



BUILDING AMERICASM

Fire Prevention Plan

Engineering Department

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Fire Prevention Plan

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1 GENERAL STATEMENT OF FIRE SAFETY

The purpose of this plan is to prevent loss of life, property and natural resources and to prevent disruption of train operations as a result of fires caused by the work activities of Union Pacific's engineering employees. This plan does not apply inside buildings.

All engineering personnel and contractors must be familiar and comply with the instructions contained in this plan. They must also be familiar and comply with federal, state and local fire control regulations where they are working. State or local regulations may require dedicated fire-fighting equipment, spark arrestors on work equipment or other restrictions in addition to what is required in these instructions.

Specific federal, state and local (county/city) fire regulations as well as fire control agency contact information can be found by going to the UP Engineering home page and clicking on "Wildfire Regulation & Agency Inventory" under the heading of General Information. This website may also be accessed from outside the UP internet system by typing: <http://pocketdynaq.com/FireRegs>. At the login screen, type in "user" as your username and "user" again as your password.

Engineering managers must know the USFS Fire Danger Class for their territory, be aware of burn bans in effect and ensure compliance with any permitting necessary. This information must be given to their employees who perform hot work. If burn ban is in effect, review the UPRR Fire Prevention Plan with local or state fire agencies concerned. More specific fire danger information posted by local/state fire agencies should be used if available.

Hot work is considered to be any work activity that produces sparks or open flame. This work includes, but is not limited to, cutting or grinding with abrasive wheels, open-flame rail heating, thermite welding, flash-butt welding, arc welding, Cadweld bonding and using an oxy-fuel torch.

2 JOB BRIEFINGS

2.1 A Fire Risk Assessment must be performed before conducting any hot work. This fire risk assessment will determine the specific restrictions that employees must follow. If conditions change that would affect the Fire Risk Assessment (such as a drop in humidity, an increase in wind speeds, etc.), a new Fire Risk Assessment must be completed even if hot work location has not changed. Work groups engaged in a common task but spread out over a large area may be required to complete a separate fire risk assessment dependent on the surrounding work environment. Be sure to document on the form the time the assessment was conducted. Where a second employee is available, he/she must verify that the risk assessment was properly completed.

2.2 A job briefing must be conducted to discuss the risk factors and fire preventive measures to be taken in accordance with these instructions and the fire suppression methods to be utilized in case of a fire. This job briefing must include a review of the Emergency Response Plan in effect for the specific work location. The Emergency Response Plan must detail the method of contacting local fire/emergency personnel, the train dispatcher and Risk Management Control Center (RMCC). The Emergency Response Plan must also include the evacuation route to be followed in case of a wildfire.

3 FIRE SUPPRESSION

3.1 All employees will respond to a fire without endangering their own safety.

3.2 If a fire gets out of control:

- Contact local fire/emergency personnel, train dispatcher and RMCC. Any fire started by engineering personnel must be reported to RMCC if the employees present cannot extinguish the fire without calling for assistance.
- Evacuate the area using the route detailed in the job briefing.
- Contact others in the immediate area to alert them to the fire danger.

3.3 Engineering personnel involved in hot work must carry the required levels of water as prescribed in section 5 for fire suppression. Any water used for saturating vegetation prior to performing hot work must be in addition to these minimum levels. Gangs must have the minimum number of filled portable pump or pressurized sprayers as prescribed in section 5 which can be refilled from the storage tanks. Storage tanks with water hoses are not considered portable and do not take the place of the required filled portable pump or pressurized sprayers. Pressurized sprayers must have an immediate source of compressed air in order to recharge the sprayers.

Except for work over or around waterways, water supply used for fire prevention and suppression must be treated with Class A foam (item numbers 380-7900 and 380-2250). However, foam-treated water must not be applied in a manner where it will enter waterways, i.e. on bridges, over water, near shorelines, etc. It also should not be applied in areas where the residue from the foam will wash into waterways.

