the job.

  Loading a safety belt with excess tools and equipment is unsafe.

- Use a winch or hand line to hoist tool pouches and large tools.

S-20.13 Knots

The following knots are used in rigging and installation activities. All employees must use these knots.

- Clove Hitch.
- Bowline.
- Two Half Hitches.

S-20.14 Tag Lines

When performing installations, be at tag lines or secure them at all times.

S-20.15 Outfit Cars

S-20.15.1 Outfit Car Steps

The employee in charge must ensure that outfit car steps are maintained in a safe condition and are securely fastened to the outfit car.

S-20.15.2 Access

When occupied outfit cars are located less than 25 feet from a main or running track, the employee in charge must ensure:

- Occupants enter and leave the car on the side opposite the track.
- Doors on the main track side of outfit car doors have a bar fastened across.

  Note: The bars must be fastened 4 feet above the floor.
- Doors on the main track side of tool cars are closed and locked.

S-20.16 Precaution with Roll-Up Doors

Employees or equipment shall not pass under roll-up doors until they have come to a complete stop in the fully retracted position.

S-21.0 Personal Protective Equipment (PPE)

S-21.1 Personal Protective Equipment

A. Requirements

All BNSF employees, contractors and their agents, visitors, and vendors, working in other than an office environment, must wear long pants and waist-length shirts with sleeves and wear appropriate PPE at all times. Clothing must not interfere with vision, hearing, or use of hands and feet. BNSF employees must use personal protective equipment approved by the company. Replace and discard any PPE that no longer provides protection. PPE tables are provided to assist in matching the job with appropriate protection.

Be familiar with and wear personal protective equipment and clothing as required by your job. Any changes made in the recommended use or design of personal protective equipment or clothing must be approved by the manufacturer.

- Do not wear jewelry, wrist watches, long watches or key chains, key rings, or other suspended jewelry when they present a hazard around machinery or electrical lines and equipment.
- Do not wear finger rings unless you are working in an office or office-like area.
- Hair must be secured out of the way if it could become entangled in machinery or obscure your vision.

B. Off-the-Job-Use

Employees are encouraged to use BNSF-provided personal protective equipment (PPE) off the job.

C. Additional PPE

Additional personal protective equipment, such as face shields, fall protection, welding jackets, etc., may be required by supervisors and/or as good safety practice warrants. See the PPE Chart for task/exposure-specific personal protective equipment requirements and recommendations.

D. PPE Exceptions

Personal protective equipment (PPE) is not required:

- When performing office tasks in office areas.
- Passenger train employees while embarking / disembarking passengers at passenger stop locations.
- Inside passenger-carrying rail cars.

Personal Protective Equipment and Clothing Chart

PPE Chart X = Required equipment # = May be required based on task and materials	Hearing Protection	See Eye & Face Protection Chart	Protective Hand wear (See Hand Protection Chart)	Welder's Jacket	Spats, Leggings	Disposable Overalls	Rubberized Apron	Remarks/Special Requirements
Abrasive grinding or cutting (stationary)	X	X						
Abrasive grinding or cutting (portable; MW)	X	X	X	#	#			All employees involved in welding, cutting or heating operations must wear earplugs or ear muffs.
Adzing Machine	X	X	X					Metal leggings and foot guards required.
Banding materials		X	X					

Personal Protective Equipment and Clothing Chart

PPE Chart X = Required equipment # = May be required based on task and materials	Hearing Protection	See Eye & Face Protection Chart	Protective Hand wear (See Hand Protection Chart)	Welder's Jacket	Spats, Leggings	Disposable Overalls	Rubberized Apron	Remarks/Special Requirements
Blowing and cleaning with compressed air, steam, or water	#	X	X		#	#	#	
Boring, reaming, drilling	#	X	X					
Breaking frozen material (ice, ground, gravel, cinders, ballast, taconite, etc.) with hand tools		X	X					Wear enhanced winter footwear.
Breaking or cutting concrete, stone, or asphalt	X	X	X		#			
Buffing and polishing with a wheel using a portable hand tool	#	X	X					Gloves are **not** to be worn when operating stationary/ pedestal units.
Carbon-arc cutting and gouging	X	X	X	X	X			All employees involved in welding, cutting or heating operations must wear earplugs or ear muffs.
Chain saw, chop saw	X	X	X					Chainsaw chaps are required to be worn.
Chipping, cutting, or caulking metal	#	X	X	#	#			All employees involved in welding, cutting or heating operations must wear earplugs or ear muffs.
Climbing poles and rail/ work equipment		X	X					Long sleeve shirts or Kevlar sleeves are required to be worn when climbing poles. See fall protection requirements in E.I. 1.4.
Cut-off disks, saws, or other tools with carbide bits	X	X	X	#	#			All employees involved in welding, cutting or heating operations must wear earplugs or ear muffs.
Cutting rivets, bolts, or cotter keys, splitting nuts, etc.	X	X	X	#	#			
Driving bucking, sticking, or heating rivets	#	X	X	#	#			All employees involved in welding, cutting or heating operations must wear earplugs or ear muffs.
Dusty conditions		#				#		
Electrical hazard	X	X	#					Voltage rated gloves are required work wear when working with 50 volts and over. Ear canal inserts must be worn. Lineman's gloves required when working with high voltage (over 600 volts).
Electrical welding	X	X	X	X	#			Kneepads required when kneeling for extended periods of time. All employees involved in welding, cutting or heating operations must wear earplugs or ear muffs.

