MISSOURI PACIFIC LINES

MISSOURI PACIFIC LINES

FIRE PREVENTION RULES

MISSOURI PACIFIC LINES

FIRE PREVENTION RULES

GENERAL

All officers and employees are expected and required to give constant and personal attention to the subject of protecting Missouri Pacific Lines Property from damage by fire, whether or not the actual property concerned belongs to their special departments.

The utmost vigilance is necessary at all times for preventing fires; and every employee should exercise care and a due observance of the rules laid down for the prevention of same. In cases where any of the following rules or requirements are not being observed, it is the duty of the employee noticing same to make immediate report to his superior officer.

Any employee knowing of the occurrence of a fire must promptly report it by telegraph or telephone to the Superintendent.

The Superintendent must promptly report all fires by telegraph to the Chief Accounting and Financial Officer and all other officers concerned, and follow up with complete detail report on the prescribed form.

Reports of right-of-way or grass fires set by us, damaging or destroying crops, etc., must be made promptly by the Superintendent to the Claim Agent in whose territory the damage occurs.

BUILDING, STATION GROUNDS, YARDS

BUILDINGS, STATION GROUNDS, YARDS

AND PREMISES

1. In locating and constructing new buildings, preferred attention should be given to fire hazard. The plans should include fire protection facilities, water lines, automatic sprinkler system, etc., where required and should be submitted to the official who supervises fire prevention to avoid additional expense that would be involved in providing them later, as well as to avoid possible fire losses caused by delayed installation. No buildings or platforms should be located over fire protection water pipe lines.

2. Fire doors in all buildings must be closed when not in use, both day and night, and opened and closed once each week as a test.

3. Rubbish must not be permitted to accumulate in or around buildings, on or near platforms, or on any company premises. Skirting boards or close mesh wire netting must be used on all elevated platforms and on all open foundations of buildings to prevent such accumulation. (See M. of W. Rule 425.)

4. In all yards, especially in passenger car storage yards, cars must not be assembled in large numbers without ample facilities at

hand for their prompt removal in case of fire. Good judgment should be used in placing cars near elevators, lumber mills, shop buildings or other hazardous fire risks in the constant endeavor to reduce the liability for losses in case of fire in the cars or in nearby buildings.

5. Avenues must always be kept open in and around station grounds, yards, inside and outside of buildings to permit quick handling of fire apparatus to all points of vantage in event of fire.

6. Open fires, except in approved furnaces and forges, in and around buildings, lumber yards, coal trestles or inflammable materials nearer than one hundred (100) feet are prohibited.

7. Lumber in quantities must not be piled for storage within fifty (50) feet of any building if possible and in no case nearer than twenty-five (25) feet.

8. Automobiles must not be parked or stored in shop buildings, freight houses or other buildings, except garages, unless all gasoline is drained from tanks before taking into building. Automobiles or trucks must not be parked less than fifty (50) feet from any building except trucks loading or unloading.

HEATING DEVICES AND APPLIANCES

9. Prior to the beginning of each heating season, or oftener if necessary, stoves, stovepipes, chimneys, flues, forge canopies, roundhouse smokejacks and all heating appliances must be examined carefully. The point of greatest danger from a defective chimney is between the ceiling and the roof. More frequent inspection is important in frame buildings subject to vibration from the wind. All defects must be promptly repaired.

10. Heating and cook stoves must be free from dangerous cracks, with all doors properly fitted and must have a clearance of three (3) feet from lath and plaster walls or woodwork, unless such walls and woodwork are protected with a metal shield covered with ¼" thick asbestos board, in which case the clearance must not be less than eighteen (18) inches. The fireproof shield must be at least eighteen (18) inches wider than the stove and extend not less than eighteen (18) inches above top of stove, with a two (2) inch open air space between such lath and plaster wall or woodwork and the shield.

11. Gas stoves, when used, must be connected to gas supply with rigid metal piping only. Connecting of gas stoves with rubber or flexible metal hose is prohibited.

12. Boilers and stoves in sand drying houses must be protected in manner specified

in Rule 10, but they must clear all woodwork at least thirty (30) inches, and four (4) feet if possible. A similar shield must be used with an open air space of at least three (3) inches between woodwork and shield.

13. All stove pipes must be tight and strong, with joints riveted together and securely wired to walls and ceilings and at least twelve (12) inches from woodwork. Pipes passing through wooden or plastered walls, ceilings, or roofs must do so in metal thimbles, having a two (2) inch clearance space between inner and outer shell, and a clearance of at least two (2) inches between the outer shell and the woodwork. Each end of the thimble must have a perforated flange for ventilation.

In roundhouses and shop buildings where stovepipes extend through the roof, No. 16 iron gauge metal should be used for the thimble.