When fire risk is low and the temperature is below freezing or the ground is snow-covered, chemical fire extinguishers may be used in lieu of water for those operations prescribed in the following sections:

- 5.2 Switch Grinding
- 5.3 Flash-Butt Welding
- 5.4 Open Flame Rail Heating (repairing a pull-apart)
- 5.5 Thermite Welding
- 5.6 Arc Welding, Grinding, Cutting or Using a Torch
- 5.7 Applying Cadweld Bonds
- 5.9 Track Inspectors

A minimum of four 20 lbs. chemical fire extinguishers (or equivalent number of smaller extinguishers) must be available for fire suppression for switch grinding. A minimum of two 20 lbs. chemical fire extinguishers (or equivalent number of smaller extinguishers) must be available for fire suppression for flash- butt welding, open-flame rail heating to repair a pull-apart, thermite welding, arc welding, grinding, cutting or using a torch. A minimum of one 20 lbs chemical fire extinguisher (or equivalent number of smaller extinguishers) must be available for applying Cadweld bonds and inspecting track.

4 FIRE RISK ASSESSMENT

4.1 ASSESSMENT FORM: A Fire Risk Assessment must be completed before any hot work is performed. This assessment is comprised of 13 factors, each weighted for its importance in determining the risk of a wildfire. The first 6 factors are relatively fixed – meaning that these factors change very little, if at all, over time at a given location. These consist of elevation, angle of slope, direction of slope, emergency access, fuel (vegetation) type and adjacent property. The other 7 factors can vary widely from one day to the next. They are fire danger class, time of day, distance to vegetation, wind speed, temperature, humidity and precipitation.

If any of the 13 risk factors in the Fire Risk Assessment is unknown, select the “high risk” points for that factor. For example, if the fire danger class is unknown, you would select “high-very high-extreme” and assign 15 points.

All completed forms must be kept in the Fire Risk Assessment book (Form 24309) until the book is full. When the book is full, give it to your manager. Managers should sign and date the front cover when a completed book is received and again after it is reviewed. Managers must keep books for at least 90 days from when they were received.

4.2 ELEVATION: As elevation increases so does the risk of fire. This is due, primarily, to the differences in temperature and relative humidity, the effect of temperature and humidity patterns on plant characteristics and, to some degree, the effect of wind dynamics associated with daily heating and wildfire behavior on long slopes.

4.3 ANGLE OF SLOPE: Fires burn up a steep slope faster than on a gradual slope or down-slope because the flames are closer to the unburned vegetation ahead of it – heating and drying it out before ignition. When a fire burns down- slope, the flames are angled away from the unburned vegetation.

4.4 DIRECTION OF SLOPE: Because we’re in the Northern Hemisphere, south- facing slopes are exposed to the sun earlier in the day and for longer periods of time. West-facing slopes are exposed later in the day – when temperatures are normally higher and humidity is lower.

4.5 EMERGENCY ACCESS: If a fire gets out of our control, off-track access to the area for emergency fire responders is critical.

4.6 FUEL TYPE: Surface vegetation, such as grasses, plants or brush, is normally the ignition source for wildfires. Drift, debris or other flammable material under or near bridges must be considered. Dry or dead vegetation on our right-of-way ignites easily and spreads quickly. New leafing, wetland plants, freshness of cuttings, drought, frost and other factors can also affect fuel characteristics.

4.7 ADJACENT PROPERTY: From a risk standpoint, the consequences of a fire – particularly as it affects the safety of people, their homes and our National Forests – must be taken into account. Fire sensitive areas (Level 1) as defined in section 6 are considered to be the highest risks. However, the employee in charge of the hot work must also consider other high risk areas that could pose a significant danger if a fire got out of control. One example is a heavily traveled road or highway that is less than ¼ mile downwind of the hot work. The smoke generated from a fire could cause a significant driving hazard under certain conditions.

4.8 FIRE DANGER CLASS: To determine the fire danger class, use the US Forest Service's map on the UP Engineering home page by clicking on "Fire Service Map" under the General Information heading. Outside UP's system, this map can be found at http://www.fs.fed.us/land/wfas/fd_cls_f.png.