Personal Protective Equipment and Clothing Chart								
PPE Chart **X = Required equipment** **# = May be required based on task and materials**	**Hearing Protection**	**See Eye & Face Protection Chart**	**Protective Hand wear (See Hand Protection Chart)**	**Welder's Jacket**	**Spats, Leggings**	**Disposable Overalls**	**Rubberized Apron**	**Remarks/Special Requirements**
Gas welding, cutting, heating	X	X	X	X	#			Kneepads required when kneeling for extended periods of time. All employees involved in welding, cutting or heating operations must wear earplugs or ear muffs.
Hammer (punch)	#	X	X	#				Tool holder must be used. Have cap or Rhino liner on punch head.
Hand tools	#	X	X					
Handling chemicals or refrigerants, or in greasy conditions		X	X				#	
Handling or servicing storage batteries		X	X			#	#	
Intermodal facility – outside of offices	#	X	#					Enhanced visibility work wear must be worn. Checkpoint employees must wear enhanced visibility vests.
Lifting and carrying		X	X					
MIG/TIG welding	X	X	X	X	#			All employees involved in welding, cutting or heating operations must wear earplugs or ear muffs.
Painting		X	X			X		
Plasma arc cutting	X	X	X	X	X			Kneepads required when kneeling for extended periods of time. All employees involved in welding, cutting or heating operations must wear earplugs or ear muffs.
Powder-actuated tools	X	X	X					
Rail drill	X	X	X					
Rail grinder (MW)	X	X	X	X	X			
Rail saw	X	X	X	X	X			Welder's jacket required.
Scaling, scraping, or removing welding flux	X	X	X	X	#			
Snow blowing	X	X	X					
Striking, or striking with, hardened tools and fastenings	#	X	X		#			
Thawing with propane	#	X	X	X	#			
Thermite welding	#	X	X	X	X			Welder's jacket required. All employees in welding, cutting, grinding or heading operations must wear earplugs or ear muffs. Packing gloves must be worn when packing a thermite weld.
Visitors	#	X	#					Wear PPE according to what the person performing the task is wearing.
Spraying/general use of cleaning agents: follow manufacturer's instructions.								

S-21.2 Safety Eyewear

A. Requirements for Safety Eyewear

BNSF employees must wear safety glasses with permanently mounted side shields and authorized by BNSF. Authorized tints for safety glasses are: Grey #1 indoors and Grey #1, #2 and #3 outdoors. No other tinting (as prescribed in requirements) is permitted. Mirror like lenses, amber ("shooters") lenses or lenses that are intended to correct a color vision deficiency are prohibited. Additional eye protection may be required depending upon the work to be performed or exposure to that work.

Except when welding or operating a torch, do not wear dark lens goggles or glasses at night or when working inside buildings/shops.

Photo-grey or transition lenses are not to be worn by personnel operating mobile equipment from outdoor to indoor locations, or by personnel who perform similar tasks requiring critical activity or fast reaction to visual stimuli.

Exception: Safety glasses are not required when inside highway vehicles or hy-rail vehicles when windows are completely closed.

B. Eye and Face Protection for Equipment and Machinery

Wear a minimum of splash goggles when servicing or repairing systems (i.e.- piping, tanks, hoses) containing liquid that may result in exposure to a release of the contents of that system. For severe exposure, such as repairing/servicing systems that contain contents at extreme temperatures, corrosives, or toxic materials, the employee must wear a faceshield over splash goggles.

Exception: Additional eye protection would not be required if specific task has engineering controls or other safeguards to control risk from inadvertent contact.

C. Use of Goggles

Employees are to wear goggles when performing overhead work in areas where loose material or particles are a hazard or when flying dust or particles are created. Goggles, or a face shield over safety glasses are required when working under cars or locomotives.

