

APPENDIX 4-B**UNIFORM STANDARDS FOR FIRE PROTECTION OF STOCKPILE MATERIALS**1. *General*

a. These minimum uniform standards apply to all locations storing Stockpile materials which are subject to damage by fire. Where standards in effect at the Federal installation having custody of a storage site exceed those set forth here, the higher standards will apply. The fire protection requirements contained throughout this Manual are intended to apply to both existing and future storage. Where existing storage deviates materially from these standards, corrective action should be taken or programmed. Where a waiver, variance, or deterrent is called for, procedures of the appropriate Federal agency should be followed. The monetary value and strategic importance of Stockpile materials make adequate fire protection imperative. These standards are based on the recognition of the fire hazard characteristics of Stockpile materials (including packaging and storage aids), the lengthy period of storage involved, and the importance of recovering these materials in the event of fire. Protection against incendiaries, sabotage, or direct attack have not been considered other than for the provision of ordinary security measures.

b. Arrangements shall be made to permit rapid entry into the depots by the municipal fire department. Designated depot personnel shall be instructed and trained in the following procedures:

- (1) Means of summoning outside aid immediately in the event of a fire.
- (2) Use of portable fire extinguishers on small fires and mop-up operations.
- (3) Operation of sprinkler system and water supply equipment.
- (4) Use of material handling equipment while sprinklers are operating to effect final extinguishment.
- (5) Supervision of sprinkler valves after system is turned off so that system can be reactivated if rekindling occurs.

2. *Hazardous Materials (Flammable)*

a. Rubber is highly susceptible to ignition and rapid spread of fire. This material must be afforded the maximum fire protection possible. Other materials that will not readily ignite but which by themselves, or in combination with their packaging will contribute fuel to a fire or become nonrecoverable as a result of a fire, are also governed by these standards.

b. Past experience with fires involving large quantities of crude rubber indicates conclusively that they are difficult to control and extinguish. The potential for extensive loss calls for strict fire protection standards and storage procedures. Crude rubber in storage does not ignite by itself. However, crude rubber burns readily and fire spreads rapidly, giving off intense heat and

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dense clouds of noxious smoke which most seriously hampers firefighting. Early detection and application of water in large quantities are essential to control rubber fires.

c. Fire protection measures required for some specific commodities are contained in App. 4-A of this Manual

d. Detailed guidance regarding fire protection for the following commodities is available in the referenced nationally recognized standards.

(1) Crude Rubber - N.F.P.A. Standard 231 Loss Prevention Data Sheet 8-9, "Storage of Baled Crude Rubber."

3. *Structural Requirements*

a. To the extent available, fire resistive buildings should be used for the storage of combustible Stockpile materials. Buildings other than fire resistive may be used when they are strategically acceptable and all other standards contained herein are complied with appendix 4-A of this Manual.

b. Fire areas should not exceed 44,000 square feet between firewalls and exterior walls on a single floor, with at least two exterior sides exposed.

c. Main firewalls which divide a building into fire areas should have a fire resistance rating of at least four hours.

d. Openings through firewalls should be held to a minimum consistent with actual operating requirement. The area of any fire door opening should be limited to 120 square feet wherever possible. The openings should be protected by standard Class A Underwriters Laboratories listed (or equivalent) automatic closing fire doors, installed under the National Fire Protection Association Standard 80, on both sides of the wall. Essential opening of greater area should be equipped with specially constructed oversize fire doors suitably reinforced to prevent warping or buckling. Openings in firewalls should be closed at all times except when actually being used for operational purposes.

e. At least one entrance or emergency access which can be opened with conventional firefighting tools shall be available at ground level in the exterior wall of each fire area. Access to upper floors of multi-story buildings should be provided by means of enclosed stair shafts at each fire area.

f. Minimum separation between buildings used for Stockpile storage should be 50 feet for fire resistive construction and 80 feet for other types of construction.

g. Building heat shall be supplied by indirect means such as warm air, steam, or hot water. Devices with open flames, such as oil or gas-fired boilers or unit heaters shall not be located in storage areas. These should be in a separate detached building, or isolated from storage areas by

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fire walls having a fire resistance rating of a least two hours. Entrances to heater rooms should be only from the exterior of the building.