14. Stoves in structures having wooden or other combustible floors must be set on cast iron pans, concrete slabs, or mats made of No. 20 gauge galvanized iron with edges flared and formed, to make a two (2) inch rim of sufficient size to catch falling ashes or hot coals.

Wood or other combustible floors beneath gas stoves, heaters or furnaces, shall be protected by a metal shield covered with ¼" thick asbestos board, allowing sufficent air

space between the shield and the gas stove, heater or furnace.

15. Stoves must not be overloaded by building fires so high that coals will fall out when door is opened. Oils must not be used to start fires. All fires must be examined and left in safe condition before attendant leaves the building or car. At night, fires should be extinguished if practicable. Stoves are not permitted in planing mills, paint store houses, oil or shaving houses.

16. Smoke stacks must have a clearance equal to one-half the diameter of stack and in no event less than 12 inches and must be surrounded with a metal collar when passing through wood or other combustible walls.

17. Ashes from stoves, heating plants, etc., must be kept or handled only in metal containers, and removed from the building daily, unless fireproof storage is provided. Ashes must be removed to a safe distance, not less than fifty (50) feet from buildings, platforms, wooden fences and other structures and all fire must be extinguished.

18. Steam or hot water pipes, radiators and hot air ducts must not come in contact with any woodwork and must at all times be kept free from waste or other inflammable material. Steam or hot water supply pipes and hot air ducts must be covered with approved insulating material with 1″ clearance from all woodwork. Open torches or

ignited oily waste must not be used to thaw out steam pipes.

19. The use of gasoline stoves for cooking or heating purposes in cars, stations, warehouses and other buildings is prohibited. Gasoline blow torches, fire pots and soldering furnaces may be used only under proper supervision. They should be filled from a standard safety can, and at a point remote from open lights, flames or fires, and preferably outside of any building.

ELECTRIC WIRING AND APPLIANCES

20. Dynamos, motors, and all other electrical appliances and wiring of all kinds must be installed and maintained in accordance with the rules of the National Board of Fire Underwriters and under supervision of the Electrical Engineer to insure compliance with such rules.

21. No changes in, or additions to the electric wiring, fixtures, cords or portable lamps shall be made, or fans installed without the approval of the Electrical Engineer.

22. Combustible material must not come in contact with switchboards, electric lamps and electric wires, nor be within six (6) inches of other electrical apparatus.

23. Fuses must not be replaced with those of a higher current rating or different type,

and on branch lighting circuits no fuse larger than ten (10) amperes must be used unless authorized by Electrical Engineer. Where provision is made for cartridge (New Code) or plug fuses, the use of open link fuse or fuse wire, or other conducting material such as copper pennies, iron washers, etc., is prohibited. A fuse is the electrical equivalent to a safety valve and the use of other than standard fuses should be made the occasion of drastic action. All defective fuses should be returned to the Supply Department for salvage.

24. Electric lamps of greater capacity than those authorized by Electrical Engineer may so overload the circuit as to cause serious damage and they must never be used. No electric lamps can be used except those furnished upon approved requisition through the Supply Department. All defective lamps should be returned to the Supply Department for salvage.

25. Use of paper or any other shade reflector other than metal, glass or porcelain is also prohibited. Flexible electric cords must not be hung over nails, gas fixtures nor have pins or any metal fasteners placed upon them. Electric wires must not come in contact with nails, metal, or any combustible material.

26. All electric lamps must be turned off at switch when not in use. In store rooms,

file rooms or other places where there are bins or pigeon-holes, an approved extension cord and wire lamp guard or reflector must be used. The lamps must not be left in the bins or pigeon-holes.

27. Vapor-proof lights and fixed extension connections shall be used in all locations where inflammable or explosive dust or vapors may exist, or where alcohol, gasoline, naphtha, lacquer, varnish and paint remover, acetylene gas, calcium carbide or inflammable cleaning fluids are used or handled.

28. Electric wires and fixtures must be examined at least twice a year or oftener if necessary to see that they are in a safe condition and any defects must be promptly corrected.

29. Telephone, telegraph or signal wires must not be attached to buildings, or inside connections made or changed, without authority of the Superintendent of Telegraph or Signal Engineer, and work must be done by competent employees of the interested department. Defective lightning arresters and ground wires must be reported promptly to the proper authority, and defective conditions corrected as quickly as possible.

30. Fires on or adjacent to electric wires and equipment must be extinguished with carbon tetrachloride or carbon dioxide fire extinguishers only.

PAINTS, OILS, WASTE, EXPLOSIVES AND OTHER INFLAMMABLES OR COMBUSTIBLES

31. Care must be exercised in the use, handling and storing of benzine, gasoline, turpentine, oil, paint, varnish, paint and varnish remover, acid, alcohol, lamp black, torpedoes, fusees, explosives, lime, fiber, waste, excelsior, straw, oakum, moss and other inflammable or combustible materials around buildings and other structures.