Eye and Face Protection Chart

1. **Type of safety eyewear and facewear to be worn. Properly tinted lenses must be used as required.**
2. **Maxims are considered as goggles only when worn with straps.**
3. **Where faceshields are worn only to meet requirements relating to metal to metal striking operations utilizing a 3 lb. or greater hammer, safety glasses may be worn underneath the faceshield, in lieu of impact goggles unless specified otherwise.**
4. **Polycarbonate faceshields over splash goggles are to be worn when exposed to liquids.**
5. **No other form of eye protection is required to be worn underneath a full-face respirator, to address impact concerns, when the faceshield has the ANSI Z87 marking.**

Task	Basic Requirements	More Severe Exposure	Remarks/Special Requirements
Abrasive grinding or cutting (portable)	Faceshield over impact goggles		Full length faceshield is required.
Abrasive grinding or cutting (stationary)	Impact goggles	Faceshield over impact goggles	Includes personnel on rear platform of production rail grinder as well as personnel in vehicles trailing production rail grinder where windows are open.
Adzing machines	Faceshield over impact goggles		
Banding materials	Safety glasses		
Blowing or cleaning with compressed air	Impact goggles; or welding helmet over safety glasses	Faceshield over splash or impact goggles, as appropriate	Always direct air away from eyes. See Track Welding manual for requirements when welding frogs.
Bonding, signal	Faceshield over goggles		
Boring, drilling, or reaming	Safety glasses	Impact goggles	Faceshield over impact goggles when reaming bolt holes.
Breaking frozen ground, gravel, cinders, ballast, taconite, etc., with hand tools	Faceshield over safety glasses or impact goggles		Shorter length faceshields may be used.
Breaking or cutting concrete, stone, or asphalt	Faceshield over impact goggles		Full length faceshield is required.
Carbon-arc cutting and gouging	Welding helmet over safety glasses		See Welding Operations Shade Chart.
Chain saw, chop saw	Faceshield over impact goggles		Shorter length faceshields may be used.
Chipping, cutting, or caulking metal	Impact goggles	Faceshield over impact goggle required when using a 3 lb or greater hammer	Shorter length faceshields may be used.
Climbing poles	Safety glasses		
Cut-off discs, saws, or other tools with carbide bits	Faceshield over impact goggles		
Cutting rivets, bolts, cotter keys, splitting nuts, etc.	Safety glasses	Impact goggles or faceshield over impact goggles	When working overhead, wear impact goggles and faceshield.
Driving, bucking, sticking, or heating rivets	Faceshield over impact goggles		Full length faceshield is required.
Dusty conditions	Impact goggles		
Electrical hazard	Safety glasses	Arc flash equipment	See E.I. 1.9, Electrical Safety and applicable JSAs.
Electrical welding	Welding helmet over safety glasses		See Welding Operations Shade Chart.
Gas welding cutting, and heating	Welding goggle or shaded faceshield over safety glasses	Welding helmet over safety glasses	See Welding Operations Shade Chart.
Hammer (punch)	Safety glasses	Impact goggles	Faceshield over safety glasses or goggles required when metal to metal contact using a hammer greater than or equal to 3 lb.
Hand tools	Safety glasses	Impact goggles	Faceshield over safety glasses or impact goggles required when metal to metal contact when using a hammer greater than or equal to 3 lb, inc. spiking, clip application / removal, chisel use, etc.

Eye and Face Protection Chart

1. **Type of safety eyewear and facewear to be worn. Properly tinted lenses must be used as required.**
2. **Maxims are considered as goggles only when worn with straps.**
3. **Where faceshields are worn only to meet requirements relating to metal to metal striking operations utilizing a 3 lb. or greater hammer, safety glasses may be worn underneath the faceshield, in lieu of impact goggles unless specified otherwise.**
4. **Polycarbonate faceshields over splash goggles are to be worn when exposed to liquids.**
5. **No other form of eye protection is required to be worn underneath a full-face respirator, to address impact concerns, when the faceshield has the ANSI Z87 marking.**

Task	Basic Requirements	More Severe Exposure	Remarks/Special Requirements
Handling chemicals or refrigerants, or in greasy conditions	Splash goggles	Faceshield over splash goggles	
Handling or servicing storage batteries	Faceshield over splash goggles		
Intermodal facility	Safety glasses	Dependent upon task being performed	
Lifting and carrying	Safety glasses		
MIG/TIG welding	Welding helmet over safety glasses		See Welding Operations Shade Chart.
Nordco C/CX spiker operator	Lexan guard in place or full length faceshield over safety glasses		
Painting	Safety glasses	Splash goggles or faceshield over splash goggles	
Pick use	Faceshield over safety glasses or impact goggles		Shorter length faceshields may be used.
Plasma arc cutting	Welding helmet over safety glasses		See Welding Operations Shade Chart.
Rail drills	Safety glasses	Impact goggles	
Rail grinder or saw	Faceshield over impact goggles		Full length faceshield is required.
Sandblasting (abrasive blasting)	Supplied air hood		
Scaling, scraping or removing welding flux	Welding helmet over safety glasses	Faceshield or welding helmet over impact goggles	
Snow blowing	Safety glasses	Impact goggles	
Spraying and general use of chemicals	Splash goggles	Faceshield over splash goggles	
Spray painting (gun)	Splash goggles	Faceshield over splash goggles	
Striking, or striking with, hardened tools and fastenings	Safety glasses	Impact goggles	Faceshield required over impact goggles or safety glasses when metal to metal contact using a hammer greater than or equal to 3 lb including spiking, clip application / removal, chisel use, etc. Shorter length faceshields may be used.
Thawing with propane	Safety glasses	Impact goggles	
Thermite welding	Faceshield over impact goggles		Must use a polycarbonate full length faceshield. See Welding Operations Shade Chart.
Visitors exposed to eye hazards	Safety glasses	Impact goggles	Employee in charge may require additional equipment be worn.
Woodworking machines	Safety glasses	Impact goggles	Conditions may result in a need to upgrade to a faceshield over impact goggles.