4. Fire Protection Requirements

a. Automatic sprinklers shall be provided in accordance with National Fire Protection Association Standard 13 and appropriate Federal agency regulations. Proper design of sprinkler systems will depend upon such factors as type of building construction, combustibility of stored material (including packaging and storage aids), height of storage stacks, and size of storage area.

b. The fire protection water supply must be adequate to meet the demand of the sprinkler system together with interior and exterior hose streams. Design should be in accordance with appropriate Federal agency regulations.

c. A fire alarm system should be provided to transmit alarms to the responding fire department. Sprinkler waterflow alarms should be automatically transmitted to the fire department. Design of fire alarm systems should be under applicable standards of the National Fire Protection Association and appropriate Federal agency regulations.

d. Fire extinguishers shall be provided under National Fire Protection Association Standard 10 and appropriate Federal agency regulations.

e. All fire protection systems and equipment shall be inspected and tested at regular intervals. The nature and frequency of these inspections and tests shall be under applicable standards of the National Fire Protection Association and the appropriate Federal agency regulations.

5. Occupant Emergency Plan

a. Each facility shall develop a plan to ensure immediate positive and orderly action to safeguard life and property in an emergency. For fire emergencies, first priority should be the safe evacuation of all occupants. Provision shall also be made for emergency access to utility shut-offs, sprinkler control valves, fire pumps, and other features vital to the facility's fire protection. Detailed guidance is contained in appropriate Federal agency regulations.

6. Firefighting

a. To the maximum extent feasible, Stockpile storage locations will rely on the firefighting services available from public fire departments.

b. The responding fire department should be encouraged to inspect the facility and develop a pre-fire plan. Information should be furnished to the fire department regarding physical layout, hazard of stored material, and arrangement of the fire protection systems.

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c. The smoke from any fire contains noxious and toxic gases, some of which are potentially lethal. For this reason, personnel fighting fires inside buildings normally wear self-contained breathing apparatus. Certain materials, however, under fire conditions produce toxic gases exceeding those usually anticipated (e.g., cadmium, mercury, narcotics, etc.) resulting in an extremely lethal atmosphere. Buildings which contain these materials shall be marked at all entrances which may be used by firefighters with the names of the materials involved and the warning, "In case of fire do not enter this building without self-contained breathing apparatus."

7. Fire Prevention

a. Good housekeeping should be emphasized at all times. If combustible refuse is generated by a facility operation, it should be removed as often as necessary to prevent dangerous accumulations. Covered metal containers should be provided for deposit of trash.

b. Smoking will be permitted only in specifically designated areas.

c. Motorized material handling equipment (forklifts, etc.) shall be listed by Underwriters Laboratories, Factory Mutual, or other nationally recognized testing laboratory. Each unit shall bear a label or other identifying mark to that effect, and should also clearly display the "type designation" which applies to the listing. Equipment use should be limited to the specific areas covered by this type designation. Detailed guidance concerning all aspects of fire safety is available in National Fire Protection Association Standard 505, "Powered Industrial Trucks."

d. High stacks of idle pallets or dunnage can produce a severe fire, which could be beyond the capability of a sprinkler system to control. It is important that the storage of these items inside or close to a building be limited.

8. Security

a. Normally, all buildings should remain locked when no operations are being carried out within. Entrance to locked buildings should be only by specific authorization, except during emergencies. Guards should not routinely enter locked buildings, but patrol the exterior only.

b. Guards on duty at the site during non-working hours should be adequately qualified and trained. They should be familiar with the interior arrangement of the buildings, nature of the stored materials, location of utility shut-offs, operation of fire protection systems and equipment, operation of alarm and communications systems, and correct action to be taken in various types of emergencies.

9. Fire Reporting

a. Any fire which causes damage to Stockpile materials or to a building in which they are stored should be reported by the regulations of the Federal agency which has custody of the storage site. A copy of the report should also be submitted directly from the storage location to DNOSC-O.

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b. Fires should be reported by telephone to DNSC-O not later than the day following the fire, and a written report should be submitted within 24 hours of the initial report.