32. Oil houses, rooms, closets and other places where paint, oil, varnish, varnish remover, waste, lamps, etc., are stored, should be inspected weekly or oftener and constantly guarded against fire from any cause. Main stocks of paint, oil, varnish, turpentine and varnish remover shall be stored in metal drums, tanks or containers, and where practical in a separate detached building, preferably of fire resistive construction. Oil and paint houses should have fireproof floor, metal window frames and sash with wired glass, be well ventilated to prevent accumulation of inflammable gases and when available heated by steam and protected by an inside steam smother pipe, controlled by an outside valve, over which a conspicuous sign should be posted reading, "In Case of Fire Open Steam Valve". Either a box of sand and a shovel, or a carbon tetrachloride or a foam type extinguisher must be located inside the building near the door.

Open flame lights or fires are prohibited around oil or paint storehouses and signs should be posted on all such buildings reading, "Keep Lights and Fires Away".

33. All drums or large containers must be provided with faucets or valves and metal drip cans placed under faucets or valves to catch any drip.

34. Dope houses, having vats heated by steam pipes underneath or behind them, must be so arranged that the pipes are accessible and must be cleaned at least once a week.

35. Where paint, oil, varnish remover and other inflammable materials are kept and used other than in buildings designated as paint or oil houses, only one day's supply shall be kept on hand in such buildings. A non-combustible box, with close-fitting lid, resting on a fireproof support, must be provided for the daily supply.

36. The installation of oil furnaces, the use and storage of fuel oil, must conform to the rules of the National Board of Fire Underwriters and any federal, state or local ordinances or requirements. Oil pipes inside of shop buildings must be buried under the ground where possible to do so.

37. Oil supply tanks should preferably be located outside of buildings and underground with top of tank below the level of all piping to which the tank is connected, to prevent

discharge of oil through broken pipes or connections.

38. Underground tanks shall be set on a firm foundation and surrounded with soft earth or sand well tamped in place. To prevent floating they shall be securely anchored or weighted.

39. Outside, above ground tanks shall be set on a firm foundation so as to prevent any settlement which may cause damage or breakage of tank or connecting lines. Protective dikes to prevent spread of contents in case of leakage, as provided for by standard plan, shall be constructed around all tanks containing gasoline or other oils having flash point below 100 degrees F.

40. Pressure tanks shall not exceed a capacity of sixty (60) gallons and shall not be operated at pressure exceeding ten (10) pounds per square inch. Pressure tanks shall be equipped with reliable pressure gauge and automatic pressure relief valve and where air pressure is used, a reducing valve set at ten (10) pounds must be provided. Pressure gauge and reducing valve must be tested at least once a year and tagged to show date of inspection.

41. Gravity supply tanks containing oils having flash point below 100 degrees F., shall not exceed two hundred and seventy-five (275) gallons individual capacity and shall be used only with burners arranged to prevent abnormal discharge of oil by automatic means specifically approved for the burner with which it is used.

42. Storage tanks shall be equipped with an open vent or an approved automatically operated vent, arranged to discharge into the open air. Vent openings and vent pipes shall be of ample size to prevent abnormal pressure in the tank during filling, but never smaller than 1¼-inch pipe size. Vent pipes shall be arranged to drain to the tank. The lower end of the vent pipe shall not extend through the top into the tank more than one (1) inch. Vent pipes of tanks shall be extended to a location where oil vapors discharging from the vent will be readily diffused without danger of ignition.

43. Storage tanks, other than outside above-ground tanks, shall be filled only through fill pipes terminating outside of buildings at a point at least five (5) feet from any building opening.

44. Readily accessible shut-off valves shall be installed in oil supply lines close to gravity and pressure supply tanks and in the suction line near each pump or burner.

Where a shut-off valve is installed in the discharge line of an oil pump, an approved pressure relief valve shall be connected into the discharge line between the pump and the shut-off valve and arranged to return surplus

oil to the storage tank or to by-pass it around the pump.

BRIDGES, TRESTLES, CULVERTS, RIGHT-OF-WAY, AND TELEGRAPH AND TELEPHONE LINES, ETC.

45. At the end of each growing season and at other times, if weather is very dry, care must be given the protection of all structures of combustible material against fire. During this period the ground around such facilities as:

Buildings,
Cattle guards,
Platforms,
Signal, telegraph and telephone poles,
Tie and lumber piles,
Timber trestles and culverts,

must be scalped bare of vegetation for a sufficient distance back from the structure to afford protection. All driftwood, vegetation or other combustible material must be removed to a safe distance from the scalped area, and burned if safe to do so. Birds' nests, or shavings or sawdust resulting from repair work, must be removed from all parts of each structure and disposed of in the same manner. (See M. of W. Rule 246.)