Eye and Face Protection - Welding Operations Shade Chart											
Operation	**Lens selection guide for filter shades that must be used when welding and cutting**										
	Shade Number										
	2	**2.5**	**3 or 4**	**4 or 5**	**5**	**5 or 6**	**6 or 8**	**10**	**11**	**12**	**14**
Carbon-arc cutting and gouging								X	X	X	X
Carbon-arc welding (heavy)											X
Carbon-arc welding (light)										X	
Gas shielded-arc welding (ferrous): 1/16”, 3/32”, 1/8”, 5/32” electrodes										X	
Gas shielded-arc welding (non-ferrous): 1/16”, 3/32”, /8”, 5/32” electrodes									X		
Gas welding: up to 1/8”				X							
Gas welding: 1/8” to 1/2”						X					
Gas welding: 1/2” and over							X				
MIG welding									X	X	X
Oxygen heating and cutting: up to 1”			X								
Oxygen heating and cutting: 1” to 6”				X							
Thermite preheat and pour					X						
Thermite welding rail end inspection after preheat		X									

S-21.3 Hard Hat

A. Hard Hat Requirements

Hard hats applicable to designated crafts and work areas that meet ANSI standard Z89.1, Type I, Class E & G specifications are found in the BNSF Safety and Health Equipment Catalog.

B. Hard Hats Exceptions

Hard hats are not required:

- For Train, Yard, and Engine (TY&E) employees except when performing work service with Maintenance of Way, at derailments, or as directed by supervisor.
- When operating vehicles or equipment with overhead protection. Including, but not limited to, forklifts with overhead protection or roadway equipment having enclosed cabs; or when inside highway or hy-rail vehicles.

S-21.4 Hand Protection

A. Hand Protection Required

Wear hand protection when there is a risk of exposure to harmful substances, punctures, severe abrasions, lacerations or cuts, chemical or thermal burns, high voltage, vibration, temperature extremes, or infectious biological agents.

All BNSF employees must wear protective gloves when performing their work. Use the PPE Chart and Work Glove Selection Guide to select the appropriate glove for the task.

B. Hand Protection Exceptions

- Gloves are not to be worn where they could be caught by moving parts or rotating stock.
- Gloves are not necessary when fine dexterity is required to perform a task (i.e. handling small electrical components, o-rings, gaskets, operating a computer or control panel, using a radio) when there is no potential for exposure to energized electrical systems, sharp projections, hot surfaces, or corrosive chemicals.
- Gloves are not necessary when working in offices or when operating motor vehicles.

C. Insulating Gloves

- The integrity of the glove insulation must be verified before each use. See manufacturer's instructions for proper application, testing and use of gloves. Insulating equipment failing to pass inspection must be removed from service and may not be used.
- Insulating gloves must be worn along with protector gloves (such as leather), and both insulating gloves and sleeves need to be stored properly when not in use. Proper storage means that gloves must not be folded and need to be kept out of excessive heat, sunlight, humidity, ozone, and any chemical or substance that could damage the rubber.

D. Sharpening Chain Saw Blades

When sharpening chain saw blades, use the proper chain saw file and wear cut-resistant gloves.

E. High-Voltage Protective Gloves

- Gloves will be tested every six months per OSHA (29 CFR 1910.137, Table 1-6).
- Insulating gloves must be rated for the voltage to which a worker will be exposed. The following chart provides guidelines for proper selection of insulating gloves.

Voltage-Rated Gloves Chart			
Class	**Max AC Use Voltage**	**Max DC Voltage (average)**	**Color of Label**
00	500	750	Tan
0	1,000	1,500	Red
1	7,500	11,250	White
2	17,000	25,500	Yellow
3	26,500	39,750	Green
4	36,000	54,000	Orange
In the cuff portion of each glove, there's a nonconductive label. As listed in the table, the label is colored depending on the glove class.			