White areas on this map indicate that the required forecast data was not received from one or more USFS remote reporting stations. If you will be working in one of these white areas, use the "Wildland Fire Assessment (WFAS) Map" from the Engineering home page (or www.wfas.net) to determine fire danger class. The color scheme is similar to the USFS map: blue-green- yellow-orange-red as the level of fire risk increases from low to extreme.

If the fire danger class for the work area cannot be determined locally, the employee in charge may call MWOC at (402) 636-7434 to obtain this information.

4.9 TIME OF DAY: This is closely related to two other factors – temperature and humidity. To the extent practical and safe to do so, it is usually better to perform hot work late at night or early in the morning when the temperatures are cooler and the humidity is higher.

4.10 DISTANCE TO VEGETATION: Obviously, the closer combustible vegetation is to our hot work, the greater the chance of a fire. High winds can carry sparks from grinders or rail saws more than 50 feet from our work location.

4.11 WIND SPEED * : Wind speeds in excess of 10 mph can carry sparks from our hot work to the combustible vegetation along our right-of-way. High winds will also accelerate the burn rate and intensity of a fire.

4.12 TEMPERATURE: As ambient temperatures increase, the air will draw moisture away from the vegetation (evaporation) and lower the temperature needed to ignite the vegetation.

4.13 RELATIVE HUMIDITY * : RH is an indicator of the amount of moisture in the air and directly affects the moisture content of the vegetation. The higher the humidity, the less chance of a wildfire. When relative humidity is less than 25%, the chances of a wildfire increase substantially.

4.14 PRECIPITATION: If there is ample moisture present, the danger of fire is reduced. Snow cover or recent rains are examples.

* Use of an anemometer (item numbers 380-0050, 380-062 or 380-0065) is required to determine wind speed and relative humidity. If anemometer is not used, highest score for that risk factor must be used to determine total score.

5 PREVENTIVE MEASURES

The preventive measures to be taken are determined by the fire risk assessment completed prior to the hot work. Fire Prevention Plan lettered instructions corresponds to the fire risk assessment corrective actions stated on the fire risk assessment form. The employee in charge of the work may determine that additional measures must be taken during periods of extreme dryness or high winds. These additional measures may include the use of a welding tent or shutting down the hot work. Use of a tent is only required when hot work is being performed as stated in section 1.

When using a welding tent, follow these safety precautions:

- Use care not to create tripping hazards from tools or materials in or near the welding tent. Housekeeping around the work site is critical to preventing slips, trips and falls.
- In hot weather, employees should minimize their time inside the tent and remove the tent when not required in order to prevent heat stress.
- In windy conditions, use welding tent as long as it can be maintained in position and function as intended by securing the tent to the rail using the tie-down clamps. In high fire risk, if tent cannot be maintained in place due to high winds, work must be suspended. When cutting rail inside the tent with a torch or an abrasive rail saw, a respirator must be worn per UP's respiratory requirements. In addition, a welding/track fan (380-0085) may be used to disperse the dust or fumes.
- When cutting or grinding inside the tent, use spark shields to prevent damage to the tent.
- To allow better air flow and permit easier egress from the tent, it is permissible to leave a flap open if sparks can be completely contained within the tent.
- A welding tent will not be used for cutting, grinding or welding on track components containing more than 2% manganese.

A person performing the duties of a lookout for On-Track Safety will not serve as a fire watcher when one is required (preventive action "E"). In some cases, additional employees will be required to perform all necessary tasks.

5.1 PRODUCTION RAIL GRINDING

Employees and contractors operating or working with production rail grinders will be governed by the following instructions. The [UPRR Rail Grinding Fire Prevention Policy](#) has additional instructions specific to rail and switch grinding operations.

5.1.1 When risk is low (green) or moderate (yellow):

- A. Normal operations include the following:
 - A1 Grinders must be equipped with spark blankets.
 - A2 Fire suppression systems on grinders will have the capability to inject Class A foam into the water supply. Each grinder will carry a minimum of 500 feet of 1½" fire hose along with hand tools for fire fighting. There should be adequate supply of hand tools for every employee on site.
 - A3 Grinding will cease when the grinder's water reserve falls below 5,000 gallons.
 - A4 At least one railroad or contractor supervisor must have received training on wildland fire fighting. This trained supervisor must accompany the rail grinder at all times when grinding rail.
 - A5 Manager of Rail Grinding will be responsible for notifying state and federal agencies of the grinding schedule prior to beginning work. Grinding supervisor or service unit manager will notify the local Manager of Bridge Maintenance or his representative prior to grinding the rail on any bridge.
 - A6 Grinding contractor must use thermal imaging equipment to ensure no danger of fire exists on or along the right-of-way.