46. Vegetation and refuse removed in scalping around structures, or heavy materials such as old ties, old bridge timbers or wreckage must be removed to a safe distance

(preferably not less than one hundred (100) feet) before burning and must not be burned under or within ten (10) feet of signal, telegraph or telephone wires. (See M. of W. Rules 132 and 246.)

A fire must not be started or left unattended under circumstances which may allow it to get out of control. Under no circumstances must a fire be started which may damage wires, poles or other structures.

47. Where conditions will permit and make it advisable, a strip should be plowed on lands adjoining the right-of-way to prevent the spread of fires. (See M. of W. Rule 246.)

48. Vegetation, rubbish and all other material of a combustible nature must be removed from right-of-way before ties, bridge timbers or other combustible materials are piled for storage.

49. On important bridges where watchmen are maintained, one water barrel with bucket must be placed and maintained for each five hundred (500) square feet of bridge floor. Watchman must also carry bucket. (See Rule 73 for instructions on maintaining water barrels.)

WEED BURNERS

50. Weed burners shall not be operated at a speed less than three (3) miles per hour.

The burners must be turned off immediately when the machine stops and must not be lighted until the machine is ready to move.

51. Each weed burner must carry two 2½ gallon foam type fire extinguishers. The extinguishers must be kept in condition for immediate use at all times, and must be recharged promptly after using.

52. Section forces, in sufficient numbers to control the fire, must follow each weed burner at all times when burning is being done. They shall have all necessary fire fighting equipment.

53. Weed burners shall not be operated in the following locations:

(a) Within 200 feet of cotton gins, cotton platforms, cotton compresses, oil mills, gas or oil storage tanks and lumber yards; and not less than 50 feet from bridge ends, platforms (other than cotton), stock pens and other buildings.

(b) Along tracks where there may be oil in the side ditches.

(c) In vicinity of orchards unless suitable fire guards have been plowed or cut.

(d) During seasons of extreme drought or under other conditions where fire is likely to spread and damage private property.

(e) More than one-quarter (¼) of mile in advance of, and in no case out of the sight of the following section forces.

SHOP BUILDINGS

54. Shavings or other inflammable material must not be allowed to accumulate under benches, behind doors or in unused places. In oil rooms, floors should be of brick, metal, concrete or earth, and pails of dry sand should be kept in convenient places for use in case of fire. In oil rooms, wood working shops and other buildings where inflammable materials are kept, metal lockers only shall be used. These lockers must be properly stencilled to indicate their use, have sufficient ventilation and be cleaned out at least once a month.

55. In wood working buildings, shavings or other combustible matter must not be left near stoves or boilers at any time. All inflammable rubbish and sweepings must be removed daily, before closing for the night, and the floors around engines, fire boxes and stoves sprinkled with water. Where belts pass through partitions, proper space must be allowed between them to prevent friction by rubbing.

56. Coal oil torches, oils, greasy waste and matches must not be stored in clothes lockers. Metal boxes must be provided for that purpose. All clothing must be hung up.

57. Cotton waste, clean or oil saturated, must not be placed on wood wall framing or in cubby holes, such as between roof and crane post clusters in engine houses. Spontaneous combustion is liable to occur in any accumulation of combustible material.

58. Lighted open flame torches must not be left unattended and never to be placed where combustion may occur.

59. Wherever birds' nests are discovered, as at roof eaves or monitors, etc., they should be removed, as they create a fire hazard.

60. Frame cupboards must not rest directly on floors. They must have slanting tops, wire screen or ventilated doors, and should be built into the wall so that rubbish will not accumulate behind them. Clothes cupboards are not permitted in paint or smith shops, foundries or oil houses, unless they are of solid sheet iron with proper ventilation and fireproof supports. All cupboards and lockers must be inspected and cleaned at least once each month.

61. All shaft bearings must be provided with drip pans to be emptied when required. Clean sand only must be used around machinery as an oil absorbent.

62. Night watchmen will make the round of all shops when they go on duty, examine all forges and other places where fires are used and see that no inflammable material is

exposed to the fires, and that all fires in tinners' pots are extinguished. They must report to the Master Mechanic or Shop Superintendent any negligence by employees in protecting company property.

63. An efficient fire department of reliable men, including Fire Chief and Assistant Fire Chief, all of whom will answer fire calls day or night, must be maintained at all shops and large freight stations. The Fire Chief, or in his absence, the Assistant Fire Chief, will direct the men at fires and have charge of all fire apparatus. A fire drill must be held at least once each month and every member of the fire department is expected to be present. At each fire drill a thorough inspection must be made of all fire equipment. The Fire Chief will keep a record of all fire drills, and make reports in duplicate, one to the Chief Engineer Maintenance of Way and one to the Master Mechanic. The report to the Master Mechanic must make reference as to the efficiency of the men in the fire department. The Fire Chief must know that all fire equipment is in place and in condition for immediate effective service.