Hand Protection - Work Glove Selection Guide											
X = Preferred glove O = Acceptable alternative	**Brown Jersey**	**Canvas**	**Grip**	**Leather Palm**	**Vinyl-Coated Knit-Lined**	**Leather Glove**	**Welder's Glove**	**Welder's Mitten**	**Chemical Resistant**	**Heavy Duty Cut Resistant**	**Remarks/Special Requirements**
Abrasive blasting							X				
Abrasive grinding or cutting (portable)				O		O	X	O			Welder's glove required for thermite weld hot grind process.
Adzing machines				O		X					
Banding material				X		X				X	
Blowing and cleaning with compressed air				O		O	O	O			
Boring, reaming, drilling (portable)				X		X	O	O			
Breaking or cutting frozen material (ice, ground, gravel, cinders, ballast, taconite, etc.) with hand tools				X	X	X	O	O			
Bridge work			O	O		X				X	Dependent on task being performed.
Buffing and polishing with a wire wheel (pedestal)											No gloves required.
Carbon-arc welding and gouging							X	O			
Chain saw, chop saw				X		X					
Chipping, cutting, or caulking metal			O	X		X				O	
Climbing poles				X		X					Electrical rated gloves may be required. See E.I. 1.9.
Cut-off disks, saws, or other tools with carbide bits			X	X		X	X				
Cutting rivets, bolts, or cotter keys, splitting nuts, etc.				X		X					Welder's gloves are required when a cutting torch is used.
Driving, bucking, sticking, or heating rivets							X	X			
Electrical welding							X	X			
Gas welding, cutting, heating							X	X			
Hammer (punch)				X		X				X	
Hand tools (Tool specific requirements: See JSAs)		O	O	O	O	O				O	

Hand Protection - Work Glove Selection Guide											
X = Preferred glove O = Acceptable alternative	**Brown Jersey**	**Canvas**	**Grip**	**Leather Palm**	**Vinyl-Coated Knit-Lined**	**Leather Glove**	**Welder's Glove**	**Welder's Mitten**	**Chemical Resistant**	**Heavy Duty Cut Resistant**	**Remarks/Special Requirements**
Handling chemicals									X		No one glove type is appropriate for all chemical exposures. Check MSDSs for guidance.
Handling molten metal							X	X			
Handling/servicing storage batteries									X		Wear neoprene or other corrosive resistant gloves.
Lifting and carrying			O	X	O	X	O	O		O	
Machine operators			O	X		X					
MIG/TIG welding							X	O			
Painting					X				X		
Plasma arc cutting							X	O			
Powder actuated tools				X		X					
Rail grinder, drill or saws				O		X	X	O			Welder's glove required for thermite weld hot grind process.
Scaling, scraping, or removing welding flux							X	O			
Spike keg handling										X	
Spraying or general use of cleaning agents									X		
Spray painting gun									X		
Steam cleaning									X		
Striking, or striking with, hardened tools and fastenings			O	X		X	X	O		O	Dependent on task to be performed.
Stripping cable										X	Need to direct cutting edge away from body.
Thawing with propane							X	X			
Thermite weld packing					X						
Woodworking tools			X	X		X					Gloves are not to be worn with some woodworking machines. See mfg. instructions or JSAs.

S-21.5 Enhanced Visibility Work Wear

A. Enhanced Visibility Work Wear Requirements

Enhanced visibility work wear is to be worn in accordance with specifications listed below:

- When performing work outside of buildings.
- When at locomotive service tracks.
- Must be worn as an outer garment, not covered or partially covered by overalls, coats, etc.
- Enhanced visibility garments are to be replaced when they become faded or dirty to the point where they no longer function as an enhanced visibility garment.
- Acceptable items of enhanced visibility garments include vests, shirts, coats/jackets or raingear.
- Must be orange in color with retro-reflective striping, BNSF approved and meet ANSI Class II or III Reflective Standards.
- ANSI Class III work wear is required to be worn by the flagger when highway flagging at night or when highway flagging operations are performed on roadways where posted speeds are 50 MPH or greater.
- Only high visibility garments rated for electrical work may be worn when exposed to energized electrical systems or equipment above 50 volts.

B. Enhanced Visibility Work Wear Exceptions

Enhanced visibility work wear is not required:

- When performing work inside of buildings (this exception does not apply to indoor service tracks).
- When walking from one building to another on designated walkways within designated mechanical facilities.
- While wearing leathers when performing hot work outdoors. Upon completion of hot work, high visibility must be worn in accordance with the requirements outlined in this rule.

S-21.6 Hearing Protection

Hearing protection (ear plugs/earmuffs) must be worn when entering designated hearing protection areas, while performing designated jobs/activities, or in situations where the noise requires an employee to raise his or her voice during normal conversation at a distance of 3 feet.

Annual hearing conservation training and audiometric testing is mandatory for employees required to wear hearing protection on the job. Regardless of noise exposure, you are encouraged to participate in the hearing conservation program.

A. Hearing Protection Required

Wear hearing protection when working in the following areas:

- On locomotive servicing tracks, fueling pads, inbound/ outbound staging tracks and other posted areas.
- On a locomotive under load.
- Within 100 feet of humping or retarder operations.
- In a high-noise area required by posted notice or special instructions.
- On locomotive servicing tracks, fueling pads, inbound/ outbound staging tracks and other posted areas.
- On a locomotive under load.
- Within 100 feet of humping or retarder operations.
- In a high-noise area required by posted notice or special instructions.

B. Hearing Protection During Hot Work

All employees involved in welding, cutting, or heating operations must wear ear plugs or ear muffs.