- F. On open deck timber bridges, bridge personnel must be present during grinding and remain at the bridge for a minimum of 15 minutes after grinding has been completed. Bridge personnel will continue to protect the bridge, by making periodic checks every 30-60 minutes, for 4 hours following the final grinding pass on the bridge. The final check on a timber open deck bridge must be performed between 3 ½ and 4 hours following the final grinding pass on the bridge. On open deck steel or timber ballast deck bridges, bridge personnel must be present during grinding and must make at least one follow-up check on the bridge between 2 and 4 hours following the final grinding pass on the bridge. Bridge personnel must use a hand held infrared heat sensing device (provided by grinder) while performing checks to detect excessive heat or potential source of fire ignition on or under the bridge.
- H. A hy-rail or off-track water truck having access to the bridge must follow the grinder when the risk is moderate. To ensure an adequate water supply, a second hy-rail or off-track fire fighting vehicle may be required to follow the grinding operation.

5.1.2 When risk is high (red):

- X. All production grinding operations will be discontinued except as described below.

Many areas of the railroad, have sparse vegetation, drift, debris and/or other flammable material, therefore, do not pose the same level of risk for vegetation fires as the rest of the railroad - even when the fire risk assessment is high.

The Regional Chief Engineer (or General Director in his absence) may authorize production rail grinding in these territories when the fire risk assessment is high after consultation with the rail grinding supervisor. This consultation should include a review of the fire risk assessment, a discussion of the right-of-way vegetation in the areas to be ground and the weather forecast for the area (e.g. high winds).

Must comply with Rule 5.1.1 and the [UPRR Rail Grinding Fire Prevention Policy](#).

5.2 PRODUCTION SWITCH GRINDING

5.2.1 When risk is low (green) or moderate (yellow):

- A. Normal operations include the following:

A1 Switch grinder must be equipped with spark blankets.

A2 Fire suppression systems on grinders will have the capability to inject Class A foam into the water supply. Each grinder will carry a minimum of 100 feet of 1½" fire hose along with hand tools for fire fighting. There should be adequate supply of hand tools for every employee on site.

A3 Grinding will cease when the grinder's water reserve falls below 1,000 gallons.

A4 When temperature is below freezing or the ground is snow covered, switch grinder may carry four 20 lbs chemical fire extinguishers in lieu of water.

A5 Manager of Rail Grinding and/or Grinding Supervisor will be responsible for notifying state and federal agencies of the grinding schedule prior to beginning work. Grinding supervisor or service unit manager will notify the local Manager of Bridge Maintenance or his representative prior to grinding the rail on any bridge.

- F. On open deck timber bridges, bridge personnel must be present during grinding and remain at the bridge for a minimum of 15 minutes after grinding has been completed. Bridge personnel will continue to protect the bridge, by making periodic checks every 30-60 minutes, for 4 hours following the final grinding pass on the bridge. The final check on a timber open deck bridge must be performed between 3½ and 4 hours following the final grinding pass on the bridge. On open deck steel or timber ballast deck bridges, bridge personnel must be present during grinding and must make at least one follow-up check on the bridge between 2 and 4 hours following the final grinding pass on the bridge. Bridge personnel must use a hand held infrared heat sensing device (provided by grinder) while performing checks to detect excessive heat or potential source of fire ignition on or under the bridge.
- H. A hy-rail or off-track water truck having access to the bridge must follow the grinder when the risk is moderate. To ensure an adequate water supply, a second hy-rail or off-track fire fighting vehicle may be required to follow the grinding operation.

5.2.1 When risk is high (red):

- X. All production switch grinding operations will be discontinued except as described below.