64. Fire hose and apparatus must be used only for fire purposes and fire drills, and must be tested at least once each month, April to October, inclusive, by application of water pressure. Defects must be reported by the Master Mechanic or Shop Superintendent to the Superintendent, who will make imme-

diate arrangements to correct them, ordering new equipment when necessary. Fire hose must be thoroughly drained, cleaned and dried before being put away on reels or in hose houses. Hose couplings must be kept oiled at all times.

65. When water barrels are used, it will be the duty of the Fire Chief, or his assistant, to have them regularly inspected and kept filled with water, and fire pails in their proper places.

66. Plans showing locations of pipe lines, valves, hydrants, fire extinguishers, hose reels, hose houses, fire alarm boxes, etc., must be posted throughout shop buildings and grounds for the information of all employees.

67. In case of fire in a building equipped with stand-pipes or automatic sprinklers, special attention should be given to the water supply, and when a building has collapsed, or fire is absolutely beyond control, should have the valves connecting sprinkler and vertical pipe lines to water supply mains closed so that fire mains will not be drained by broken piping inside buildings.

Water should be used freely to check a fire. When a fire is under control, water should be used as sparingly as possible, so as to minimize water damage to stock. This is especially important if the water supply is limited.

68. After a fire is out, use every effort to save the materials and safeguard machinery, putting on a watchman if necessary to protect the property. Machinery should be checked for perfect operation, before being used, as a slight defect may cause considerable damage to property, or loss of life.

WATER BARRELS AND BUCKETS

69. On cotton loading platforms, at stations, freight houses, shops, coal chutes, coal chute trestles and all locations where extra precautions are necessary, suitable covered barrels properly painted and stencilled "FOR FIRE USE ONLY" must be provided and kept filled with water and free access thereto must be maintained at all times. Where severity of climate requires, a brine made by mixing 100 pounds of salt in boiling water must be placed in each barrel to prevent freezing. Where climate is unusually severe, a piece of wood, preferably a six-inch cube, should be placed in the barrel. To disinfect, prevent breeding of mosquitoes and keep livestock from drinking the water, a pint of disinfectant, kept on hand by all agents, must be thoroughly mixed with the water in each barrel. If water becomes foul, the barrels should be cleaned out and refilled. Water barrels must not be used for any purpose except for water for fire protection. Barrels must not come in contact with the soil, but must rest on boards or cleats.

70. All barrels must be placed in the most accessible location. Stations not provided with fire hydrants must have a barrel of water and buckets placed inside of freight room near the doorway to the Agent's Office.

71. In lumber yards and at points where combustible material and supplies are stored, barrels must be distributed not to exceed seventy (70) feet apart throughout.

72. On cotton and loading platforms, coal chutes and coal chute trestle approaches, a barrel of water must be placed every seventy (70) feet, or fraction thereof, lengthwise. Where platforms exceed sixteen (16) feet in width, one (1) barrel must be provided for each one thousand (1,000) square feet of platform area. Where the fire hazard justifies, or rules of the Underwriters require taking additional precaution, the matter shall be immediately referred to the Superintendent to see that additional barrels are promptly provided.

73. Bridge and Building Supervisors shall see that all water barrels at all points, excepting those where regular railroad fire department is maintained on their assigned territory, are inspected monthly; that they are filled with water and that fire buckets are available and kept in proper places.

74. A cone-shaped standard fire bucket must be provided for each water barrel, to be placed on barrel cover, top down, fastened

on each side with staples over bail, securely enough to prevent displacement, but not so secure as to prevent quick removal when required.

75. Where chemical fire extinguishers are not provided, two (2) cone-shaped standard fire buckets must be placed in the waiting rooms of stations, supported on a standard shelf or hooks of standard design, six (6) feet above the floor. These buckets must be kept filled with water.

76. In interlocking plants, a water barrel with two (2) buckets must be provided in the ground floor room, in addition to the chemical fire extinguisher to be provided in the lever room.

GARAGES AND AUTOMOTIVE REPAIR SHOPS

77. In buildings used for the servicing, storing or repairing of automotive or motor transportation equipment, gasoline vapor may form an explosive mixture with air, and due to the fact that this vapor is heavier than air, dangerous fire hazards may occur, unless adequate ventilation is provided. The careless or unnecessary use of gasoline or other inflammable liquids must be avoided and recognized safe practices shall be observed wherever these materials are required.

78. Natural ventilation may be obtained by opening windows uniformly distributed

in two opposite outside walls. The total area of open windows must be at least five (5) per cent of the floor area. Where natural ventilation is impracticable, a mechanical system capable of supplying at least two (2) cu. ft. of fresh air per minute for each sq. ft. of floor area shall be provided.

79. When necessary to run either gasoline or Diesel engines for test purposes, a flexible tube of incombustible material shall be attached to the exhaust pipe to lead fumes outside of buildings.