C. Hearing Protection During Energized Electrical Work

Ear plugs or ear muffs are to be worn when performing any inspection or maintenance work on energized electrical systems or equipment.

D. Hearing Protection Exceptions

When all doors and windows are closed, hearing protection is not required inside the control compartment of GE locomotives B40-8W, C40-8W, B40-8, C44-9W, ES44AC, ES44C4, ES44DC, AC4400CW, AC4400EV and EMD locomotives GP60M, SD60M, SD70M, SD75M, SD70MAC, and SD70ACE.

S-21.7 Safety Footwear

A. Safety Boots

Safety boots must meet the following criteria:

- Leather or leather-like upper.
- Sturdy non-leather sole that will resist puncture.
- 3/8- to 1-inch defined instep.
- Above ankle (5-inch height as measured from inside boot).
- Minimum ASTM F2412-05, ASTM F2413-05—75-pound (100 pounds in Canada) impact and compression class toe.
- Lace-up.

B. Anti-Slip Winter Footwear

Employees will wear anti-slip winter footwear when working in icy and or snowy conditions. Only BNSF approved winter footwear may be worn.

S-21.8 Respirator Selection and Use

Refer to the Respiratory Protection Chart to determine which task requires use of respirators. Your supervisor, safety manager, or the Industrial Hygiene group may specify additional tasks or activities not listed that require the use of respirators. If you have questions about the appropriate respirator selection, contact Industrial Hygiene.

A. Respiratory Protection Program

All BNSF employees who use a respirator must comply with the practices and procedures outlined in the Respiratory Protection program. When you are required to wear a respirator, you must:

- Be trained and fit-tested annually for the specific make and model of the respirator used.
- Be medically qualified annually.
- Not have any facial hair which contacts the sealing surface of the respirator facepiece or potentially interferes with the respirator valve function. Binding, rolling up, or other methods to constrain beards and moustaches are not acceptable means of compliance. These requirements apply when fit testing and whenever a respirator is worn.
- Inspect your respirator before use.
- Clean and properly store respirator following use.

B. Voluntary Respirator Use

When a respirator is not required for an activity, but you wish to voluntarily wear a respirator you must:

Elastomeric facepiece models

- Be trained and fit-tested annually for the specific make and model of the respirator used.
- Be medically qualified annually.
- Not have any facial hair which contacts the sealing surface of the respirator facepiece or potentially interferes with the respirator valve function. Binding, rolling up, or other methods to constrain beards and moustaches are not acceptable means of compliance. These requirements apply when fit testing and whenever a respirator is worn.
- Clean and properly store the respirator following use.

Filtering facepiece models

- User must comply with all requirements of BNSF Respirator Program.

Respiratory Protection Chart

Task	Required Respirator (See Key)							Cartridge (As Applicable)	
	APR-HM-FF	APR-HM-EF	APR-FM	PAPR	SAR	SABH	SCBA	P100	MC
Abrasive blasting						X			
Air arcing on frogs. Note: This activity also requires the use of an engineering control - the Smoke Cannon local exhaust ventilation	X	X		X				X	
Asbestos: Disturbing or removing any asbestos-containing materials		X						X	
Blowing and cleaning with compressed air	X	X							
Bolt installation/ removal on lead bridges using pneumatic tools. No torch heating involved		X						X	
Compressed air removal of particulate in locomotive sub-floor areas			X	X				X	
Disturbing, removing or disposing of accumulations of dried bird droppings	X	X						X	
Disturbing, removing or disposing of rodent nests	X	X						X	
Entry into, or work performed in confined spaces, where the oxygen levels are less than 19.5%, and/or concentrations of airborne contaminants can cause rapid, serious health effects (IDLH conditions)							X		
Entry into, or work performed in, environments which can cause or may be reasonably anticipated to cause rapid , serious health effects (IDLH) environments, such as derailments involving release of hazardous materials							X		
Hazmat operations, where uncontrolled, unknown or IDLH atmospheres may exist							X		
Maintenance of way activities when visible dust is produced. Includes, but is not limited to, ballast dumping, scarifying, brooming, etc.	X	X						X	
Operating or riding locomotives in the Cascade, Stampede, Flathead or Moffat tunnels							X-1		
Spray painting using compressor or airless sprayer			X						X
Taconite handling and related maintenance operations when visible dust is present	X	X						X	
Welding/cutting, torch burning, or rivet busting on structures (lead-based painted surfaces)				X				X	
Welding, cutting, torch work inside enclosed cars/boxcars/ hopper cars, etc. where continuous, forced ventilation is not provided				X				X	

Key

X Respirator required - if multiple selections are indicated, either type may be used

X-1 Specially designed SCBA solely used for the Tunnel Emergency Respirator Program (“TERP”)

APR-HM-FF Air purifying respirator, half-mask, filtering facepiece (30 #8233, 1100)

APR-HM-EF Air purifying respirator, half-mask, elastomeric facepiece

APR-FM Air purifying respirator, full Facepiece

PAPR Powered air purifying respirator

SAR Supplied air respirator, all types excluding blast helmet models

SABH Supplied air blasting helmet

SCBA Self-contained breathing apparatus

MC Multi-contaminant cartridge

Contact the BNSF Industrial Hygiene Department for additional information.