Many areas of the railroad have sparse vegetation, drift, debris, and/or other flammable material; therefore, do not pose the same level of risk for vegetation fires as the rest of the railroad - even when the fire risk assessment is high.

The Regional Chief Engineer (or General Director in his absence) may authorize production rail grinding in these territories when the fire risk assessment is high after consultation with the rail grinding supervisor. This consultation should include a review of the fire risk assessment, a discussion of the right-of-way vegetation in the areas to be ground and the weather forecast for the area (e.g. high winds).

Must comply with Rule 5.2.1 and the [UPRR Rail Grinding Fire Prevention Policy](#).

5.3 FLASH-BUTT WELDING

Employees or contractors involved with flash-butt welding (or any type of electric flash welding) are governed by the following instructions. Support gangs that perform hot work must comply with the instructions specific to their work activities (e.g. rail cutting or grinding in 5.6). Operations must cease when water reserve falls below the minimum requirement.

5.3.1 When risk is low (green):

- A. Flash-butt welding trucks must have a minimum of 10 gallons of water and at least 2 filled portable pump or pressurized sprayers. They must also carry three round-nose shovels with an overall length of 46 inches or longer.
- B. Spark shields must be used for all hot work. Flash-butt welding head must have spark blankets in place, properly functioning and maintained to within 1” of the ground to prevent sparks from exiting the welding head. If spark blankets are not fully in place or functioning properly, welding operations will cease.

5.3.2 When risk is moderate (yellow):

- A. Flash-butt welding truck must have a minimum of 10 gallons of water and at least 2 filled portable pump or pressurized sprayers. They must also carry three round-nose shovels with an overall length of 46 inches or longer.
- B. Spark shields must be used for all hot work. Flash-butt welding head must have spark blankets in place, properly functioning and maintained to within 1" of the ground to prevent sparks from exiting the welding head. If spark blankets are not fully in place or functioning properly, welding operations will cease.
- C. All combustible vegetation within 35 feet of any hot work must be cleared or saturated with water.
- E. One person must be assigned as a fire watcher. Fire watcher will not be assigned other duties during the hot work and will be equipped with and have within reach at least 5 gallons of water and a round-nose shovel.

5.3.3 When risk is high (red):

- I. Flash-butt welding operations must be authorized by the Director Track Programs or Director Track Maintenance.
- A. Flash-butt welding trucks must have a minimum of 10 gallons of water and at least 2 filled portable pump or pressurized sprayers. They must also carry three round-nose shovels with an overall length of 46 inches or longer.
- B. Spark shields must be used for all hot work. Flash-butt welding head must have spark blankets in place, properly functioning and maintained to within 1" of the ground to prevent sparks from exiting the welding head. If spark blankets are not fully in place or functioning properly, welding operations will cease.
- C. All combustible vegetation within 35 feet of any hot work must be cleared or saturated with water.
- E. One person on each side of the track must be assigned as a fire watcher. Fire watchers will not be assigned other duties during the hot work and will be equipped with and have within reach at least 5 gallons of water and a round-nose shovel.
- F. One person must remain at the job site for at least 1 hour after the hot work is completed (2 hours when protecting timber structures) to watch for signs of smoke or fire. This person must have at least 5 gallons of water, a round-nose shovel and communications capable of calling for help.

5.4 OPEN-FLAME RAIL HEATING

Rail and curve gang employees are governed by the following instructions when operating an open-flame rail heater. Section and welding gangs using FireSnake™ or similar material to close a pull-apart by heating the rail are also governed by this instruction. Operation must cease when the water reserve falls below the minimum requirement.

5.4.1 When risk is low (green) or moderate (yellow):

- A. Each rail gang must have a minimum of 200 gallons of water and at least 4 filled portable pump or pressurized sprayers. Each curve gang must have a minimum of 100 gallons of water and at least 4 filled portable pump or pressurized sprayers. One water tank will be positioned directly behind the rail heater to douse all ties with water. On rail gangs, a second water tank will be positioned at the rear of the gang to ensure that any smoldering ties are again doused. They must also carry at least 10 round-nose shovels with an overall length of 46 inches or longer.