80. Battery charging plant should be located, whenever practicable, in a separate room properly ventilated. Overcharging of storage batteries must be avoided, as it will electrolize the sulphuric acid solution, liberating hydrogen gas, which is highly inflammable.

81. Sulphuric acid in contact with organic matter may result in fire and it should be carefully handled at all times. It should not be kept near any inflammable liquid or other substance susceptible to spontaneous combustion.

82. The use of gasoline or other volatile inflammable liquids for cleaning purposes must not be permitted under any circumstances. To safeguard against fires and accidents, the cleaning of parts and equipment must be done with compressed air, steam,

water pressure or non-inflammable cleaning compounds.

83. The use of soldering irons, blow torches, welding outfits and other open flame devices or apparatus capable of emitting exposed sparks are hazardous and if used, they must be surrounded with proper safeguards to prevent the flame or spark from coming in contact with any inflammable or combustible material.

84. Sawdust must not be kept or used in garages or repair shops for absorbing waste oil, etc. Sand or chemically treated sweeping compounds only must be used for this purpose and filled receptacles should be conveniently placed about the garage.

85. The installation of gasoline storage and dispensing pumps must conform to the rules of the National Board of Fire Underwriters and any federal, state or local ordinances or requirements. The tanks must be located outside of buildings, buried under ground, with top of tank not less than two (2) feet below the surface of the ground, and shall be equipped with approved vent; whenever practicable, dispensing pumps should be located outside and far enough from the building to make refueling inside impossible. Gasoline must not be delivered to or taken from a motor car when its engine is running.

86. Small supplies of gasoline, if needed for various purposes, should be kept in Underwriters' type safety cans, the amount in the aggregate not to exceed five (5) gallons.

Gasoline or oil must never be disposed of by pouring down drains connected to sewer system.

87. All garages and repair shops should be kept in a clean, orderly condition and a sufficient number of self-closing metal cans should be provided in which all oily waste and other combustible waste material shall be kept and removed from the building daily.

88. Supplies of lubricating oil must be kept in suitable metal containers and waste and cleaning rags in self-closing metal bins.

89. Garages and repair shops must be provided with an adequate number of foam type fire extinguishers, placed throughout the garage and shop so that it will not be necessary to move more than fifty (50) feet in any direction to reach one. Carbon tetrachloride extinguishers must also be provided at all points where fires of electrical origin are apt to occur and especially in battery charging room.

90. Eelctric wiring for light or power must be installed and maintained in accordance with the rules of the National Board of Fire Underwriters and under supervision

of the Electrical Engineer to insure compliance with such rules. (See Rules 20 to 30, both inclusive.)

91. A standard ladder of sufficient length to reach eaves of buildings must be provided and hung horizontally on brackets (preferably of metal) six (6) feet above the ground on one end of each station, freight house or other important structure having a combustible roof.

FIRE HYDRANTS

92. All fire hydrants in shops, freight houses or elsewhere on company premises must be accessible at all times. A passageway of not less than six (6) feet must be maintained around them.

It shall be the duty of the local railroad fire department Chief or his Assistant to report on the condition of fire hydrants, fire fighting equipment, and premises, so that if required corrective measures may be undertaken.

Water Service Foreman shall make all necessary repairs to fire hydrants, and handle replacement of unsatisfactory equipment and material.

FIRE EXTINGUISHERS

93. Chemical fire extinguishers shall be

recharged once each year, between June 1st and September 30th. A tag showing date of recharging shall be attached on the extinguisher. Additional charges must be kept on hand for emergencies.

It shall be the duty of the Water Service Foreman to see that all chemical fire extinguishers are properly maintained at the points and in the places required. (See M. of W., Rule 440-f.)

FIRE PUMPS

94. Water Service Foreman must thoroughly examine all pumps used for fire purposes at least once each month or oftener, if necessary.

COAL CHUTES

95. Mechanical coal chutes must be thoroughly cleaned, at least once each month, and oftener, if necessary, by removing all coal dust, especially from all beams and flat surfaces, and clearing alternate pockets of coal. A book record must be kept, showing date and detail of each cleaning, and monthly reports made therefrom must be sent to the Superintendent and Master Mechanic by the operator in charge.

96. The operator of mechanical coal chutes must make a careful daily inspection of all

bearings and the condition of the coal, keep a record of same and make a monthly report of the conditions to the Superintendent and Master Mechanic through his immediate superior officer.

97. Water must not be applied to coal being placed in mechanical chutes. Greasy clothing and oily waste must not be kept in any coaling station.

PUMP HOUSES AND WATER STATIONS

98. Floors must be of brick, concrete, earth or cinders. Boilers of the horizontal type should be supported on brick, stone, metal or concrete foundations. All boilers should be placed a safe distance from any woodwork and in no case less than thirty (30) inches.