Voluntary Use - Where respirators are used for any task not identified within this table, the usage shall be deemed as voluntary. All requirements applicable to voluntary usage, as identified within BNSF documents, must be followed. For filtering facepiece models, the user must be provided with a copy of Appendix D to the Occupational Safety and Health Administration (OSHA) standard 29 CFR 1910.134, *Respiratory Protection*. Additionally, the user must not have any facial hair which interferes with the respirator-to-face seal. Where all other types of respirators are used on a voluntary basis (e.g. non-filtering facepiece models), the user must comply with all program requirements, including completing a medical questionnaire, being fit tested, attending training, and not having facial hair which interferes with the respirator seal.

S-25.0 Job Tools

S-25.2 Physical Exertion

Always use safe lifting practices when lifting, carrying or performing other tasks that might cause back pain, injury or property damage. Do not use excessive force to accomplish tasks. If one person cannot manually handle a load safely, then use mechanical assistance. Where mechanical assistance is not readily available, request assistance or stop and obtain the mechanical means necessary to complete the task.

S-25.2.1 Stretches

A listing of approved stretches is available on the BNSF Intranet. Stretching videos, posters and pocket cards are also available; instructions for ordering are on the BNSF Intranet.

Employees must only use BNSF approved stretches when stretching at the beginning of the shift, before physical exertion, after rest breaks, and after a long period of sitting or maintaining the same posture. Employees are to stretch without exceeding personal capabilities, but must participate to the extent of their ability or as directed by a physician. Stretches following rest breaks may consist of a subset of the approved stretches.

Check with your physician before beginning a new exercise program, or if you have had recent joint trouble, muscle problems, or surgery.

- Don’t bounce.
- Keep the stretch mild and comfortable.
- Relax muscles as you stretch.
- BREATHE, don’t hold your breath.
- Hold your stretch until tension releases, and then go further into another mild stretch.
- You should NEVER feel pain during or after a stretch.
- Stretch before you work, before any physical exertion and periodically to relieve muscle tension.
- A good rule of thumb is to stretch every 20 to 30 minutes.
- Don’t forget to stretch both sides of the body when stretching.
- Tension for the initial stretch should release within 60 seconds. If it doesn’t, reduce the intensity of the stretch slightly.

Benefits

- Increases range of motion, reducing risk of injury near joint limits.
- Warms muscles, reduces internal friction, and “resets” discs before activity.
- “Pre-fuels” muscles with oxygen before activity.
- Helps muscles relax and reduces soreness after activity.

Leading Stretches

Remind people that stretching is not a competition to see who can do the most or go the farthest. People have different levels of flexibility, and we need to respect these differences in ourselves, allowing each person to experience benefits at their own pace. It took your whole life to reach the level of flexibility (or inflexibility) you now have, so you should expect benefits to be gradual as you stretch regularly over time.

Remind people to check with their physician if they have particular problems with stretching, and to do only what they feel comfortable doing in the meantime.

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Glossary

Acknowledge
Verbally or visually make known that a signal or radio transmission has been received.

Air Brake Hose
The flexible connection between the brake pipes of cars or locomotives.

All-Terrain Vehicle (ATV)
A four-wheel vehicle with handle bars and a seat that is straddled by the operator.

Anchor Wrench
A wrench used by track workers to apply spring anchors to the rail.

Angle Cock
A two-position valve located at both ends of the brake pipe hose on locomotives, passenger and freight cars. When open, it allows the passage of air.

Authorized
A person who is approved or assigned by BNSF to perform a specific type of duty or duties or to be at a specific location(s) at the job site.

Bad Order
Equipment that is removed from service and in need of repair.

Below-the-Hook Lifting Device
A structural, mechanical, vacuum or magnetic device designed to lift a load when attached to the load hook of a crane or hoist.

Blocking
A solid piece(s) of material, usually made of wood used to provide support to a suspended load placed to prevent the load from falling.

Bonding
A wire connecting two pieces of equipment that prevents a build-up of a static charge by creating the same electrical potential between the two pieces of equipment.

Brush Hook
A hand tool with a curved blade resembling an axe used to clear brush.

Capacity
The allowable load limit for any lifting or storing device as determined by the manufacturer, regulation, or both.

Center Sill
The center longitudinal part of the underframe of a car which forms the backbone of the underframe and transmits most of the buffing shocks from one end of the car to the other.

Chip Guarding
A cone shaped device used on air guns to prevent the operator from being struck by chips or debris while using an air gun.

Chock
A device placed on the rail to prevent movement of stationary rolling equipment.