Section and welding gangs repairing a pull-apart by heating the rail must have a minimum of 10 gallons of water and at least 2 filled portable pump or pressurized sprayers and enough round-nose shovels for every person involved in the work. The rail seat area of all ties affected must be doused with water before leaving the work site.

5.4.2 When risk is high (red):

- I. The Director Track Programs or Director Track Maintenance must authorize any open-flame rail heating operations.
- A. Each rail gang must have a minimum of 200 gallons of water and at least 4 filled portable pump or pressurized sprayers. Each curve gang must have a minimum of 100 gallons of water and at least 4 filled portable pump or pressurized sprayers. One water tank will be positioned directly behind the rail heater to douse all ties with water. On rail gangs, a second water tank will be positioned at the rear of the gang to ensure that any smoldering ties are again doused. They must also carry at least 10 round-nose shovels with an overall length of 46 inches or longer.

Section and welding gangs repairing a pull-apart by heating the rail must have a minimum of 10 gallons of water and at least 2 filled portable pump or pressurized sprayers and enough round-nose shovels for every person involved in the work. The rail seat area of all ties affected must be doused with water before leaving the work site.

- F. One person must remain at the job site for at least 1 hour after the hot work is completed (2 hours when protecting timber structures) to watch for signs of smoke or fire. This person must have at least 5 gallons of water, a round-nose shovel and communications capable of calling for help.

5.5 THERMITE WELDING

Employees or contractors involved in thermite welding operations are governed by the following instructions. Thermite welding operations include cutting rail, pre-heating, pouring the weld, shearing and grinding. Care must be taken to avoid injury and fire when removing weld molds, slag pan and risers during take-down. Dispose of slag and molds from thermite welding process in an approved waste container or bury in a dry hole. Haul out the mold boxes instead of burning them to prevent a fire. Operation must cease when the water reserve falls below the minimum requirement.

5.5.1 When risk is low (green):

- A. The following personnel must have the minimum amounts of water listed below and enough round-nose shovels for every person involved in the work.
 - Track welders and grinders – 10 gallons of water and at least 2 filled portable pump or pressurized sprayers
 - Track gangs – 10 gallons of water and at least 1 filled portable pump or pressurized sprayer
- B. Spark shields must be used.

5.5.2 When risk is moderate (yellow):

- A. The following personnel must have the minimum amounts of water listed below and enough round-nose shovels for every person involved in the work.
 - Track welders and grinders – 10 gallons of water and at least 2 filled portable pump or pressurized sprayers
 - Track gangs – 10 gallons of water and at least 1 filled portable pump or pressurized sprayer
- B. Spark shields must be used.
- C. All combustible vegetation within 35 feet of any hot work must be cleared or saturated with water unless a welding tent is used.
- E. One person must be assigned as a fire watcher. Fire watcher will not be assigned other duties during the hot work and will be equipped with and have within reach at least 5 gallons of water and a round-nose shovel.

5.5.3 When risk is high (red):

- I. The Director Track Maintenance or Director Track Programs must authorize all thermite welding operations.
- A. The following personnel must have the minimum amounts of water listed below and enough round-nose shovels for every person involved in the work.
 - Track welders and grinders – 10 gallons of water and at least 2 filled portable pump or pressurized sprayers
 - Track gangs – 10 gallons of water and at least 1 filled portable pump or pressurized sprayer
- B. Spark shields must be used.
- D. A welding tent must be used.
- E. One person must be assigned as a fire watcher. Fire watcher will not be assigned other duties during the hot work and will be equipped with and have within reach at least 5 gallons of water and a round-nose shovel.
- F. One person must remain at the job site for at least 1 hour after the hot work is completed (2 hours when protecting timber structures) to watch for signs of smoke or fire. This person must have at least 5 gallons of water, a round-nose shovel and communications capable of calling for help.

5.6 ARC WELDING, GRINDING, CUTTING OR USING A TORCH

Employees or contractors involved in arc welding, grinding or cutting, including use of an abrasive rail saw, oxy-fuel torch or carbon arc cutting torch are governed by the following instructions. Operation must cease when the water reserve falls below the minimum requirement.