If within four (4) feet, the woodwork must be protected by metal, with a three (3) inch open air space between the metal and woodwork.

99. Where gasoline or other internal combustion engines are used, exhaust pipes must not be placed within six (6) inches of any woodwork and should have an air space of two (2) inches where passing through the sides of pump houses. Mufflers should be placed on brick or concrete foundations.

100. Gasoline must not be stored in pump houses and must never be left in open con-

tainers. Gasoline storage tanks must be placed underground and located not less than thirty (30) feet distant from building when possible. The feed pipes must be covered to protect them from injury.

ELECTRIC, OXY-ACETYLENE WELDING AND CUTTING

101. The mixture of oxygen and acetylene gases used in welding, cutting and heat treating is extremely inflammable and therefore great care must be exercised in the handling of all equipment for the generation, distribution and use of these gases. Workmen must be fully instructed by a competent supervisor and only experienced men shall be permitted to handle this equipment.

102. The foreman in charge of permanently installed systems for the generation, distribution and use of oxygen and acetylene must provide himself with a copy of "Safe Practices of Oxy-Acetylene Welding and Cutting" issued by International Acetylene Association and be familiar with the rules and instructions therein and see that they are carefully observed in the work done under his direction.

103. Calcium carbide must be stored in a dry, well ventilated location, preferably in a building used for no other purpose. It must be stored on a platform at least six (6) inches higher than the floor to prevent water

or dampness reaching the drums.

Metal tools for opening carbide containers must be used with caution to avoid striking a spark.

104. The acetylene and oxygen cylinders must be kept away from fire or excessive heat and shall be protected at all times from any excessive rise in temperature. Cylinders may be stored in the open, but in such case, should be protected against extremes of weather. During winter, cylinders stored in the open should be protected against accumulation of ice or snow. If the outlet valve becomes clogged with ice, thaw it with warm, not boiling, water. Never apply open flame for this purpose. In summer, cylinders stored in the open should be screened against the continuous direct rays of sun.

105. The oxygen and acetylene cylinders must not be handled with oily hands or gloves and must be kept away from highly combustible material such as oils, paints, shavings or excelsior.

106. Cylinders of oxygen shall never be stored in the same room used for storage of calcium carbide, cylinders of dissolved acetylene or other fuel gases or with any acetylene generators.

107. Any cylinder developing a leak must not be used, but must be removed to a safe place, where contents may escape slowly into

open air. Place warning sign on such a cylinder against approaching it with lighted source of open fire.

108. Oxygen or acetylene shall never be used from a cylinder unless it is provided with a pressure regulating device intended for that purpose only and limiting the acetylene pressure to not over fifteen (15) pounds.

109. Every care shall be taken to prevent sparks or flame from welding or cutting torches coming in contact with cylinders.

110. Oxygen must never be used as a substitute for compressed air in pneumatic tools to blow out pipe line, to "dust" clothing or work, or for any similar purpose.

111. Oxygen and acetylene hose must be carefully examined at frequent intervals for leaks, worn places or loose connections. Leaks and worn places must be repaired at once by cutting the hose and inserting a splice. At connections, merely cut off the worn portion of the hose and securely reattach the connections. Never repair the hose by taping.

112. If a flash-back occurs and burns in the hose, discard that length of hose, as it is likely to be unsafe for further use.

113. In lighting welding or cutting torches, follow exactly the directions furnished by the manufacturer for that particular model of

torch, using friction lighter or stationary pilot flame. Never light torches with matches, nor relight them from the hot metal of the work.

114. Do not use welding and cutting torches in any place where open flame of any kind is unsafe, as in or near rooms containing inflammable vapors, liquids, lint, dust or loose combustible material.

115. Drums, barrels, tanks or other containers on which welding or cutting is to be done, must be carefully inspected and all traces of inflammable materials removed before proceeding with the work. Such containers must be steamed out, and if possible, filled with water to within a few inches of the work. The part of container not filled with water must be properly vented for the release of heated air.

116. The welding and cutting torches should be used preferably in the open air or in non-combustible rooms; however, if the work cannot be moved to such a place, then the exposed combustible material should be removed to a safe distance (thirty (30) or forty (40) feet). The floors must be kept clean and if of wood, they must be covered with guards of metal or other suitable non-combustible sheets. Make sure the guards are placed so as to prevent possibility of sparks or hot slag getting to the wooden floor underneath.

117. When necessary to weld or cut close to combustible structures or materials, place a man with necessary fire-fighting equipment to watch for possible fires. Keep this man at the scene of work for at least 30 minutes after work is completed, to make sure no smouldering fires have been left.

118. In and around shops and buildings, advise foreman in general charge of the area before starting any welding or cutting. He may know of some condition making the operation of gas equipment hazardous at that particular time and place.

119. Welding by means of electric arc is equally hazardous as oxy-acetylene, and all above fire prevention measures pertaining to welding must be employed where applicable.