Confined Space
A space that meets all of the following criteria: large enough and so configured that an employee can bodily enter and perform assigned work; has limited or restricted means for entry or exit; is not designed or intended for continuous occupancy by personnel.

Coupler
An appliance for connecting cars or locomotives.

Coupler Webbing
The side pocket on a coupler that the end of train device mounts into.

Crossover
A track connection between two adjacent tracks, consisting of two switches, which is intended to be used primarily for the purpose of crossing over from one track to the other.

Derail
A track safety device designed to guide a car off the rails at a selected spot as a means of protection against collisions or other accidents; commonly used on spurs or sidings to prevent cars from fouling the main track.

Drift Pin
A tapered steel pin, 12” to 18” in length, used by MW to align bolt holes at rail joints. Drift pins are available in many sizes for various other applications.

End-of-Train Telemetry Device (ETD)
A system of components that determines the rear car brake pipe pressure and transmits that information to the display on the head-of-train telemetry device (HTD).

Fall Protection
Safety equipment designed to prevent falls and minimize injury in the case of falls.

Flashback Arrestor
A device most commonly used in oxy-fuel welding and cutting to stop the flame from burning back up into the equipment and causing damage or explosions.

Fouling Track
Closer than or within 4 feet of the nearest rail.

Frog
A track structure used at the intersection of two running rails to provide support for wheels and passageways for their flanges, thus permitting wheels on either rail to cross to the other.

Fusee
A red flare used for flagging purposes.

Gravity Switch Move
A switching maneuver whereby gravity causes a stationary car to roll when the hand brake is released rather than being propelled by an engine.

Ground Fault Circuit Interrupter (GFCI)
A device designed to protect from electrical shock by interrupting a circuit when there is a difference in the currents in the “hot” and neutral wires.

Grounding
The connecting of electrical equipment and wiring systems to the earth by a wire or other conductor.

Hand Adze
An axe-like tool, for rough dressing or shaping of wood, with a curved, chisel-like steel head mounted at a right angle to the wooden handle.

Hand Brake
An assortment of levers, chains, rods, and gears. When applied manually by wheel or lever, the hand brake forces the brake shoes against the braking surfaces (wheel tread or disc) to control car or locomotive movement.

Hazardous Material
A substance or material which is capable of posing an unreasonable risk to health, safety, and the environment.

Knuckle
The pivoting casting that fits into the head of a coupler to engage a mating coupler.

Leading Foot
When riding on the side of moving equipment, the foot on same side as direction of movement.

Lining Bar
A crowbar with a pinch, wedge, or diamond point at its working end.

Lockout/Tagout (LOTO)
Procedures that involve tagging and locking systems so that no one can inadvertently activate the circuit, system, or equipment that is out of service.

Operator
The person who “runs” and so must maintain control of mechanized equipment or a motor vehicle.

Pawl
A pivoted tongue or sliding bolt on one part of a machine that is adapted to fall into notches or interdental spaces on another part so as to permit motion in only one direction.

Pinch Bar
A bar similar in form and use to a crowbar and sometimes having an end adapted for pulling spikes or inserting under a heavy wheel that is to be rolled.

Pry Bar
A tool consisting of a metal bar with a single curved end and flattened points, often with a small fissure on one or both ends for removing nails. Also referred to as a crow bar.

Proper Authority
Those individuals who are qualified by virtue of their expertise or position to approve, certify, sanction or provide/receive information.

Qualified
Any person by possession of a recognized degree, certificate, professional standing or training and has successfully demonstrated their ability to perform a task or resolve problems relating to the subject matter.

Rail Expander
Hydraulic- or ratchet-type tool used to pull rails together or to separate them.

Rail Fork
A long-handled tool with three jaws at one end used for rolling a rail.

Reverse Flow Check Valve
The main function of the check valve is to close when forward flow of gas or material stops and prevents the development of reverse flow purpose.

SCFH
Standard Cubic Feet per Hour - the cubic feet per hour of gas flow at specified standard conditions of temperature and pressure.

Skate
A metal skid placed on the rail to stop the movement of rolling equipment.

Sledge Hammer (Mundy)
A long-handled hammer with a double-faced head used to strike other tools such as a track chisel and a rail drift pin and to install or remove rail anchors.

Stage Boards
Boards, planks or batten on a scaffold that are used as a work platform.

Three-Point Contact
Three-point contact is used when getting on or off vehicles, equipment, and machinery, and when ascending or descending ladders or platforms. Three-point contact consists of a minimum of both feet and one hand or both hands and one foot.

Tie and Timber Tongs
Steel tongs designed for handling rail ties and crossing timbers.

Tie Plate
Metal plate installed between the rail and cross tie to distribute the weight over a greater area of the tie.

Trailing Foot
When riding on the side of moving equipment, the foot on the opposite side from the direction of movement.

Utility Vehicle
Also called a “Side by Side”, is a small four wheel off-road vehicle capable of accommodating multiple passengers.

Working Load Limit
The maximum load that includes mass or force, that should ever be applied to load carrying equipment under any condition.

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