5.6.1 When risk is low (green):

- A. The following personnel must have the minimum amounts of water listed below and enough round-nose shovels for every person involved in the work.
 - Track welders and grinders – 10 gallons of water and at least 2 filled portable pump or pressurized sprayers.
 - Track gangs – 10 gallons of water and at least 1 filled portable pump or pressurized sprayer.
 - Work equipment mechanics – 5 gallons of water and at least 1 filled portable pump or pressurized sprayer.

- Bridge welders working over timber structures or flammable vegetation – 20 gallons of water and at least 2 filled portable pump or pressurized sprayers.
 - Brush cutter operators – 20 gallons of water and at least 1 filled portable pump or pressurized sprayer.
 - O’Bear Saw – 10 gallons of water and at least 2 filled portable pump or pressurized sprayers.
- B. A spark shield must be used when sparks will not be confined to the ballast section and when working over or near timber bridges or structures. Spark shields are not required where their use is not physically possible or effective, such as welding overhead or cutting in confined areas. In such cases, saturate the surrounding combustible materials with water.

5.6.2 When risk is moderate (yellow):

- A. The following personnel must have the minimum amounts of water listed below and enough round-nose shovels for every person involved in the work.
- Track welders and grinders – 10 gallons of water and at least 2 filled portable pump or pressurized sprayers.
 - Track gangs – 10 gallons of water and at least 1 filled portable pump or pressurized sprayer.
 - Work equipment mechanics – 5 gallons of water and at least 1 filled portable pump or pressurized sprayer.
 - Bridge welders working over timber structures or flammable vegetation – 20 gallons of water and at least 2 filled portable pump or pressurized sprayers.
 - Brush cutter operators – 20 gallons of water and at least 1 filled portable pump or pressurized sprayer.
 - O’Bear Saw – 10 gallons of water and at least 2 filled portable pump or pressurized sprayers.
- B. Spark shields must be used except in those cases where their use is not physically possible or effective, such as welding overhead or cutting in confined areas. In such cases, saturate the surrounding combustible materials with water.
- C. All combustible vegetation within 35 feet of any hot work must be cleared or saturated with water unless a welding tent is used. A welding tent will not be used for cutting, grinding or welding on track components containing more than 2% manganese.
- E. One person must be assigned as a fire watcher. Fire watcher will not be assigned other duties during the hot work and will be equipped with and have within reach at least 5 gallons of water and a round-nose shovel.

5.6.3 When risk is high (red):

- I. The Director Track Maintenance or Director Track Programs must authorize any cutting, welding or grinding operations.
- A. The following personnel must have the minimum amounts of water listed below and enough round-nose shovels for every person involved in the work.
- Track welders and grinders – 10 gallons of water and at least 2 filled portable pump or pressurized sprayers

- Track gangs – 10 gallons of water and at least 1 filled portable pump or pressurized sprayer.
 - Work equipment mechanics – 5 gallons of water and at least 1 filled portable pump or pressurized sprayer.
 - Bridge welders working over timber bridges or flammable vegetation – 20 gallons of water and at least 2 filled portable pump or pressurized sprayers.
 - Brush cutter operators – 20 gallons of water and at least 1 filled portable pump or pressurized sprayer.
 - O’Bear Saw – 10 gallons of water and at least 2 filled portable pump or pressurized sprayers.
- B. Spark shields must be used except in those cases where their use is not physically possible or effective, such as welding overhead or cutting in confined areas. In such cases, saturate the surrounding combustible materials with water.
- D. A welding tent must be used. If welding tent cannot be used due to physical limitations, all combustible vegetation within 35 feet of any hot work must be cleared or saturated with water. A welding tent must not be used for cutting, grinding or welding on track components containing more than 2% manganese. A welding tent is not required for cutting scrap or second-hand rail out of the track; saturate the vegetation thoroughly and utilize spark guards to prevent a fire.
- E. One person must be assigned as a fire watcher. Fire watcher will not be assigned other duties during the hot work and will be equipped with and have within reach at least 5 gallons of water and a round-nose shovel.
- F. One person must remain at the job site for at least 1 hour after the hot work is completed (2 hours when protecting timber structures) to watch for signs of smoke or fire. This person must have at least 5 gallons of water, a round-nose shovel and communications capable of calling for help.