LOCOMOTIVES, PASSENGER, FREIGHT AND FLOATING EQUIPMENT

120. Locomotive front ends must be regularly inspected and defective nettings repaired or replaced. Ash pans must be closed and keyed at all times while the locomotive is in service. Defects which allow live coals to escape from ash pan must be remedied promptly.

121. Fires must not be cleaned from locomotives in the vicinity of freight and passenger stations or other structures when it can be avoided and in all cases the cinders

must be thoroughly saturated with water as soon as fires are cleaned. All locomotives must be equipped with a squirt hose for this purpose.

122. In round houses, the locomotive smoke stacks must be directly under the smoke jacks when fires are started or when blowers are on.

123. Passenger, mail, baggage and express cars must be provided with complete fire extinguishing equipment as specified in the current list of standard equipment for passenger train cars. This equipment must be kept in a convenient and accessible place for quick use when needed. Heaters, pipes, coils and stove pipes must be frequently and carefully inspected, and any defects promptly corrected.

124. Cotton must not be loaded in open cars, unless absolutely necessary, but in box cars with sound roofs and all openings closed spark-proof.

125. When it can be avoided, rolling stock or equipment must not be stored near valuable property or hazardous risk. Cars stored in quantities must be separated in lots of ten with a space of fifty (50) feet between them.

126. Cars must not, under any circumstances, be set on engine-standing or ashpit track nor other places where engines are authorized to clean fires.

127. Stored rolling equipment must be cleaned of inflammable rubbish, doors closed and any accumulation of rubbish, dry grass, etc., removed from around same.

128. Hot cinders must not be loaded into cars.

129. Floating equipment must not be permanently moored nearer than two hundred (200) feet from hazardous fire risk or regular switch track. The fire apparatus must conform to the rules and regulations of the U. S. Bureau of Inspection and Navigation.

MISCELLANEOUS

130. Every precaution must be taken to prevent the origin and spread of fire. Employees must not enter cars or rooms where gasoline, acetylene, chemicals, paint or other explosives, or highly combustible materials are stored while carrying lanterns (except electric), open flame lamps or while smoking.

131. Smoking on cotton platforms, in freight stations, warehouses, elevators, store houses, shops, coaling stations, oil houses, record storage rooms, garages and other locations where inflammable or combustible material is stored or exposed, is positively forbidden. "NO SMOKING" signs must be prominently displayed at all such locations.

132. Where excelsior, straw, paper or other light combustible material is used inside

a building for packing, a single day's supply only should be kept on hand and this should be placed in a metal or metal-lined box having a self-closing lid or cover.

133. Oily rags and waste must either be destroyed or kept in covered metal cans. Cloth, clothing, paper and other inflammable material must be kept away from stoves, steam, hot water and gas pipes, and must not be laid on radiators to dry.

134. All lamps, gas fixtures, electric lights and appliances must be carefully and frequently examined and any leaks of gas or breaks of insulation must be reported and repaired immediately. Gas and lamp fixtures must be rigid, and free from contact with walls or any inflammable material. All lamps must have metal fonts and must never be filled near a fire nor after dark, unless done outside of buildings or cars. Lighted lamps or lanterns must not be placed under shelving, desks, tables, racks or other inflammable objects. Exposed torches or lights must be handled with great caution near a structure containing or likely to contain inflammable material, and must never be carried into them.

135. Electric and gas meters must, where practicable, be located so that artificial light is not required to read the dial. Where the use of artificial light is absolutely necessary, an electric flashlight should be used. Do not

look for gas leaks with a lighted match. No fire must be allowed near a gas meter.

136. The location, construction, installation and operation of acetylene, butane, propane or other vapor, gasoline or gas producing plants and the storage of calcium carbide and gasoline must conform to the rules of the National Board of Fire Underwriters. All cylinders, when approximately empty, must be closed.

137. Oils, switch lamps, kerosene lamps and lanterns must be stored in detached buildings having concrete, earth, cinder or sand floors. They should not be stored in station buildings or freight houses.

138. Small supplies of fusees, torpedoes and matches must be stored in metal boxes with covers attached.

139. Wooden boxes must not be used as cuspidors.

Stationery and records must be stacked in an orderly manner. Cabinets or shelving should be provided for storing them.

140. Fire apparatus, in general, is provided and maintained for emergency fire protection and its use for other than fire purposes is prohibited. It must always be maintained in a serviceable condition, located in an accessible and conspicuous location, kept in its proper place and free of all obstructions.

REMEMBER THAT CLEANLINESS AND WATCHFULNESS ARE THE BEST FIRE PREVENTIVES.

St. Louis, Missouri,
August 1st, 1943.

INDEX

A

B

C

D

E

F

G

H

I

L

M

N

O

P

R

S

T

V

W

Y