5.7 APPLYING CADWELD BONDS

Signalmen applying Cadweld bonds (this process consists of grinding and bonding) must carry 5 gallons of water and at least 1 filled portable pump or pressurized sprayer and enough round-nose shovels for every person involved in the work. When risk is high (red), Cadweld bonding must be authorized by the Director Signal Maintenance. If authorized, spark shield(s) must be used to protect both the grinding and bonding operations.

5.8 OTHER WORK ACTIVITIES

Employees or contractors must take all precautions necessary to prevent fires from other work activities not specifically mentioned in these instructions. In addition, employees must:

- 5.8.1 Use caution when parking a vehicle so that heat from the exhaust system does not ignite the vegetation.
- 5.8.2 Fuel equipment away from any sources of heat and at least 10 feet from any combustible vegetation. Engine must be stopped while refueling. Restart portable equipment away from the fueling site.
- 5.8.3 Conduct thorough roll-by inspections of trains, watching closely for exhaust sparks from the locomotives, smoke or sparks from brake shoes and hot journals.

- 5.8.4 Properly dispose of all materials generated as waste from the hot work.
- 5.8.5 Controlled burning of vegetation on the right-of-way is prohibited except as specifically authorized by the Regional Chief Engineer. If authorized, all required permits must be obtained in advance of the work.
- 5.8.6 Smoking is prohibited on all company property including the right-of-way.

5.9 TRACK INSPECTORS

Track inspectors must keep a lookout for right-of-way fires during the course of their normal inspections. Each track inspector must carry a minimum of 5 gallons of water with a pump or pressurized sprayer and 1 round-nose shovel with an overall length of 46 inches or longer. When temperatures are below freezing, chemical fire extinguishers may be carried in lieu of water.

6 FIRE SENSITIVE AREAS (LEVEL 1)

Western Region

- Roseville Service Unit
 1. Canyon Subdivision - James to Portola
 2. Roseville Subdivision - Roseville to Reno
 3. Valley Subdivision - Redding to Dunsmuir
 4. Black Butte Sub - Dunsmuir to No. Black Butte & Andesite to Mt. Hebron
 5. Coast Subdivision - Santa Margarita to San Luis Obispo
- Portland Service Unit
 1. La Grande Subdivision - Pendleton to La Grande
 2. Spokane Subdivision - Bonners Ferry to Eastport
 3. Cascade Subdivision - Crescent Lake to Natron
- Los Angeles Service Unit
 1. Mojave Subdivision - Tehachapi to Bena & Hiland to Dike
 2. Santa Barbara Subdivision - Santa Barbara to Surf

Northern Region

- Denver Service Unit
 1. Moffat Tunnel Subdivision - Rocky to Toponas
 2. Glenwood Springs Sub - Dotsero to Glenwood & Newcastle to Debeque
 3. Provo Subdivision - Helper to Springville
 4. Pleasant Valley Subdivision
 5. Laramie Subdivision - Speer to Dale Jct. on #3 track
 6. Colorado Springs Subdivision - Palmer Lake to Colorado Springs
- Twin Cities Service Unit
 1. Altoona Subdivision – East Altoona (MP 93.3) to End of Sub. (MP 199.1)
- Chicago Service Unit
 1. Adams Subdivision – Adams to Friesland

Southern Region

None

7 RULE REFERENCES

The instructions contained in this Fire Prevention Plan complement the following chapters and rules in effect:

General Code of Operating Rules

1.28 Fire

Safety Rules

72.0 Fire Prevention

79.2.2 Fire Protection/Shielding

79.12 Metal Cutting Precautions

Safety Resource Manual

IV (AH) Fire Protection Policy and Guidelines

IV(E) Respiratory Protection Program

IV (L) Smoking Policy

Welding Rule Chapters

101.0 Safety

103.0 Oxy-fuel Equipment Use

110.0 Thermite Welding: Railtech

111.0 Thermite Welding: Orgo-thermit

112.0 Electric Flash Butt Welding